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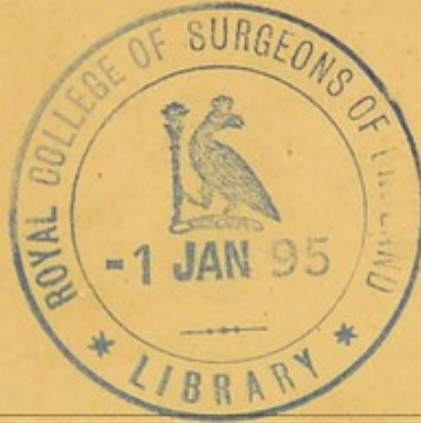
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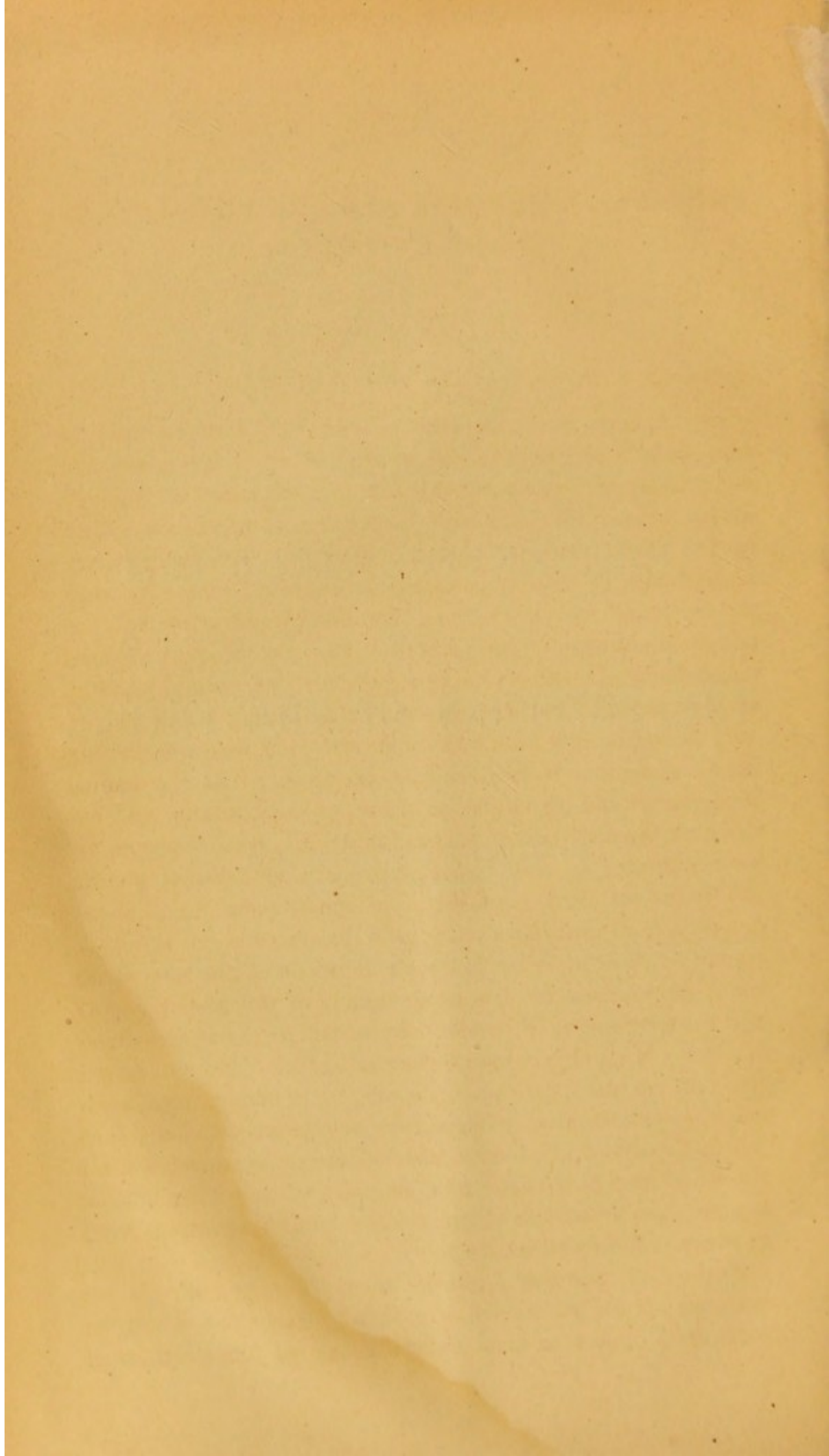


PREVENTIVE MEDICINE

AND

THE PHYSICIAN OF THE FUTURE.

By HENRY I. BOWDITCH, M. D.,
CHAIRMAN OF THE BOARD.



PREVENTIVE MEDICINE AND THE PHYSICIAN OF THE FUTURE.

Gentlemen of the State Board of Health.

In my earliest communication with you I endeavored to express in a few words some general views of the great and benign objects presented before us, and the correlative public duties that devolved upon us, by our appointment as members of the State Board of Health. I wished then to give my highest ideal of those objects and duties, and I then expressed my belief that we should not fail of doing some service to the people of Massachusetts if, with simplicity of purpose and single-hearted devotion to that purpose, we should pursue, slowly, perhaps, but steadily, the path opening before us.

It is not my intention now to review what we have already done. I may, however, be allowed to say that the annual liberality of the legislature in regard to our reports, and the fact that the example of Massachusetts has been followed by several States of this Union, who have established similar boards, is certainly gratifying. It would seem that our example has stimulated others to a like course of action in regard to Preventive or State Medicine, as it has been sometimes called, because the improvement of the public health and the prevention of disease among the people is the object of both. This object has now occupied us for five years, and we can, perhaps, see more clearly its tendency and noble scope. We can also, perhaps, prophesy more decidedly than before the beneficial results that will accrue to mankind when the world enters heartily into its objects, and when similar boards have been formed, and have worked for many years in every civilized community.

Preventive or State Medicine is of recent origin. It has been the natural outgrowth of modern thought and resources, stimulated by centuries of suffering and by the sacrifice of

multitudes of human beings. Modern thought, later and more scientific methods of investigation, and more rapid means of communication of thought and of action have given this idea to the nations. It is true that Hygiene, or the science which would promote human health, has been discussed from earliest times, but commonly as applied to the individual man. The scientific study of the laws of disease as they affect large masses of men, and the voluntary efforts of great states to study those laws by means of boards of health, or of experts set apart for this special purpose, are strictly of modern origin. Hippocrates, wise as he was, could not, with the imperfect means of communication in his day, have inaugurated it. Moreover, in the earlier states, man as an individual never stood, in the estimation of his fellows, nor of the government, so high as he does at the present day under European or American civilization. Formerly his welfare was subordinated to that of the state. Now, the theory is exactly the reverse, and the state claims to have the tenderest interest in the welfare of each and every one, the humblest or richest of its citizens. Formerly, all persons believed, as many now believe, that prayer should be offered to the offended gods in order to stop plagues, famine and death. But now, most persons feel that, although prayer may avail much to enable an individual or a state to bear calmly some terrible calamity or to die bravely, if need be, in a great cause, it can never drive away fever, cholera, nor small-pox. It can never cure consumption, though it may help both sufferer and friends to bear it more patiently. To submit quietly to any remediable evil, as if to the will of Providence, is not now considered an act of piety, but an unmanly and really irreligious act. It is the part of error and stupidity which does not believe in the duty of studying into the physical causes of disease, and in at least endeavoring to crush out these originators of pestilence and of death.

Modern Preventive Medicine has been hinted at by Nature from the earliest time. Occasionally she has shown us how she can summarily strangle disease, and drive it forever from its usual haunts. The great fire in London, in 1666, burned up the greater part of that metropolis. With its great sorrows, trials and losses, it brought one of London's greatest

blessings, viz. : the extirpation of the plague which had previously so often ravaged the inhabitants.*

Intermittent fever has ceased in certain parts of Great Britain and of this country under the influence of tillage and drainage of the soil. Till inoculation was brought from the East and taught to modern Europe, the physician could not mitigate small-pox.

Jenner, led by Nature's teachings, substituted the milder disease of vaccination for the fatal scourge of small-pox.

Private investigations in Europe and America have, in these later days, proved that residence on a damp soil brings consumption; and, second, that drainage of wet soil of towns tends to lessen the ravages of that disease.

We have been taught by Murchison and others that fevers are often propagated by contaminated drinking-water or milk. Our own Board investigations have proved that contaminated air may also cause it.

Still more recently cholera has been brought, in its origin and progress, under law, and we know how we could probably prevent it if proper precautions against its origin were taken. A neglect of proper sanitary regulations tends to propagate this scourge, year after year, over Europe.

These monitions given by Nature and individuals as to our power of checking or preventing disease, have at last culminated in the fact that the State decides to use its moral power and material resources in aid of State or Preventive Medicine. England, in this respect, outranks all other countries. America, I think, stands next.

This appears to me the general course of events hitherto in regard to public health. I do not mean to assert, however, that nothing has ever been done before by the state. On the contrary, the Parliament of Great Britain and other European states and the legislatures of our various States have at times spasmodically and tentatively, for centuries past, given powers to local town boards of health. They have, moreover, at times, devised important plans for the health of the people and for the prevention of the spread of certain diseases. But all these were trivial compared with the present

*_68,596 died of it in London, 1664-5.

position of England and of some States of this Union where state boards of health have been established.

Again, physicians have heretofore devoted themselves chiefly *not to the prevention*, but to the "cure" of disease. How utterly impotent have commonly been their efforts to cope with great epidemics! The giving of medicine during a disease, not the prevention of it, has been their chief aim, and the community now generally believes that the physician is simply an administrator of drugs. How rarely is a physician called upon to mark out the course a man should pursue to prevent their use. Nevertheless, modern times will bear ample witness to the zeal with which some of the most distinguished of our number have protested against the too free use of medicine, and have declared that our art must be pursued more in accordance with Nature's laws, and not in total neglect of them, as was too frequently the case in former days. Some few even, though I would protest against it, have carried their skepticism so far as to lead one to believe that they think the practice of Physic hitherto has been an unmitigated evil.

With one accord I believe it may be said that the whole profession has cordially greeted the advent of State or Preventive Medicine. What, it may now be asked, will be the effect upon the public and the profession after two or three centuries of growth of the principles of Preventive Medicine? I look forward with high hopes for the future of this young idea, founded as it is on the duty of the state to investigate the laws of all diseases so that, as far as possible, all shall hereafter be prevented. I think that idea cannot fail of making a stalwart growth. It may make many errors, but it must make yearly progress in the knowledge of the more hidden causes of disease. At least three good results will arise from it:—

1st. The profession will learn that a system of therapeutics dependent on *materia medica* simply, is much less valuable than that which seeks to defend its patients from the insidious approaches of the causes of disease.

2d. The people will themselves learn to avoid many evils into which they now fall, because of their ignorance of the laws of health. They will have less faith in drugs, more in na-

ture; more in anticipating and preventing evil than in curing it after it has begun.

3d. The knowledge of the precise effects of special drugs, and of their various compounds one with another, will become more and more accurate under the teaching of modern experimental physiology, and still more under clinical experience. Though it may take centuries to develop, even to a small extent, the future materia medica, the future physician will use each article with a finer knowledge of the precise effects of each drug and of its combinations, than it is possible for us now to have. We can scarcely foresee the time that will be required for this materia medica to become even tolerably perfect. In fact, the knowledge of the special action of drugs at the present day, compared with what we have yet to learn upon this important subject, is a mere trifle.

Meanwhile, as the profession of medicine becomes more thoroughly scientific, the people will also gradually learn that all filth (physical, moral or intellectual) is absolute poison; that no violation of physical, moral or intellectual law can be made, even momentarily, without injury to human comfort and life, and possibly without causing premature death. It will learn that it is not only worse than useless, but a vile wrong to one's self, to use various articles as incautiously as they are generally now used.

But it may be asked, What is to become of the physician and his practice, when the public takes care of its own health more than it does at present? Will the profession be useless? Far from it. It will stand higher than ever. It will be the prophet of the future, and will direct men how to govern their own bodies in order to get the full amount of work and of joy that is possible out of each body that appears in life. I feel sure that more than at the present day will the wise adviser and practitioner of medicine be then needed, whenever misfortune or wilfulness or carelessness, folly or crime shall have brought disease and perhaps a tendency to early death into a family. It will be the physician's duty to show the way out of such impending evil. He will take the child at its birth, and will cast its horoscope from the past and present of its family tendencies, and its actual surroundings. Having well considered

these data he will lay down the rules of life which should rigidly be pursued by parents and by himself in order to gain possession of as much of perfect health as he is capable of having. As the dentist now undertakes to modify and to guide the various processes of dentition from earliest childhood to old age, so the physician will be the monitor and guide for the entire body from birth to death. The dentist is, philosophically speaking, in advance of the physician of the present day, inasmuch as in his own specialty he oftener acts on the principle of Preventive Medicine. It must be admitted, moreover, that however wise a prophet the physician may be, and however skilled in hygienic law the people may become, there will always be a very wide margin of ignorance, folly and of adverse circumstances on the part of the public, which must be met, and, if possible, remedied by the professors of our art.

To be able to aid in inaugurating such a future state of professional and lay knowledge is surely an object worthy of our highest effort. It is satisfactory to me, and I hope also to you, to think that we are allowed to advocate this noble cause in Massachusetts. It is my hope that by the efforts of the Board the State will annually become more alive to its best interests, and to its duties towards the people. Hygienic laws will be enacted and they will be obeyed by the many, if from no other motive, from self-interest. May we not hope that our country homes will be more carefully guarded from the many causes of disease that now, through ignorance, beset them. I trust that in our cities large tenements for the poor, in which there are common corridors and water-closets or privies for two or three hundred people, and in which the comforts of home and all the amenities of human life are set at naught, in which it is impossible to educate a family in decency, and where disease and crime prevail, will be declared public nuisances and pest-houses. I look forward to the time when a city government will be considered criminal which, like the city of Boston, allows, year after year, sewers to be introduced as unwisely as they are at present, and its sewage to be thrown broadcast about its borders, thereby at times overwhelming its inhabitants with a tainted atmosphere. The same govern-

ment will, I trust, feel the importance of having proper administration of the laws about drunkenness, guarding itself alike against the futile waste of time of attempting to enforce a general prohibition, or the allowing, as at present, of unbridled license in the sale of liquor. When Preventive Medicine has full sway, men will not be allowed day after day to disturb the public peace or the comfort of their own families by beastly drunkenness. The authorities of that day will promptly decide whether it be the result of disease or of crime, and will seclude the wrong-doer either in a drunkard's sanitarium or a prison. I feel sure, moreover, that the time will come when the selling of rum to an avowed and well-known drunkard will be deemed one of the most dreadful of crimes, inasmuch as drunkenness strikes at the root of the physical, moral and intellectual health of the people. These are only a few of the blessings that will arise when Preventive Medicine shall have its full sway over our people, and when individuals and laws shall have been gradually moulded by it.

As an example, imperfect though it must be, of what I think will be the relations of physicians and the community compared with those which they respectively hold at present, let me imagine the following: Suppose two parents have hereditary tendencies to consumption, and they are desirous of knowing how best to manage their child that has just been born. They wish that it may have the best chance of arriving at a good old age after a life of health. Let us suppose that both parents have this ancestral tendency to that disease of the lungs which is known as consumption. According to some modern writers, it has many antecedents or causes, but we shall probably know it for centuries to come, as it has been known in the past, as the one disease of the lungs that slays a large percentage of all who die in New England. There are certainly some general topics, even with our present knowledge of its antecedents, which would naturally and physiologically come under discussion in replying to the inquiries. Among them are some which are generally applicable to all human beings, whether in health or disease, viz. : *residence, nutrition, clothing, care of the skin, bathing, &c.,*

recreations, education, profession, exercise, walking, running, dancing, horseback exercise, driving, gymnastics, bowling, rowing, swimming. Let me try to give most briefly some general ideas on each of these topics.

RESIDENCE.

The physician must look well to the homestead,—its situation, its surroundings, its construction. He must declare that the house should be in the country rather than on the sea-coast, and placed on a dry soil, or if situated on a wet soil, that it must be immediately and effectually subdrained in all the immediate vicinity, and the cellar must be cemented so as to be *always dry*. All draining, in fact, around and from the house must be arranged with the greatest care; for manifold evils may fall on a family when little attention is paid to this important matter. Especially should all refuse-matter from the kitchen and other sinks, from water-closet or privies, be effectually carried away, and at the same time be so far removed from the source of water-supply which is to be used for culinary purposes, that it will be impossible, by any percolation through the soil, that the one should mingle with the other. To avoid this contingency, closely cemented stone, brick or vitrified tile-drains should be used for the refuse-water, and the supply for culinary purposes should be drawn, if possible, from some distant spring or pond, and be conveyed to the house in wooden, iron or brass, and if possible, not lead pipes. In future times, when Preventive Medicine has gained its full and legitimate influence over the community, no city, town or large village will dare to carry on its government without taking immediate measures to procure an abundance of good, pure, soft water, and the same authority will carefully * watch to prevent all possible contaminations from houses or mills or other impurities. Having chosen a proper site for the house, and having carefully drained it and supplied it with pure drinking-water, arrangements should be made for an equally abundant supply at all

* In this connection I would refer the reader to the Report by W. R. Nichols, in another part of this volume, on the "Present Condition of Certain Rivers of Massachusetts."

times, day and night, of pure air. For this purpose it will be well to have the house situated on an elevated knoll, and open to the south and west winds, though shielded, perhaps, somewhat from the north and east. It should not be too much shaded by trees or creeping vines, for these cause a dampness about it. The sun, which modern science would prove is the source of all vegetable and animal life and activity, and whose beneficial rays are daily felt when they are present, or sighed for when absent, should be allowed to have free access, if possible, to every room and chamber in the house. The atmosphere of the family dwelling should never be allowed to be too cold in some parts, or too hot in others. It should be *slightly tempered* with warmth in the dead of winter all over the house. In the sitting-room the heat should not be above 72 Fahrenheit, nor below 68; 70, the medium, is the best. Most people, at the present day, seek to gain this by means of furnaces or radiating steam-pipes in each room. Often not the least arrangement for a proper change of air is made. Nothing can be more deleterious or more absurd than the very common method, much employed now, of building houses without any open fire-places. Some, even, have only small flues, utterly inadequate for the purpose of ventilation. It is the duty of Preventive Medicine to protest against all these, and to endeavor to bring back our builders and the community to common sense in this respect. One general rule should be laid down. Let open fire-places, connected with well-constructed chimneys, be made in every apartment, so that they can be used, if needed, for proper ventilation. In this respect, at least, our fathers were wiser than we, with all our vaunted knowledge. They established their broad hearth-stones, and threw up their wide-throated chimneys. Gathered around these the children inhaled healthy, continually renewed, air, and during the long winter evenings, as they watched the blazing log-fire, or listened to the crackling embers, they gained health as well as joy; whereas our children scarcely gain either, while huddling around the black hole of a furnace register. The youth of those days obtained a more genial warmth, as well as this constant change of air, and which cannot possibly be obtained by the modern furnace, or

by that still more pestilent apparatus, born of modern parsimony in the use of pure air, the air-tight stove. This latter contrivance, whether it be constructed to burn wood or coal, or whether made of wrought-iron or cast-iron, must be wholly condemned by Preventive Medicine. It is an instrument of torture at times for an invalid, and if continually used it is fraught with the worst consequences to a growing family. It wholly prevents ventilation, and heats too much. I have a decided belief that a consumptively inclined family may have its whole fate decided adversely by the exclusive use of the furnace, or air-tight, or steam apparatus to warm all the homestead. Patients have told me that my orders for the removal of an air-tight stove, and for the use of an open fire have relieved them more than any drugs which I gave them. They felt grateful because I refused to prescribe unless my orders in this respect were immediately obeyed, *as the first and most important measure to be adopted.*

Open fire-places, or the admirable substitute for that, the old-fashioned but philosophical Franklin fire-place, or open-grated stove or grate should therefore be in every room of the modern dwelling, and thus we should imitate in a degree at least our ancestral homes, and gain all the advantages without the few disadvantages of their ampler chimneys; for these old homes, I think (although I am not quite sure upon this point), failed in one respect, and in which we moderns have probably improved upon ancient modes. They made no arrangement for tempering the atmosphere all over the house. This certainly is a great comfort in modern days, and I cannot think it a detriment if we use small furnaces communicating with the open air, or if we place simply entry stoves so to slightly warm the corridors and chambers during the coldest of the winter weather. Great caution, however, should always be taken when using furnace or entry stoves to provide thorough ventilation by opening the windows daily. Unless the weather be intensely cold, a small crevice may be advantageously left open during the entire night. On this latter point so much depends on individual power and conditions that no general rule can be laid down save this, viz. : that many more die from the want of pure air than from a superabundance of it, even if it be cool.

NUTRITION.

Upon a proper nutrition of the body depends the present and future health of any being. It becomes therefore a very important element in our attempt to prevent consumption. It varies much with the age and individual tendencies, each of which will have to be considered by the future physician. In babyhood the mother's milk is usually most fitted for a child, and should always be used unless, according to our hypothesis, any hereditary taint exist. But under the supposition that the mother is born of consumptive parents, what should be done? Shall she nurse her child? If before and after its birth she is *in perfect health*, and has always been so, and is anxiously desirous of nourishing her babe, I should not feel at liberty to prevent her. I would allow her to continue to do so during the usual period of nursing, provided she and her babe continue well. But if the health of either should fail, I should feel compelled to advise the mother to give up this duty to a healthy wet-nurse. I should require this for the sake of both mother and child. For the unfortunate parent who continues nursing may be undermining her own health, at the same time that she brings perhaps death to her child. Some, I know, are willing to forego in such cases the employment of wet-nurses, and substitute instead cow's milk. That this substitute will be often apparently sufficient for the present health of the babe cannot be denied, but I have no belief that we can ever improve upon a healthy woman's milk as the nutriment for a babe. Therefore, when the milk of a healthy nurse can be procured, that is at least tolerably near the age of the child, it will usually prove better than any artificial substitute. When a wet-nurse cannot be got, then condensed milk may be used, largely diluted. But a long time before the mother's milk or its artificial substitute be given up as the main article of diet, other things may be advantageously added. A little stale white-bread or milk-biscuits may be crumbed into the milk. As dentition progresses, the child will relish and will get nourishment, if allowed to suck, and thereby ease his gums, with a small bone or bit of tender beef. If he be of a costive habit, a little simple molasses gingerbread may be allowed. It will

usually be well borne, and will tend to keep the bowels open. The child should not be weaned, but should be kept to such simple food as this till sixteen or eighteen months old. From that period till puberty the simplest and most nourishing diet should be continued. Of meats I have thought that it would be well if he were more closely confined than is usually done; to beef and mutton, fish or fowl; and one or two vegetables, and the simplest of puddings. But pork, salted meats, hams, pickles, various kinds of pies and cakes should be avoided.

I am acquainted with two families, in each of which the consumptive tendencies were VERY STRONG, and both have escaped hitherto the scourge. They both followed this generally named very simple diet, and both had air in abundance. All the children are now beyond middle life, and some are old, and have as yet shown no tendency to consumption. In contrast to these I have known of two other families not hereditarily predisposed to consumption. They both had pork as their *principal article of diet*. Both have been cut down by consumption. I have no right to make a definite inference from such a small array of facts; but until the contrary be proved I think it well not to neglect even these few, embracing, as they do now, over fifty individuals. No harm can arise from using the simplest food, and possibly a great good may be derived from so doing.

From puberty till adult life a similar simplicity of food would be advisable; but more varieties may be used. In fact, this would be inevitable in the struggles and changes of life. But this is just the period when a fickle, weak judgment, and still more, perhaps, an unbridled will, tend to carry the youth of both sexes into excesses. It is the period of joyousness, and it revels in the sense of freedom. It needs to be gently led, sometimes with infinite kindness and caution, but at the same time with decision; and, as a physician, I know of nothing more important therefore upon this most important subject. At this period the two sexes show different tendencies. The maiden is apt to have a capricious appetite, or perhaps has little or no appetite. At times she arrives at the most false conclusion that she should not eat

at all because of want of appetite, or that she may eat the most unnatural articles because she likes to do so. She chews up pencils, chalk, charcoal, or some other equally noxious thing, and refuses the roast beef and bread. She prides herself upon these vagaries, or she secretly indulges her diseased tastes. She thinks herself different from all others, and a kind of martyr to the persecutions of the world, that would thrust into her unwilling stomach the hated but nutritious food. If she reject all advice upon the subject, there is a deterioration of the whole stamina of life, and she thus renders herself more liable to the subtle influences of her race. Dyspepsia is apt to set in, and soon perhaps a "common cold" will cause a cough which may terminate only with her death. Far different usually are the tendencies of the young man during this period of his life. It is the period of passion and appetite for the gratification of all the instincts of life. Woe betide the youth who runs riot, and reduces his animal vigor by thoughtless license of food and drink, or in other ways during this period. Cautious guidance without seeming to guide, is the best rule. Let home be the happiest place he can find. Let the table be spread with a sufficient variety of food to tempt both male and female, but let wisdom select the articles. Simplicity and nutritiveness should be the main object held in view by the parent, but not by so strict a rule as should be followed during the earlier period. The question of alcohol may come up during this period with telling power. Doubtless, under a judicious guidance, wine, and even stronger liquor, may be occasionally used by the youth of both sexes, when from some cause there is evident debility, and consequently there may seem to be reason for their use. Excellent lessons in a true temperance may be instilled by a wise guardian on such occasions, even while administering liquor, which if used intemperately, could bring on drunkenness or death. But such a use of strong drink should be only occasionally indulged in, and be immediately abandoned after the recovery of health. An undue and intoxicating indulgence in the use of liquor in this early period is more liable, I think, to sap the sources of health than it may be beyond

the period of adult life. At the former period it tends, I have thought, to develop phthisis, by its general deterioration of the system.

From adult to middle life and old age the patient will decide for himself. The same general rules for using regularly and carefully a simple but nourishing food should be carried out during the later period of life. If the education have been wise the requisite habits will have been formed. Good food has been taken regularly each day, and each day a certain amount of materials no longer fit for nutrition has been discharged. That the latter part of this statement should be literally fulfilled is perhaps the most important rule that can be adopted by any person during the whole of life. Irregularity of the bowels or obstinate constipation is the evil of this climate. It is so almost constantly one of the antecedents of consumption, that I have been led to think it is one of the conditions to be avoided by every one who, being predisposed to consumption, would escape the disease. This end should be gained by laxative food and other analogous influences rather than by drugs, although these last are often invaluable as adjuvants. Advance being made in life, the only change I would suggest for one in adult life and predisposed to consumption is the more constant daily temperate use of sherry wine, of cider, beer or ale or some of the coarser liquors. Nature seems to need a stimulus of this kind, and responds gently to it. A *certain quantity* should be adhered to. For example, after perhaps thirty or forty years of age two glasses of sherry wine or an equivalent in beer or any alcoholic liquor may be generally used with advantage. Life will be made more vigorous and cheerful, and the consumptive tendency lessened. I should in certain individuals begin at a much earlier age to use these stimulants. But, listening to the warnings of prudence, and knowing the tendency to increase the amount used, and holding up always the horror of intemperance, I should never advise the *general use* of any liquor at an early period. Nor do I think any parent or physician justified in so doing.

CLOTHING.

This should vary with, 1st, the season, or even with the hour; 2d, with the individual; and, 3d, with the age of the individual. The following very general rules may be laid down; but of course they may be varied with reference to the peculiarities of each person, some requiring more and some a less amount. Our climate is subject to excessive and sudden changes from heat to cold, and *vice versa*. Hence, changes of clothing will often become necessary, especially by those who have a great liability to "taking cold," as those tending to consumption often have. These changes may in the spring or summer be required very frequently in short spaces of time, if the person would be perfectly safe. I have known an under-flannel vest put on twice, and taken off once, the same day. The morning and evening were very cool, while at mid-day it was so oppressively hot that any under-clothing could not be borne with comfort by the person. Such sudden changes will rarely be made, and are never allowable except with the greatest caution. They should be made only by adults, fully acquainted with their own constitutions, and prepared to run no risks. Of course all such persons are ready to resume any amount of clothing at evening that may have been taken off in consequence of excessive heat at mid-day. Common sense, moreover, must never be laid aside in this respect.

I have little doubt that as great an error is sometimes committed by clothing a child too warmly during a warm day, as by dressing him too lightly in a cold one. The skin is kept by this *over* clothing in constant perspiration. The child is made thereby sensible to the least draught or change of air, and more quickly "takes cold" than one less thickly clothed.

The underclothing should be, at least for the greater part of the year, of flannel. Some persons need this for the entire year. Of course the article should vary in thickness in winter, spring and mid-autumn. It should be very thick in the winter, medium in the spring, and almost of a gossamer character, or wholly omitted, in the hottest days of summer. Even in these last days the individual must always be prepared to use woollens in the morning and evening if a sudden change

of temperature occur. From these general remarks it may be seen that, while I would not martyrize certain individuals by requiring them to clothe in flannel during the entire year, I think it better that that should be the rule. Especially is this rule important and very rarely to be varied from in the case of any one having a tendency to consumption, in whom a trivial "cold" becomes at times a death-blow. And what shall we think of the wisdom of parents allowing their children to go bare-legged in New England in very cold weather, as some do, in following fashion? Or still more, what shall we deem the prudence of parents who allow their children, youths and maidens, to attend evening parties in low dresses and in thin shoes during the depths of our winter, and, after having danced violently and becoming heated, permitting them to return home covered at times very lightly? One cannot wonder that some fall ill. It is lucky that many more do not become victims after such folly.

To keep thoroughly warm, therefore, without being oppressively so, should be the aim of every age. The feet should be covered with thick-soled shoes in winter. In this respect fashion has of late done an actual good, since it compels even our young girls to "*tramp*" with soles and heels of ample thickness all the year.

None should ever remain long in wet clothing, unless so actively employed as to keep up a free circulation and warmth over the whole body. The neglect of this rule, my experience teaches me, is frequently productive of serious, and at times, fatal results. Finally, the clothing should never be so tight as to prevent the free expansion of the chest. Corsets should generally be avoided by all having pulmonary tendencies. It would be well if all female clothing were supported by straps over the shoulders, instead of from the tight waistbands, as is but too common among girls at the present time.

CARE OF THE SKIN—BATHING.

In immediate connection with the clothing naturally comes the care of the skin. This should be kept scrupulously, not only clean, but in a perfectly healthy condition by daily bathing in cool or tepid water. It is not well to allow any skin diseases to become chronic, if it be possible to prevent

them. At times I have seen the ceasing of a long-continued irritation of the skin coincide with a tendency to cough. I cannot say that the relation is that of cause and effect, but I simply note the fact. And therefore I do not like to know that any one threatened with consumption has had, up to about the commencement of the actual illness, a life-long cutaneous affection. We cannot, it is true, by any amount of cleanliness always prevent these affections from showing themselves, as they are often hereditary; but, by a want of cleanliness, the skin, even when not apparently diseased, is ill-fitted to perform its important part in the operations of the body. In order, therefore, that a child predisposed to consumption may have every obstacle, even the slightest, removed from his path for perfect health, the care of the skin becomes very necessary. Daily bathing, then, of some kind, from childbirth to old age, should be the rule. Some direct that the cold bath should be always used. I cannot think that this is a true doctrine. With a few children, and still fewer old persons, and very many adults, a morning cold bath is the most refreshing and exhilarating of operations. But with many either feeble adult, old or too young persons, a chill remains for some time after taking the bath, and the powers of life are exhausted instead of being invigorated by the stimulus. But those who suffer from cold bathing will usually be able to take with great advantage a daily tepid bath, and without the least chill or discomfort following it. Each individual arrived at years of discretion should judge for himself which of the two to choose. At certain periods of life he may use one or the other and be himself the judge as to the continuance of the one or the other by the effect left upon him. The parent, of course, will notice the effect upon the child and decide accordingly. But there are various kinds of baths. The *shower-bath* is rarely used now. If used at all it should be so cautiously. *Sponge-bathing* is admirable, either with warm or cold water, according to circumstances of each case. But even this cannot be borne by many when a simple hand-bath, i. e., when the water is borne by the hand of the bather to various parts of the body, and the same hand or a warm towel used for friction afterwards. This is often infinitely refreshing when

other methods fail of being so. *Surf-bathing* should be very cautiously indulged in by all predisposed to pulmonary difficulties. Cough of a permanent nature has been at times started by incautious surf or any cold water, sea or river bathing, especially if the body be immersed for a long time. One of the most striking cases of consumption I ever had was distinctly traceable to a very long and cold river-bathing. Hence, we see that bathing, like every other good thing, if used immoderately, tends to cause evil rather than good.

It may be asked, if cold bathing be ever evil in its tendencies, how happens it that the "water-cure," so called, proves at times so good a thing. The answer is briefly this. A man once fairly "packed in a cold wet sheet" becomes in a very few moments bathed in a profuse warm perspiration. But the water-cure, used incautiously by persons who are not aware of its power or proper mode of application, becomes destructive and not restorative. One of the severest forms of inflamed lung and which lasted for months, threatening consumption, and which would probably have proved such in an older person, I saw in the case of a little girl whose mother undertook to cure a violent fever by bathing her two or three times in one night, in cold water drawn from a well in the country-house at which they were stopping. The general rule therefore is, bathe daily, but choose that method which proves immediately grateful to the patient, and let all consumptively-inclined patients beware of long continued surf or sea-shore or river bathing.

RECREATION.

I deem this idea of play or of recreation to be important for every human being, and at every stage of life.

Americans usually do not consider it so. Very many in this country annually fall victims to the neglect of it, and to our over and never ending work. If death be not caused by the neglect of it, certain it is that pleasurable life is shortened, and early decrepitude caused by too great an amount of severe toil without relaxation. Particularly is this manifest when applied to the tender years of childhood and of youth. If such be the fact with healthy human nature, how much must be the effect upon those children unhappily born with

constitutions tainted by hereditary disease. These need an extra amount of recreation in order to be able to resist their evil tendencies; and yet it is but too common to see parents allowing the feeble child to keep constantly at his books, on the very ground that his weak health makes him disinclined to go out of doors for play or for exercise. *Such a child should be compelled to find some recreation in the open air.* Of course, children need more than adults; but in early adult age, when having finished the school-education, so called, the youth enters on life, he is apt to continue year after year in unremitting toil upon whatever work he may have undertaken. He "cannot find time," or his employer will not allow him to relieve himself of this burden. Bad as this is for the perfectly healthy youth, and my experience assures me that not a few clerks or students, without any hereditary taint, succumb under it, it will be much more dangerous for any one born of consumptive parentage. It seems to me, there is a great amount of ignorance displayed by people on this subject. As a general rule it may be stated,—every one ought, if possible, to leave his toil for a certain period each day, and devote himself to the healthful recreation of walking, or play of some kind. If possible, every clerk should walk daily two or three miles, and for a few weeks annually he should leave the city, fly to the woods or the sea-shore, and forget care and trouble amid scenes wholly different from those of city life. A camp in the woods, with a necessarily perpetual change of air with each breath that is drawn, or a yachting excursion, or a pedestrian tour even in the immediate vicinity, would give a gracious refreshment for the mind and body of the steady worker in the city or college. Such recreations should increase in length, as years increase after adult life. If these remarks apply to all, they apply with twofold force to those having consumptive tendencies, certainly until after firm health has been established into a fully completed adult life. Every parent therefore should hold this as one of the most sacred rules for the physical development of his child. I deem it paramount to all other considerations; for, I repeat that nothing can be worse for all youths, especially those hereditarily consumptive, than a too close and constant attendance at school, college, or the

counting-room; and a parent or employer, who sees a child or clerk steadily growing thinner and weaker under hard work of any kind, and does not immediately relieve him, not merely consents to his subsequently having a life of impaired health, but often actually contributes to his death.

EDUCATION.

From what I have already stated, the inference may be drawn that I should advise every parent, especially the one supposed to be tainted with hereditary disposition to consumption to devote his whole attention to the developing in the most perfect manner, the *body of his child*. If I could have any influence from long professional experience I would urge this idea as one above all others important. Let the mind in early years, till the age of ten or twelve or puberty grow naturally and freely without many books. A child is perpetually learning. A wise parent would lead the boy or girl to observe everything around him in nature, and thereby the youth would be "educated" quite as well, and perchance better than from books, for while thus gaining strength of muscle he will educate the mind. I do not mean the child should be left untrained. Far from it. The training of a child of consumptive parents is above all things necessary. He should be taught self-restraint, and his hours should be well regulated even for his out-door pursuits. But *close* "schooling," technically so called, should be used with the greatest caution. These rules become still more important during the period from puberty to manhood or womanhood. During this period of life in our society, the child will usually be at school, and the greatest caution should be then observed. If at any time the youth or maiden appear prostrated even by common and the lightest *work*, immediate recreation should be given. This should be done at the expense apparently of time, and perhaps in opposition to the present comfort, happiness and wishes of both parents and child. A year or two given up to partial or entire relaxation from intellectual work will, at this period of life, often determine the future health and life of the child.

Here is one of my most frequent experiences as a consulting physician. A parent brings his child to me, in order to find

out what is the matter with him. On inquiring, I find that he has been to school, very much interested in his studies, that the teachers and parents have stimulated him constantly, or allowed him, without the least care of his physical health, to study without ceasing in order to get high marks or prizes, and to stand high in his classes at school. Instead of checking his ambition, the parent has encouraged this overwork. By so doing he is merely following the pernicious influence exerted by every school and college in the land. Instead of teaching a child that it should not compare itself with another, but should make itself what its own powers indicate it ought to be, every college and school inculcate exactly the reverse. By "marks" or prizes, or competitive examinations, the greatest emulation is often excited between individuals, and the weaker ones "in this struggle for life," are crushed by the severe process. I find almost invariably in such patients that the prize gained, or an examination concluded, is the signal for entire decay of physical powers under the violent strain put previously on the mind, and with a total neglect of corresponding physical exercise. Many such, far advanced in consumption, consult me. Hence there is abundant reasons for the strong opinions I hold on the necessity of care in the education of children and youth hereditarily disposed to consumption. In a consumptive family the steadfast rule should be *that the mind be wholly subservient to the body's welfare*. By this rule we shall not lower the mind, but only develop, if that be possible, a sound mind in a healthy body.

PROFESSION AND TRADE.

The choice of a proper trade for a young man or a young woman, having hereditary tendency to consumption, would seem to be an easy matter. Of course one would say it would be well to have one that would give an abundant supply of fresh air and of such robust but not excessive employment as would exercise the whole body. It would evidently be well to avoid every profession that would not afford these necessities of life. A trade compelling one to inhale a dusty atmosphere, the machine-shop and metal-working of all kind causing a fine floating dust, would be bad. A profession requiring constraint and a bent position of the chest would be

plainly improper. The clerical profession, which makes man a close student and exercises the organs of voice even to exhaustion, which bends the chest over the desk, which necessarily exposes the patient at times to the cold open air in public services, should be avoided. Generally all clerical and sedentary and in-door employment should be either wholly avoided or used only a part of each day, because it is essential for perfect health in such cases that no air should be breathed twice. If it be necessary, or thought necessary, to adopt such sedentary occupations, the remarks on proper ventilation of the house (see section on Residence) become doubly important.

Notwithstanding these remarks may seem to some readers the veriest truisms and rules that none will forget even without professional advice, and which certainly would be attended to when once brought to the notice of any individual, I feel sure that very few in this community or any other obey these very obvious and simple rules. Nay, more; I will declare that the vast majority will argue, for one reason or another, to set them aside, hoping all the while that they or their children will be exceptions to the rule, and may, therefore, violate with impunity nature's most distinct laws. In the far future, I hope that Preventive Medicine will be able to convince people of their great power, and that therefore we should no more hope to escape the suffering, incident to a violation of them, than we could hope to evade the penalties that fall upon those who violate the law of gravitation or who wilfully or foolishly attempt to set aside any other of Nature's grand laws of life.

EXERCISE.

Closely connected with the subject of recreation is the matter of exercise. Every human being needs a certain amount of exercise; and yet every human being seems at the present day always endeavoring to avoid it. Our steam and horse cars, while they have done such immense service to the world, have produced one evil, viz. : they have induced among all classes an indisposition to walking, even for short distances. Our climate, it must be confessed, from its excessive heat in summer and cold in winter, usually prevents all of us from

taking the long walks which are enjoyed by almost every one in England. There they make a pleasure of a five or ten mile tramp over hill and dale. With us, nowadays, it is a labor, and being always busy, we deem it a waste of time; and yet there never was a greater error. A pedestrian tour undertaken by young persons, while affording constant pleasure if one only keeps his senses open to Nature, is probably the most effectual mode of exercising the whole body. No other kind of exercise so thoroughly and economically gains that end, and so tends to keep at bay any hereditary tendency to pulmonary disease.

It is right to dwell upon this topic, because the proper kind and amount of exercise is a most important element for success in warding off consumption. As such it should be attended to by parent and guardian, and by the man or woman long after guardianship shall have been outgrown. Indeed, without a sufficiency of it during the whole of life, the person predisposed to consumption will have his or her tendencies in that evil direction increased many fold. It must generally be in the open air, and daily, No amount of physical exercise in-doors will be sufficient. It must be taken by both sexes, in all weather, unless during the most stormy, or when the person is temporarily, from any cause, decidedly and acutely ill. But this plea of invalidism must not be urged for any length of time; otherwise more trouble will arise from the confinement than from the exposure.

There are various kinds of exercise. Some are better than others. Some may become either directly or indirectly prejudicial.

I will name the following as among the principal means of exercise:—1. Walking. 2. Running, or Foot Racing. 3. Dancing. 4. Horseback. 5. Driving (open or closed carriage). 6. Gymnastic Exercises (hard, light clubs). 7. Boxing. 8. Bowling. 9. Rowing. 10. Swimming.

Walking.

Of these the most universally applicable, and usually the best form of exercise, is walking. As stated above, unfortunately our climate with its snows and intense cold in winter and equally intense and depressing heat in summer, prevents

all of us from walking as much as would be useful or as much as can be done in some other countries throughout the year. Whenever it is feasible, it probably exercises the whole body better than any other method. It becomes, however, very uninteresting, even in a large city, if made simply for health's sake. Therefore it is always well to combine with it another object, either of business or pleasure. Hence a profession that will compel out-of-door exercise is the best prescription one can give. I have in recollection now a case of a naturally feeble man who had very decided signs of pulmonary disease, with bleeding from the lungs. He was a newspaper-carrier when he called to see me after one of his bleedings. I feared, at that time, that exposure during the winter would be very pernicious and perhaps fatal to him. Under this exercise, however, taken daily in rain and storms of all weather, and by the use of cod-liver oil, he wholly recovered. Those of my patients who have most frequently recovered are they who, by advice, commenced years since, and still continue, several times daily, their "constitutional" walks around the "Common" in Boston (about a mile). They will continue to do so while they live, because they know from experience now that not only their health, but their real comfort, depend upon a strict attention to that course. Omission of that exercise for a single day perceptibly affects them unfavorably. Two more obvious advantages arise from this course:—

1. Every muscle in the body is gently and uniformly brought into action by the swing of the legs and arms, and consequently of the trunk in a vertical direction. The undulations made by the head, chest, and abdomen in a vertical plane are thus not only according to "Hogarth's line of beauty," but also in that tending to perfect health. Every internal organ is gently stimulated to more robust action. The circulation goes more freely and uniformly.

2. Never, in a common walk, does the person breathe twice the same air, because he is constantly changing his position. This fact alone is of incalculable advantage. Some writers contend that the re-breathing of air once partially used is one of the most fertile causes of consumption.

The most favorable time for walking is undoubtedly about mid-day in winter, and in the morning and toward evening in

summer. Late in the evening is less useful, because of the liability to dampness and coldness and absence of the sun's rays, which of themselves seem sometimes to put vigor into the animal frame, and their absence is correspondingly felt in a depression of the powers. Nevertheless, one cannot deny that there is a great energy sometimes given by a brisk walk in a cool, dry starlight or moonlight night, when the atmosphere seems not only free from all chilling moisture, but absolutely pure and infinitely exhilarating.

Running.

Should we allow a consumptive child to indulge inordinately in any exercise, as, for instance, in running? Ought older persons to do so for the sake of gaining a certain end, for example, reaching a certain horse-car or railroad terminus? Fast running I think pernicious. It produces violent motions of the heart and too rapid breathing, and consequently, great tendency of the blood to the lungs. Violent palpitations are always produced, and a breathlessness at times ensues, from which the patient never fairly recovers. The heart, it is true, is usually the chief sufferer. I have distinctly in mind a case of heart disease that began after such an over-exertion, and in consequence thereof, as I believe. Spitting of blood from the lungs has, at times, occurred. Neither of these effects tends to improve the general health, and not infrequently they injure the lungs, and therefore should be avoided by the consumptively inclined. Of course in the above remark I have intended only to condemn inordinate and forced running, continued for some time. I do not mean to prevent either child or adult from occasionally hastening his pace. It would be utter folly to try to check the natural instinct of a child, which makes him run and leap for joy. But all long-continued, violent, rapid running should be avoided by the consumptively inclined, as fraught with possible evil, and therefore prejudicial to their perfect health.

Dancing.

At appropriate hours and for a proper length of time nothing can be better. It promotes grace and ease of motion and positive health if used thus properly. Carried far into

the night, and under all the stimuli usually connected with our modern large dancing-parties, in which heat and fatigue of body are followed sometimes by long exposures to a bitterly cold atmosphere, it has not a single quality commanding the respect of one who would educate a consumptively-inclined child to perfect health. Not a few of my patients have referred to the dancing-party as one of the worst elements in causing the helpless state in which they have been when they consulted me.

Horseback Exercise.

Perhaps nothing can be better for the system of one tending to consumption than regular daily exercise of this kind. It is more exhilarating than a walk. One changes his atmosphere more thoroughly. It does not fatigue as walking or running, and therefore can be continued longer than either of these. It stimulates the circulation, with less bodily effort. Hence from earliest times it has been recommended as a remedy for those who have actually consumption commencing. One gentleman whom I knew, and who died at an advanced age of another disease, considered that he owed his recovery from severe lung disease, and threatened consumption, chiefly to daily horseback exercise for two years, and a regular walk subsequently three times daily until his death. It is true that during all that time he continued to use daily, as he began at twenty-eight years of age, his two glasses of sherry wine. Some may doubt the value of the latter prescription. I do not, but believe that the two means contributed to the finally good result, one aiding the other till the perfect cure was arrived at. The late Dr. Jackson had great faith in this kind of exercise. One gentleman, a physician, who had frequent hemorrhages, and to whom Dr. Jackson had prescribed horseback riding in his every-day business, neglected it, and drove in his chaise instead. Dr. Jackson met him, and said, "You will have a hemorrhage until you follow my advice exactly. Leave your chaise and get on horseback." That advice was followed, with cure as the result. Care in the selection of a horse is necessary. An easy pacer or galloper is better than a hard, square, solid trotter. The latter is apt to cause pains in the chest and undue fatigue.

Driving.

This is an easier kind of exercise, and may be used for those who are quite ill, or recently convalescent. But it is less healthful than either of the other methods. An entirely open carriage without any cover is the best kind of vehicle, except in the very coldest of weather. One open in front, as the chaise or buggy, phaeton, etc., stands next. The back and sides may be half thrown down, whereby the vehicle resembles the open wagon. The back should never be rolled up while the sides are erect, because the draught thereby produced will be liable to cause a cold, and consequent injury to the lungs. The closed carriage is the least valuable, and especially when the windows are allowed to remain shut, as they often are by some during the whole drive.

Gymnastics.

Doubtless gymnastics may increase the power of the muscles; but I greatly doubt whether they are of great service in warding off phthisis. Some who had been stalwart gymnasts I have met with in consumption. It is also suggested that the fact, that after great exertion and training apparently to perfect health, they suddenly cease from all exercise, causes the system to suffer. The swinging of heavy clubs around the head cannot be recommended. Less exercise than that with the arms at times causes hemorrhage in those consumptively inclined. The lighter kinds of gymnastics, as used in some schools, may be of more service. Nevertheless, all of them, from their very violence, cannot be as appropriate as the methods previously named.

Boxing.

Used carefully, this is a good exercise; yet there is often too much strain put on the heart and lungs, as in running, etc. Moreover, it may be questioned whether severe blows upon the chest are ever of use. Prize-fighters are said to be specially prone to consumption, and it is thought that the severe pounding they sometimes get upon the chest contrib-

utes to this result. I have now in my mind a case of confirmed consumption where, previous to an accidental but a severe blow upon the chest, the patient was perfectly well. But he had been ill from the moment of this blow. Hence I cannot recommend this exercise of boxing to any consumptively inclined.

Bowling.

This may be used unless hemorrhage has occurred. But at all times it should be cautiously allowed to the consumptively inclined, and wholly avoided by those who have once bled.

Rowing.

This tends to expand the chest, and if no racing be undertaken, may prove of great value. The combination which one gets of rowing, walking and camping-out in perfect mountain-air in the Adirondacks may be recommended as one of the best methods of spending in our northern climate a long vacation in the summer.

Before the Pacific Railroad was built, I occasionally advised patients to try a trapping expedition to the western coast. One of my earliest patients wholly recovered his health while with Fremont in one of his earlier pioneer expeditions to the Rocky Mountains and the Pacific. During this trip all kinds of exercise were necessary, and, among others, rowing; and all was done with not only great advantage, but a complete recovery of my patient.

Swimming.

I will not condemn this exercise, but it must be used with great caution. Too long a stay in the water I have known to actually cause phthisis. I have already alluded to the case (page 48). The patient attempted to swim a stream. He was very much chilled and terribly fatigued. He was well, when he undressed on one side of the river. He felt very ill on his arrival at the other bank, as if he had taken a severe cold, was livid, etc. Cough set in immediately, and he was in advanced consumption when months afterwards I saw him.

Bathing in the surf has usually a tonic effect, but should never be continued too long; and to those consumptively inclined the sea-shore is rarely, if ever, to be recommended. In fact, mere residence on the sea-shore, where he meets the conflict between the land and ocean climate is unfavorable for the consumptive, compared with being in the interior (i. e. in a land climate), or quite off from the coast on an island (in an ocean climate).

I have thus given you my views of the grand scope of Preventive Medicine, and, as a most imperfect illustration of its future usefulness, I have run through a series of recommendations that I think any experienced physician might even now give, according to the principles and rules of action that will weigh with the physician of the future. And I believe that if these recommendations, with others that might be added by any family physician, should be *thoroughly* carried out by the parent during childhood, and by the man or woman when arrived at adult life, many that will die of consumption would escape that calamity.

In saying this I do not mean to intimate that during the whole period no other remedies, strictly so called, might not be necessary. Doubtless they would be; and of the exact mode of application of those remedies physiological experiment and clinical experience of physicians are teaching us more and more every day. I contend, therefore, that the physician of the future will stand higher than ever, as Preventive Medicine advances. In this statement I take a position exactly the reverse of that *assumed* by President Barnard in his late address before the Health Association at its recent meeting in New York. That gentleman quietly informed his medical hearers that their doom was sealed under the steady advance of modern science. Their services would become less and less necessary, and would finally be no longer needed by the laity. I think he is wrong and that my views are correct, because, while human free agency and human imperfection exist, while accidents, moral and physical, occur, there will always be some occurrences tending to injure health which no skill in prophecy can foresee. The

wise physician will therefore be summoned to act immediately on important cases of disease or threatened death. These he will meet not only by wise preventive regulations for the future health of his patient, but likewise by a careful administration of medicine, properly so called, during the actual attack.

I remain, gentlemen,
Your sincere friend and colleague,

HENRY I. BOWDITCH.