certainly the predominant one in this country—the United States Department of Agriculture. No one would think of intimating that this great department has neglected the interests of the stockmen of the United States, but nevertheless, it is true that until very recently its work for them has been chiefly of the nature of veterinary and inspection work, as indeed it still is to a relatively large extent. The Bureau of Animal Industry has, it is true, established a dairy division and has begun to take up problems of feeding and especially of breeding with the modest appropriation for this purpose which congress has put at its disposal. The department should be put in position to do much more than it is doing, however. Its work in this field should be productive as well as protective. If the development of our waterways and the conservation of our forests, mines and water powers are subjects of national concern, surely the conservation of the food supply is worthy of attention. The magnitude of the live stock industry in itself, and especially its important relations to the future food supply of the nation which I have been endeavoring to point out, are such as to amply warrant the department in entering upon comprehensive investigations, both scientific and practical, into this subject and to fully justify congress in making all necessary appropriations. It is not alone our food supply, but our democracy, which is at stake.

It goes without saying that such an effort on the part of the national government should be made in harmony with the investigations which may be undertaken by other agencies. All the available forces should unite in the study of these important questions and no local jealousies should be allowed to stand in the way. While there may be problems of coordination and correlation still to be solved, I am confident that they are readily solvable, while it seems not impossible that in some respects this society might advantageously serve as an unofficial intermediary between state and national authorities.

I congratulate the society upon the notable increase in its membership during the past year and upon the very encouraging attendance upon its first annual meeting. If I understand the spirit and temper of its members, they desire to make the society something more than a pleasant club or a gathering for the reading of papers. It is my hope, which I believe I share with every member, that it may become an active agency in forwarding the solution of some of the problems which I have attempted to indicate in this address.

H. P. ARMSBY

A DEFENCE OF SANITY[1]

EVER since the reign of the illustrious Emperor Augustus, when Horace taught that all men are mad, there has been a wide-spread belief in the truth of the Roman poet's assertion. Yet few of us are wholly mad, and we shall not go far astray if we agree with a modern essayist that "every man has a sane spot somewhere." The actual degree of insanity from which any one of us suffers is a matter difficult of determination, since it can be made known only through the verdict of one's peers, who themselves in turn are demented. One can arrive at a correct judgment in an individual case only by comparing it with that which the most intelligent of the multitude, after long study and deep knowledge, have established as the norm. Any pronounced diversion from

[1] An address delivered at the opening of the fifty-seventh year of the College of Medicine of the University of Vermont, Burlington, November 3, 1909.

the teachings of the masters, unless there exist logical and credible grounds for diversion, stamps its possessor as one who is, in so far, without the pale of those who know.

But why should any one be without the pale? There is a wide-spread idea that the greatest evil in the world is ignorance, that education is its antidote, and that, with learning made easy, sanity and temperance and all things of good report will be the lot of mankind. While this represents obviously an extreme view, it is probably applicable to the majority of men in their relation to the majority of things. But biologists are agreed that what a man is is the result of the action of two forces, heredity and the environment, nature and nurture. While an educational environment may conduce to sanity, a man may, on the other hand, be handicapped by an ancestral perversion, which all the education in the world can never overcome. But the difficulty is further increased by the fact that the norm is ever changing, and, indeed, must ever change if the world is to progress. It follows, therefore, that the insanity of to-day becomes the sanity of to-morrow, if we are clever enough to bring the world around to our way of thinking. Stevenson said: "Give me the young man who has brains enough to make a fool of himself"—but it was the brains and not the fool that Stevenson really wanted.

In meditating much on the question as to the sphere in which human abnormality is most pronounced, I have come to believe that it is in beliefs and practises relating to the human body in health and in disease. And since the study of the human body in health and in disease is to be your life work, and since it will be your fate to come into intimate contact with many of these beliefs and practises, it has seemed to me fitting to devote the hour at my disposal to a consideration of some of them.

Before you leave these halls to practise your profession you will come to know that there has grown up in the course of many centuries an enormous mass of knowledge, for the most part well-ordered and rational, which constitutes the medical science and art of to-day. It is the contribution of many superior minds of all the world's ages. Some of its truths were known to the early Greeks, and from them down to the modern laboratory and clinic it has received a continual stream of accessions. But it is not accession only that has taken place, for to a large extent there has occurred a process of selection, a rejection and replacement of what has proved unsuitable, so that the medicine of to-day represents the survival of the fittest. Though the sifting process continually goes on and though everywhere there are points in dispute and unsolved problems, there yet exists the great fund of accepted medical knowledge, constituting a standard, according to which individual opinions concerning the body in health and disease are to be judged. It is convenient to classify this mass of knowledge, and so we recognize the specific divisions, not altogether sharply separated, such as anatomy, physiology, hygiene, bacteriology, pharmacology, therapeutics, surgery and neurology. In so far as one believes in the accepted principles of any one of these divisions he is pronounced by his fellows therein sane: in so far as he rejects them without adequate reason, he is looked at askance and with suspicion. And so it is with regard to specific matters within any one of these divisions. Obviously the amount of knowledge that the layman possesses of these various branches of medicine can be only small. The man on the street is pitifully ignorant of his own body

in health and disease, and even more ignorant of the rise and present stage of development of the science and art of medicine. Largely because of this ignorance he is prone to grotesque opinions and statements. Such opinions are not, however, confined to the man on the street. A famous university professor, whose studies lie rather in the sphere of a dead language than of a living science, said recently to a colleague, in explanation of a slight attack of faintness, that the fumes of his gall had passed upward into his brain! The students of the first medical year now before me will soon learn to appreciate the strangeness of this physiological conception.

Most persons are eccentric to a greater or less extent on the subject of diet. Their notions of food, what they can eat and what they can drink, are often derived from a very crude kind of illogical deduction from their experience. To pounce upon a single unhappy food as the cause of an attack of indigestion after a feast, and pledge oneself to abstinence from it in the future, when there might be a score of causes, not only constitutes wilful defiance of the laws of logic, but it is never certain of insuring immunity from a subsequent similar attack of gastric disturbance. No one is free from imagined dietetic peculiarities, and there are differences only of degree between successive individuals in the dietetic series from the omnivore at one end to the vegetarian, the fruitarian, the nutarian and the raw-food advocate at the other. Of all these extremists perhaps the advocate of raw food is the most mad, for his sober contention is that if food be eaten in the uncooked state, its protoplasm on entering the body will at once be added, by a sort of accretion process, to the stock of protoplasm of the host! Such a simple, clear, attractive generalization has but one fault, that it fails to take into consideration the physiological phenomena of digestion, absorption and assimilation. While some persons are thus quarreling as to the kind of food that human beings should eat, others are discussing the quantity of food. There is undoubted soundness in Chittenden's main conclusion, supported by carefully conducted experiments, that most persons customarily take too much food, and his influence will undoubtedly conduce to ultimate good in inaugurating greater temperance in eating. Probably to most persons in the past, where food has been abundant, eating has been in large part a matter of sensuous indulgence. Greater sanity in this respect is surely being inaugurated, just as it has already been inaugurated in the matter of drinking alcoholic liquors.

Diet, however, constitutes but one sphere in which we all have our unreasoning personal hobbies. The character of one's domestic remedies for slight physical ills is also an indication of one's mental trend. The soothing syrup, hot drops, composition and catnip tea of our well-intentioned grandmothers, and the various messes, for the most part harmless, which were employed for the annual spring house-cleaning supposed to be required by the blood, were succeeded by the long list of proprietary or "patent" nostrums, many of which, it is now known, owed their popularity to their unsuspected content in alcohol; and these in turn are giving way to the more rationally prepared drugs of the pharmacopœia. But some persons like to think that the day of the drug has passed, and the drug-giving doctor is often held up to ridicule. Such persons, and happily they are few, are seemingly ignorant of the fact that at no time has the science of the drug ever been so exact as now; the physiological actions of drugs

were never so well known; the methods of their preparation and standardization were never so perfect; and their therapeutic use was never so effective; while the discovery of new drugs has greatly widened the range of their applicability in disease.

The subject of drugs leads us naturally to consider other methods of healing. In these amazing days of rapid living, when we rush over the earth's surface or through the air above or the waters beneath, when we joyfully jaunt to the icy ends of the earth's axis, or speak our messages straight into the wireless ether, confident of their destination, we are prone to become impatient with long-existing things—we are ever seeking the novel. With the seemingly slow progress of the difficult science and art of healing disease it is not strange that unorthodox methods of healing should have come into much favor. Medicine is not really making as slow an advance as often appears to the layman. The past quarter of a century has witnessed the rise of an entirely new and powerful medical science, bacteriology, and a series of brilliant onslaughts, which are certain of ultimate success, against that great enemy of mankind, the infectious diseases. As instances of what has been accomplished already one needs only to recall here the remarkable decrease in the death rate of diphtheria and tuberculosis. The success in surgery during the same period has been scarcely less brilliant. Internal medicine, fortified by great physiological and pathological discoveries, is rapidly forging to the front; while there is no considerable class of diseases in the knowledge and treatment of which progress has not been marked. Yet notwithstanding the hopeful augury, many men and women are dissatisfied with the results and the prospects. Nothing testifies so well to the tendency of humankind toward the bizarre as does the spread of osteopathy and Christian Science. In the foundations of both of these cults there can be found a few grains of scientific truth, but they are surrounded and concealed by such a fabrication of the false, the imaginary and the superficial, and the whole is often so exploited by ignorance and deception, that it would seem as if the normal mind must turn from them in disgust. Yet the mystery about them charms; and multitudes of otherwise worthy men and women are attracted by them and cheerfully give to them their own souls and bodies and the souls and bodies of their children.

Osteopathy is an outgrowth from the primitive conditions prevailing on our western frontier in the period preceding our civil war, when educated physicians were few, opportunities for rational treatment were fewer, and boldness in assertion and action counted far more than exact conformity to scientific truth. The founder of osteopathy was one of the rude, itinerant practical bone-setters, probably often clever in his attitude toward the sick. Though unlettered, he was possessed of a positive philosophy that found a sympathetic hearing in the home of many an unlearned frontiersman, who would have been ill at ease under the ministrations of one trained in the nice theories of academic medicine. Osteopathy was and still is full of unfounded assertions regarding the normal functioning of the bodily structures, and the nature and proper methods of cure of disease, though of late years its more enlightened practitioners appear to be endeavoring to harmonize its practises with certain accepted scientific principles. It speaks much of "lesions," by which it means, not the commonly accepted pathological idea of morbid changes, but rather "any structural perversion which by pressure produces or maintains functional

disorder." Of all parts of the body subject to lesions the spine is of fundamental importance, and "it is only in occasional cases of disease that no treatment is given to it." Treatment consists chiefly in correcting the structural perversion by manipulation with the hands and thus removing the pressure on the functionally disordered organs or on nerves or blood vessels supplying them. The osteopath serenely, with a single stroke of the hand, waves away the facts of scientific pathology. Says the prophet:

I have concluded, after twenty-five years' close observation and experimenting, that there is no such disease as fever, flux, diphtheria, typhus, typhoid, lung-fever or any other fever classed under the common head of fever. Rheumatism, sciatica, gout, colic, liver disease, nettle-rash or croup, on to the end of the list of diseases, do not exist as diseases. All these, separate and combined, are only effects. The cause can be found, and does exist, in the limited and excited action of the nerves only, which control the fluids of parts or the whole of the body.

The cause of all diseases is "a partial or complete failure of the nerves to properly conduct the fluids of life." One can with difficulty suppress a feeling of admiration for the audacity with which time-honored scientific facts and principles are thus put aside. Osteopathy undoubtedly effects cures, but so does the medicine man of the savage tribe.

The founder of Christian Science prefaces her remarkable book with the words of Hamlet: "There is nothing either good or bad, but thinking makes it so." She does not seem to have been aware that these words were spoken at a time when Hamlet was strongly suspected of being out of his head, and when his actions and utterances seemed to justify such a suspicion. If osteopathy is presumptively assertive, Christian Science is no less so. Its founder avers:

The cause of all so-called disease is mental, a mortal fear, . . . a fear that mind is helpless to defend the life of man and incompetent to control it.

The cure of all disease is equally simple:

Through immortal Mind or Truth, we can destroy all ills which proceed from mortal mind. . . . We can not obey both physiology and Spirit, for one absolutely destroys the other, and one or the other must be supreme in the affections. . . . Fevers are errors of various types. The quickened pulse, coated tongue, febrile heat, dry skin, pain in the head and limbs, are pictures drawn on the body by a mortal mind. . . . Destroy fear and you end fever.

Of hay fever it is said:

It is profane to fancy that the perfume of clover and the breath of new-mown hay can cause glandular inflammation, sneezing and nasal pangs.

There is no "ancestral dyspepsia":

If a random thought, calling itself dyspepsia, had tried to tyrannize over our forefathers, it would have been routed by their independence and industry.

The Christian Science disciple asks this question:

Should all cases of organic disease be treated by a regular practitioner and the Christian Scientist try truth only in cases of hysteria, hypochondria and hallucination?

The answer is not ambiguous:

One disease is no more real than another. . . . Decided types of acute disease are quite as ready to yield to Truth as the less distinct and chronic form of disease. Truth handles the most malignant contagion with perfect assurance.

Philosophers have pointed out the crudities, contradictions and confusion of thought in the metaphysics of Christian Science. It is interesting to look over the long list of achievements of which it boasts, for they include, among others, the cures of cancer, fibroid tumor, astigmatism, epilepsy, tuberculosis, rickets, hernia, valvular disease of the heart, measles, asthma, Bright's disease, dropsy, croup, tonsilitis and a bad temper. Moreover, it is claimed

that by the same method broken bones have been instantaneously healed and the lost substance of disintegrated lungs has been restored. These wonders have been accomplished largely by the simple reading of Mrs. Eddy's book. But, however incredible may appear many of these so-called cures, what of the failures, what of the suffering and misery and death that might have been prevented? If scientific medicine, with all the skill which it can command and the hope which it can give to suffering humanity, often fails to justify its promises, what can be said of a would-be healing system which employs only the grotesque fantasies of a shallow mind? If Christian Science occasionally confers upon its believers a certain degree of cheerfulness of spirit and obliviousness to the petty annoyances of daily life, it numbs the senses and the courage and does not make the world's fighters. It is a lamentable fate for a child to be educated to a belief in such a debilitating panacea.

The same criticism can be made, in even stronger terms, of various minor kinds of mental or psychic healers, though here charlatanry is even more blatant. Many of these healers employ successfully the method of absent treatment. Even Mrs. Eddy says: "Science can heal the sick who are absent from their healers, . . . since space is no obstacle to Mind." The employment of absent treatment has received a considerable impetus with the advent of the telephone. How simple a matter it now is to ring up the healer in the depths of the night and request him to treat one's crying child from the recesses of his office a mile away! The credulous mother feels that something is being done for her suffering babe, even though the healer at his end of the wire merely turns over in his bed for another nap, having made a mental note of a fresh charge to be entered in his account book on the morrow. This picture is not overdrawn—its like may be seen any day in our cities.

It is a long step from such healers to the psychotherapist of the better class of the present day. In turning to psychotherapy I would have it understood that I speak of this subject in its broader applications. There is a notion, wide-spread in this country, which limits the term to the particular healing movement that was initiated at Emmanuel Church in Boston and has since extended to a few other churches. However instrumental this church movement may have been in arousing popular interest, the psychic method of dealing with disease is no new method, either in this country or abroad. The psychotherapist is an enlightened man, who recognizes and respects the achievements of scientific medicine, and if he is not a doctor of medicine himself he works hand in hand with the doctor of medicine. He makes no pretence that psychotherapy is a panacea, he simply claims that it is a valuable supplement to the physical agencies commonly employed by the physician, and is useful in certain so-called functional diseases of the nervous system. It is a mistake, I believe, to draw, as he does, a sharp distinction between organic and functional nerve diseases, the former being accompanied by morphological changes in nerve structures, the latter not being so accompanied: for I can not conceive the existence of a disease involving function without some physical abnormality. It is a mistake too, I believe, to assume the existence of a subconscious mind through which the psychic influence is mediated: for the phenomena which are now often relegated to the subconscious are capable of explanation without going beyond the sphere of physiology. The psychotherapist does not rely upon supernatural forces, he employs

the same agent that the hypnotist, the teacher and the parent employ, namely, suggestion, of which we all make daily use in our dealings with our fellows. If he couples with it the self-surrender involved in Christian faith, it is because he believes the mental attitude thus induced to be, with many persons, helpful in making suggestion efficacious. But I take it that religious faith is not the essential factor. The psychotherapist himself is, or at least tries to be, reasonably sane. It is his patients and his would-be patients who often make extravagant demands on, and hold extravagant beliefs in, his powers. That his method is effective in a limited variety of diseases and in a certain proportion of cases seems to be beyond question. But that it is not of wide applicability as a therapeutic agent and that it is efficacious only in certain hands is equally true. The danger of psychotherapy is twofold: There is, first, the possibility of its practise by ignorant and unprincipled persons for ignoble purposes; and secondly, while it endeavors to make the weak morally strong, it may, like christian science, have the reverse effect. It can be employed with the greatest prospects of success by intelligent physicians, though in addition to a high training in the principles of scientific medicine, they should have a right understanding of human psychology, and should possess a high degree of sympathy with suffering mankind, coupled with a genuine, earnest desire to relieve distress.

It may safely be assumed that, with few exceptions, any one who publicly professes to be opposed to what the consensus of the world's best judges favors, is either mentally or morally deformed. The world can advantageously dispense with the services of those who are constitutionally in a chronic state of opposition to the public weal. There are two interesting aberrant types of humanity, of this negative nature, who constitute themselves a public annoyance and a public enemy. I refer to the antivivisectionist and the antivaccinationist. While claiming the right to be arbiters of scientific method, they are out of sympathy with scientific ideals, suspicious of scientific motives and ignorant of scientific achievements. They are swayed, not by calm reasoning, but by feverish emotion. They either blindly can not, or willfully will not, see that if their demands are acceded to, pain and sorrow and death that might have been avoided will be brought to thousands of their fellowmen.

Nothing is more certain than that scientific experimentation on animals constitutes the very basis of physiological, pathological, medical and surgical advance. To question its value in scientific progress is as futile as to question the value of the railway or the telegraph in commerce. To assert that it is synonymous with the infliction of pain rests upon gravely mistaken assumptions regarding its procedures. To abolish it or fetter it by legislation would change our hopefulness of future victory over hitherto unconquered diseases into despair, and deprive future generations of the blessings which we believe we or our successors can give them. And yet there are persons who would not hesitate to abolish animal experimentation summarily were they given the power. Others, seemingly normal-minded in many respects, would seriously restrict it. And for what reason? Because of an overwrought emotionalism, a hyperesthesia regarding the possible sufferings of animals, a state of things in the laboratories that is wholly fancied, and an unwarranted distrust of the humanity of man. I have had occasion, during recent years, in defending the moral right and even duty of com-

petent persons to endeavor to benefit mankind through experiments on animals, to examine in some detail the writings of some of the leaders in the present outbreak of antivivisection sentiment, both in this country and in foreign countries, and I have been forcibly impressed with the low intellectual and moral tone therein displayed. Some of its writers frankly confess—and this is not exaggeration—that were it a question of the life of the animal or the human being, they would save the former—a sentiment the abnormality of which needs no comment. If the antivivisectionist is ignorant of what actually goes on in scientific laboratories, he has no moral right to inveigh against the method of animal experimentation. If he takes the rare position of doing so with full knowledge, he excludes himself from the multitude, who believe in the beneficence of science and put their trust in those who follow her lead. It is idle to maintain that the man who has the high-mindedness, the intelligence, the patience and the skill to perform the scientific experiment, needs the threat of a penal conviction to teach him obedience to the principles of common humaneness. The antivivisection movement is the least worthy and commendable of all movements that profess to be uplifting, and it is only those whose sense of moral proportions has become askew, who enter actively into it. For you who are soon to become practitioners of medicine it is a duty which you owe to your profession to instruct your patients concerning the methods and the value of animal experimentation and to influence them to maintain toward it an attitude of sanity.

To deny the value of the remarkable discovery of Jenner, now with more than a century's evidence in its support, and with recent allied discoveries confirming its scientific significance, is merely wilful. Yet a well-known writer concludes an extended discussion of the subject with these words:

> That vaccination is a gigantic delusion; that it has never saved a single life; but that it has been the cause of so much disease, so many deaths, such a vast amount of utterly needless and altogether undeserved suffering, that it will be classed by the coming generation among the greatest errors of an ignorant and prejudiced age, and its penal enforcement the foulest blot on the generally beneficent course of legislation during our century.

It is interesting that in the same volume the author utters a long lament over the neglect which the world has given to phrenology, and prophesies that in the coming century "it will prove itself to be the true science of mind." The author of these remarkable pronouncements, Alfred Russell Wallace, made important contributions to science during his early life, but there is a sad intellectual contrast between his discovery, announced coincidently with that of Charles Darwin, of the principle of the origin of species through the agency of natural selection in the struggle for existence, and his indefensible stand, sixty years later, regarding vaccination and phrenology.

Opposition to vaccination is not new. Even in the days of Jenner its opponents are said to have claimed that its tendency "was to cause bovine characteristics to appear in children: that they developed horns, hoofs and tails, and bellowed like cattle." The objections of recent years have been less picturesque, and have been confined largely to a denial of the efficacy of vaccination in the prevention of disease and the saving of life. Reliable statistics from communities where vaccination has been compulsory and has been rigidly enforced clearly disprove this claim. Thus, it is said on authority that in recent years the mortality from smallpox in France, where there is only a partial and

imperfect vaccination law, has been from ninety to one hundred times greater than in Germany, where vaccination is strictly required. During the Franco-Prussian war the French army lost 23,400 men by death from smallpox, and the German army only 450. In the greater city of New York, with its estimated population of over 4,000,000, and in which vaccination is rigidly performed, there were but nine deaths from smallpox during 1907, although one hundred years ago the disease was one of the great scourges. As a companion picture, the well-known case of Montreal in 1885 is strikingly instructive. During a period of several years vaccination had been neglected. Then a single individual, a Pullman car conductor, traveling from Chicago, brought the disease into the favorable locality. An epidemic swept over the city, and caused the death of 3,164 persons within nine months. It is much to be feared that this case will be paralleled with even more direful results in England, where, through the efforts of antivaccinationists, the soil has become well prepared. The antivaccinationist often denies the germ theory of disease, and objects to the whole modern treatment of infectious diseases by antitoxins, serums or vaccines, saying that they are poisons, and that the proper preventives of the diseases in question are cleanliness, pure air and sunlight. Poisons, cleanliness, pure air and sunlight are, indeed, magic words, and yet the microbe is a reality, not a theory. If cleanliness, pure air and sunlight—and what is more expensive for the masses?—have not availed, and the microbe has entered or threatens to enter the body, shall we leave him free to kill? Antitoxins, serums and vaccines are not empirical or artificial remedies; they are nature's antidotes to nature's poisons, and in this respect ought to be classed with cleanliness, pure air and sunlight.

While speaking of some of these fads and foibles of aberrant mankind, I am tempted to say a word about our greatest popular educator, the newspaper. Unfortunately, our newspapers, with few striking and commendable exceptions, are pronounced derelicts in the dissemination of sound scientific and medical ideas. With men of science, trained in sobriety and accuracy, "newspaper science" has become a synonym for the grotesque, the ridiculous, the sensational and the inaccurate. A justification of this on the ground of unavoidable reportorial haste is not to be accepted, nor can I sympathize with the policy that makes an assumed popular desire the excuse for filling the columns with that which is untrue and fantastic. Laboratories, clinics and hospitals are daily productive of serious discoveries, many of which are of inestimable value to the welfare of mankind and, if considered merely from the journalistic standpoint, are of great interest as matters of news. Yet the man on the street rarely finds these mentioned in his daily paper, although he has abundant opportunity to learn of the frivolous and the sensational. With such instruction, we can not always blame him for his beliefs. The newspaper might, if it would, become a great power for good in spreading correct information regarding scientific and medical facts and wholesome ideas regarding scientific and medical theories.

The final topic of which I shall speak is one that concerns the attitude, not so much of the public as of yourselves as practising physicians. The training of a physician is one which should inculcate in him the general principles of sanity and good judgment. Without going in detail into the qualities that make a physician professionally successful, I would urge upon you the very great importance of one thing, namely, correct diagnosis. Avoid

hastily, ill-considered diagnoses. If you find the stomach not performing its functions properly, your first thought will be to treat the stomach, and yet such a procedure might be useless, for the stomach may be affected only secondarily. Among civilized peoples there is constant communication between separated individuals or communities, and the one is constantly influencing the other. This influence may be performed by the aid of two mediums: by the written, spoken or telegraphed message, and by the transmission of material things, such as food, clothing, luxuries, or the thousand things upon which our lives and actions as civilized beings depend. Thus, while members of human society, we are not free, independent agents, each individual living his life in isolation from his fellows. The conditions are similar within a complex organism like the human body; there too no part is independent of the other parts. The correlation between the various organs of the body is a topic that is now looming large above the horizon of physiological discovery. There are two ways in which one organ is capable of influencing another: through nervous impulses and material substances. Nervous influences have long been recognized, but influence through the action of material substances constitutes a comparatively new subject. It is now known of several organs that they manufacture chemical substances, which exert characteristic physiological actions on the cells of other organs. Thus the acid which is formed by the glands of the stomach, and is essential to gastric digestion, acts upon the sphincter muscle at the plyorus in such a manner as to cause it to relax and open a passageway into the duodenum for the digested gastric contents. Once arrived within the small intestine, the acid then causes a contraction of the sphincter, which prevents the return of the chyme. But the duties of the acid are not yet completed. It proceeds to stimulate the epithelium cells of the lining wall of the small intestine and makes them produce a characteristic substance, recently discovered and called secretin. This passes from the cells into the blood-stream and takes two paths: one to the pancreas, where it stimulates the pancreatic cells to secrete their characteristic digestive juice; the other to the liver, the cells of which are similarly stimulated to produce bile. Any interference with the production of acid in the stomach may thus interfere with a whole train of physiological processes which are dependent upon it. Adrenalin, a peculiar chemical substance formed by the adrenal bodies, which in recent years has become valuable to the physician because of its extraordinary power of constricting blood vessels, acts normally within the body upon the whole sympathetic nervous system, and thus influences the various important organs supplied by the sympathetic nerves. There is much reason for believing that intimate relations exist, through the action of chemical substances as yet obscurely known, between the adrenal bodies, the pancreas, the thyroid, the liver and perhaps the heart and the stomach. But if the mutual relations of normal organs are so involved, it is easy to see how intricate the situation may become when an organ becomes diseased, and how difficult for the physician may become the problem of locating, from the assemblage of symptoms, the primary seat of the trouble. That the problem is not necessarily hopeless of solution is demonstrated daily by clever diagnosticians. One can not help having a profound admiration for the man who, armed with an intimate knowledge of nerve centers and nerve tracts, will from certain obscure paralyses specify the exact spot in the course of the tangled nervous system

where an offending tumor lies. My present purpose, however, is not so much to impress you with the difficulties of making a sane diagnosis, as to caution you against the making of an insane one. An ill-balanced judgment in diagnosing disease is one of the commonest faults of the physician, and if the nature of the disease is not discovered, the success of the treatment is not even problematical.

The moral of my tale is quickly drawn. It is, first of all, for you, who are to become healers of the sick, to be sane. It is for you diligently to seek after the truth, and, having found it, to follow its teachings. But you can do more than this, and it is your duty to do more. With your training and with your growing experience, your opinion in matters of health and of disease, in whatever pertains to the human body, will be sought and will deserve respect if that opinion is in accord with what learned men have declared to be wisdom. You will thus be called upon to be mentors and teachers. I plead, therefore, not only for sanity in your own beliefs and practises, but for the constant exercise of your enlightened influence toward the eradication of what has pithily been called "pestilential nonsense" from the minds of your patients and your fellow-men. Swayed by sentiment, they will often seek the bizarre, the foolish and the delusive. "The time will come," said a wise man, "when they will not endure the sound doctrine. . . . They will turn away their ears from the truth, and turn aside unto fables." They will hold to their opinions with the tenacity that is born of ignorance. Montaigne has said that "nothing is so firmly believed as that which a man knoweth least." You will have many opportunities to show to the world that the way toward strange gods is not the way of salvation. You should hail the chance of thus becoming missionaries of common sense to those less well equipped than you. May you make good use of your education and your powers, and, both as physicians and as citizens, always stand as staunch defenders of the gospel of sanity.

FREDERIC S. LEE
COLUMBIA UNIVERSITY

ANTON DOHRN, FOUNDER AND DIRECTOR OF THE NAPLES AQUARIUM

ANTON DOHRN, founder and director of the Naples Zoological Station, or, as it is more popularly called, "The Aquarium," died in Munich after a protracted illness, on September 26. His death severed one more link which connected the present generation with a group of great men, most of whom were his intimate friends, Darwin, Huxley, Virchow, DuBois-Raymond, Helmholtz and Pasteur. The story of his life is of special, no less than general, interest to Americans. Idealism rendered effective through the will and creative genius is the mark of an unusual combination of mental traits and that, in brief, was the keynote of his personality.

Anton Dohrn was born at Stettin in the year 1840. His father, a man in affluent circumstances, was extremely solicitous that his sons should fully appreciate the responsibility attaching to the possession of wealth; and the paternal admonition to the younger Dohrn to choose his own profession provided it was not a money-making one, proves that the form of idealism of the son, to which he always remained true, was in part, at least, inherited.

Those who had the privilege of knowing Professor Dohrn were greatly impressed, not only by his remarkable versatility, but by the great capacity he displayed in dealing successfully with men and affairs. His power to administer and direct the organization of a large institution never seemed to diminish his interest in, nor his ability to carry on scientific investigations of great importance. Honored by the personal friendship of the German Emperor, and received as a not infrequent guest by families of the greatest distinction in Europe, he never permitted the