

Address.

THE PHYSICIAN'S EXTRA-PROFESSIONAL DUTIES.¹

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On this one day of the year when we leave our patients to the restorative care of Nature, now so beautiful and bountiful, it seems not unfitting that we should ourselves turn from strictly professional themes towards our other interests.

And I am the more inclined to this course by my inability to present any deductions from my own experience in general practice which would be worthy of this occasion. Let us then give this hour to the consideration of our extra-professional duties.

However right it may be under other governments for professional men to devote themselves exclusively to their professions, under our form of government such seclusion is not justifiable. I need not speak of the common duties of citizenship that we share with the laity, for such political duties however much neglected, can hardly escape recognition.

But I call your attention rather to those duties of citizenship belonging particularly to us as physicians, and yet not sufficiently recognized.

As our civilization becomes more complex the different duties of citizenship become less plain but not the less binding. In earlier and simpler stages of social growth these different duties are very plain. Thus, in colonial life, where the common welfare depends upon every man's doing each his part, there can be no question as to the respective public duties of the carpenter, the lawyer and the physician.

In the struggling out-posts of civilization it is not allowable for any one to shirk his share of public work; nor can any waste of power be afforded. Accordingly the carpenter is expected to direct the building of the stockade, and the lawyer must give part of his time to the shaping of the public statutes.

Nor can there be any doubt as regards the nature of the physician's public duties. Plainly he must give to the community the benefit of his special knowledge in matters of public hygiene, and he must also take professional care of all who are dependent upon public support.

This, in the present age, means that the physician must give his best advice about the water-supply and about the disposal of sewage and garbage; that he must also give attention to the educational interests of the colony — not only guarding the healthfulness of the school-children but seeing that some of them are being fitted to be his assistants and successors; and even more plainly it means that he must lead the fight against all contagion and infection, and that he must plan a hospital and devote himself to its management.

As the community, which we are now imagining, grows larger, and as many physicians follow the footsteps of the individual pioneers, these special duties of citizenship do not rest upon all the members of the profession at one and the same time, but may very properly be borne in turn. And further on in the growth of the community these extra-professional duties may be specialized and thus divided among the increasing number of physicians.

Still later in the process of development only a few

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of the whole number of the physicians may be needed in the public service, and then there naturally results a loss of individual responsibility for any share of the public duties that rest upon the profession as a whole.

But there can never come a time in the advance of a republic when any profession can be released from the obligation of public service. Most especially is this true of our profession.

Nor is it only a public loss when the medical profession fails in giving to the public service its due measure of devotion. For, in the charitable judgment of the people, if physicians do nothing for the State, then presumably it is not from their neglect but from their general inability and inefficiency outside of their special province. There thus results to the profession as a whole a distinct loss of influence and of usefulness.

How fitting then it is, on this occasion when we meet together for renewed inspiration in our life work, that we should consider these extra-professional duties. Let us at least look them in the face. And let us see in what ways existing conditions might be improved by a larger devotion on the part of physicians to the public service.

Bearing in mind that the physician's public duty comprises those functions of government for which his education and experience have especially fitted him, and which cannot so well be performed by the laity, we find these functions dividing naturally into three classes:

I. The direction of educational processes, so far as the physical welfare of the public scholars is concerned, and also so far as special education is carried into any part of the wide domains of our profession.

II. The care of the physical well being of all, either temporary or permanent wards of the town or State.

III. The legislation and the administration necessary in eliminating all infectious and contagious diseases.

I. The schools of Massachusetts in the past have very justly been the pride of the State. From the earliest days when the feeble Bay Colony gave so freely of its scanty store to the founding of Harvard College "in yon dim unventured wood," no expense has been spared to increase the efficiency of the public schools. And yet from our point of view is their present condition what it should be?

Is it creditable at this late day that school-children should be promoted from class to class without regard to their physical, but solely according to their mental accomplishments?

After such efforts as have been spent in perfecting the system that produces uniform mediocrity out of natural diversity, is it not high time for more attention to the easier problem of giving fairly well shaped bodies to the boys and girls who so soon will be the men and women upon whom our race depends. At least, is it not time for precautions against the actual damage of the scholars' bodies while their minds are being improved?

Shall tuberculous children continue to be huddled together with the healthy in improperly ventilated school-rooms, and shall the regular increase of diphtheria and of scarlet fever, that now comes with each school-year, continue to rob the State of her boys and girls? Surely it is possible to prevent the attendance of desquamating children and to separate the tuberculous scholars from the healthy. At least, the school-

rooms could be kept scrupulously clean; the misnamed "sanitariums" could be made decent; and the dangerous modern custom of giving the old, soiled school-books to the new comers could be rescinded.

If the question be asked why such reforms are not at once inaugurated, the answer is easy. The school authorities do not understand the importance of taking such radical steps as would be necessary.

It must be remembered that we are descended, and not so very remotely, from ancestors who were not afraid of dirt. Cleanliness, though long held to be next to godliness, has not been considered pre-essential. Nor has dirtiness been thought incompatible with finest scholarship. The love of cleanliness is an acquired taste not yet possessed by all of our race. And school-teachers who themselves hate dirt, hesitate to interfere with the independence of families who appear to hate bodily cleanliness. And, again, if the teachers should dare to insist upon having clean scholars, they have at hand no facilities for carrying out the reform.

School-books are freely given, out of the public purse, upon the subjects of physiology and hygiene, but soap and towels and bath-tubs are not provided. How can hygienic principles be inculcated where their application is impossible?

Such provision may not as yet be demanded by public opinion; nor is the half of what at present is taught in the schools so demanded. But were the people and their school-committees alive to the dangers that lurk in the dirt and in the noisome air of the school-rooms, there would soon be a national house-cleaning of the schools.

Now, physicians know, as others do not know, that dirt is dangerous, and that foul air is even more to be feared. They also know that many of our endemic infectious diseases are propagated in the public schools. Physicians are therefore in duty bound to work for the remedying of these evils.

Moreover, physicians are especially able to foresee the advantages that would result from greater attention to the physical growth and well-being of the school-children. Surely it need not be that the graduates of one school in this great country will always be distinguished from others by their splendid carriage. Each High School in Massachusetts could give at least this much of a West Point training. Not by the scanty, spiritless teaching of gymnastics, nor by the perverted sports of the present age, but by a reasonable share of the time and attention now given to far less valuable training, the public schools could certainly improve the bodies as well as the minds of our children.

For the inauguration of such a reform physicians are the natural leaders. True, such leadership is likely to carry the physician into local politics, where the scholar is not always welcome, but where least welcome the most needed. After thorough acquaintance with the actual condition of the schools in his district, and with the best conditions elsewhere, it is the physician's duty to persuade the school-committee, if possible, of the necessity of improving the hygiene of the schools. This failing, then he must reform the school-committee; and this means that he himself must be willing to serve on that committee, caring neither for any threatened unpopularity at the polls nor for any hostile criticism of his best endeavors. His efforts may not at first avail. Much

that is disagreeable is likely to be encountered. Public service is generally thankless; and it is to no easy enjoyment that the high duty of citizenship invites us. Nevertheless, the obstacles to reform are not so mountainous as at first they appear. The people, however much they may indulge in grumbling and in cheap newspaper abuse, are yet not slow to follow good leadership. Parents who at first object to innovations that affect their children and their purses are, nevertheless, quick to recognize real improvements. Moreover, the times are fast ripening for thorough reforms in the public-school system. Parents are learning the dangers of infection. When the school-bell rings for their children, they hesitate as never before to let them go. And if the medical profession could be prevailed upon to devote especial attention to the healthfulness of the schools, there would be general rejoicing.

Before leaving this subject we should note the fact that teaching is one of the obligations resting upon all professional men. Galen's famous oath requires every physician to impart his knowledge to the generation following. And although the medical student of today has no preceptor, and although the *science* of medicine is so splendidly taught in the great school close by, yet we must not forget the obligation resting upon us to pass on to others, in the measure we have ourselves received, the art of healing.

True, it may nowadays be somewhat awkward for the old physician to find room in the young graduate's head for any hints as to the treatment of patients. But, on the other hand, if our elder brothers, instead of combating the germ theory, would only teach us what they have learned about patients in life-long practice, if they would teach us what they have learned of comfort's art, then we should be nearer our professional millenium.

It is not, however, only to medical students and to younger physicians that we are under bonds. To the laity we are even more bounden to teach the healing art, so far as we can, to all who are willing to learn it.

We hear nowadays of political campaigns of education directed against financial heresies. Of far greater use would be common-sense crusades against the ignorance and superstition that now so flagrantly defy physiological laws.

In earlier times, when everybody knew all about everybody else, the village doctor was also in truest sense a teacher of his art, for then his precepts as to the care of the sick were widely known. Bedside watching was in vogue, and the physician's minute directions were faithfully followed by the kind neighborly nurses and treasured by them for subsequent use.

Such times are gone by. The art of nursing is no longer a matter of inheritance or of tradition. In place of the neighbors we have nurses now who have devoted their lives to this work. They take the place of the physician's private students, who formerly in return for their instruction gave great assistance. In the same way these modern nurses look to the medical profession for instruction. And every physician, both for his own interest and for his patients', ought to do something towards their training. Even in the smaller towns this great work should be undertaken. Otherwise only the rich patients can be properly cared for, whereas under the former *régime* the sick poor fared as well as the rich. This is a matter for most serious consideration. The most effective opposition

to socialism and anarchy can be made by removing every such injustice. Rank and fortune ought not to flourish where love and charity for the sick neighbor die out.

I beg you to think of this. Call to mind your poorer patients who suffer for nursing which is now entirely beyond their reach. Think also of the many young women who would gladly and gratuitously do this nursing under your instruction, if only you would undertake their training. And then remember that fine old saying, *Noblesse oblige*, or, superior advantages bind to larger liberality.

A very mistaken idea has become current that nurses can be properly taught only in the large hospitals. Of course, it is quite true that nurses for hospitals must be trained in hospitals. But for private nurses such training is not by any means sufficient. The new profession of nursing did not originate in large hospitals nor in great cities. And in the original schools, hospital work is still only one of the many departments in which the nurses are trained.

The best nursing service in any community can be secured only by the efforts of the physicians in practice there. In the smallest towns, where as yet a training-school is not feasible, great advantages can nevertheless be obtained by the co-operation of the local physicians with the nearest nurses' school. Such affiliations are happily fast multiplying throughout the State. And even greater blessings will result as physicians more generally recognize their obligations as teachers of nurses.

11. In founding and in carrying on hospitals it would naturally be thought that physicians would be the leaders.

Within the last few years, as you well know, there has been a great increase in the number of hospitals in this country. And even in many of the smaller towns hospitals are now being projected. As the greater efficiency and safety of hospital treatment become more widely known, and as the many advantages of cottage hospitals become apparent, Christian charity more and more readily manifests itself in this form. The old time neighborliness and kindness is not lost, but in the hospital has become organized and centralized.

Physicians know best these and other great advantages; they know how rapidly modern surgery advances where hospital facilities exist; they know how effective isolation wards are in fighting epidemics; and they know best the blessings that the hospital affords for the otherwise homeless sick and injured.

And physicians also know best the requirements that must be fulfilled in the erection and in the management of the hospitals best suited for their different localities. Why is it then that the new hospital movement in Massachusetts is not everywhere being guided by the Fellows of this Society? True, in some places such is the case, but in many other places the hospital movement encounters either the opposition or the apathy of the medical profession. Too often it happens that the physicians whose co-operation is sought, unless given dictatorial power, sulk in their tents. This comes from not being accustomed to public service, or from ignorance of American institutions. Dictators do not flourish here. And the people, who are the rulers, can be persuaded but not driven. If the first physicians are not willing to work with the hospital leaders, then they can meekly work for them

or let others do so after the hospital is in running order. This they do in some of our cities. And in natural consequence we find one of the newest hospitals built without an operating-room, because, forsooth, the need of it was not suggested to the building committee. In several other hospitals the Fellows of this Society accept appointments on "mixed" or "double" staffs, where the different schools of practice are said to be represented, and where the rules and regulations for their guidance are drawn by lay managers. This they do "for the sake of harmony," and because of their conviction that except for such compliance on their part there would be either no hospitals or only homeopathic hospitals possible in these communities. But do they not thus overlook the fact that this compliance on their part formally recognizes and so perpetuates the false distinctions which we all so devoutly wish to have obliterated.

The roots of this modern difficulty lie buried in the indifference of physicians as regards their extra-professional duties. After hospitals have been inaugurated without the encouragement and guidance of those best fitted to guide such undertakings, then it may be necessary to accept the dictation of those who know no reason why patients at the hospital door should not be asked if they prefer homeopathic or allopathic treatment. But where the Fellows of this Society assume their rightful position in the community, where they show their hearty willingness to do their full share of public work, such awkward predicaments do not arise. In such places there is no necessity for accepting distinctions and designations that ought not to exist, but instead there is grand opportunity for demonstrating that perfect liberality which should be our greatest pride and glory.

Of far more importance, however, than any question of medical ethics is the duty of the physician as a public-spirited citizen to see that proper care is given to those for whose care the community is responsible. Not only in the hospitals, but even more in the asylums and in the almshouses a constant watchfulness is needed to ensure for the unfortunate the best care that a constantly increasing enlightenment makes due to them. Nor can such oversight be relegated solely to officials, who indeed are the least able to secure even the reforms that they desire. In the almshouse infirmaries of England the sick and dying paupers have long had the best nursing that the kingdom can supply. Why should not the aged and the impoverished of Massachusetts in their sufferings and in their last hours on earth have like blessings?

The people, if fully informed, would not let their enfeebled neighbors in the almshouse suffer for lack of improved methods of treatment or for lack of proper appliances for their relief and comfort. Nor would the people, if they knew it, allow delicate orphans to be educated by the harmlessly-insane paupers. Again, if the people heard the sorrowful tales told to the officials in the outside-poor departments of our cities — if the woes due only to sickness among the poor were generally known in the community — then there would be far less misery. But in our crowded, hurried life those who can give help and would willingly give it, do not actually see the needs. The physician is in the best possible position to bring into relationship the helpers and the helpless. Difficult as is the great question of alms-giving, in cases of physical helplessness there can be no question. Suffering obliterates

all social distinctions. As regards the able-bodied paupers, let the professional scientific philanthropists have their way; but for the sick and the dying, for the maimed and the feeble-minded, let us follow the prompting of our hearts! Of course, there is here great need of good leadership. At the outset there is need of professional skill in discovering the extent of the physical suffering and helplessness, and in pointing out the proper measures for relief. It is the physician's public duty also to strive for the execution of these needed measures. He must follow the footsteps of Dorothy Dix. Her work was that of a true physician who recognizes his extra-professional duties.

III. The greatest advance ever made in medical science has been made during this last third of the century in making possible the prevention of many of our most dreaded diseases. Indeed, it may almost be thought that sanitation is a new science quite distinct from the science of medicine. But in reality there is no such separation, and the prevention of diseases will always be only a special department of our profession. The apparent separation is owing mainly to the fact that the sciences of organic chemistry and of bacteriology, which are the foundations of hygienic science, are younger than the leaders of the medical profession. Comparatively few physicians have had opportunity for such studies, and in consequence the profession as a whole has not grasped the glorious opportunities which the microscopes have already revealed. Even where attempts have been made to realize these advantages, disappointments have often resulted. Surgeons have clutched at the shadows of great principles. Too often they have trusted to antiseptics regardless of the essentials of asepsis, the new-found goddess of hygiene.

After such wondrous revelations as to the causation of diseases it might perhaps be expected that a whole generation of physicians must go and come before the full advantages of these great discoveries can be realized. But it need not be so long.

There is no sense in the separation that exists to-day between the physicians in active practice and their brothers in the laboratories. Theory and practice must always go hand in hand if either is to be of greatest use. The bacteriologist, if he gives not half his heart to the widest clinical application of his knowledge, will lose his highest inspiration. And the busy practitioner who aspires to the highest fulfilment of his mission must now keep in touch with the searchers in the dimly-lighted world of germs.

The common meeting-ground for bacteriologists and for physicians and surgeons can be found in hospital work and also in the work of health boards. Fellows of this Society should never forget that Massachusetts owes her pre-eminence in public sanitation to the efforts of our former Fellow, the late Dr. George Derby, who organized our State Board of Health—the first in this country, if not in the world. I need not remind you of the great work now being done by this board under the guidance of its distinguished chairman and untiring secretary. But I ask you if the local health boards in our cities and towns deserve corresponding credit. The answer is shameful. The trouble is, that the men best fitted to operate this splendid machinery have not given to the Commonwealth that devotion she has the right to expect from all her sons. No grander opportunity has ever been offered to the medical profession than this of directing

the work of public sanitation. Health boards have been authorized by the State in every city and town.² To these boards the State has granted almost dictatorial power, and yet in more than one-third of our towns no health boards have been formed. One of these derelict towns has over 10,000 population. Although many of them are small, that is no excuse for sanitary obtuseness. Where the community has been properly taught the importance of public sanitary work, such work has been cheerfully supported. And yet, in spite of the provision that in the larger towns one member of the health board shall be a physician, so negligent have we become of our extra-professional duties, that in many towns it has been almost impossible to persuade any physician to serve on the board of health, and in many other towns only second-rate men undertake such service. The best physicians say they have not the time, or they shun the notoriety and the possible unpopularity. As a necessary result the local health board too often lacks the confidence of the public and the co-operation of the medical profession.

Already, however, there are signs of improvement. Within the last few years the local health boards have formed a State Association for mutual improvement; and during the past year there has been a distinct advance in the co-operation of the bacteriologists and practising physicians. For this we are in part indebted to the City Physician of Boston, Dr. J. H. McCollom, who for many months generously gave his services to the physicians of this vicinity in determining for them the presence or absence of the diphtheria bacillus in suspected throats. Already in several other cities similar work has been undertaken. But is it not discreditable that this investigation of diphtheria is not being carried on in every city and town? Surely the health board in every community ought to provide for such work. Then might this modern curse of diphtheria be fought to some purpose. If not exterminated, at least it might be "in straiter limits bound."

Leprosy and small-pox have been conquered; and, as a crowning triumph of sanitation, the last invasion of Asiatic cholera was repelled from our shores. Why should we not also drive out every infectious and contagious disease? At least, the complete disinfection of materials—dwellings, furniture and clothing—is possible and practicable. In other countries disinfecting stations are so well arranged that a private house or a school-house or a factory can be promptly and thoroughly disinfected. This is done for the good of the public and, of course, at the public expense. Why should this not be done in Massachusetts? Why should we longer allow the public to be fooled with the useless fumes of sulphur?

Ever since the pilgrims, perhaps in consequence of their previous close confinement on shipboard, succumbed in such frightful numbers to the "white pestilence," pulmonary tuberculosis has maintained in New England its deadly pre-eminence.

Until Koch's discovery of the bacillus of the disease settled all questions of diagnosis, the physician might have been excused for sharing with his patients at first that feverish hopefulness so characteristic of the early stages, and afterwards the absolute hopelessness that so long precedes the end. But now there is no excuse for such professional helplessness—at least the disease must be recognized. In the early stages there is undoubted opportunity for cure. In the middle stages

² Chapters 218 and 473, Acts of 1894.

there is still a fair chance. And in all stages of the disease there is the absolute necessity of preventing the infection of others.

The modern treatment of tuberculosis and of diphtheria, as well as the recognition of these diseases in their earliest stages, depends largely upon bacteriological work which very few physicians have time and facilities for doing. One central laboratory, however, can easily serve a great many practitioners. And such laboratories should be organized, so that these modern weapons against infection may be freely placed in the hands of every physician in the State. This is the proper work of the boards of health. But how can such work be done except under the direction of the highest medical intelligence? No better illustration could be offered of the importance of our extra-professional obligations.

Massachusetts has taken another of her great forward steps in exterminating tuberculosis from our herds of cattle. No longer is it unavoidable that the seeds of this disease shall be given to our children in their daily food. Would that we also kept the germs out of the air that they must breathe!

True, it is a gigantic task that confronts us. Patients already infected with tuberculosis cannot be segregated as lepers are, and yet much might be done both for their relief and for the greater safety of others. Hospitals for diseases of the throat and chest might be established in our pine woods, in imitation of Sharon, and in our hill townships as well. Such sanitariums, properly equipped and properly managed, would effect the cure of thousands now doomed to die for lack of salubrious surroundings and modern treatment. To other thousands, already far advanced consumptives, such hospitals would give every possible chance, and at any rate give great comfort and relief; and at the same time, by bringing such patients under intelligent superintendence, much would be accomplished in preventing the further spread of the disease. Such measures, it is true, would entail a great outlay of public money. But the investment would bring most blessed returns. By affording every possible comfort to the hopelessly sick, and by giving to those who cannot afford either a change of climate or expert professional attention, the best hygienic surroundings and the recently greatly improved medical treatment, the State would have the moral right to require the stricter quarantine that is so important.

Tuberculous and healthy children should not be allowed to attend the same schools. For the tuberculous even better schools should be provided, and might well be afforded by any community where the safety of the young is properly valued. Tuberculous operatives should not be allowed at the same benches nor in the same crowded rooms with others. In any shop or factory it would be wise economy for both proprietors and employes to arrange for this separation even by pensioning the afflicted.

But the separation necessary to prevent the spread of tuberculosis among school-children and operatives is only a small part of what sooner or later must be undertaken in every enlightened community. It is even more necessary to educate every tuberculous patient to such personal habits as will prevent repeated auto-infection, and at the same time ensure the safety of other members of the family and of the public.

That our foe is so mighty, so insidious and so firmly entrenched, ought to make us all the more eager to

begin the fight. We must look out, too, that we stand shoulder to shoulder. Individual efforts will count for nothing. Even a single city or town could do little more than to set the example.

Plainly the lead must be taken by the health boards of the State, working in unison. This co-operation can be secured only by a greater devotion of the physicians in the public service. It is in this sort of extra-professional work—in stimulating the health boards to united, vigorous action—that physicians now have grand opportunity for usefulness.

We have now briefly considered three departments of public service where the knowledge and experience of physicians is greatly needed, in order to provide for all our people the advantages that now separately may be had here and there in other countries.

Under monarchical governments we might petition the king and his councillors for these reforms. But in a republic, reforms originate not in professional petitions, but in popular demands. The people are willing to be persuaded, and must be persuaded before they undertake reforms. Direct responsibility, therefore, rests upon those who alone are able to lead such movements.

In the evolution of this country we have not yet attained the condition of a perfectly representative government. And it is only in the higher development of this grand policy that our national hopes safely rest. Geographical sections may be represented, and voting districts may already be numerically equal, even political parties may be justly represented, but real representative government requires also that each class and profession and trade shall be represented. Such government, so far as our profession is concerned, can easily be obtained by concerted action. And one of the functions of the District Societies, and especially of the local circles of Fellows ought to be the nominating of our representatives for public service in those departments where the help of our profession is needed. Such nominations would have the binding force that honor always imposes. And the physician's public service would be far easier if undertaken at the request of his professional brethren.

But it is not enough that we strive merely to secure the election of our professional representatives. It is even more important that we shall take a greater interest in the public work. One of the sections of our annual meeting might very profitably be devoted to sanitary science. Public measures that especially concern the medical profession should be discussed; and our opinions as physicians should be made known at the proper times, that is, in the formative stages of legislation when such opinions may be of some use. There would then be less ground for pessimistic criticism of school and hospital and health boards.

The three great needs are, first, an individual recognition of our responsibilities for extra-professional or public service; second, concerted effort to secure proper professional representation in the government; and, third, a continued interest in the public service of our Fellows for their encouragement and support.

It may not be uninteresting for us to look at the amount of public service now being done by the nearly two thousand Fellows of this Society, who are practising medicine in two hundred and forty of the cities and towns of Massachusetts. Twenty-five are serving on school-committees, and twenty-five others are serving on health boards.

In pointing out our present failures in these respects, I should not be forgiven if I did not make honorable exceptions. I see before me many of our older Fellows who in previous years have nobly earned exemption from further public service. It was their privilege to serve our country in the dark days of her sorest need. They gave freely of their youth and of their prime. No words of ours, at least in their presence, can fittingly express our joy and pride in having these heroes in our ranks. May they long enjoy our love and honor and gratitude!

And there were others, the comrades of our living heroes, who returned not from the battle-fields, but who there gave to our country the last full measure of devotion. At this memorial season it is especially fitting that we should hold them in remembrance. Nor could any anniversary of this Society be complete without their commemoration. Their lot it was to die in the midst of the nation's travail. For them there was no rejoicing over the new birth of perfect freedom, and over the restoration of the Union. But, like Dr. Warren, whose life-blood shed on yonder hill still quickens the pulses of patriotism, so these brave war surgeons, whose bones lie in the Wilderness, on the hills of Gettysburg, or in the swamps of the Chickahominy, have bequeathed to us the priceless blessing of noble examples.

Shall we prove ourselves worthy of our inheritance? In times of peace and prosperity shall we begrudge giving some small portion of our time to the public service in which they gave up their lives? Rather, as we return to our routine responsibilities, shall we not also willingly assume our extra-professional obligations?

I plead in behalf of anxious parents, who would give their all to ensure the health of their children, but who do not know as you know, in what ways this might be done. I plead in behalf of the distressed, for whom the public would gladly do more if only the way were pointed out. And, finally, I plead in behalf of generations yet unborn, that this dear land of ours shall be more jealously preserved from contamination, in order that the Commonwealth of Massachusetts for the coming ages may be the healthful home of succeeding generations.

God grant that it may be so!

Original Articles.

AN EXAMINATION OF SOME RECENT STATISTICS IN REGARD TO ETHER, AND A CONSIDERATION OF SOME PRESENT METHODS OF ITS ADMINISTRATION.¹

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(Concluded from No. 23, p. 562.)

CONSIDERING briefly some of the present methods of giving ether, let us first discuss the general principles underlying etherization. That life may continue, a certain amount of oxygen is necessary, and it is also necessary that carbonic dioxide, CO₂, should not be present except in small quantities. If there be either too little oxygen, or too much CO₂, or both of these conditions simultaneously, the patient will become

¹ Being one of two papers receiving the second Lyman Prize for 1894.

asphyxiated, and if subjected to such influences long enough, will die. Therefore, it must not be forgotten that any method of etherization is bad which favors the development of the above-mentioned conditions, and is good in just so far as it avoids them, other things being equal. This seems so self-evident as to make its repetition almost absurd; but an examination of some of the well-known ether-inhalers would indicate that if it had not been forgotten, at least it had not been suitably provided for in mechanical construction of these instruments. To produce anesthesia, it is necessary to introduce into the system a certain amount of the vapor of ether (or chloroform); and to combine this with a sufficient quantity of oxygen, and the removal of CO₂, is the essential problem underlying all anesthesia.

The absolutely essential characteristic of any ether-inhaler is, therefore, to present to the patient sufficient ether and sufficient oxygen, and to permit the CO₂ to escape. To these characteristics, an ideal inhaler would add cleanliness, lightness, simplicity, adaptability, a minimum amount of ether wasted externally to the patient, and so far as may be, a removal of the unpleasant irritation of the ether vapor itself.

The various mechanical arrangements for giving ether may be roughly divided into three classes: (1) the cones, (2) the mask, and (3) the inhaler proper. In this classification the sponge is included among the cones, though it does not properly belong there, for in reality it forms a little class by itself, not only in its action, but in its use. It might be considered a cone without sides. All three of these classes have, of course, a common object in view, and that is the presentation of ether vapor to the patient in a safe and acceptable manner. And if we may judge, as we are told, of the degree of resistance of a disease to drugs, by the number of remedies suggested for it, so may we argue from the number of mechanical contrivances which are described for the administration of ether and offered for sale, how far we still remain from an ideal ether-inhaler. And though one naturally shrinks from offering another machine to increase the already too great number which exist, still it is pardonable to endeavor to grasp firmly the essential principals of etherization, and then to suggest some of the necessary characteristics of that wonderful instrument of the happy future, the ideal ether-inhaler. But before consulting the future, let us consider the past and present.

Considering first, the sponge, it is perfectly obvious that with a good ether sponge there is ample opportunity for a sufficient supply of oxygen, and for the dissipation of the undesirable CO₂. In this respect, the sponge is perhaps the best known method of giving ether; at all events, there is no other inhaler with which the writer is familiar, that excels it in this regard. The objections to the sponge are mainly the large amount of ether required, and the complete saturation of all the assistants; the liability of vomiting into the sponge, in which case it is extremely difficult to clean; and the fact that many patients dislike to use a sponge with which others have previously been etherized. It is unquestionably true that with a sponge more time is consumed in producing anesthesia, and for obvious reasons. That the sponge hardens and tends to freeze, as is said to be the case in the Ormsby inhaler (Buxton), has not been observed in Boston; and there are no other considerable objec-