SCIENCE AND THE TREATMENT OF HUMAN AILMENTS

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In nature, disease and accident give rise to pathologic conditions, or variations from the normal, which are constantly occurring. Any observer of biologic activities must be impressed with the tendency of nature to restore to the normal, variations from the usual growth and development, no matter by what accident or disease these variations have been brought about. In other words, the natural progress of disease, whether occurring in plants, animals, or human beings, is toward recovery. A disease in a human being is known as a human ailment.

The importance of the law of natural progress toward recovery, when applied to the treatment of human ailments, can, with abundant evidence, be easily proven, since of the ailments of sufficiently incapacitating degree to cause a person to consult one who sets himself up to treat such ailments, eighty-five per cent would progress naturally toward complete recovery. That is, even though the sufferers never sought treatment, eighty-five per cent of these ailments would adjust themselves.

There is nothing in the history of the human race to lead us to believe that the percentage of self-adjusting human ailments was ever less in the past than it is in the present. I lay emphasis on this fact at this point in my discussion of science and its relation to human aliments, so that you may continue to bear in mind the fact that whoever, at any time in human history, has set himself up to treat human ailments always was assured of eighty-five per cent of success, unless the treatment applied was in itself fatal.

Mythology teaches that before the dawn of history, man contended with human ailments, and also that there were those who professed the ability to treat those ailments.

The early history of disease and its treatment was a period of mysticism, when treatment for prevention and cure consisted of charms and incantations, ad-

ministered as religious ceremonies. Even yet, among the uncivilized this same attitude toward human ailments prevails, and to some extent it still permeates civilized peoples.

The period of mysticism in the treatment of human ailments was followed by a period of theory, when various explanations were offered as the cause of disease. Hippocrates explained disease by the Humoural Theory, according to which the body contained four Humours; blood, phlegma, yellow bile, and black bile, the right proportion and mixture of which constituted health. Another explanation was the Atom Theory of Asclepiades, wherein all diseases depended upon alterations in the size, number, and movement of the atoms of which the body was made up, the proscribed treatment being athletic training.

The third period was one of isolated facts, when those concerned with the treatment of disease began to observe and record for the world, facts relative to human ailments. Outstanding among these records was Paracelsus, whose records include reports on the therapeutic value of a number of metallic and vegetable preparations, including tincture of opium to which he gave the name of laudanum. Another outstanding recorder was William Harvey, who discovered the circulation of the blood.

Other important records continued to accumulate in the fields of chemistry and the other natural sciences, until the time of Darwin, Virchow, and Pasteur, which marks the beginning of a fourth period. This was a period of deducing laws from isolated facts, discoveries, and observations. It was the laws formulated by these men and their contemporaries which constitutes the basis of scientific treatment of human ailments.

Science may be defined as the orderly knowledge of natural phenomena. Medicine may be defined as the theory of the causation of disease, and the science of medicine, as we understand it, has for its province the treatment of disease, or the treatment of human ailments. Since this beginning in the classification of the knowledge of natural phenomena, there has been scarcely a discovery in physics, chemistry, biology, bacteriology,

physiology, or anatomy, that has not been of value in developing the fundamental laws of disease and its treatment.

"The science of medicine does not know the name of any school which restricts the activities of investigation."

"The introduction of scientific methods into medicine has shown that in practically every so-called 'School of Medicine' there is a kernel of truth which may be valuable to the physician, ... but which truth, when used beyond its natural limit of application, is reduced to an absurdity. All that is good in all the schools or all the creeds belongs to the school of medicine."

Any school of medicine worthy of the name must recognize the anatomical systems of the body, as they occur embryologically; must recognize the relation of disease to cellular toxins from which develop the principles of sepsis and immunity; must recognize the relation of health to the chemistry of cell metabolism and the multiple stimuli, both physical and chemical, organic and inorganic, which influence cell metabolism. Once these laws have been accepted, understood, and acknowledged, the multitude of facts related to human ailments and their treatment becomes immensely simplified. The person who thus hopes to claim proficiency in the treatment of human ailments has laid a foundation for the utilization of all scientific knowledge in the practice of his profession.

The man in general practice, or the family physician, is the one who, above all others, should be schooled in the general sciences, for he must first meet the emergency of sickness and accident. He must decide the seriousness and character of the ailment, and he must decide on the general course of treatment. On him the sick one must depend for advice as to whether or not his illness needs the skill of one trained in a specialty. If the man in general practice does not have the necessary training in science, and for lack of it fails to recognize the seriousness of the condition about which he is consulted, the sick one may, when it is too late, discover that his health has been entrusted to one who is incompetent, and who is unworthy of the trust accorded one who claims knowledge of how to treat human ailments.

When one wishes to confine his activities to a special branch of medicine, he is only justified in so doing after he has received a sufficiently comprehensive education in all branches of science to train him in the classification of the numerous discoveries which the advancing sciences are producing. For, if the specialist fails to recognize and utilize all scientific knowledge related to his specialty, his position becomes one of questionable stability in the scientific world.

The present tendency marks not only a period of specialization in medicine, but a specialization based upon all related scientific knowledge applied to a limited field. In general, the recognized special fields of medical science are: Internal Medicine; Surgery; Treatment of the Organs of Special Sense; Dentistry; and Preventive Medicine.

The man who undertakes to specialize in Internal Medicine must have received his training in the natural sciences; must have familiarized himself with the ordered laws of medical science; must have been schooled in deducing from these laws the general indications for treatment. In addition to this, he must become particularly familiar with the more important principles of physiology, chemistry, and biology, as they have to do with cell metabolism and nutrition. He must also be a constant student of pathology and physiology and botany as it relates to pharmacology.

The man who undertakes to specialize in Surgery must have received his training in the natural sciences; must have familiarized himself with the ordered laws of medical science; must have been schooled in deducing from these laws the general indications for treatment. In addition to this, he must become particularly familiar with anatomy and many important mechanical principles of physics.

The man who undertakes to limit his work to the treatment of Diseases of the Special Senses must have received his training in the natural sciences; must have familiarized himself with the ordered laws of medical science; must have been schooled in deducing from these laws the general indications for treatment. In addition to this, he must have an intimate knowledge of the minute

anatomy of the organs of special sense, and the principles of physics by which they function.

The man who undertakes to specialize in Dentistry must have received his training in the natural sciences; must have familiarized himself with the ordered laws of medical science; must have been schooled in deducing from these laws the general indications for treatment. In addition to this, and his mechanical skill, he must have an intimate knowledge of the anatomy of the head, and of bacteriology.

The man who undertakes to specialize in Preventive Medicine must have received his training in the natural sciences; must have familiarized himself with the ordered laws of medical science; must have been schooled in deducing from these laws the general indications for treatment. In addition to this, he must be a constant student of chemistry, bacteriology, and physics.

Unless the specialist has established in his own mind the relation of his specialty to all the fundamental principles of disease and its treatment, he will not be able to recognize the nature of serious pathology when it presents itself.

When a man sets himself up as proficient in the treatment of disease from the standpoint of a specialist, he must possess familiarity with the natural sciences and the previously mentioned classified studies of scientific medicine. He must possess an attitude of mind which makes him honestly desire a maximum of efficiency in a limited field, for which he will receive compensation in proportion to the art with which he applies this specially acquired knowledge. If he does not possess this broad foundation of the knowledge of the natural science; if he is not familiar with the ordered laws of medicine; if he yet holds himself up as a specialist in some department of the treatment of human ailments, then he is not honestly endeavoring to advance the knowledge of disease and its treatment. For treatment, uninspired by scientific understanding of the etiology, or origin and character of the disease in question, is nothing more than an experiment. It is neither necessary nor ethical to experiment on human beings.

The man who so experiments is taking advantage of the public belief in the specialist for the one and sole purpose of collecting money from that eighty-five per cent of demands made on him for advice in pathological cases and conditions which are naturally self-adjusting. A man with such lack of scruple usually possesses sufficient knowledge of disease to differentiate a part, at least, of the cases which require special scientific knowledge for their cure, and he does not attempt to treat cases which require a high degree of skill. His art consists in a diplomacy in ridding himself of those sick who require surgical treatment, who can be benefited only by the application of a high degree of medical care, or those who would certainly die in spite of any treatment. His education consists rather in studying the patient to determine how he can continue to collect for the given attentions, and how best he can conceal the situation from his patient. As a rule, the person best fitted for diagnosis and treatment of human ailments promises the least in the way of cure, whereas he who is the least equipped to diagnosis and treat promises the most.

So much for the present-day relation of science to the treatment of human ailments, which we have designated as the Period of Specialization. From the present tendency one can prophesy that the future will tend toward an even greater specialization. The future promises to make many new facts available to the physician through the researches in physics and chemistry, particularly colloidal and physical chemistry.

The future science of medicine depends for its progress upon the researches of investigators in the natural sciences, and the future art of medicine depends upon the skill with which the physician adopts these discoveries in the prevention and treatment of human ailments. It is this dependence of medical science for its advance by way of researches in the natural sciences that makes it necessary for you who are carrying on these researches to be ever watchful to guide into the study of medicine those who are by education and temperament best fitted to put to practical use these relations of science to medicine.

Thus, when comes to your attention a young man who is a lover of nature; who takes much interest in his studies of physics, chemistry, and biology; who has a natural inclination to mechanics; and who shows more than ordinary powers of deductive reasoning, advise that young man to take up the study of medicine. If he lacks any one of these three qualities, he will not succeed from the standpoint of one who advances the science of medicine, and one who is to be trusted with the treatment of human ailments. Lacking one or more of these qualifications, but possessing a fair knowledge of human psychology, he may succeed, of course, from a financial standpoint.

The responsibility, then, for the future of the medical profession rests as much with the teachers and research workers of the natural sciences as with the medical profession itself.

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