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THE CALL TO PUBLIC HEALTH¹

ONE of the most fruitful sequels of the scientific age has been the new and higher valuation which it places upon ordinary human life.

As long as this present every-day world and this ordinary human life were held, whether by ancients or by medievals, to be merely the prelude to another and a better, any serious struggle for longevity, any earnest plea for health for health's sake, fell upon deaf ears. As long as a sick man or his friends could honestly exclaim in the face of sickness or death, "I know that if my earthly house of this tabernacle be dissolved I have an house not made with hands, eternal, in the heavens," disease and death lost their terrors, and even became almost attractive.

Ideals of this kind, full of hope and rich in encouragement for weary mortals, ought never, and need never, to have been divorced from perfect joy and satisfaction in this present life. It was the refusal to consent to any such separation that brought on the warm springtime of the Renaissance after the winter of the Middle Ages. And it must be reckoned the colossal blunder of theology and ecclesiasticism that in their reaction to the Renaissance they blindly turned their backs upon this world and fixed their gaze upon a distant and an unknown world of which they dreamed much but knew little. It was well that theology should urge man on to the ultimate and the ideal, but it need not, in doing this,

¹The annual address in medicine, Yale University.

have neglected the near-by and the real. Is it any wonder that under such guidance mankind, while running regardless through the mazes of this world, its eyes glued to the heavens, should have stumbled and fallen over the commonest obstacles; or that some, bruised in falling, should have turned to rend those who had misled them?

The philosopher of the future will surely count as pathological those periods of history in which ordinary life, for whatever reason, was cheaply held; whether by the morbid ambition of kings and generals, or the morbid mentality of theologians and ecclesiastics. Then will it become the glory of the medical profession that nearer than either warriors or churchmen to the sublime teachings of Jesus of Nazareth have been, all through the ages, the theory and practise of physicians, who have always held the life to be more than meat, the body than raiment; who have emphasized that portion of the liturgy which prays, "as well for the body as the soul"; and who have believed that Christ meant what he said when he asserted that he came that mankind might have life, and might have it more abundantly.

The call to life, and to life in this world, is thus the first and fundamental call of the scientific age. And the next is the call to health, *i. e.*, to wholeness or fulness of normal life. It is not merely that we may have life, but that we may have it more abundantly. The first and chief characteristic of science is that it seeks always after nature, after the normal, *i. e.*, the natural, and looks askance upon the abnormal and the super- or the sub-natural. Hence the call of a scientific age for normal, natural life and healthy living; hence its disapproval of disease, hence its disgust with dirt as a cause of disease, and its belief in public health as well as private welfare.

The call to health is also the primal call

to individual duty, for the call to life rests not upon us, but upon our forbears. Endowed by our ancestors with living bodies full of a machinery more wonderful and intricate than the works of any other known mechanism, we ought first to realize our responsibility for the care and operation of this precious apparatus. And here again we have to deplore that blind, if not insane, leadership which for so many weary centuries led mankind, not only to an ignorant contempt for the flesh, but to ingenious and hideous forms of mortification of the body, such as fastings, flagellations and various grotesque forms of worship or penance. Happily, we have now a more reasonable regard for the human mechanism, a more general recognition that it is worthy of respect and care. And yet, even to-day our children are taught but little in their schools and less in their colleges about the human body and its proper care and conservation. Physiology, hygiene and sanitation, as elements in the curriculum, are despised by many principals and superintendents of elementary and secondary schools; and, being only rarely subjects required for admission to the higher schools and universities, education is sacrificed to examination, and physiology is pushed aside in the struggle for examination records that will count. The call for public health to be effective must begin not with a clamor for a secretary of public health in the cabinet at Washington, but with a general insistence upon sound and accurate teaching in the public schools of the essentials of physiology and hygiene and the basic principles of sanitation. Out of such teaching would soon grow an interest in the public health, a call for efficient service, and an expenditure for sanitation, which, rightly directed, would become irresistible and lead up logically to federal supervision and assistance.

But the call to public health is not merely

a call to individual welfare; it is also one of the primal social duties. Next after himself, man owes it to his neighbor to be well, and to avoid disease in order that he may impose no burden upon that neighbor. A normal community can only be made up of normal members, and we are but just beginning adequately to recognize that the tuberculous person or the typhoid patient is a menace to the public health. The Germans have given us that excellent phrase *Bacillenträger*; and this, for one disease, we have recently translated as typhoid-carriers. It would be well if we went further, and, instead of speaking as we usually do, merely of "consumptives," if we referred sometimes to these as tuberculosis-carriers. If we could go further yet and refer to syphilis-carriers and other sex-disease carriers, we should do useful service by educating the public to one of the gravest social aspects of public health reform.

The call of the scientific age to public health is nothing less than a summons to mankind to carefully consider and wisely control the whole physical sphere of human life and activity. And this great sphere falls naturally into two hemispheres: namely, that of the human organism on the one hand, and that of the environment of that organism on the other. The general public perceives most easily the environment and its significance to health. Plague and pestilence proceeding from without have long been known and dreaded. The cold of winter, the heat of summer, the lightning stroke, a scarcity of food or drink—all these have long since taught man his dependence on his nearer surroundings. Sunshine and rainfall, dew and frost, seem more remote and mysterious; while planets and fixed stars, the moon and the milky way, have influences so uncertain as to connect them with the unknown and the supernatural—inexplicable

human qualities, such as insanity, being easily regarded as moon madness or "lunacy." Of any appreciation of the physical give and take, the chemical and electrical action and reaction, between man and his environment, our predecessors had little or no idea. The story of Newton and the apple still seems to most unscientific minds absurd and impossible. Even to-day it is not in any broad and accurate form that the public conceives of the environmental aspect of public health problems. The idea has gone forth that water should be pure, but most persons still suppose that whatever water flows from city pipes is safe to drink—especially if it is bright and cool. Others, more intelligent, refuse all city water in places known to have impure supplies; yet thoughtlessly drink that very water on cars or steamers departing from such a city, where these have taken on supplies of the impure water. That milk, most ancient and most trusted of all human foods, may carry sickness and death concealed beneath its white and innocent-looking mantle, is an idea which spreads but slowly. That contagion may come, not merely on the wings of the wind, but in a cup of cold water or of milk, in the caress of affection, on the hand of pity stretched out to save, upon the penitential garment, or even upon the sacramental communion cup or the broken bread—these ideas, dimly dreamed of in the past, are among the very corner-stones of sanitary knowledge to-day.

Turning to the other hemisphere of human concern, the organism itself, we enter that province which the medical profession has long made peculiarly its own. The medieval philosophers recognized dimly the true relations of organism and environment, but they fell into the picturesque error of regarding the human body as a kind of miniature copy of the remainder of the universe, and especially of the

heavens. Hence they spoke of man as the microcosm, standing over against, yet reproducing, as it were, the rest of the universe or the macrocosm. It is the glory of the medical profession that it has always had scientific curiosity, that it has insisted upon actually dissecting the human body, mapping out laboriously its real anatomy, puzzling out slowly and painfully its true physiology. It has often been mistaken, but it has seldom refused to observe or to reason. Hippocrates is still admired as the father of medicine, not for his theories, which are now merely historical curiosities; nor for his practise, which was doubtless poor enough; but for his method, which was sound and scientific as well as new; for his insistence on observation and study, especially of the patient; but above all, for his conception of disease as a natural rather than a supernatural phenomenon. Sydenham is still called the English Hippocrates, because he, too, looked upon disease as a natural disturbance of a material mechanism. And that this mechanism possesses—must possess, in order to exist at all—some power of resistance to external conditions is obvious. That some human bodies possess more and some less of this power of resistance is perfectly plain. That the same body may, and actually does, vary in its powers of coping with its surroundings, is also a fact of common human experience. That this “vital resistance” or “vitality” can, within narrow limits, be increased or diminished, is also commonly understood, though seldom popularly formulated—for every one knows the refreshment and reinvigoration of rest, of sleep and of food; the depression and danger of overwork, loss of sleep, starvation, debauchery or poisonings. But the idea that we can artificially and at will secure immunity from virulent diseases, from which there was formerly no escape, dates back less than two centuries: namely, to

1717, and to the letters of Lady Mary Wortley Montagu from Constantinople, telling about inoculation against the small-pox as practised there.

Both conceptions—control of environment and control of the bodies of the people—are indispensable to scientific efforts for public health. The terms “environment,” “organism,” “vital resistance,” “immunity” and the like, are easy to pronounce, easy to repeat. But to the biologist each has had a history and each is full of deep significance. He who would really master the philosophy of life and disease and health must first become a biologist, for the great fact which biology teaches, that man has arisen from the lower animals, helps us to comprehend many human habits and proclivities which would otherwise be hard to understand. Anthropology, especially, and archeology, by showing how man probably first hunted, then tamed, and finally domesticated and dwelt with lower animals, helps us to realize, as our ancestors never dreamed, our lowly origin and our filthy habits. If we are careless of excrements, neglectful of parasites, heedless of food and drink, guided by appetites rather than reason, we do not to-day lay all the blame upon an hypothetical Adam for a natural if not praiseworthy curiosity. We look rather to those long ages of essentially animal behavior, under animal conditions and with animal associations, and marvel not so much at our present carelessness as that we have ever climbed so high. If our dietary of to-day is too rich in protein, and especially in meat, we have perhaps to thank for it those long ages before agriculture had arisen, when meat was the staple food; when the kid or the fatted calf was killed for the guest bidden to meat, as well as for the returning prodigal; when meat and drink went together, and when grace before meat began to be said as it often is to-day—

although the "meat" of to-day may be largely cereals, vegetables and fruit.

We need thus to broaden and deepen our knowledge of the human organism and its evolution before we seek to modify it or its behavior towards the environment. And so, too, in our studies of the environment for health's sake, or for preventive medicine, we must begin with the broadest ideas. For we are here dealing with that other and vastly greater hemisphere of human interest, which, taken together with the human organism, makes up nothing less than the whole known universe. We may even define the environment as that part of the universe not ourselves—a conception which, made dynamic by the interaction of the two reciprocal factors, organism and environment, becomes almost sublime. How delicately the human organism is attuned to its environment we realize when we consider that wonderful rhythm which we call our sleep and our awaking, and that other rhythm of hibernating plants and animals which is the response to seasonal rather than nocturnal darkness. The more intimate relations of climatology and public health have yet to be worked out, but no one can doubt their fundamental importance, and Major Woodruff's main contention, in his interesting book on the effects of tropical light on white men, is certainly correct, as any one knows who has ever felt the tropical sun, or even suffered severely in middle life from sunburn.

The increasing call for health which, as I have shown, has its origin in the conviction that life is worth living, especially if it be normal, healthy life, finds strong support on every hand, but especially in the conservation of human energy; in greater humanitarianism; and in economic and moral efficiency. There is a kind of conservation of human matter and energy as truly as there is of physical matter and force. I hold no brief for vitalism; but

our physical human energy is subject to laws of dissipation as surely as is that of the sun, and that man who expends his thought and energy upon himself and his ills, dissipates and loses his stock of energy available for other and better purposes. On the other hand, we must not forget that many invalids and persons in poor health have been heavy contributors to the happiness and welfare of the world. As examples I need only mention the names of Charles Darwin and Robert Louis Stevenson.

The call to health has humanitarian aspects. Is it a light or a small affair to postpone premature death, or to avoid sickness, and thereby postpone or avoid the pain, the sorrow and the weeping of those who would mourn? Is it not a kind of cruelty to allow infected water or milk to carry into happy homes the germs of typhoid or scarlet fever? If a thief in the night should wound and kill, as milk-borne typhoid often does in a family of children, should we not call him cruel? Sickness and deaths from carelessness are not, perhaps, as repugnant or as cruel as those from malice or robbery, but the actual effects upon the family and the social organism are much the same.

As for moral considerations involved in the present-day call to public health, we need only to think of the peevishness or the querulousness of invalidism, which often rises, or falls, into selfishness so gross as to be pathological; of the dyspepsia, with its moral as well as physical torments to patients and their friends; or of those degenerated and perverted human specimens which disease sometimes produces, to show that here also we can no longer attribute to devils what often proceeds from disease, and that the call to health and prevention for morals' sake is loud and urgent.

On the economic side, the call for health

is barely beginning to be appreciated. Sickness and death mean everywhere heavy financial burdens upon the family and the community, and it is now being realized as never before that Emerson's dictum, "the first wealth is health," is strictly true, not only for the individual but for the social individual or community. New light is just now being shed, for example, upon the economic value of one public health measure, viz., a pure water supply, by a verification which one of my students and I have made of a theorem suggested independently, as it seems, by Mr. Mills, the distinguished engineer member of the Massachusetts State Board of Health, and Dr. Reincke, the health officer of Hamburg, Germany, but first publicly formulated and published by the eminent American sanitary engineer, Mr. Allen Hazen. Hazen's theorem asserts that for every death from typhoid fever avoided by the purification of a polluted public water supply, two or three deaths are avoided from other causes. Working under my direction, Mr. Scott MacNutt has recently been able to confirm this surprising theorem, and even to establish it as conservative. We have also gone further than Hazen and discovered what the other causes are from which deaths are thus avoided; and, although our results are not yet all published I may say that conspicuous among these "other causes" are pneumonia, pulmonary tuberculosis, bronchitis and infant mortality. Mr. MacNutt and I have also raised the question, To what is this unexpected result due? But this question we have not yet been able to answer. It may be that the germs of other diseases than typhoid fever are more often waterborne than has hitherto been suspected, so that purification of a polluted water supply causes a cessation of infection; or it may be that polluted water somehow depresses the vital resistance and so permits micro-organisms which might

otherwise have been successfully resisted, to gain a fatal foothold; or it may be that both these factors are at work, and that each is partly responsible for the fortunate result. On this problem we are still at work.

The city of Pittsburg is just installing a great municipal filter plant for the purification of its principal water supply, at an expense of upwards of \$7,000,000. It is reasonable to estimate that in a year or two this should effect a saving of 100 deaths a year from typhoid fever; for the number of typhoid fever deaths of late years has been 400 or more yearly. Valuing these lives at \$5,000 each, as is customary, the saving effected by the purification works should be half a million of dollars worth of human life annually, making the building of the filter a sound and profitable economic as well as a humanitarian measure. But if, as Mr. MacNutt and I have shown, Hazen's theorem is true, then for every 100 deaths saved from typhoid fever, at least 200 will be saved from other causes; which means at least \$1,000,000 more saved to the city of Pittsburg annually, of its present waste of human life.

The call to leadership in the public health service is a call to the educated everywhere, but especially to educated physicians. And I would, if I could, impress upon the young men about to claim that title from this ancient university, that it is their duty as well as their privilege to lead a willing public on to higher achievements of public as well as private health. It has long been the glory of the medical profession that its members were primarily naturalists rather than supernaturalists, as the word "physician" itself testifies, for it means "a naturalist." That other cognomen of the profession, "doctor," points the way to another duty, another high and noble function, namely, that of the "teacher." Physicians and

doctors, naturalists and teachers of physic, *i. e.*, of nature—need any one ask for a nobler vocation! But if teachers and students of nature, you must be learners, also, and that not merely of the healing art, but of that other equally important sister art, the art of prevention. The call to public health is a call to preventive as well as to healing medicine; and here under our definitions, you may to-day join hands with such members of the laity as aid in the promotion of health, the prevention of disease; for example, with the sanitary engineer, the sanitary chemist, the sanitary biologist, the physiologist, the statistical expert, and the expert in physical education—for these, too, are naturalists and hence physicists, *i. e.*, in the strict sense, physicians.

Fortunately, the call of the age to public health comes to us with the new knowledge in pathology. We now know as never before that in that portion of the universe not ourselves lie many, perhaps most, of the sources of our sickness. The call to health is thus largely a call to beware of our environment, *i. e.*, of the things about us, and here at last we can agree with the monastics. But again the unwisdom of a philosophy which bids us turn our eyes heavenward and neglect things close at hand becomes painfully manifest.

Nor is the newer doctrine merely an enlightened selfishness; it is practical altruism, also, for it recognizes the solidarity of mankind and the fact that whoever purifies drinking water or dirty milk from the germs of disease; whoever promotes temperance or avoids sickness in himself or his household, lifts a burden from other men's shoulders and increases the potential efficiency of some other of those units of which the whole body politic is made up. The call of the age to health is a call to sacrifice and to service, both personal and public; and the call to service has been the deep-

ening undertone of the call to humanism, all along the ages. Sophocles, in his day, urged it upon the Athenians, and Œdipus seizes upon public service for his final passionate appeal to the prophet Teiresias for aid against the plague with which the land was cursed: "For in thee is our hope; and a man's noblest task is to help others, by his best means and powers." Our modern cynics may smile at the inconsistency of an age like our own which is constantly preaching the gospel of service and efficiency, and yet suffers grievously from bad domestic service and bad municipal service; but physicians, at least, do not need to be told that it is one thing to prescribe for a patient and quite another to persuade that patient to follow good advice.

Let us next inquire what responses these various calls of the scientific age for life and health have hitherto awakened or are now awakening, and what should be the attitude of the young men just graduating in medicine toward the new movement. The first, though perhaps in part unconscious, responses were those of the eighteenth century reformers, Voltaire, Beccaria, Turgot and others, in France, and Lady Montagu, John Howard, Captain Cook the navigator, and above all Edward Jenner, in England. The eighteenth century, and especially that portion of it in which Mr. John Morley has happily located the scientific renaissance, consciously or unconsciously felt the beginnings of the new movement; and in Voltaire's "Man of Calas," in Captain Cook's famous second voyage, in John Howard's travels and revelations, in Lady Montagu's introduction of inoculation and Jenner's work on vaccination for smallpox, began to shake off medieval ideas of life, death, health, dirt and disease, and to prepare for Virchow and Darwin, and Pasteur and Koch and von Behring in the nineteenth century. As one of the foremost responses of the

nineteenth century we must put that perhaps unconscious one which began, we are told, exactly a century ago, and which is known as the temperance movement. Under whatever form, and however fanatical or foolish, or at times even harmful, he may have been, the temperance or prohibitionist agitator has always urged the salvation of the body as well as the soul; the conservation of family life threatened with ruin by drunkenness; the social significance and the economic importance of temperance, and even abstinence, as regards alcohol.

I make this acknowledgment with special pleasure, because on another occasion, and because of the fanatical and harmful subjection of public school education in physiology to the so-called "scientific temperance" propaganda, I have publicly and severely criticized and even castigated that form of the movement. Of that criticism I have absolutely nothing to retract; but I here gladly give high honor to the authors and promoters of the temperance movement in its broader features, for having done the age a great service by urging its attention to the welfare of the body, and insisting that the salvation of the body from drunkenness and the horrible sequelæ of alcoholism is not only possible, but also worth while. The use of alcoholic liquors, oddly enough, had already served sanitary science well, much earlier, since lead poisoning appears to have been first detected by a physician, Sir George Baker, among drinkers of Devonshire cider—the cider mills of Devonshire in the eighteenth century having had lead connections, easily soluble in the acids of apple juice.

Of contemporary response nothing has equalled, or even approached in breadth and significance, the anti-tuberculosis movement. Begun by laymen—as were also the earliest boards of health—this movement has become especially important because of the cooperation in the campaign, on an

equal footing, of medical men and laymen. In this anti-tuberculosis movement the medical profession has for the first time, as far as I know, thrown off the ancient mantle of professional exclusiveness in dealing with a medical problem, and invited the public to share with themselves all of their professional knowledge—and ignorance. This step seems to me of extreme importance and sure to prove of lasting honor to the profession. The clergy long since led the way and shared their knowledge and their aspirations with the people; the medical profession has now taken the same democratic and inevitable step, and it only remains for teachers and practitioners of the law to follow suit. Perhaps when they have done this our legislatures will be improved and our cities better governed. For better or worse, America has embraced democracy, and in a democracy any professionalism that smacks of aristocracy or unnecessary secrecy, is out of place.

Official recognition of the call to public health began in the nineteenth century with the factory acts, the health of towns' commission, and the organization of state and local boards of health. State medicine has powerfully responded to the call in England and of late in Germany, but in our own land more slowly. The national board of health of the United States had an honorable if brief existence about a quarter of a century ago. The state board of health of Massachusetts, reorganized upon a thoroughly modern plan in 1886, has won great and deserved distinction, and still maintains its leadership among all our state boards. Michigan and Connecticut, and especially Ohio, New York and Pennsylvania, and very lately Virginia, have followed after. In Massachusetts, and to some extent in the other states, investigation has been added to administration as a state function, and with the happiest results.

Here and there municipal boards of health have responded heartily to the call to public health, but as a rule these boards are poorly made up, poorly officered and little respected. Here, then, is a place where the young physician can often take hold and help to forward the cause. He can urge and work for the establishment and support of a good chemical, bacteriological and diagnostic laboratory; he can report his cases of infectious disease promptly; he can appear before the local medical society, or the local academy of arts and sciences, or the local natural history society, and urge upon its members the importance of clean streets, pure water, fresh and clean milk, tenement house inspection, and the like. He can even write to the newspapers, without fear of any breach of professional ethics, advocating these reforms. The medical man who advertises himself is more obnoxious to-day than ever before; but the man who writes to the papers and has something vital to say, even if he makes himself known and talked about thereby, is rightly held to be doing good. In this connection a word should be added of hearty appreciation of the splendid work done by the Harvard Medical School in its free courses of popular lectures on medical subjects, given during the last two winters before large and appreciative audiences in Boston.

The call to health and preventive medicine has met with no quicker or heartier response anywhere than from workers in applied science and technology—engineers, chemists, biologists, bacteriologists and statisticians. The appointment by the governor of Massachusetts of Mr. Hiram F. Mills, a distinguished hydraulic engineer, to a position on the state board of health in 1886, and his election by his colleagues to the chairmanship of the committee on water supply and sewerage, marked a new epoch in public health science, and was a direct response to the call for expert leader-

ship in the hygiene and sanitation of the environment. The establishment of an engineering division of the work of the board naturally followed; and this example has been imitated with success by other boards, notably those of Connecticut, Ohio, Pennsylvania and New York. The fact is, as I have shown on another occasion, that full knowledge of all the numerous aspects of public health science and preventive medicine has become impossible for any one man, or any one kind of man, so that various kinds of experts must to-day cooperate. The great municipal filtration works, which to-day purify our rivers, are not built or operated or even thoroughly understood by medical men. They are built and operated by engineers, tested and proved by bacteriologists, and paid for by the people.

The medical departments of the army and the navy are making their own responses to the call to public health. The magnificent work of those self-sacrificing officers of the army medical corps which gave us our present ideas of yellow fever control, has shed renown upon the whole American medical profession. And the brilliant achievements of the United States Public Health and Marine Hospital Service, in applying these ideas and discoveries to the actual suppression of the great yellow fever epidemic of 1905, have added honorably and materially to that renown. The more recent and remarkably efficient work of this same branch of the federal service in controlling the alarming outbreak of bubonic plague on the Pacific coast deserves the highest praise. Both achievements, especially when added to the orderly, extensive and fruitful investigations constantly going forward in the Hygienic Laboratory of the Public Health and Marine Hospital Service, ought to make the fact better known than it yet is, that we already possess the very large and active nucleus of a national board of health, pre-

pared at all times to respond to the call of states or cities in sanitary distress or in need of sound advice on public health matters. When to all these responses and successes we add that greatest of all modern sanitary achievements, the making habitable of the Isthmian Canal Zone, largely through the genius of one man, we need not be surprised that the American Medical Association has chosen that man for its next president, namely, Colonel William C. Gorgas, medical member of the Isthmian Canal Commission, but a sanitarian rather than an ordinary medical man.

Enough has been said to show the marvelous responses made or making on every hand to the call with which we are dealing. And yet much more might be said. The establishment of the Rockefeller Institute for Medical Research, of the McCormick Institute for Infectious Diseases, of sanitary and engineering research laboratories, of a permanent and well-equipped federal census bureau, the recent proposal of Dr. Ditman, of Columbia University, for the establishment of a school of sanitary science and preventive medicine—all these testify that the call to health is being heard and answered.

The relation of the physician to the public is rapidly changing. He will soon be expected to be as proficient in the art of prevention as in that of healing. He will not be expected to build water works or sewerage systems, or to install systems of street cleaning, or garbage disposal, or heating and ventilation. These will be left, where they belong, with the sanitary engineer. He will not be expected to be an analyst of foods and drugs, or a judge of their purity. Public health work of this kind belongs to the sanitary chemist. He will not usually, though he will occasionally, be a bacteriologist to boards of health, or sanitary testing stations, or municipal water works, or sewage filters. Such work

will be done more and more by sanitary biologists. What he will do, will be, first and foremost, to fulfill that most ancient and most honorable function of the medical man and remain the trusted and intimate medical adviser of individuals and of families in sickness and in health. He will not, however, be content with this alone. He will seek, in season and out of season, not merely to cure but still more to prevent disease among individuals, families and communities, by urging higher standards of living; by teaching temperance in all things; by advocating pure water, pure milk, pure food, pure living. If it is in him to be an investigator or a teacher, he will be one or both of these things. If not, he will be a frank and honest, but not a captious, critic; he will mold and reform, if he can not lead, public opinion. And by so doing he will give to his day and his generation noble and useful service; he will respond to the call of the age; he will do his part for the public health; he will uphold greatly the traditions of a great profession.

WILLIAM T. SEDGWICK

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

APPROPRIATIONS FOR THE DEPARTMENT OF AGRICULTURE¹

THE aggregate of the appropriations carried in the act is \$11,672,106. This does not include an appropriation of \$460,000 for the printing and binding of the department, which appears in the appropriation act for sundry civil expenses. There are also permanent appropriations of \$3,000,000 for the federal meat inspection and of \$528,000 for the Adams fund, both of which are administered by the department, but not included in the act, making a grand total of \$15,660,106 for the coming year, and an apparent increase over the previous year of \$2,320,814, or about 15 per cent. A large part of this increase, however, is only nominal, as for the present year over

¹ From *The Experiment Station Record*.