Address.

THE SANCTITY OF MEDICINE.*

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To be requested to give this time-honored address is a privilege and an opportunity that comes only once in a man's lifetime. In the century of annual occasions devoted to this custom, The Massachusetts Medical Society has ever kept before its members the high ideals and the sacred objects of her founders. She has taken this means usually to urge forward the efforts of her members for higher standards in medical education, to stimulate measures of preventive medicine, to advocate ways and means for the preservation of the public health. At times she has directed her resources towards the eradication of some social or medical heresy, not always outside her own fold, and in no other field of her endeavor has she fought more vigorously nor more uncompromisingly. Principles, not policies, have been her standard. Compromise found no resting place in her councils. Calm, judicious deliberation preceded action always, and after that action once became the will of the society, all personal dissensions and opposition disappeared in the unity of the whole. As we examine these various problems in the light of history, their inception and growth center about some period of reaction against extreme methods of therapeutics, or they were part of a wave of unrest incidental to some new discovery or new invention, or quite often, perhaps, they were the outward expression of some loss of equilibrium in the stability of the art and science of medicine itself.

To-day it is evident on all sides that we are confronted with problems in the practice of medicine, the rightful solution of which is going to decide whether the brilliant discoveries of the past thirty years are to give their full immediate blessings to mankind or whether confusion and chaos must reign until another generation corrects the faulty perspective of the profession and the laity of our day. Following the traditions of this revered and famous medical society, I would present some of these problems of to-day under the title

THE SANCTITY OF MEDICINE.

From time immemorial medicine has been given a place of dignity and sanctity accorded to no other science. No age nor people nor state of civilization has ever existed that does not bear testimony to the profound respect for him who bound up the wounds, set the broken bones, healed the diseased state and restored the blessings of health. In the earliest times the physician was deified; almost supernatural powers were ascribed to him and death even was supposed to lose its invincibility when combating with the physician. Much as we have strayed otherwise from the early conception of medicine and of the physician, there is manifested by the laity to-day that simple faith, that belief in authority which has always been such an important factor in the curing of many diseases. This has ever given to medicine a true sanctity among the sciences. Let us then review briefly our proud ancestry in medicine, the source from which has come this unquenchable fountain of hope in sickness and in disease.

Medicine may be traced to two separate origins, Greek and Hindu. The date of its origin in Greece is lost in fable. According to Greek mythology, the sun-god Apollo presided over medicine, and Chiron, one of the Centaur race, was metamorphosed into a horse, and while hunting in the mountains and forests with the goddess Diana he acquired a knowledge of plants as well as of astronomy. Chiron is supposed to have been a prince of Thessaly and to have lived prior to the acquisition of the Golden Fleece and the siege of Troy. His grotto at the top of Mount Pelion became a famous school, and here he instructed the Argonauts in medicine and was likewise teacher of Bacchus, Hercules, Æsculapius, Machaon, Æneas and Achilles and other heroes of that remote age. He taught medicine and surgery, music and gymnastics, and is said to have employed music as a remedial measure in sickness. Among Chiron's pupils was Æsculapius (B.C. 1200), who so excelled in the art of medicine the teachings of his master that he was deified by the Greeks, and his followers became the priests of the shrines erected in honor of their ancestor. Two of these, Machaon and Podaleirios, sons of Æsculapius, were at the siege of Troy (B.C. 1184) and were immortalized by Homer.

The origin of medicine was no less sacred among the Hindus. Dhanwantari (B.C. 1100?) represents in India the place occupied by Æsculapius among the Greeks. According to Brahmanical mythology, the gods churned the ocean for the purpose of recovering for mankind the comforts and conveniences lost during the Deluge. Among the fourteen precious gifts restored was the health-giving Dhanwantari, the celestial physician. This fable goes on to relate how medicine was revealed by Brahma to Dhanwantari, who became physician to the gods, and who later taught this knowledge of the healing art to his pupils, Susruta and Charaka, surgeon and physician, respectively. These last two interest us directly because their legendary is interwoven closely with that relating to the origin of the Ayur-Veda, a medical work whose age has been placed at from nine to sixteen centuries before Christ. Neither Susruta nor Charaka had the prejudices common among the Hindus (high caste) of touching the dead body, and the illustrations in their works show that they must have dissected freely. To any student of medicine who thinks that all knowledge and wisdom in the science and in the art of medicine are due to modernity, the reading and the study of this most ancient medical work, whose authorship is now ascribed generally to Brahma, will be found most illumining.

From the foregoing two facts should be noted, namely, that medicine was *acquired* by Chiron in his botany excursions, and was *revealed* by Brahma to Dhanwantari, who, in turn, taught it to Susruta and Charaka. The influence of these two

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beliefs in the origin of medicine can be traced through history, and has given to medicine always that atmosphere of mystery from which the laity of our day have not emerged wholly.

The Greeks soon became greatly saturated with Hindu philosophy, and its influence predominates in their medical doctrines and from these to other times. Pythagoras (570–504 B.C.) established in the south of Italy the Doric and the Italian school of medicine, and two of his pupils, Heraclitus and Herodicus, were the teachers of Hippocrates (460–361 B.C.). These schools originated the idea of critical days in certain affections and were the first among the Greeks to investigate the structure and functions of the body. Hippocrates became a stanch disciple of the Pythagorean philosophy, which was but the continuation of the teachings of the temple doctors. He did not originate the Greek or so-called scientific medicine, but was rather the most striking figure in what was destined to be a new era in medicine. There have been systems of so-called divine healing in all great civilizations, but none have ever reached that high state of development, both for beauty of conception and for grandeur in execution, which characterized the cult of the son of Apollo. The many social cults in medicine to-day supposed to be the results of exaggerated imagination are but mild prototypes of those set forth in the "Plutus" of Aristophanes.

The Hippocratic age combined the imagination of the earlier age and the restless critical spirit of observation characteristic of the new era striving to break away from the traditions of the past. Speculation and theory gave way to rational deduction; rival centers of intellect precluded the possibility of stagnation, and a foundation for scientific medicine was thus laid. So well was this work done that its central figure has ever since been accorded the title, Father of Medicine.

Hippocrates did not establish any fixed system of medicine. He taught the value of accurate observation of actual phenomena and the method of rational deduction from observed facts rather than by speculation and theory. He set a high moral ideal for the physician in a code of ethics which has had few equals as a human document. It was due to the influence of the Hippocratic era that medicine under the Macedonian régime and at Alexandria reached that high plane which gave birth in anatomy and in physiology to so many accurate data. Gradually, yet effectually, the sophistry of the philosophers overrode the science of medicine and the doctrines of Hippocrates became blended with platonic philosophy. Then followed system after system in medicine, — the Dogmatists (B.C. 400), the Empirics (B.C. 268), the Methodists (B.C. 100), the Eclectics (B.C. 81), and finally the Peripatetics, in which Plato's pupil, Aristotle, overthrew his master's deductive method and instituted therefor the inductive method. This was an age of great thinkers, of great intellectual attainments; but, true to the lessons taught by history that it is the theorist who is most honored by his contemporaries, and that real progress in science is made only by the man who uses his eyes, the observer who sees something and can tell it simply as he sees it, we are not surprised to learn that the practice of medicine in this period had fallen so low in the estimation of men that the Romans considered it beneath their dignity to engage in a profession or art so given to commercialism. We might pause here and compare the conditions of to-day with those of early scientific medicine, and find in the comparison many points of similarity, warning us, perhaps, that history has a peculiar faculty of repeating itself. My theme urges me onward, so let us trace historically the passing on of the torch which has ever burned before the shrine of medicine.

With the spiritual redemption of mankind came a great reformation in medicine. Galen was now the central figure. In every department of medicine the influence of this wonderful man was evident. He opposed the Methodists and Empirics and added to the foundation of medicine anatomy and physiology; he was a great experimenter and aided thereby clinical medicine. His deductions from the dissections of apes and other animals led him into error often when these were applied to the construction of the human body; nevertheless, he retaught the methods of Hippocrates in observation and accurate description, and so great was the reaction that Galen became an infallible authority and for more than thirteen hundred years one whose word was law. This blind submission to medical dogma was the greatest factor in checking progress in medicine. It required the Renaissance for its overthrow. In the whole history of medicine there is not another such example of the complete prostration of the understanding where facts were clearly obtruding themselves upon observation, yet were allowed to go unnoticed or totally disregarded. Throughout the Middle Ages the Byzantine School and the Arabian School strove to preserve and keep alive the early Greek medicine. A Celsus or an Avicenna rose up to recall medicine from its lethargy, but the blind homage to Galen prevailed until its complete overthrow by Paracelsus in the sixteenth century.

Medicine reached modern Europe by means of the University of Salernum in southern Italy, and later into France, where dissection of human bodies, which had been prohibited or abandoned on account of religious rites among the Greeks, Egyptians and Arabians, was resumed. The brilliant sixteenth century discoveries by Vesalius, Eustachius, Falliopius and others of the Italian school made possible the next great figures in medical ancestry, Harvey, Paré and Linacre. At Padua, Servitus and Harvey, under the same teacher, Fabricius, contrasted greatly in their investigations with the aimless course pursued at the other European schools. Although here and there physicians so excelled their contemporaries that they were called "the English Hippocrates," or "the Dutch Hippocrates," yet so philosophical were their medical writings, and so absorbed were they in substituting theology for medicine, that no genuine progress resulted until Morgagni, in

Italy, and John Hunter, in England, united the phenomena of clinical observation with the study of morbid anatomy as found in the autopsy room. Surgery, too, was now raised from a mechanical art to an advanced science.

If we trace historically the offerings of science and of inventions during the eighteenth and nineteenth centuries, medicine will suffer nothing in the comparison; if we try to estimate the benefits accruing from the investigations of a Virchow, a Bichat, a Morton, a Pasteur, a Lister, a Koch or a Theobald Smith, we can claim without fear of contradiction that mankind can never repay the debt. This brings us to a striking paradox. It is now admitted generally that the century just closed has witnessed discoveries in medicine that have added more to the general welfare of mankind, as measured by relief from suffering and disease, than the aggregate of all discoveries and inventions since the origin of man; on the other hand, we are forced to the conclusion that the physician of to-day does not occupy in the family, nor in the public mind, the same position of confidence, of prestige and of authority in health problems as formerly. How much of this is part of the wave of revolt against tradition and authority in all branches of human activity, — in religion, in political government, in art and in the sciences? How much of it is due to the fact that while the physician has been striving to increase his knowledge of supposed physical causes of man's sufferings, and while he has been laboring for the eradication of disease, he has lost sight of the *patient*, the whole indivisible human being? Discovery has followed discovery so rapidly that the physician and the layman have become impatient, restless and well-nigh impetuous in seeking progress. So much has been accomplished in medicine that we have come into the state of believing that all disease must yield to science. The laboratory spirit and the practice of specialization in medicine have combined in giving false estimate of the possibilities in medicine, an overzealousness often to detect disease itself. Having eliminated entirely from medicine all philosophical reasoning we confound sometimes generalizations with the facts themselves, and thus we fall often into error. New theories without basis of proof are then accepted as modern science, when, as a matter of fact, there is no science at all; half-demonstrated hypotheses become the foundation of new schisms which have in their creed just enough truth to merit some recognition. If, then, in the light of the past and in the full possession of established facts to-day we state our position rightly, science cannot suffer from knowing the truth, medicine must regain its sanctity from such an illumining, the physician can re-establish his rightful sovereignty by no surer means and the public cannot but be healthier and more sane therefrom.

The entire outlook on the science of medicine has been revolutionized during the past thirty years. Heredity no longer sways the destiny of mankind; the chemical control of the wonderful co-ordinations of the activities of different parts of the body is now appreciated; the knowledge of infections and zymotic diseases has given us a better understanding of immunity and has resulted in the vaccines, antitoxins and curative sera; and finally, a most extraordinary change has taken place in the scope of therapeutics. All this has affected greatly the sanctity of medicine as well as the physician. It has emphasized the importance of laboratory science and has created a new standard among medical men. Nothing in the whole history of medicine has been a greater factor than the laboratory in stimulating medical thought, in the bettering of medical practice and in the advancement of accurate diagnosis and treatment. Unfortunately, however, laboratory methods had come to be misunderstood as meaning something requiring a special room, a large equipment, a knowledge of languages and higher mathematics. These are valuable and most helpful, but they are not absolute essentials. The laboratory method, on account of its association with the more exact sciences, had been granted a rating for mathematical accuracy and for precision not enjoyed by observation, deduction or induction. The profession as well as the laity had come to believe that the laboratory diagnosis made by the various methods and instruments now known as laboratory tests was infallible and final; while the experience of countless keen, accurate observers of clinical phenomena as seen at the bedside was disregarded, and the employment of well-tested extra-laboratory methods of diagnosis and of prognosis retained so little of their former prestige that their neglect and abandonment seemed imminent. A reaction is already evident. The general practitioner now recognizes that the number and the application of laboratory methods which are of real advantage to him in the diagnosis of disease is surprisingly small in comparison with the number and the application of laboratory methods used for research purposes by the scientific worker who is devoting his entire time to this branch of science. With a good working knowledge of the methods employed in urine analyses, in the chemical analysis of stomach contents, in sputum examination and in the simple blood examinations, the general practitioner is well equipped for his work. He should keep in mind always, however, that there is a class of scientists more expert, to which may be referred all questions of doubt, as well as the more scientific problems in medicine and surgery. These two classes of scientists are distinct, and much genuine knowledge is possessed by the one which can never be helpful to the other. In the final testing of all discoveries, of all laboratory advances, it is the rank and file of the profession which translates into practice and makes effective the new knowledge gained. On the other hand, we must not forget that the laboratory has its limitations. Science has done much in revealing the mysteries of nature, but it should be remembered, however, that there are still mysteries in nature that science has not revealed and which science can never reveal. In a word, there is a whole universe which stretches out its limitless space beyond the

range of human knowledge. Great and promising as the future of scientific medicine seems to-day, nevertheless, unaided and of its own resources it leaves unexplained the origin of vitality itself. Would that we as physicians could estimate rightly the mystery of life. We try often to isolate the particular organ in which the kingdom of life seems to have its seat, to state in terms of definiteness the length and range of its power, to guide its exuberance, to stimulate its flagging, yet we reach eventually the conclusion of all previous ages, namely, that there is in every human being a vitality, a source of energy, constant and as markedly individualistic as the imprint of one's finger creases, or the intonation of one's speech. Nor are the limitations of the laboratory less pronounced on the physical side of our nature. We are forced to acknowledge that there are hundreds of little accommodations between the various parts and between the various organs that it is impossible to explain or to be sure about; that there are countless reactions that cannot have a cause assigned to them; that there are numberless conditions that either cannot be labeled at all, or may receive several interpretations; that the state which looks grave to-day, as far as can be judged by all attainable knowledge, may be simple and harmless to-morrow; that the "doing well" of to-day may be a disaster before another dawn. In other words we must either accept or reject the conclusions expressed by the greatest scientists of all ages, and so tersely set forth recently by the late Lord Kelvin, "Do not imagine that by any hocus-pocus of electricity and viscous fluids you can make a living cell. You must never think of the living men and women and children as mere laboratory specimens, but as human beings." The great Pasteur expressed this truth beautifully thus: "The more I know, the more clearly does my faith approach that of the Breton peasant. Could I but know it all, my faith would doubtless equal that of the Breton peasant woman."

Unfortunately, the humility of these great men has not characterized scientists always, and we find men building hypothesis upon hypothesis which were a check to the progress of medicine. In the Platonic period of medicine, for example, the Greeks chose to speculate rather than to investigate the meaning of phenomena, and the mysticism that resulted was evident for centuries. This had an evil influence on the practice of medicine and gave the physician a false position in the estimation of the people. The sick man believed that the physician possessed powers almost supernatural, and the physician was forced to supply by fiction and pretense the appearance of possessing such knowledge. Here arose the judicial wig, the academic ruffle, the gold-headed cane, the reflected snuffbox and the Socratic air. To-day the impatience to fulfill the expectations of the laity lies within the profession, and while protesting on one side against the acceptance of all phenomena not proven by the laboratory, on the other hand we are encouraging, unconsciously, often, the belief among the laity that the absolute and exact knowledge of the nature of every disease is ascertainable and that an appropriate remedy for each exists. In other words, we are giving to medicine all the attributes of an exact science which it is impossible for medicine ever to attain. The truth of the matter is that the more we learn concerning the workings of the great internal laboratory, especially its relation to the action of the nervous system, the more we must realize that there are factors which do at times influence greatly the course of disease and which are neither measurable nor demonstrable by laboratory methods. These factors must be recognized; they must be stimulated, if we are to exercise rightly the fullness of medicine. Their appreciation by the physician is a check to the spread of infidelity and false skepticism in our ranks; their explanation, as much as they can be explained, will eradicate superstition among the laity; their acknowledgment will recover from the Eddyites and others of like belief the one grain of truth upon which has been built a mockery of Christianity and of science.

The over-emphasis of the importance of the influence of these factors, however, has given rise lately to a heresy no less grave than that resulting from the false view outlined above concerning the value of laboratory medicine. A new word, "psychotherapy," has been coined to express the method of treatment which in reality is a very old therapeutic measure. From the use of the word "psychic," as well as its association with religion, there is implied that the soul is the object of consideration, yet there is nothing in the condition of the patient or in the benefits accruing from this line of treatment which in any way affects the soul. The influence of the soul on the physical being, and *vice versa*, is an axiom of psychology; nevertheless, psychotherapy as understood in this instance is dealing with conditions in the patient which have resulted from influences acting primarily on the physical person through the senses, and secondarily through the imagination. It is in reality a physical result from an obsession of the imagination. Religion is not concerned in the problem at all. It is a physiological process pure and simple, and has a perfect analogy in the physical person. Just as in every person there is a margin of supply in all the tissues and fluids and organs of the body beyond which we seldom reach, and which makes a tolerably good state of health compatible with even a marked deviation from normal, so, too, in the non-physical state of every individual, there is a rich storehouse of unsuspected resources, one which is full of energy, awaiting but the spark of contact to manifest power and strength unknown to its possessor, even. Just as in the purely physical life, opsonins promise much in bringing into action those reinforcements which win the battle, so in this so-called psychic state a "phagocytosis," the nature of which has never yet been unraveled, results when the right opsonin is supplied, whether it be tar-water, Perkins' tractors, Christian Science or suggestion. This is what the physician from time immemorial has done, and

the physician of to-day who looks upon his profession as a *vocation*, and acts accordingly, is fully ordained to stimulate the highest and best energy inherent in his patients. To admit anything else is to deny the very foundation of the sanctity of medicine and to destroy the cornerstone upon which is erected both religion and medicine, — faith. Before there was any science in medicine, at an age when medicine was philosophy, we find that same confidence, that unswerving belief of the patient in his physician which has come down unbroken through all ages. The advance of science and the experience of countless observers have combined to give a better basis for such a belief in the practice of medicine. We appreciate fully these gifts of science; we acknowledge their limitations; and while we admit the necessity almost as well as the value of that simple faith on the part of our patients, nevertheless, the practice of medicine is not medicine at all when that faith is based wholly upon the idea of mystery, or that the physician has supernatural power over disease. Neither the physician nor any other human being of himself has any such power. The association of religion and medicine has caused confusion. From time immemorial religion and medicine have each had its special field of labor. At all times medicine has received much strength from religion, and during many centuries its light must surely have failed had it not been for this protection; at times in early missionary work economy or exigency forced the union of theology and medicine, but there is no instance in all history where one has been substituted for the other that both did not suffer thereby. Medicine needs religion greatly, and the physician who does not allow it to have its legitimate moral and humane influence on his life — scientific as well as professional and lay — soon loses the sanctity of medicine, and substitutes a trade for a vocation. True religion, on the other hand, does not need medicine to complete its purpose, for it is perfection itself. When we come to miracles performed in the name of religion, by religion and through religion, we pass from the works ascribed to the power of man to those capable of being performed by God only. The physician or person who claims for himself or his profession any such supernatural power blasphemes religion and the sanctity of medicine. Scientific medicine has no conflict with true religion, and all attempts to estrange the two should find a ready foe from the ranks of medicine. It is not helping medical science to claim that cures are not possible because we cannot demonstrate the process, neither does it lower the dignity of the profession to acknowledge that there is a power higher than the science of medicine. When, however, men seek advice and relief on questions of physical ills from those not engaged in the practice of medicine, it is because our medical schools have failed to impress upon the minds of their students the full breadth of the vocation of the physician. They have left untouched the development of that subtleness, that comprehensiveness, that appreciation of the non-physical in man, which gives to the art of medicine the sacredness of a science. In other words, the student has been trained for pure materialism only. Any attempt to make psychotherapeutics, as defined to-day, other than a part of general medicine must be regretted, and is not devoid of danger. It is a legitimate part of the art of medicine. The physical and the non-physical are so interwoven that no illness can ever be said to be due entirely to the one or to the other. The recognition of this fact was the basis of one of the most ancient as well as the most sacred of the physician's vocational duties. There can be no division on this subject in the practice of medicine. It calls for the physician who sees and who can appreciate the whole patient. It reposes upon the specialist the necessity of recognizing that, while division is advantageous to the science and to the art of medicine, nevertheless there is a limitation beyond which this division fails to secure its best results. That there is legitimate field for true psychiatry is established and must not be confounded with the exercise of those duties resting upon each physician and surgeon in his daily vocation.

To meet these requirements calls for the rehabilitation of the family physician of the old school, not as a general practitioner, but as the adviser and the guide to the individual and to the family in all problems of health, and in the choice of a specialist, as well as to groups of individuals in their duty towards the state. This means that certain traditions and prejudices long existing in the practice of medicine must be altered. The physician can no longer confine himself to relationships with individual patients. He must take a position of leadership in public questions of health and morals. Society at large needs the idealism of the true physician, the example of his humble submission to authority, his uncompromising spirit of truth, his self-sacrificing devotion to the social good. Quackery and charlatanism will continue to be the accepted belief of the public until the educated physician puts within the reach of all the truth on questions of disease and cures.

There is no more powerful factor in furthering preventive medicine than by the popularization of medical knowledge. Observe that I do not advocate popularization of specific lines of treatment, but rather the wisdom, the necessity, for the physician entering actively into the broader fields of public health problems. We have seen what may be accomplished against tuberculosis; we have witnessed the eagerness with which the public sought knowledge from the best sources as illustrated at the free course of lectures at the Harvard Medical School during the past two years. There are almost limitless problems awaiting solution in public health, in school, in home and in workshop hygiene, in the care of the teeth, skin and sense organs, in the relationship of diet and exercise to health, in the evils of overcrowding in tenements, in the influence of modern life and modern industrial developments, in the life of the child, in the various social, economic and political questions involved in our social prog-

ress. Boards of health will remain inefficient, public schools will construct programs without regard to the physical welfare of the child, insane and public hospital institutions will fail to give their patients the advantage of modern progress, legislators will continue to disregard advances in preventive medicine just so long as the physician looks upon the practice of medicine as a means to administer drugs only. When we convince the public that the real value of medicine lies in the *advice* given by the physician to the individual and to the community we will hear less of the unreliableness of expert medical testimony and low fees in practice. Nothing in this public field of activity necessitates that the physician shall become the political doctor; on the contrary, there is no more effective check on those who would make the dignity and sanctity of medicine subservient to their personal ambitions and gains.

Medical things and the medical view and relation of affairs are as much the property of the public and subject to its review as in any other department of life. Quackery and charlatanism gain a foothold by a peculiar publicity and the positiveness of their claims. While preserving standards the profession must welcome the fullest inspection of its knowledge, institutions and departments.

To meet this conception of future medicine, medical schools must provide facilities for the broader application of their teachings. Their students must be equipped with the knowledge necessary to accept the responsibilities the public now believe should be reposed in the medical profession. The practitioner of the future must be not only highly educated as his college requirements to-day necessitate, but he must be so trained to give to the public the benefits of the choicest of the laboratory gifts, the wisest of the philosophy of our ancestors in medicine, and the consolation and strength of that faith engendered in each patient by his own firm conviction that man is God's highest and best work and that his best service is found in the sanctity of medicine.

"There is nothing in which men so approach the gods as when they give health to other men." (Cicero.)

Original Articles.

OBLITERATING ENDARTERITIS: TYPES AND THEIR SURGICAL IMPORTANCE.

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1. ERYTHROMELALGIA.
2. ANGINA CRURIS OR INTERMITTENT LIMPING.
3. RAYNAUD'S DISEASE.
4. MORVAN'S DISEASE.
5. ARTERIOSCLEROSIS, SENILE GANGRENE AND SYPHILIS.

IN a recent article by Lovett [1] entitled, "Intermittent Limping," attention has been directed to a group of peripheral, circulatory disturbances having very great clinical significance, and about which little is known. At different periods of life, and in a totally different manner, the peripheral circulation of the extremities may be either continuously or intermittently interfered with to such degree as to cause symptoms varying all the way from a slight blanching or blushing of the toes or fingers, accompanied by objective sensations of heat or cold, to a condition of gangrene in which the phalanges one after another fall off. The cause of the symptoms which are presented by patients suffering from this variously named condition is doubtless not one common to them all, but seems beyond reasonable doubt to be at least intermediately related to each of them. The one feature which they seem to possess in common is the evidence of a narrowing of the lumen of the peripheral vessels. In some cases it is only possible to demonstrate this by clinical evidence; in others, pathological examination furnishes unequivocal proof. Practically all observers are agreed that the peripheral lesions in the vessel walls, be they permanent or paroxysmal, must be referred to some essential central lesion in the nervous system, either organic or functional. In order to understand the close parallelism between the various conditions manifesting this common peripheral change, it will perhaps be well to consider them in detail.

I. ERYTHROMELALGIA. *Vide* CASES 1, 2 AND 7.

As early as 1872, S. Weir Mitchell gave the first description of a circulatory disturbance in the peripheral vessels of the extremities, to which he applied the name "red pain." It is characterized by symptoms referred to the fingers or toes. When the feet are concerned it generally attacks at first one or the other of the toes, gradually extending to other of the digits and sometimes even on the dorsum of the tarsus or carpus. Associated with this pain there is discoloration, which at first is a bright reddish pink, deepening somewhat as the process becomes more chronic. Occasionally pain and redness may manifest themselves in other places than the extremities, as upon the trunk or over the neck and face. The extremities, however, are the most usual localities, and of these the feet are more often affected than the hands. Pain is usually of a very distressing character and is at times so severe that the patient threatens self-destruction. It is aggravated by the dependent position of the limbs and is made somewhat more comfortable by the application of cold. Heat accentuates the discomfort, and the summer season is that in which these patients suffer most acutely. There is little tendency to swell, though occasionally there will be noticed an apparent induration of the tissues in the reddened areas.

Savill [2] has demonstrated that this thickening is due to vascular turgescence and that there may be quite a rapid disappearance of this when the affected member is elevated. There is never any edema. In the early stages of the disturbance the painful area is colder than normal and in