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MEDICINE TAUGHT AS HUMAN BIOLOGY*

BY

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One might well take pause, as did I, to speak, ere snow-crowned, upon the teaching of medicine, and the more so before this audience and in Scotland. For the earliest schools of medicine in America—that of the Medical College of Philadelphia, now the University of Pennsylvania, founded in 1765, and that of King's College, in New York City, now Columbia University, founded in 1767—were both modelled on the Scottish schools (Welch, 1908).

But these reflections, made hopefully in mid-career, while they lack the wisdom of the elder statesman of medicine, are perforce made in the full knowledge that they might have to be lived by. Youth, moreover, is a defect all too easily remedied by time. How much easier to make a judgment designed for the guidance only of one's successors!

As Praelector in the Faculty of Medicine, it has been my high privilege to gain a glimpse of the activities of postgraduate teaching and investigation in this country. Many of the methods that I have been permitted to observe in Professor Lendrum's laboratory will be tenderly transplanted across the sea. There has been, however, regrettably, no opportunity to observe the teaching of undergraduates. My remarks, therefore, will deal with medical teaching of undergraduates in America and, more particularly, in the school where I have been working. Moreover, my remarks will be largely confined to the "basic sciences."

What does it mean to say, "The teaching of medicine as human biology"? The meaning is suggested in Sir William Osler's complaint regarding some of his students who came "asking not wisdom, but drugs to charm with." Wisdom in this sense implies knowledge of the principles of biological science as applied to the study of man in his physical, mental, and social being. Biological science means the physics and chemistry of living things, as manifested in their anatomy, physiology, and psychology.

"Drugs to charm with" would imply the treatment of the moment. The difference lies between medicine as a living and growing biological science and medicine as a trade. Johannes Müller, the great German biologist of the early 1800's, put it even more succinctly when he urged, "Method, not dogma."

The wise man of Stagira commanded, Γινώθι σεαυτόν—know thyself—and scholars of all ages have

attempted to obey. If knowledge of man is one of the prime objectives of education, then certainly the teaching of medicine as human biology has its proper abode in the university. In fact, the very origin of universities as we know them to-day has been traced to the banding together of scholars preoccupied with the study of the human body, at Salernum in Italy as early as the ninth century.

Since that time, medical schools and universities—parent and offspring, it is a matter of opinion as to which is which—have varied in the degree of attachment to one another. Scholars are wont to "praise the spirit and to damn the flesh." Thus, to justify the inclusion of a Faculty of Medicine at the University of Paris in 1283, the rector was impelled to the apologetic simile of a "river representing the unity of the incorruptible intellect and the corruptible body" (D'Irsay, 1930).

In later years, whenever medicine and its teaching became separated from the university and fell into the market-place, medical scholarship, and with it quality of medical care, suffered. This is well illustrated in the history of medicine in America.

Intellectual Transplants

The earliest medical schools, in Philadelphia and New York and at Harvard, Dartmouth, and Yale, all took origin toward the end of the eighteenth century, or shortly thereafter, as intellectual transplants from Scotland and England into the soil of already well-established universities. Their teaching was of the high standard prevalent in other departments. Toward the middle of the nineteenth century, and for more than 50 years thereafter, they soon became outnumbered by proprietary schools, organized primarily for the considerable profit that accrued to those operating them. There was no control by governmental authority. Anyone with sufficient funds might enrol. Of them, Franklin Mall (1899), a leader in the subsequent reform, said, "For this privilege, students paid a single fee for which they heard much, saw little, did nothing." If it is true, as Averroes, the Muslim physician, said, that "dissection increases faith in Allah" (Bittar, 1955), they had little opportunity to increase their faith in this way.

A major upheaval was necessary to create in the minds of the people an awareness of the crying, practical need, basic to their welfare, to re-establish medical teaching on the firm basis of the biological sciences that were expanding so rapidly in that era.

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Stimulus to Medical Teaching

This time the stimulus came largely from Germany, then at its scientific flowering in investigative medicine. Müller was the teacher of Virchow, who founded the school of cellular pathology—thereby dissolving for the first time the myth of the balance of humours. Virchow taught Cohnheim, who, in turn, was the teacher of William Henry Welch, the father of scientific medicine in America. Perhaps a flash of the true blue of the old Yale school tie can be detected in the appointment of Welch as the first Professor of Pathology in the new school so munificently and wisely endowed by Mr. Johns Hopkins, a merchant of Baltimore (Fleming, 1954). Be that as it may, the appointment of Welch was most fortunate. His attitude toward the teaching of medicine is epitomized in his own words in an admiring comparison of Virchow and John Hunter (Welch, 1891), "Both kept constantly in view the problems of practical medicine, together with the broadest interest and direct participation of science; both recognized pathological physiology as the foundation of scientific medicine, and that this is to be constructed not from anatomical investigations alone, but with the aid of physiology, of experiment, and clinical observations." No better definition exists of pathology as the basic science concerned with the understanding of disease, ready to utilize the methods of all other disciplines when needed, and serving as a vital link of service at the bedside. No clinician is better than his pathology.

These concepts, no doubt, guided Welch in the selection of such men as Osler, Halsted, Kelly, and Mall. It was perhaps the last-mentioned who, although himself a retiring scholar, had the greatest influence on Welch, and therefore on the Hopkins. Welch, as Dean, possessed the rare combination of scientific standing that inspires respect, and of persuasive diplomacy that precipitates action. It was his influence upon the brothers Flexner that initiated the famous survey and report of Abraham Flexner, published in 1903. It was the standard of Johns Hopkins against which the other medical schools were measured. The deficiencies in teachers, teaching, and, most sharply, in laboratory facilities were all too glaringly apparent. Schools came to be officially measured and classified. More than 100 of the proprietary schools were closed. The teaching of medicine once again became the responsibility primarily of the universities. In this sense a university hospital is not to be considered as separate from the university. In the case of the Johns Hopkins Hospital, this was made unmistakably clear to the executors of Hopkins's will.

Training versus Education

The true university, with its broad resources in knowledge, skills, and equipment, makes an immense contribution to the medical school, more especially in investigation, but also in teaching and in the care of patients. This is becoming more and more obvious as medicine acquires closer relationships with chemistry, physics, and with the social sciences. As a result of this cross-fertilization, new and vigorous hybrids are springing up. We have now not only a mature and rapidly growing biochemistry, but also a lusty infant—medical biophysics.

On the other hand, Professor Browning, of Glasgow, has pointed out in an address at St. Andrews that the school of medicine, in turn, has a great deal to offer the university as a centre for the study of man. Moreover, it is now generally admitted that the scholarship necessary to produce penicillin, and, even more so, to understand its mode of action, may at least approach that which is necessary for the production of an annotated edition of Boswell.

In a university the immediate teaching function of a medical school is twofold: the education of those to become primarily practitioners; and the education of those to become primarily medical investigators and teachers. It is clear that the more it succeeds in the second the more it will succeed in the first, which, at least in a quantitative

sense, is the more important. This follows from the fact that the solution of every diagnostic problem depends upon the use of the scientific method in the same way as does a laboratory experiment. In this sense every physician is an investigator and must possess the imagination, integrity, accuracy of observation and recording, and logical analysis of well-controlled data that is the essence of the scientific method.

At once we shall be accused of recommending the manufacture of heartless, diagnostic automatons; at once we shall be asked where is the intuition, where the art of medicine? But intuition is merely the instantaneous and unconscious analysis of percepts to a correct conclusion. Nor is the practitioner, who avails himself of every bit of evidence, including that which can be obtained only by complex laboratory procedures, necessarily devoid of human sympathy and the capacity to understand all aspects of the patient's problems, social and psychological, as well as physical. Such a practitioner might even have an acceptable bedside manner.

The good physician must be educated to grow in step with the growth of medicine. It is important to distinguish what is implied by that much-abused word "training" from "education." Training implies drill. The aim is to achieve the skill and precision of the drill-master. Education, on the contrary, implies growth, growth unlimited, autonomous, and in perpetuity, but by no means undisciplined.

A medical education must furnish not only the basic core of knowledge without which the title "doctor" cannot be honourably borne, but an abundant, vivid, and practical experience in the use of scientific method. Of the two, the latter has the greater value, since it is the enduring instrument whereby new knowledge can be won and all knowledge can be tested. It is the means of continued healthy growth that assures that the ageing physician's practice will not remain for ever that of his first indoctrination. Content and method may now be separately discussed.

The Problem of Content

The problem of content is confounded by the explosive growth of medical knowledge. Each new method may be considered not simply as a linear addition but as the radius of a sphere. No longer can the degree M.D. imply the possession of all medical knowledge, any more than Ph.D. means, necessarily, doctor of more than a crumb of philosophy. And specialization in medical practice will inevitably increase as medicine becomes ever more complex.

We must face this fact in a practical way, not by attempting to crowd a caricature of every specialty into a curriculum that is already a bewildering jungle. There has been a predatory struggle for time. The protagonists of the new have been locked in mortal combat with those who have felt moved to defend ancient prerogatives, and perhaps an outmoded importance. Any cutting of a department's time for teaching is considered worse than a deep incision in the professor's unanaesthetized flesh. Rather than a healthy pruning and thinning, there has resulted an ever greater crowding of the trees. All available hours are occupied and the undergrowth is even spreading into the holidays. All originality is stifled under the constantly falling, closely printed leaves, and the student is deprived of the light of the outside world.

The time has come, once more, to heed the advice of the great pathfinder, William Harvey, he of the circulation of the blood: "Nature is to be herself addressed. The paths she shows are to be broadly trodden" (Cannon, 1911). Medicine must be taught as human biology and with a true appreciation of the artificiality of the boundaries among the so-called basic sciences; these exist only for administrative convenience and represent merely concentrations of interest. But the body cannot be divided into a fragment of anatomy, or physiology, or chemistry. "Nothing in the world is single; all things in one another's being mingle"; and especially so in biology.

The emphasis, especially during the earlier years in the education of the physician, should be on principles rather than details. Let us take the example of sulphanilamide. At one time this was the drug of choice in the treatment of pneumonia. This can be remembered simply as a fact; but now, sulphanilamide is almost never used. Important principles were, however, established in the study of this drug, and it was found that the mode of action consisted in gulling the bacteria into accepting a substitute for a necessary growth factor. This principle is now being widely applied not only in the development of new antibacterial drugs but as a key to important aspects of metabolism. It may be that the growth of cancer cells can be inhibited in the same way. Moreover, it was learned that certain "sulpha" drugs can cause sensitization, with effects sometimes far more dangerous than the disease for which they were used in treatment. These principles are obviously much more important than the single fact that sulphonamides can cure some pneumonias. Moreover, once the principles are understood, the facts are more easily remembered and logically applied. The fact stands better when supported by more than one leg.

The Scientific Method

The emphasis during the earlier years in the education of the physician should be on principles rather than on details. The foremost question for teachers, as well as for students, should be, "What are the fundamental ideas, and how do they fit together?" Departments should devote their energies to paring the basic courses, rather than to seizing all hours possible. Basic courses should provide the essential information and the knowledge of principles needed by every well-educated physician. They should avoid details that are the province of the expert. Naturally, a good teacher will infect his students with such an interest in the subject that they will seek to pursue it further.

One approach to this method that we have found of use in our own department is the preparation and presentation in the first three weeks of a condensed version of the entire course in pathology. This inspires in the various members of the faculty a thoughtful consideration of what are the most important concepts in their respective branches of pathology. Moreover, it imposes the discipline of concise statement. During this period the students are referred to the most important original works in the subject, but, if they wish, they may read some textbook account of pathology in the large block of time that is made available.

This method, urging as it does an early contact with the sources, provides illustrations of how the scientific method has actually been applied by well-educated minds in the solution of important problems. By presenting the great ideas it provides the bones, later to be clothed with the flesh of detail. By indicating the imperfections of present knowledge, it inspires humility and stimulates inquiry. This technique of the preliminary survey of pathology, moreover, rapidly provides a quick background for the understanding of the clinical pathological conferences, "grand rounds," and similar exercises that the students are urged to attend at once upon entering the second year. Even this early, the patient is seen to occupy the centre of the stage. He is seen as the biological whole within which all of the fragments are gathered.

In the subsequent six months of basic pathology more detail is added (while keeping the principles foremost), and largely from the personal work of the student in the laboratory and necropsy room, and from small group discussions with the faculty.

In more general terms, the medical curriculum should be like a well-ordered atom; aside from a compact and weighty nucleus, it should consist largely of space.

The most precious quantities that we can give our students are the time and the freedom to develop as human beings and as physicians. It will be assumed that the time is "free" only in the sense that it will be "unassigned." It will be available for thinking and reading, not simply the

latest texts, but Darwin, or Proust, or the Bible, or the new journals; or for advanced elective work; or for the pursuit of a special interest in the laboratory. The medical school should fit a description quite the opposite of that which has been quoted for the old proprietary schools: the student should see even more than he hears, and, above all, he should do everything.

Mosaic of Medicine

Now the bits and pieces of the medical curriculum might be compared to a yard full of tessellae from which a meaningful mosaic must be created. The mosaic of medicine, moreover, is not a fabric of stone that remains for all time, but one that must change. Who shall arrange the fragments?

Two principal methods of approach exist: the one is exemplified by the current experiment at Western Reserve University, where an immense amount of thought and time has been expended in the creation of a so-called correlated "vertical" programme, whereby representatives of the various disciplines collaborate in the presentation of the particular organ or system concurrently. This method is to be distinguished from the "horizontal" practice in most medical schools of teaching medicine subject by subject.

In the Western Reserve System the mosaic is created by the collaboration of experienced artists, while the students are allowed to observe the creation. There is a considerable school of thought, however, that believes, as do I, that the student derives much more benefit from arranging the fragments himself, with the minimum of guidance. He may not at once produce a masterpiece, but having learned the art, and experienced the pleasure, of fitting the pieces together, he is much more likely to continue in this creative activity throughout his life. The fostering of active scholarship, so that it becomes a lifelong activity, is the most important function of a medical school. The acquisition of a doctorate is the commencement, not the termination, of learning. We may not agree with Mohammed that the "ink of a scholar is holier than the blood of a martyr," but certainly we wish continuing scholarship in those responsible for our medical care.

Investigative Work

It has been said that the best education is self-education. There have been extremists such as F. P. Mall, who considered that the best way to teach anatomy, for example, was to supply the student with a cadaver and a scalpel and then to retire to one's own laboratory. C. M. Jackson (1912), another anatomist, stated the principle more mildly and more generally: "The ideal plan is for the student to work out everything for himself by the method of discovery." This, of course, does not exclude inspiration, so to speak, from above, nor unobtrusive guidance.

The responsibility rests first and foremost with the student himself. This is as it should be, for so it will be for the remainder of his days in the practice of medicine. Medicine is the most jealously protected monopoly in the world. This monopoly confers a responsibility much greater than the student has merely for himself. For his practice involves the welfare, or even the lives, of others.

It has been stressed that physicians are likely to excel in direct measure to their understanding and actual practice of the scientific method. How better to provide this experience in a direct, immediate, practical, and therefore useful way than to require of every student the completion of a thesis involving an original piece of investigative work? This method was introduced at Yale by Dr. M. C. Winternitz, when he assumed the Deanship of the School of Medicine more than 35 years ago.

The subject of the thesis need not be of world-shaking importance, and, in fact, it is the duty of the preceptor to restrain the more eager student from attempting a problem that would require several lifetimes of work.

The thesis work provides the opportunity of an intimate contact with the staff. It is an experience in the design of experiments, in the employment of controls, in the use of

libraries and instruments, in the observation, recording, and analysis of data, in statistical method, and in that demanding task the preparation of an accurate and intelligible written report. Nothing could better demonstrate that "experiment is difficult; conclusion perilous." The thesis problem is a living demonstration of how a fragment of knowledge can fit into the larger biological framework.

The beneficial effects of the thesis will extend far beyond the actual problem in hand. It provides experience in how to distinguish what has been *proved* from what has merely been asserted. It teaches the physician to be hesitant in accepting at face value the highly coloured advertisements that will soon come pouring over his desk. It often creates a desirable and persisting attitude of mind: intellectual curiosity, once challenged, tends to remain stimulated. A great surgeon, Samuel C. Harvey (1953), said, "Probably the lack of initiative and the absence of a sufficiently demanding intellectual curiosity is responsible for more poor practice than any other one thing." Thus, the benefits of the thesis work become manifest as much in the competence of the general practitioner as in the research scientist. These values have been appreciated by our students and they have often praised the thesis work as the outstanding experience in their careers as undergraduates.

Function of the Faculty

Now, if the learning is to be done largely by the student himself, what is to be the function of the faculty? We might state this baldly as: (1) to provide effective but unobtrusive guidance; (2) to provide inspiration; (3) to provide opportunity.

The teacher is least useful as a gramophone for the audible rendition of well-recorded facts. Let us assume that our students can read. The teacher must steel himself against an over-indulgence in the laziest, least useful substitute for true teaching known as the routine lecture. He should ask himself: "What can I say that is important that has not been said?" Or, "What can I say better than it has been written?" If nothing, then he had best maintain a great silence. An occasional lecture may be profitably used to provide a plan for traversing difficult terrain, but it should be stressed that other and possibly better roads exist.

In general, excellence of teaching varies inversely with the distance from the student. In pathology it is best done over the microscope or over the specimen, and by the method of Socrates. The best teachers ask more than they tell. Their questions lead from the inanimate into the clinic and into the biochemical and physiological laboratory. The objective is dynamic pathology of the living. Here is the great opportunity to stimulate the students to make the important correlations for themselves.

It is essential that the medical teacher be an investigator—that is, himself an active practitioner of the scientific method—for only then can he inspire a genuine enthusiasm for the adventure that is the study of human biology. This quality of inspiration is indefinable, personal, and apparently effortless, but it distinguishes the great teachers from the common run.

Medical teachers must take great pains, no matter what the cost in time, to know the students as persons, again unobtrusively but well. This knowledge cannot be acquired across the podium, but only face to face in the laboratory. The student senses at once when he is the object of personal interest, and he is stimulated thereby to a constant, sustained effort, without the sharp peaks that all too frequently attend the days and hours before examinations. Such quickly piled-up knowledge is like a tall tower of a child's building-blocks, all too prone to fall into a jumbled heap, and soon forgotten when the moment of excitement has died.

The professor's sanctum should not be too heavily guarded by a forbidding secretariat. His laboratory, in particular, should be provided with swinging doors, if any doors at all. He, himself, should possess easily depressible scapulae, so

that they can be looked over without undue difficulty. These architectural and anatomical features will exist, not for the indulgence of fools, but for the stimulation of interested and able men.

Moreover, professors *in situ* are more useful than professors on the wing—I refer to the growing entanglement of our own senior men in national and even in international affairs, visiting professors—in the sense of always being elsewhere.

It is, moreover, the function of the medical teacher to provide opportunity. By this is meant more than the mechanics of good planning, good laboratories, good equipment, and good materials. These things are important, but even more important is the function of the teacher to discover in his students special interests and talents and in providing a particular stimulation, and the physical means to develop what they possess. This must again be done in a most unobtrusive fashion. Too much nitrate may kill the tender plant.

The Prospective Student

Almost nothing has been said about the students. Were all of the qualities considered desirable by various speakers and writers in prospective medical students to be made mandatory for admission, hardly a saint already canonized would be allowed to matriculate, and certainly very few of the faculty of any school of medicine now extant. But for the method of medical education as outlined to be successful the prime emphasis in a prospective student should be on the breadth and depth of his general education, which is itself a manifestation of the necessary scholarly outlook and maturity. Aside from this, there are needed, at least in America to-day, men who will not confine the quality of mercy to the hours between 9 and 5, and who will never put *virtus post nummos*.

Moreover, nothing has been said regarding examinations. These have been enormously overemphasized to the detriment of the process of true education. They interfere much more than they contribute. Certainly, they should not be given at intervals closer than two years. Their function is simply to provide a relatively painless means to weed out the entirely unfit, and to satisfy legal requirements of licensure. They should be conducted by a body entirely outside of the medical school. On the other hand, the best key to the student's ability is the considered opinion of each of his teachers who has come to know him and his work well, but of no one else.

Summary

What has been said? Time is the most precious gift of nature; freedom the most precious gift of man to man. In medical education, time can best be made available by shortening the basic courses to essential facts, especially as they are illustrative of biological principles. Faculty, as well as students, should devote a major effort to thinking out what are the basic principles. The remaining time should be devoted to increasing general education, to elective work, to sweet simple thought, and correlation. Students should be stimulated to educate themselves, by doing as well as by reading and thinking, to the extent that self-education becomes a permanent habit. Abundant practical opportunities should be provided for the student to learn and to apply the scientific method, so that he will *know* when a thing has been proved; this process can be greatly aided by the production of an original thesis. The function of the teacher is to provide guidance, inspiration, and opportunity. The ideal is the education of men to become physicians who possess both science and compassion.

In the end, it must be admitted that the most important process in education is the exposure of good minds

to good minds, no matter what the "system." Even less than in the days of Charles Eliot, when he assumed the presidency of Harvard University, need there be "one primer, one catechism, one rod for all children."

Now if this distillate is not to your taste, please recall that the wine has not been long in the barrel, or it may be that the barrel has been too lightly charred.

REFERENCES

- Bittar, E. (1955). *Ibn Nafis*. M.D. Thesis, Yale University School of Medicine.
 Cannon, W. B. (1911). *Science*, **34**, 65.
 D'Irsay, S. (1930). *Johns Hopk. Hosp. Bull.*, **46**, 117.
 Fleming, D. (1954). *William H. Welch and the Rise of Modern Medicine*. Little, Brown, and Co., Boston.
 Harvey, S. C. (1953). *Yale J. Biol. Med.*, **26**, 8.
 Jackson, C. M. (1912). *Science*, **35**, 566.
 Mall, F. P. (1899). *Philad. med. J.*, **3**, 720.
 Welch, W. H. (1891). *Boston med. surg. J.*, **125**, 453.
 — (1908). *J. Amer. med. Ass.*, **50**, 1.

RESPECTABLE HYPNOSIS*

BY

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The report of the special subcommittee of the B.M.A. (*Supplement to the British Medical Journal*, April 23, 1955, p. 190) stressed the necessity for medical men to take a more serious interest in hypnosis and underlined the need for observations of its therapeutic effects to be made. This encourages me to publish these lectures, uncomprehensive though they are, in the hope that other more complete and extensive work will be forthcoming.

The popular idea of a hypnotist is that he is a man endowed with a macabre and somewhat unearthly gift—a man with strange piercing eyes—from whose dark depths a mysterious power seems to beat right into your brain. Physicians use hypnosis little; psychiatrists largely spurn it since it was rejected by Freud; and it has tended to become the province of the riffraff of medicine, the sport of the music-halls, and a popular item on television. Probably the sinister notoriety with which sensational literature has endowed the subject has scared away many who might have made serious and sincere use of it.

I am making a plea for hypnosis to become respectable and for its use to be recognized as a reasonable form of treatment in certain selected cases. I am not advocating very extensive or widespread treatment with hypnosis; still less do I suggest that any doctors should be designated "hypnotists" or specialize in the subject. Hypnosis is an adjunct to treatment; it does not replace other treatments or obviate the need for orthodox examination and investigations.

Every doctor realizes what powerful effects suggestion has; indeed, in all clinical trials great care is taken to allow for this. A new medicine may achieve very good results by suggestion. With hypnosis one is using the suggestion in pure form without the medicine.

For the last twelve years I have used hypnosis as an ancillary method of treatment in general medicine, and for six years I have devoted one out-patient session a week to it; from this experience I am learning a little about its use and limitations.

*Based on two lecture-demonstrations given to the Hammett Hospital and to the consultants of the North-west Metropolitan Region on April 18, 1955, and February 28, 1952, respectively.

What is Hypnosis?

Hypnosis is a state of exaggerated suggestibility produced by suggestion and fixing of the attention. It is hard to say more than that without indulging in improbable speculation or abstract word play.

There have been innumerable theories. Mesmer, in 1776, who refused an offer of £20,000 for the secret of it, believed it was due to the influence of the planets. James Braid, in 1841, thought it was caused by paralysis of the eye muscles. Charcot thought it was a manifestation of hysteria, and said normal people could not be hypnotized. My experience is that normal intelligent people make the best subjects for hypnosis.

The patient's ideas about hypnosis seem to play little part in its production, and some patients on waking say, "Is that some sort of gas you've got in that lamp?" and have no idea that hypnosis has been used. Patients who come saying, "I'm a great believer in hypnosis; I think it's wonderful," often make poor subjects.

It has been argued that hypnosis is the same as ordinary sleep. That is obviously untrue, because sleeping people do not obey commands implicitly as hypnotized people do. As a father who wakes his own children in the morning I am certain of that.

Technique

For the first induction it is best to have a quiet, dark room and a comfortable couch, and ask the subject to look at a light. I use an ophthalmoscope bulb. The only point of the dark room and the source of light is that if there is nothing else to look at it is easier to concentrate on the one visible thing.

Suggestions are made repeatedly: "You are getting sleepy—you can't keep your eyelids open—you are going to sleep," and so on. Once a state of hypnosis is induced the patient is told that the next time he will go more quickly and more deeply to sleep. At the first attendance only light hypnosis may be induced, but with subsequent sessions a deeper state may be obtained each time. Certain people never go very deep, but the effect of suggestion made under light hypnosis is often nearly as good as that made under deep hypnosis.

In a good subject, after the first induction it is convenient at subsequent sessions to ask him to look at some object, such as your finger or a paper-knife, and do it all in broad daylight. The less ritual and the more straightforward the procedure the better. The patient should not be made to feel that there is any elaborate ceremony or mystery or be given the idea that you have any special power over him; a commonplace routine atmosphere precludes the patient getting any undue reverence for the doctor. He should regard the procedure as no more impressive than a visit to the dentist.

The State of Hypnosis

Under deep hypnosis the subject automatically obeys any suggestions made by the hypnotist; for instance, if you suggest that he cannot move he is virtually paralysed, but if you suggest that he can move, then he does so. If you suggest that he will obey only *your* requests, then others can command him in vain; but if you suggest that he will obey other people, then he will be obedient to them. Hypnosis is in fact what you make of it, and it is a mistake to define a classical state of hypnosis. The phenomena are what you and the patient have put there, not clear-cut entities like the stages of anaesthesia. Those phenomena which can be induced under deep hypnosis include paralysis, rigidity, anaesthesia, automatic obedience, delusions, somnambulist¹ trance, post-hypnotic suggestion, and post-hypnotic amnesia. There is no need to describe all those—they are well known, and their names explain them; I shall comment only on the last three.

Somnambulist¹ Trance.—Under hypnosis a patient can be requested to open his eyes, walk about, talk, and in fact