

Sanitary survey of the State.

Contributors

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HOUSE....No. 66.

SANITARY SURVEY OF THE STATE.

Commonwealth of Massachusetts.

HOUSE OF REPRESENTATIVES, March 3, 1849.

The Joint Special Committee, to whom were referred the Memorials of the Massachusetts Medical Society, and the American Statistical Association, and various other memorials and petitions, for a sanitary survey of the State, have considered the same, and present the following

R E P O R T :

The Committee regard the subject as one of very great importance, and as deserving the attentive consideration of the Legislature. It is intimately connected with the subject of the registration of births, marriages, and deaths; and depends, in some degree, for its illustrations, upon the facts which such registration might furnish. We have already presented, somewhat at length, our views upon that subject, and many of the facts and arguments there stated in favor of registration, may be considered as applicable to a sanitary survey. Whatever shows the value and importance of one, may also show the value and importance of the other. The subject is also treated with much

ability in the accompanying memorials of the Massachusetts Medical Society, and of the American Statistical Association, which are presented as part of this report. We will not weaken the force of the important facts and arguments thus presented, by any recapitulation of our own, but refer to them as convincing proofs that some action of the Legislature is expedient and proper. No definite plan for a general sanitary survey of the State has been submitted to the Committee, and they do not now feel themselves competent to devise one. They, however, deem the subject of vast consequence, not to the physician merely, but more especially to the whole people of this Commonwealth, and intimately connected with their prosperity and welfare. And they recommend that such preliminary measures should now be taken, as may eventually result in securing the object desired. Entertaining these views, the Committee unanimously recommend the passage of the accompanying Resolve.

Respectfully submitted in behalf of the Committee,

LEMUEL SHATTUCK.



Commonwealth of Massachusetts.

In the Year One Thousand Eight Hundred and Forty-Nine.

RESOLVE

Relating to a Sanitary Survey of the State.

Resolved, That his Excellency the Governor, by and with the advice and consent of the Council, is hereby authorized to appoint three persons to be commissioners, to prepare and report to the next Legislature, a plan for a sanitary survey of the State, embracing a statement of such facts and suggestions as they may think proper, to illustrate the subject. The commissioners shall be paid, for the time actually spent in the discharge of their duty, and for their necessary travel, the same compensation that is paid to the members of the Legislature; and also for blanks and circulars used, and for postage and other necessary expenses paid, in said commission; and a sum not exceeding fifty dollars, to purchase books on the subject; provided, however, that said books shall be considered the property of the State, and shall be deposited in the State library, when the commission shall be dissolved. And the Governor and Council are hereby authorized to audit the accounts of said commissioners, and to draw a warrant on the treasury therefor.

MEMORIAL OF THE MASSACHUSETTS MEDICAL SOCIETY.

The Memorial of the Massachusetts Medical Society respectfully represents:—

That, in their opinion, the matter of public health, and the physical condition of the people, are proper subjects for the watchfulness and care of the Legislature; and the facts and circumstances that diminish strength and produce sickness, and shorten life, and those which increase human power, prevent illness, and increase longevity, are worthy of the attention and examination of the government.

The attention of some of the European governments has been directed to this subject, and sanitary surveys have been made by public authority. By this means, singular and almost incredible differences of life and health have been shown to exist, among the people in various places, and in various conditions of society. Many of the causes of disease and mortality have been revealed, and many of them are proved to be removable.

Your memorialists now respectfully request, that the Legislature of Massachusetts cause a similar sanitary survey to be made of this State.

The objects of this inquiry are, first, to ascertain the localities of various diseases, where they prevail the most, and where they are the most fatal, and also where life is the longest, and where it is soonest ended.

If it should be ascertained, that the local sanitary influences are not the same in all places, and that different diseases prevail in different parts of the State, the knowledge of this fact will be of great practical value to the people, and especially to such as are liable to any particular disorder.

The human constitution is various in different persons. One man is subject to disorders of the bowels, another of the lungs, and another of the muscles. And these may be affected, fa-

vorably or unfavorably, by the air, or the soil, or the exhalations of various places.

In this variety of endemic influences, and of human constitutions, it may be possible so to adapt the one to the other, that a person who has any especial liability, may escape from those influences which would increase it. By selecting for his residence a place that is the most favorable to his health, he may, perhaps, avoid all suffering from the disease to which he would otherwise be subjected.

For want of this knowledge, the weak are sometimes made weaker; those who have any especial liability may have that increased; and those who are predisposed to any disease may have that predisposition strengthened by selecting, for their residence, places which are unfavorable to their health.

These are some of the useful purposes to which this knowledge of the sanitary local influences of the State may be applied, and there can be no doubt, that very much ill health and sickness might be avoided, and many lives prolonged, if these facts were sought out, and their knowledge spread before the people.

This is shown in the case of a person who, from his childhood, has been subject to attacks of asthma, whenever he is on the sea-coast, where he was born, but is free from this disease whenever he is in the valley of the Connecticut River, where he now lives. The inference, that might be drawn from this single fact, is apparently* corroborated by the Registration Reports, for six years, during which time the deaths from asthma are stated to be 1 in 21,374 of the population of the five Western counties, and 1 in 14,387 in the nine Eastern counties, and 1 in 11,971 in Boston.

The sanitary surveys which have been made in England, Scotland, and France, show, that health and life in those countries are not one and the same in all places and in all conditions, that, while certain kinds of disease prevail in one place, or in one class of people, they are not found, or are rarely found,

* There may be differences in the reports of diseases from various places, or in the nomenclature of disease; therefore, no positive inference is drawn from this statement of the Registration Reports.

in others; and that while the families of one condition of life, or living under the influence of one kind of circumstances, are subject to certain ailments, those who live in another set of circumstances, or in another range of influences, are exempted from them.

The duration of life is shown to be very different in different places, and in different social and domestic conditions. To some, the measure of life is so full, that the average longevity of all, the old and the young, is, at death, 52, as in the better classes in Rutlandshire, while to others it is only 15 years, as among the poor in Liverpool.

Life is longer among the rich and those who are in comfortable circumstances, than it is among the poor. It is shown to be longer among the inhabitants of country districts, than in the cities and large towns.

The amount and frequency of sickness are also shown to correspond to the frequency of death, in the respective classes and places, and thus the poor and the city residents, have not only a shorter life, but, even in that shortened period, they are much more burdened with sickness and debility, than the prosperous and the inhabitants of the rural districts.

These facts are brought to light, by the great and laborious researches of some of the ablest men of France and England, by order of their respective governments. They show, that very much of their sickness is connected with removable circumstances, and that, in certain artificial states and conditions of society, life is much shorter than in others. The health commissioners point out the probable causes of disease and early death, and show, that many of their causes may be removed, and much of human suffering and weakness may be prevented, and life may be very materially lengthened, by faithfully attending to the conditions of existence. And the late very elaborate reports of the Health of Towns-Commissioners recommend certain specific legislation, to promote this purpose, and to prevent the entailment, upon future generations, of the causes of disease and death, that have been generated in the present, or have come down from the past ages.

From some and various individual observations, and from

collateral facts that have been brought to light, your memorialists think, they have reason to believe, that there is, in this country, a similar diversity of sanitary influences in various localities, and of sanitary conditions of the people, in various districts and circumstances.

The registration reports of this Commonwealth show, that life is very much longer in some towns, and in some counties, than in others, that the average duration of all whose deaths are reported in

Franklin County is	38 years, 10 months, 24 days,
And in Middlesex,	28 " 2 " 22 "

The bills of mortality show, that the average of life in Boston, is but 22 years, 8 months, 19 days, while in Plympton, it is 40 years and 10 months.

The registration reports state, that near twenty-eight per cent. of the deaths, in the five western counties, and thirty-two per cent. in the six counties bordering on the sea coast, not including Suffolk, were of persons under five years of age, and the bills of the mortality of Boston show, that forty-four per cent. of the deaths in that city, were of persons who had not passed their fifth year. From other sources, it is found, that the average longevity of the poor is much less than that of the prosperous, and that, in some towns, the more favored classes enjoy a length of life sixty-six per cent. greater than that which is meted out to the poor, and that, while less than thirteen per cent. of the children of affluence die under two years of age, more than thirty-two per cent. of the children of poverty die within the same period of infancy.

It is probable, that the amount of sickness is distributed in still greater inequality of proportion. The best English authorities state, that, for every death, there are two constantly sick, that is, for every death, there are 730 days of sickness.

Taking into consideration the greater prevalence of disease among the poor in England, than among the comfortable classes whose conditions have been examined, it is extremely probable, that, for every death, there are much more [than 730 days of sickness among the less favored classes of the people.

Without being able to make a strictly mathematical calculation, the observations of your memorialists lead them to conclude, that not only is sickness much more prevalent, but death is more frequent, and life is shorter among the less than among the more prosperous citizens of this State.

Your memorialists regret to state, that their facts are but scattered, and unconnected, and insufficient for grounds of positive inference or permanent action, and that, however cautiously the deductions may be drawn from such facts as these, still they lead no farther than to encourage a general inquiry and the collection of so many and such kinds of facts, as may guide to legislative action, for the removal or prevention of such causes of sickness and death as may be found to be within the control of man.

Your memorialists are aware, that it may be said, that it is exclusively their business, to look after the health of the people, and to teach all that need or may be known concerning the endemic influences, and the sanitary condition of the country, and also that it is the exclusive work of the Legislature, to make the laws and regulate the police of the Commonwealth. But they would earnestly deny the first, and admit, with many qualifications and explanations, the last of these plausible assertions.

It is the legitimate business of government to look after all the interests of the people, and to watch, and protect, and encourage every thing that concerns the prosperity and happiness of the citizens of the State. These interests include the sanitary condition, for nothing affects the prosperity, happiness, or well-being of the people, so much as their health of body and sanity of mind. A wise and liberal government establishes laws and provides the means for the education of all the young, in order to elevate the character, and increase the virtue, the happiness, and means of support, or the productive power of the people. But all this is useless, unless the brain and body are sound.

Looking on man, in his lowest relation, considering him merely as a source of income and means of prosperity, and his body merely as a productive machine, he becomes, to the Legislature, an object of higher interest than any other subject of

their action. The whole amount of the productions of this State are supposed to be about 125,000,000 of dollars a year.* That is, the whole value of the products of the earth and the seas, and manufactures, are estimated to be equal to this sum; deducting from this sum the cost of the raw materials which are found in the State, or are brought hither from abroad, such as the cotton, wool, iron, &c., which are wrought into cloth, shoes, hardware, machinery, &c., all the rest may be considered as so much value, created by the hands and the ingenuity of the people of this State. Your memorialists would not undertake to say, how much should be deducted from the gross amount of production, on account of the raw and imported material, yet, if they were to deduct two fifths, that would leave \$75,000,000, or even three fifths, that would leave \$50,000,000, as the profit and wages accruing to this Commonwealth from the industry of its people.

This sum, however great, does not include all, for the statistics, published by the Secretary of State, included only "certain branches of industry," only some tangible and visible products, such as manufactured articles, and the produce of the soil, the forest, and the sea. Beside these, there are other branches of industry, in which a great amount of labor is expended, and from which a very great amount of products is obtained—as the whole of carpenters' and masons' labor in building new houses, shops, factories, barns, &c., and in the repairs of old buildings; the labor expended in the construction of railways, common roads, streets, wharves, and dams; the labor of numberless mechanics, and others—blacksmiths, shoemakers, watchmakers, &c., and laborers, engaged in the repair of articles connected with their respective trades and roads, &c.; and all the service connected with household economy, with trade and commerce, and with the transportation of passengers, merchandise and

* The volume of "Statistics of Certain Branches of Industry," published by the Secretary of State, in 1846, states, that the gross amount of these products were, for the year ending April 1st, 1845, equal to the sum of \$114,478,443. Supposing these to have increased, in the same ratio, as the population increased, from 1830 to 1840, they will amount, in the year 1848, to the sum of \$124,000,000. As many things are omitted, \$125,000,000 is assumed as the more true amount.

produce; and, lastly, the labor of persons devoted to the various scientific and literary professions; none of the productions of the labors of these persons, are included in the estimate of \$125,000,000, but their value, or their wages, should be included in the sum total of all the products of the industry of this Commonwealth. If those which have been omitted are added to those which have been stated by the Secretary of State, and if, then, the probable cost of the raw and imported material be deducted from the gross amount, \$75,000,000 is the least estimate that should be made of the net earnings of the present population of Massachusetts, in each and every year.

Admitting this estimate of \$75,000,000—even taking the lower sum of \$50,000,000—here is an interest, connected with the condition of the human body, well worthy of the attention, the protection, and the care of the Legislature. This interest lies at the foundation of, and includes, all others; and, if this fails, all others are poor and worthless.

It would seem that no argument is needed to prove that an annual income of 50,000,000, or 75,000,000 of dollars, is worth inquiring into, to ascertain, whether it is all that can be obtained, by the means which are expended, or whether it is obtained at too great a cost of life and health, or of means, or powers, or advantages, that are of even greater value than this vast revenue. It is not unreasonable to ask, that the government should keep its ever-watchful eyes open to this, and extend its fostering hand to guard it on every side from the least harm.

This result—this vast amount of earning and production—is the consequence or the creation of human action. It is accomplished almost entirely by the inhabitants of this State, who have passed the age of 15 years. Previous to this age, life may be considered as merely in the forming and dependent stage, and, after that, it may be deemed as self-sustaining and productive. Or, looking on the human body merely as a productive machine, the first fifteen years may be considered as the requisite time for the growth—the building of it up—and the subsequent years as the producing and profitable period.

The natural term of life is fixed at three score and ten; this

would give a man fifty-five working, or productive years, after his development, at the end of his fifteenth year, and before he passes his seventieth year. This is attained by comparatively few, and most fall short, many very far short of it.

The actual average term of life of those 28,262 persons, who survived their fifteenth year, and died, in Massachusetts, within the six registered years, from 1842 to 1847, inclusive, was only thirty-nine years, six months, and twenty-nine days. Consequently, their productive, or profitable period, was only twenty-four years, six months, and twenty-nine days. Instead, therefore, of contributing to the Commonwealth the results of fifty-five years earnings, they were able to contribute only the earnings of twenty-four and a half years, or only forty-four per cent. of the amount that nature seems to have intended.

If the longevity of those who have died within these six years, may be taken as a measurement of the life of those who are now in existence, the sum of earnings of any one year may be considered as the twenty-fifth part of the earnings of one entire generation. But, if the life of action, instead of terminating in the fortieth year, as shown by the late reports, should be extended through the seventieth year, as it is desirable, then the productive period would be extended from twenty-four and a half years to fifty-five years; and the amount of earnings would be increased in the same proportion.

This increase of longevity would increase the numbers of the active population, and consequently the annual net earnings would be increased in the same ratio, and, instead of being \$50,000,000, or \$75,000,000, it would be \$112,000,000, or \$168,000,000 per year, and, as the gross amount of production would be increased in like manner, the gross sum, instead of being \$125,000,000, would be \$280,000,000.

Compared with what might be obtained according to the natural laws, and under the most favorable circumstances, here is an annual loss to the Commonwealth, of \$62,000,000, to \$93,000,000, by the premature death of persons over fifteen years of age.

There are still farther deductions to be made, even from this shortened period, on account of sickness and debility. The

Health Insurance companies found their actions on the expectation, that males, from fifteen to forty-five, have at least seven consecutive days of sickness, and, from forty-five to fifty-five, at least ten consecutive days, and, from fifty-five to sixty-five, at least twelve consecutive days of sickness, during which, they are utterly prevented from attending to their ordinary affairs. This does not include the periods of sickness shorter than one week, the single or few days indisposition, nor the half days or few hours of pain, for which they make no allowance, nor does it include the many days of slight ailment, when one is partially unfitted for business, and certainly unable to accomplish the usual amount of labor. The whole sum of these short and slight ailments subtract more from the amount of the productive power, than the larger and more severe sicknesses which the insurance companies recognize, and it is safe at least to say, that men, from fifteen to forty-five, lose two weeks, or four per cent. of their time, and from forty-five to fifty-five, three weeks, or six per cent. of their time, and from fifty-five to sixty-five, four weeks, or eight per cent. of their time, and their earnings must be reduced in these proportions.

Taking the calculations of Mr. Edmonds, and the experience of the English Benefit Societies, and estimating the population of the State to have increased during the last eight years, in the same ratio, as it increased from 1830 to 1840, there are now in Massachusetts, 13,413 persons, between the ages of fifteen and seventy, constantly sick, and thereby the State loses annually 13,413 years of productive labor, from this cause alone. As this estimate does not include the shorter and slighter ailments, which suspend the force of man for a short period, or impair it for a longer time, which probably causes a greater amount of loss of productive energy, than the more serious sicknesses, it is safe to say, that the whole loss annually to the State, is equal to 26,826 years of productive labor, from sickness and impaired health.

If these losses could be prevented, and if every man, while he lives, could perform, on each day, a full day's labor in his vocation, whatever that may be, the years of labor, just stated to be lost, would then be added to the sum of the actual earnings

of the people of the State, and the 125,000,000 of products would be so much increased.

There is another point in this consideration of man, as a mere producer, who is to add to the general and private wealth of the State. Every child that is born is the beginning of a man, who is expected to be developed, and grown to the fulness of stature and strength. But a large proportion of these fail of reaching this completeness of development, and never come to productive years. So far as these are to add to the prosperity and power of the Commonwealth, the State has an interest in their safety, their growth, and maturity. In this respect, the State may look upon its people as so much property, or means of gaining income, and all the cost of supporting and educating persons from birth, through the forming period, up to the productive age, as so much investment, which is to yield future profit.

In this view of the matter, every child and youth, who fail to reach their mature and productive stature, are a loss to the State, to the extent of the cost of their maintenance, during the time of their existence.

Taking \$50, the lowest estimate of the average annual cost of maintaining the children of all classes, throughout the State, from birth to the end of their fifteenth year, some approximation may be obtained, to the annual loss to the Commonwealth, by multiplying the sum of the ages of all who died in the State, before maturity, by \$50.

The average annual number of deaths under fifteen years, in so much of the State as is recorded in the registration reports, and in Boston, during the last six years, is 4,847.

Their average age was 2 years, 11 months, 2 days,
And the sum of their ages was 14,179 years.

Some towns are not included in the registration, and no records of their deaths have been published. But taking these 4,847, which are known, and multiplying 14,179, the sum of their ages, by \$50, the product shows 708,950 dollars, the amount of loss to the State, from this source, in a single year; and knowing that these returns do not include all the deaths, the annual

public loss, in consequence of early deaths, must exceed this amount.

This includes merely the loss of that which has been expended, in view of the development of the productive energies of those who have died. But to this must be added the cost of sickness, connected with the waste of life, which would increase the amount of the annual loss to the State.

If the last six years may be taken as a fair indication of both what has been heretofore, and what will be hereafter, it may be reasonable to expect that the State will incur the same proportionate loss in the years that are yet to come, unless the circumstances, and conditions, and habits of the people shall be changed, and the causes which produce sickness and early death shall be removed.

This is the pecuniary and the lowest view of the matter. The moral aspects,—the pain, and the sorrow connected with early and premature death, are immeasurably more important than that which has here been presented.

The waste of physical comfort and enjoyment, the defect of happiness, the loss of moral and intellectual power, are equal to the pecuniary loss, and the amount of these which are enjoyed by the people of the Commonwealth bear about the same proportion to those which, in a perfect state of humanity, they might have obtained, as the actual income of industry bears to that which a perfectly healthy community might have produced.

Here is an interest belonging to the people of this Commonwealth, which underlies all others. The pecuniary value of this is shown by public record to be equal to many millions a year. Your Memorialists have shown that, under the most favorable circumstances and conditions, where there is neither depreciation of health nor abridgment of life, this annual income probably might be more than doubled, and that the comfort and happiness, moral dignity and intellectual power, of the Commonwealth, might be increased in like proportion.

It would seem to be worthy the attention of government to inquire, whether these things are so, and to what extent; and whether any measures can be taken to remove the causes of this depreciation of health, and productive energy, and prosperity;

and happiness of the people. And if it shall be ascertained, that the amount of public and private prosperity and enjoyment can be increased, in any degree, if any advancement can be made in this matter from the actual to that which is suggested as possible, and if legislation guide the way to this improvement, or remove any obstacles to this progress, then the power and the wisdom of the lawgivers will be applied to their highest and noblest purposes.

Your Memorialists propose no new principle of legislation. This has, from time immemorial, been recognized in this and other States. The matter of public health has been, and is, a subject of legislative care, to a certain extent, and, consequently, laws respecting nuisances, small pox, quarantine, &c., have been enacted, to prevent certain evils, which otherwise might reveal themselves to a perceptible and fearful degree.

These things are well done, but they are not all that needs to be done; they are the mere tithes of mint and cummin, compared with the weightier and more extensive matters, which ought to be subjects of legislation.

The first step in this work is to make the inquiries, both local and circumstantial. Why is the apparent average of life in Boston twenty-four per cent. less than in Middlesex, and forty-one per cent. less than in Franklin counties? Why are the productive periods of the people of Franklin, 26 years, 7 months, 17 days, of Middlesex, 24 years, 7 months, and of Boston, only 23 years, 1 month, 22 days? Why is it, that, out of one hundred children that are born, seventy-nine in the families of the prosperous farmers, and only fifty-six in the families of the poor survive to the self-sustaining age, as is shown, by the examinations of bills of mortality of some towns?

These are but a few topics of inquiry that will be suggested in course of the proposed investigation. The facts that are already known, will lead to the examination of the effect of the various circumstances and conditions of the people of the State, and the various sanitary influences that affect them for good or for evil.

It will probably be expedient to inquire into the effect of denseness and sparseness of population,—whether, and how far,

the gathering of people into dense cities and towns is favorable or unfavorable to health and life,—the effect of residence on the sea coast, and in the interior, the effect of kinds of dwellings of various structure, of sites of houses,—whether high or low,—the vicinity of low grounds, marshes, running or stagnant waters, or the varying waters of streams and ponds, which are dammed up for mills, &c., and also the effect of various kinds of employments both on the workmen who are engaged in them, and on the neighbors who may be exposed to effluvia that may arise from them; these and other matters will probably suggest themselves to those who have charge of the proposed sanitary survey. And the inquiry, which they will make as to the laws of health, and the circumstances and habits of the people, will elicit such information as may guide to the most important and useful legislation.

What legislative principles shall be established, or what sanitary laws shall be passed in consequence, your memorialists would not now define. They do not look for immediate and complete consequences from any action of the government. They do not suppose, that any law or authority can effectually prohibit a man from having a fever, or prevent his dying at an early day. They do not expect the laws of vitality to be altered or turned from their course. But the manifold circumstances, amidst which these laws are permitted to act, affect their power and their results.

Life, whether in the vegetable, the lower animal, or in man, is not fixed and unalterable in quantity. It may be greater, or it may be less, it may be longer, or it may be shorter, according as the requisite conditions are fulfilled or neglected. By regulating the circumstances amidst which life is to be sustained, the vitality of any individual or class of beings can be very materially enlarged or prolonged. This is seen in the vegetable creation. The apple, which was originally the small, and bitter, and innutritious crab of the forest, by being placed in circumstances the most favorable to its growth and development, is changed to a large and delicious fruit, of manifold variety.

By the same care in observance of the laws of their being, and the same regulation of the co-existing circumstances, the

pear, peach, plum, and other fruits, have reached their present expansion and perfection. The same care has produced similar effects on roots,—the potato, turnips, and other vegetables, and also upon the grain, rye, wheat, &c.

Animal life is demonstrated to be subject to the same law of progress and improvement, and thus sheep, and cattle, and horses have been elevated from their comparatively useless originals, in the wild state, to their present condition of strength and adaptation to domestic purposes.

Many of these improvements of vegetable and animal life have been made within a few years, and are familiar to all; others have been the work or the process of ages; yet, in all cases, wherever the skilful hand of man has been turned to the work, vitality has been improved and increased; and it is equally true and plain, that, in the hands of the unskilful and negligent, the same life has deteriorated,—the animals have failed to become strong, or have degenerated to weakness, crops are poor, fruits are of a lower character, and vegetation comparatively unproductive.

If the same improvement could be made in human life, as has been made in vegetable life, the average duration might be seventy, instead of about thirty-three years, in this State. And the average productive period might be fifty-five, instead of twenty-four and a half years. For there is no greater difference between the life of a people of this State, as they now are and have been, and of a more favored people, who shall fulfil their three score and ten years, and all of whose days should be filled with labor or enjoyment, than there is between the vegetables and fruits, as they now are, and their originals, such as they were, before they were submitted to the skill and hand of man, for improvement.

It needs no demonstration, on the part of your memorialists, to show, that human life is no more a fixed quantity, than animal or vegetable life; or that the life of man will be as full and as long, his strength as great, and his health as comfortable, under any and every circumstance, as under those which are most favorable to his well being.

There are great differences in the human power and enjoy-

ment, even in this State, as has been shown in this memorial. These differences are owing, not to any thing inherent in the nature of man, nor to any unalterable determination of the Creator, but, to influences which exist in various locations, or in various conditions of life, or classes of society, or various personal habits.

These circumstances, and conditions, and habits of men, may be altered, and human life may thereby be improved. They are as much subjected to the power and control of the people, and the government, as those connected with the lower animals and vegetables.

It will not be questioned, that, by the fostering hand and encouragement of the government, domestic animals have improved in size and working power, grains have become more abundant and nutritious, and fruits have become larger and more palatable.

The best cattle have been raised and fattened, the best crops have been produced, and even the best tools, scythes, hoes, ploughs, and other implements, which subserve the purposes of agriculture, have been made and offered to the public, under the stimulus of rewards offered by the agricultural societies, which first received their funds from the treasury of the State.

And what is of still greater public advantage, the methods by which these things were done, and the means which were used to produce them have been described and published, and the knowledge of these processes of improvement have been distributed broad-cast throughout the Commonwealth, for universal benefit, so that he who runs may read; and all this is done at the cost of the State treasury, either directly through the reports of the agricultural surveys or the abstracts of the returns of the agricultural societies, or indirectly through these societies, which obtained the funds for their premiums from the grants of the Legislature.

For these purposes of enlarging and increasing the life of domestic animals and vegetables, the State has paid, through the agricultural societies,

From 1792 to 1845,	.	.	.	\$115,816 00
in 1846,	.	.	.	3,440 00

in 1847,	\$6,631 20
and in 1848,	7,102 00

All of this has been a profitable investment of public money, and has produced a satisfactory increase of agricultural products, by the improvement of vegetable and animal life.

Your memorialists are of opinion, that, by a similar course, human life may be increased and improved, human strength may be augmented, human health elevated, the productive power of man materially enlarged, and his moral and intellectual force may be expanded, and life to him may be made more pure, rich, and joyous. As the Commonwealth now offers standing rewards, through competent and trustworthy channels, for improvements in animals and vegetables, or for such discoveries as will increase their development and value, so rewards might be offered for similar improvements in human life, or in the means by which that life is sustained, and for such discoveries as will lead to the enlargement of man's existence.

There are other considerations connected with this subject, which your memorialists will not, now and here, press upon the attention of your honorable bodies, for many of them are already set forth in the memorial of the American Statistical Association, which was presented to the Legislature of 1848, and which is now again recommended to your candid and serious attention.

Your memorialists would not now designate any means to prevent disease, or to encourage human life; these will be suggested by the survey which they ask the Legislature to commence and to carry through; and, when this shall be done, then the way will be clear for such farther legislation, as the sanitary wants of the people may require, and as your successors, in their wisdom, may think proper to establish.

JOHN WARE, *President.*

C. G. PUTNAM, *Recording Secretary.*

Boston, *January 10th*, 1848.

PETITION OF THE AMERICAN STATISTICAL ASSOCIATION.

[Reprinted from House Document, No. 16, 1848.]

*To the Honorable the Senate and House of Representatives of
the Commonwealth of Massachusetts :—*

The Memorial of the American Statistical Association respectfully represents :—That they have viewed with great interest the movements now making by the British, French, Belgian, and some other European governments, in behalf of public health. These governments, by especial commissioners or otherwise, have caused sanitary surveys to be made of their respective nations, and thus have learned and published the state of the health of, and the value of life among, the people.

These sanitary surveys and reports have revealed great differences in the amount of health, strength, and productive power, and in the duration of life, enjoyed by people in different places, and in different classes and conditions of people in the same place; and they have traced and referred many of the diseases to causes, which appear to be removable or preventable.

Your memorialists think there is reason to believe, that similar differences of health and longevity may be found in this state, and that many diseases here may likewise be traced to causes, that may be removed or prevented.

So far as any inference may be drawn from very limited and partial investigations, they fear, that the health, and the life, among the poor, are much less than among the prosperous, and that both are enjoyed in a higher degree, by whole communities, in some towns and districts than in others. According to the best information obtained from town records, and other sources,

the average longevity of all the members of the families, both parents and children, of the poor, who died in Dorchester, during more than a quarter of a century, was 27 years and 5 months, while that of the prosperous farmers was 45 years and 8 months. Similar results were obtained from the examination of the bills of mortality of Concord, for 63 years, and of Brookline for 46 years. In Boston, the average age of those who were buried in the Catholic cemetery, was only 13 years, 5 months and 9 days; while that of all who died in the city, was 22 years, 8 months and 19 days.

According to Mr. Chadwick's report on the sanitary condition of the laboring classes of England, similar, and even wider differences are found to exist in the value of life among the poor, and among the more favored classes, of that country.

The following average duration of life, in the counties of Massachusetts, is taken from the registration reports of births, deaths and marriages; and that in towns and city, from other records:—

County, &c.	Time of death.	Average age of all recorded as having died.
Franklin,	1844 and 1845	38 years 10 months 24 days.
Norfolk,	" "	34 " 3 " 18 "
Plymouth,	" "	34 " 2 " 12 "
Hampshire,	" "	33 " 10 " 24 "
Berkshire,	" "	33 " 0 " 0 "
Essex,	" "	32 " 9 " 21 "
Bristol,	" "	31 " 7 " 6 "
Hampden,	" "	31 " 4 " 24 "
Worcester,	" "	31 " 3 " 18 "
Barnstable,	" "	31 " 2 " 12 "
Dukes & Nantucket,	" "	30 " 3 " 18 "
Middlesex,	" "	28 " 2 " 22 "
Plympton,	1812 to 1845	40 " 10 " 0 "
Concord,	1779 to 1842	38 " 1 " 0 "
Dorchester,	1817 to 1843	32 " 6 " 0 "
Boston,	1831 to 1840	22 " 8 " 19 "

From the registration reports, it appears, that, in the five

western counties, Worcester, Franklin, Hampshire, Hampden, and Berkshire, 27.9 per cent. of all the deaths were under 5 years, and 25 per cent. over 60 years; and in the six eastern counties bordering on the sea coast, Essex, Norfolk, Plymouth, Barnstable, Nantucket, and Dukes, the deaths under 5 years were 32 per cent., and over 60 years, 27.3 per cent.

These facts, though deduced from imperfect data, indicate a very great difference of life, disease, and mortality in the various parts of our Commonwealth, and in the various classes of our people. It is feared, that there may be other and wider differences detected, on complete investigation. Whether it be so or not, it is very important for the government to learn, and for the people to know. And whether, and how far, these differences are owing to removable and preventable causes, deserves the careful attention of the Legislature.

Your memorialists, therefore, respectfully request, that your honorable bodies would cause that a sanitary survey be made of the whole State, either by a special commission, as is done in some of the European nations, or by such other officers—men competent for the purpose—as you, in your wisdom, may deem most proper.

Your memorialists are aware that the subject of health may not seem to some to belong to the especial province of the Legislature, and that each one's interest and love of life may seem sufficient to induce him to avail himself of all the means which nature and science have given him for his self-protection.

And it may be said, that the government can do nothing to prevent disease, or lengthen life; it cannot add a cubit to any man's stature, nor increase his physical power, nor prolong his days on earth; and it is therefore useless to legislate on these matters of vitality and death.

But it seems to be the business of government to watch over, encourage, and protect, all the interests of the people. Most governments have cared for many of these things, but not those of the highest importance. They have attended to, and investigated, all inferior matters, and legislated for, and fostered, common pecuniary interests. We have had, in this and other States, various and important surveys by which the resources and the

wealth of the States have been developed, and the condition of our physical interests ascertained. The geological survey has gone into, and revealed, the treasures of the earth,—the various kinds of soil and rock that are to be found in every part of the Commonwealth. The trigonometrical survey shows the precise and relative position of the whole surface of the State,—its hills, rivers, towns, and boundaries. The agricultural survey shows the nature and productiveness of the various kinds of land,—the different crops and their cost, in the several parts of the State,—the various kinds of cattle, horses, swine and sheep, and the cost of raising, keeping and fattening them, and their comparative value, whether for labor or for food.

The government has investigated the mechanical and manufacturing as well as the agricultural productions of the State. The reports upon all these subjects redound to the honor of our Commonwealth. They show to the world the immense natural and artificial resources of Massachusetts.

The Legislature has further encouraged improvements in agriculture, horticulture, and manufactures. It has offered bounties directly upon the raising of wheat, and the growth of silkworms; and indirectly, through the agricultural societies, it has, by rewards from the treasury, encouraged the production of the best crops of grains, grasses, fruits, and roots, and the raising of the best breeds of cattle, sheep, and swine. It cannot be doubted that, by means of these surveys, the most favorable circumstances for the growth of, and the best methods of raising, cattle and other domestic animals, have been ascertained and published; and, by the encouragement and fostering care of our government, agriculture in all its branches has prospered, grain, and grass, and fruit have grown more bountifully, oxen have become fatter, horses stronger, and sheep covered with better fleeces, and animal and vegetable life, in all their useful varieties, have been expanded and become more profitable.

If these external interests have been deemed worthy of the attention of the Legislature, it would seem that man, the owner and the enjoyer of all these, who in himself constitutes the whole Commonwealth, is much more worthy of legislative interest; and if it is of sufficient consequence to legislate for the

growth and strength of cattle, it is of much more consequence to legislate for the health and strength of him, for whom alone these creatures are allowed to live. It is not to be expected, that any act or power of the government can directly cause a man to be healthy; but it can work as effectually for this, as it can to make wheat grow, or an ox become fat. As it has done in regard to animal and vegetable life, so in regard to human life, the government can search out the circumstances the most favorable to its development and maintenance, and the habits and methods by which it is made most vigorous and enduring.

Man is subjected to such frequent and various diseases, his life is so uncertain, and so often terminated in its earliest stages, long ere he enters upon his responsible and self-sustaining condition, and in every hour of his existence, he is so insecure, that his first want is protection from evil, from disease and death,—the prevention of loss rather than the increase of positive good.

There are such manifest and wide differences in the amount of disease and mortality in various places, circumstances, and conditions, that there can be no doubt that there is something connected with these places, circumstances, and conditions, that operates as a cause of sickness and death, and produces this difference of vitality. That the people should apparently enjoy an average of life of about 39 years in Franklin County, and but little more than 28 years in Middlesex, and less than 23 years in Boston, that the poor in any town should have less than three fifths of the years of the more favored, must be owing to some differences in the location and nature of the country, or in the circumstances, and conditions, and habits of the people, which acts as deteriorating causes, in one place, or in one class of society, rather than in another.

The very able and long reports, upon the health of towns, made by order of the British government, show that very many of these unhealthful and destructive causes can be prevented, where they do not exist, and removed where they are already established; and that by this means very much disease may be avoided and many lives may be spared. Many examples are shown of the improvement of public health, and of the increase

of life, in consequence of improvements in the localities, the draining of the soil, removal of stagnant water, of filth, and of the sources of offensive effluvia, and by the change of habits, which had acted as causes of the ill-health of the people.

There is no doubt, that there exist, in the various parts of Massachusetts, and in the various classes of its people, causes of similar influences, that produce the difference of vitality and mortality. But what these causes are, is, to your memorialists, and, they believe, to the people generally, unknown. They can only be discovered by careful and extensive observation; and until they shall be discovered, it cannot be determined, whether and how far they are removable, and how much disease consequently may be prevented.

The first step in this work will be to inquire where, and among what classes, life is best developed and longest sustained, and where disease is the most prevalent and fatal, and death the most frequent. The next is, to ascertain what are the differences between these places and classes, what differences in the location, and what in the circumstances and habits of the people who have such various degrees and quantities of life. Having ascertained what and where these injurious causes are, it may then be possible, and perhaps easy, to remove them where they already exist, or to prevent their establishment in places where they have not, as yet, appeared; and thus the amount of health, and the sum of life, may be increased among the people.

There are many things, connected with life and health, that deserve the attention of the Legislature and the public. New England finds a great source of wealth and prosperity in her water-power. By means of this, machinery is propelled, factories are established, villages are created, and often a large population is gathered in the vicinity of waterfalls. In order to make this power available, dams are built, and the water is raised, ponds are filled, and often the streams flowed backward and over low lands, that were naturally dry. It is yet an undecided question, how far the health of a neighborhood is affected by this arrest of the swift current of the running streams, and by this unnatural flow over the land. The Legislature of one of the western States established a system of slack-water

navigation in several of its rivers. Consequently, dams were built, and the waters, which had run swiftly before, were then flowed backward, and moved sluggishly over the concealed inequalities of the rivers' beds. But immediately the people, in the neighborhood of these artificial ponds, were subjected to an increase of fevers, especially of the intermittents, and to the whole class of diseases known as bilious.

A somewhat similar consequence followed the flowing of the river, for the improvement of navigation, at York, in England. In course of 60 years, the proportion of deaths of children in All Saints parish, (which was in the immediate vicinity of the newly-flowed lands,) under 5 years of age, increased from 47 to 55 per cent., and the average longevity diminished from 25.30 to 19.56 years.

How far this increase of disease and death is due to the damming of the rivers, and whether any noxious influence arises from the artificial flow of waters over low lands, is yet to be determined by careful investigation of the present and former sanitary condition of the neighborhood of new dams and ponds.

Manufacturers.

Massachusetts is becoming more and more a manufacturing State. Along the frequent waterfalls, new manufacturing villages are springing up, old villages are growing into towns, and towns are becoming cities. Into these, a large portion of the youth of the new generation is attracted, and many of the mature are induced to leave their agricultural, mechanical, and other employments in the open country or villages, and become manufacturers in these new towns. The manufacturing system is now making very important changes in the occupations and habits of our people; and it is probable, that the change will be still greater, in the next and in future generations, than it is in the present. Both public and private interest have led to investigation sufficient to show the pecuniary cost of various manufactures. It is sufficiently well known, at what cost of materials and wages of labor, various articles are produced. The amount of power, whether of steam, water, or horse, necessary

to make a definite quantity of cloth, nails, or machinery, is ascertained and published. The amount of human labor, skilled and unskilled, male and female, the value of wages and board necessary for the production of cotton and woolen cloths, shoes, books, steam-engines, &c., are all so well determined and established, that the actual cost and profits of these manufactures can be calculated. But what is the cost of life and health,—what is the wear and waste of human strength and power,—caused by the different employments, has not yet been inquired into and ascertained. Whether the thousands, that are now leaving their farms and country homes, to live in denser villages or compact cities, and to become operatives in mills, foundries, machine or other shops, can, in their new situations and occupations, enjoy as high a degree of health, and as much strength, and as great a length of life, as they could have enjoyed, if they had remained upon their farms, and in their more scattered residences,—these matters are to be investigated, and seem worthy of the attention of the government of every nation, and especially of our own.

There are some manufacturing and other operations, that give forth effluvia clearly perceptible, and, in some instances, very offensive to the senses. These disagreeable operations and processes are supposed, by some, to be injurious to the health both of those who are immediately engaged in them, and of those who live in their neighborhood. Chemical laboratories, paint-works, lead-works, tanneries, butcheries, gas-works, &c., are thought by many to be unhealthful; but whether they are so or not, and, if so, to what extent, is not as yet known. The French government has investigated these matters in part; and the able reports of the commissioner, M. Villermie, show, that the popular notion is well founded in regard to some, but not in regard to others.

Cities and Towns.

There is a strong tendency in our people to gather into cities and compact towns. The late censuses show that, while these have rapidly increased, the rural population has

increased but little, and, on the contrary, in some places, it has diminished.

The following table shows the comparative increase of town and country population in Massachusetts and in the United States :—

	Population, 1820.	Population, 1840.	Increase in 20 years.	Inc. per ct.
Twenty-four cities and manufacturing towns in Massachusetts, -	129,753	262,284	132,521	102
Rest of Massachusetts,	393,534	475,416	81,882	20
Twenty-two cities of the United States,	508,561	1,297,861	789,300	155
Rest of the United States, -	9,129,570	15,770,805	6,641,235	72

It becomes a matter of very great importance to ascertain, whether this increase of city population is favorable or unfavorable to life. Whether health is improved or deteriorated, whether strength and productive power are augmented or lessened, whether life is protracted or shortened, by this change, is yet unknown, and can only be thoroughly understood by very extensive and careful observations.

From facts already published, it would seem that the aggregation of population into dense masses, is unfavorable to health and life, and that the greater the number living in a definite district, the lower is the general standard of health and strength, the greater is the quantity of sickness, and the more frequent are the deaths. It has been already stated, that the apparent average duration of life in Boston is less than twenty-three years. In Middlesex, which contains several large towns, and some cities, it is twenty-eight and a quarter years, while, in the five western counties, it is thirty-two years and eight months.

In the appendix to the third annual report of the registrar-general of births, deaths, and marriages of England, there is a statement of the relative mortality of city and country districts in England, for the years 1838 and 1839.

	Population.	Inhabitants to sq. mile.	Deaths annually.	per ct.
Country districts,	3,559,323	206	one in 54	1,821
City districts,	3,769,002	5045	one in 38	2,620

A similar statement is made in the fourth report, from which it appears, that, for every hundred that died in the country districts, one hundred and forty died in the city districts. In the country 20 per cent., and in the towns 9 per cent., survived their 70th year. The report of the Health of Towns Commissioners, made to the House of Lords in 1844, states that, in some cities, the density of the population is greater than the above high average of 5,045 in each square mile. Leeds has 87,000, Manchester 100,000, and Liverpool 138,222 inhabitants on each square mile of their respective builded areas; and the frequency of death corresponds to the density of the population, being in Leeds one in 36, in Manchester one in 29, and in Liverpool one in 28, of the living. Even in the same city, the difference of density is accompanied with a difference of mortality, which ranges in Liverpool from one in 41 inhabitants in the best, to one in 23 in the worst wards. Still further proof of the danger to health and life from crowded population, is shown in the same report. One district in Liverpool contains 49,000 square yards, and 7,938 inhabitants, "giving a ratio of 657,963 to the geographical square mile." In one part of this district, one tenth, and in another one seventh, of all the inhabitants, were annually attacked with fever. The Broad Street section of Boston is nearly as closely crowded with its population; and Mr. Shattuck, in his report on the census of Boston, calculates, from all the data that he can obtain, the rate of mortality to be very much higher than in the less densely inhabited parts of the same city.

Density of population appears to be unfavorable to infant life, even more than to adult life. During five years, the deaths of children under 5 years were in Massachusetts 33 per cent., in Boston 46 per cent., and, among the Catholics of this city, 61 per cent. of the whole number of deaths.

This high mortality of cities occurs in great measure from narrow and undrained or filthy streets, and ill-ventilated houses, and from many other causes yet to be ascertained.

There is another important consideration in regard to a city life, as compared with a country life. There is some reason to fear, that the influence of the density of population not only extinguishes the life of individuals earlier in the city, than the more scattered condition in the country, but that, by preventing the continued reproduction of children in successive generations, or by destroying them before they arrive at years of maturity, it extinguishes families. A recent French writer, in a work upon the city of Paris, states that, of the 800,000 individuals who compose the present population of that capital, there are not 1000, whose ancestry can date back, in that place, as far as the reign of Louis XIII,—that is, the population, which, two hundred years ago, amounted probably to at least 100,000, or perhaps 200,000, instead of increasing, according to the natural law, and as the rest of the nation has done, by the excess of births over the deaths, has, in the course of two centuries, diminished down to a single thousand. Hence, the same author says, that the city depends upon the country for its supply of population in successive generations, as much as it does for its provisions from day to day. Whether this is a general law for all cities, is yet a question. Certainly there seems to be some reason to fear it. According to Mr. Shattuck's census of Boston, only 41,076 of the 114,366 inhabitants who were there in 1845, were born in that city, or less than 36 per cent. of the present population of Boston are natives, and more than 64 per cent. are strangers. A similar proportion of strangers is shown, by the English census of 1841, to be in the cities of that kingdom.

Some of these cities, especially Boston, have increased in a rapid ratio, but not so rapid as the proportion of strangers would seem to indicate.

The natural inference from these facts is, that a city residence is more destructive to life than a country residence, and that the population of compact towns, instead of increasing by the excess of births over deaths, through successive generations, wastes and dwindles away. This is a matter of great importance, and worthy of a thorough investigation. And if the aggregations of people into compact towns is as fatal to life and generations as the present known facts seem to show, then it

will be incumbent on the government to include this principle among the elements of all legislation which may encourage the collection of people in masses, and foster the growth of cities and compact towns.

The site and situation of dwellings have much influence upon the health and life of the inhabitants. Whether they are in a mountainous or level and low country, on a hill or in a valley, on the north or south side of hills, exposed to or protected from the winds, exposed to or shut out from the sun, in a region long cultivated or in a state of nature, surrounded by forests or by open fields, in the vicinity of running streams or of stagnant waters, in the neighborhood of some kinds of manufacturing establishments, laboratories, &c., in the vicinity of collections of decaying animal or vegetable matter, of stables, barns, &c., on the sea-coast or in the interior, on the west side of the highlands in this State, protected from the east winds, or on the east side and exposed to them,—all these are matters that may seriously affect the health of the people, for good or for evil, and have more or less influence on their longevity. But how far they are favorable or unfavorable, can be ascertained only by a careful investigation of the state of the living population, the kinds, and frequency, and fatality of diseases prevailing, and the frequency of mortality, and the age of the dying.

It is a favorite theory with the Americans, not only that life is longer here than in other countries, but that its duration is now increasing,—that we of this generation shall live longer than our fathers, and that our children will live longer than we ourselves. It is painful to say that, so far as we have any data for comparison, both the first and the last are not universally true. We may be a favored people in many respects; but, in comparison with some other nations, it is doubtful whether we enjoy the highest degree of life.

If we consulted the bills of mortality alone, we should suppose that life is beset with more dangers, during some of its periods, in Massachusetts, than it is in some parts of Europe, and that its duration is less here, at the present time, than it has formerly been. But the conclusions drawn from these

facts, need to be corrected or confirmed by the examination of other facts that should be sought out.

The whole number of deaths includes a smaller proportion of persons under 20 years of age, in Massachusetts, than in Russia, Prussia, Sweden, Denmark, or England and Wales; but it includes a larger proportion of those who are between the ages of 20 and 60, in this State, than in either of those nations.

The situation, circumstances, or habits of the people of this State would seem, from this, to be more favorable to childhood and youth,—to the period of development and growth of man, but less favorable to him, during the active and productive years of his life, here, than in some other countries.

According to the same mortuary records, the average age of all who died in Geneva, Switzerland, from 1814 to 1833, was 40 years 8 months.

In France, and in the rural part of Surrey, England, it is 34 years.

The average age of all whose deaths are recorded in Massachusetts from 1842 to 1845, was	33 years 0 months
“ in 1842, “	34 “ 9 “
“ “ 1843, “	33 “ 10 “
“ “ 1844, “	33 “ 9 “
“ “ 1845, “	30 “ 3 “

Longevity, in this State, seems, from the following comparison, to be diminishing. The average age in

Massachusetts in 1842,	was	34 years 9 months
“ “ 1845,	“	30 “ 3 “
Concord, from 1779 to 1808,	“	39 “ 7 “
“ “ 1809 to 1842,	“	36 “ 0 “
Dorchester, “ 1817 to 1829,	“	33 “ 11 “
“ “ 1830 to 1843,	“	31 “ 2 “
Boston, “ 1811 to 1820,	“	27 “ 3 “
“ “ 1831 to 1840,	“	22 “ 9 “

The average age of the living, was in		
England in 1841,		26 “ 7 “
Massachusetts, in 1840,	“	25 “ 10 “
United States, “ “	“	22 “ 8 “

And, in the northern States, including New England, New York, Michigan, Wisconsin and Iowa, - - - -	23 years 3 months
In the middle States, south of the above, and north of North Carolina and Tennessee, - - - - -	22 " 0 "
In the States south of the middle, - - -	19 " 5 "

How much of this apparent difference of longevity, thus shown by the records of deaths, and by the censuses, is owing to the greater excess of the births over the deaths, in this country, as compared with foreign countries; and, in the later years, as compared with the former years, in some of the towns in the State of Massachusetts; and, in the southern States, as compared with the northern States, cannot be determined, from facts now known. But the sanitary inquiry may reveal other facts, which will modify or establish the inferences drawn from those already known, and show the true value of life here, in comparison with that in other states and countries, where a similar inquiry has been made.

It is common to point to America as most fruitful in population, as well as in the productions of the earth. The number of our children is the subject of our pride and our boast. These buds of promise seem to be the foundation of the nation's growing power, and the guaranty of its future strength. In as far as these children are sure to become mature men, they are the hope of strength and the just source of pride; but in as far as they are to fall beneath the dangers of their years, and die in their preparatory period of life, and the numbers born exceed the numbers of those who will reach maturity and become the supporters of the State, they are our weakness and the just cause of our self-distrust.

If there were a stationary population, and a perfect state of humanity, where every one, who is born, lives through the natural period of three score and ten, there would be no more children under 5 years, than old persons between 65 and 70. Every equal period would then have an equal amount of population. In such a state of things, in every 70 persons, there are 55 over

15 years old, who are not only self-supporting, but able to add to the wealth and the power of the public; and only 15 under the age of 15, who are dependent upon the others for support and protection; and this dependent class amounts to only 21.32 per cent of the whole people. In a stationary population, the smaller the dependent class in proportion to the supporting class, or the greater the preponderance of the numbers of the mature over the immature, the more perfect is the health, the less the mortality, and the greater is the physical power of the community. On the contrary, the greater the number of the dependent class in proportion to the supporting class, the lower is the general state of health, and the weaker is the body politic.

When an individual has reached his maturity, and become a self-sustaining man, then he can retain his life and strength for a length of time, in proportion to the vigor of his health and the favorable nature of his employment and of the circumstances about him. And in the proportion that he is able to protract his working power, in the ratio that his working and productive years exceed his dependent years, he adds to the common strength and the common weal.

The proportion of those who pass through and survive the days of action, is another test of public health and strength. Comparing States and nations, there were, for every 100 persons,

	Under 15 years.	15 to 60 years.	Over 60 years.
In Massachusetts, in 1840,	33.99	59.65	6.36
In the United States, 1840,	43.71	52.35	4.00
Southern States, 1840,	47.22	49.34	3.12
England, 1841,	36.10	56.70	7.20
Sweden, 1835,	35.22	56.93	7.85

The first or dependent class, must be supported by the second. The third, probably, can do no more than sustain themselves. Then the lightness of the burden, and the power of bearing it, must be in the inverse ratio of the first to the second; and that community must have the most available strength which finds this burden the lightest. It is obvious the 34 per cent. of the dependent class, must be a lighter tax on the 59 per cent. of the productive class, in Massachusetts, than the

47 per cent. of the young on the 49 per cent. of the mature, in the most southern States.

The strength of the State includes not only the physical working power of its people, but the amount of the experience and wisdom that belong to them. Then a larger proportion of those who both enter upon, and pass through, these years of vigor, not only indicates a higher degree of health in the mature and middle-aged, but is a better guaranty of sobriety and staidness in the people, and in the general management of their public and private affairs. Therefore, the 6 per cent. who had survived 60 in Massachusetts, was evidence of more maturity and wisdom among its people, than the 1.9 per cent. who had survived the same age in the new State of Illinois.

The report on the sanitary condition of the laboring classes of England states, that, in some of the manufacturing towns, there are not wisdom and prudence enough of the mature and the aged, to repress the excitements, and to govern the actions of the young and volatile, and that, in the mobs and public crowds in the streets, youth so far predominates, that it is no wonder that rash and sometimes unlawful acts are committed.

Your memorialists have now shown, that there is apparently a great difference in the amount of life and health enjoyed in different places, towns, and counties, of this State; that, in some places, health and life seem to be diminishing, and that, in the increase and progress of population, some of the causes by which, and some of the circumstances amidst which, health is most deteriorated, and life most wasted, are growing here, and a portion of them are gaining ground at a most fearful rate.

The attention of the Legislature, then, is earnestly and seriously besought to this matter of public health—first, to make inquiries as to the state of health and value of life in all parts of the State, to ascertain where, and amidst what circumstances, most reach to the maturity of active being, where most sustain their strength to the full period, and where old age is most frequent and the latest postponed.

Having thus ascertained the probable causes of life and death, and of health and disease, the way will be open for any future Legislature to act for the better protection of the health and preservation of the life of the people.

Even now, there are some sanitary principles, which your memorialists beg to be considered in all legislation. It is admitted by all, that property shall be protected by the arm of government, and not even the sovereign power of the State itself shall do any thing, or authorize any people to do any thing, which may directly or indirectly diminish the value of property, without making or providing for adequate compensation. Thus the granting liberty to build a dam, necessarily imposes the obligation on the grantee, to compensate for all the damage done to lands overflowed; but as yet, no adequate provision is made for the protection of the health and lives of those who may be affected by this new change of the course or current of the waters. There is, indeed, provision for the abatement of nuisances, but these require to be marked cases.

The effect of noxious influences is two-fold: 1st, in causing a deterioration of strength and vital power, and in lowering the standard of health and life; and, 2d, in producing visible and perceptible diseases. It is only for the latter, the distinct and marked diseases, that the law provides a remedy, and these must be almost visible and tangible, before an action can be sustained, and a remedy procured. But the blight of health, the slow and almost imperceptible waste of strength, the withering of infancy and childhood, that are caused by crowded and narrow or filthy streets, or closed and unventilated courts, as in Liverpool,—by miasmatic exhalations from the undrained lands or stagnant waters, or by the offensive gases and noxious effluvia from some operations or decaying matters,—these are not so susceptible of proof in any individual case; yet, in their results, they are sure and overwhelming.

“The depressing effect” of these and other noxious agencies on the laboring strength of the population, and on its duration, is shown by the English sanitary reports to be very great, and certain; and yet for the sufferer, for the withering child, the wasted man, and for those on whom the premature decrepitude has fallen in consequence of their morbid influences, and of the want of pure, free and dry air, there is no legal remedy.

The difference of strength and of power for labor and endurance without disease, in various classes, has been remarkably

shown in both the English and French reports. They show that the stature, constitution, and health, of the manufacturing laborers render them less fit for usefulness than the agricultural laborers in the country. In France, in order to obtain 100 men fit for military service, it was necessary to have "as many as 343 men of the poorer class; whilst 193 conscripts sufficed of the classes in better circumstances." Similar differences were found in England. "A corps levied from the agricultural districts will last much longer than one recruited from the manufacturing towns." These men were all presumed to be free from perceptible disease, and yet the strength and the energy of life was very much less in one class than in the other, and that difference of power and life was produced by causes partially within the control of mankind, and perhaps, in some degree, of the Legislature.

These slow and almost imperceptible results of blighting influences upon life, are as much to be feared and guarded against, here and every where, as are the visible diseases, which are openly recognized as causes of death.

The public good, then, seems to require the establishment of such negative principles of legislation, which grants no power, and enacts no law, that may create such conditions of things as will, in the least degree, and in the remotest time, affect the health of the people unfavorably.

But there are many matters of positive character, which the Legislature might do for the public good, in this matter.

The English reports propose legislation regulating the building, the size, and the ventilating of houses, the width of streets, the supply of air and water, and drainage and sewers.

Without proposing any thing definite in this matter, your memorialists think, that the government might encourage the means and the practices of health, in the same degree that they encourage the growth and the fattening of cattle, or the raising of wheat and of other crops. Rewards might be offered for the best plans of houses, both for the poor, whose means compel them to occupy small space, and for the prosperous, who are able to live more freely, for the best plans of ventilating and warming, and of arranging dwellings, shops, school-houses, and other

public buildings, for the draining of stagnant waters, wet meadows and swamps, that send forth fogs, miasmata, and noxious effluvia. These might be drained, not merely for the purpose of converting barren into productive land,—for that has been done already, and has received its reward from the treasury of the State,—but for the purpose of removing some of the noxious influences that cause disease and impair life.

Your memorialists would not propose any way by which these things could be done. The wisdom of the Legislature will find a way; and, as they found it so easy, through the agricultural societies, to pay for the improvements in lands, meadows, orchards, barns, agricultural products and implements, ploughs, carts, pumps, cattle, grain, butter, in manufactures of cloth, shoes, straw-bonnets, &c., there can be no doubt, they will find a proper channel to reach such as would give their attention to the best means of improving the dwellings, shops and streets, and thus of elevating the health, and increasing the strength, and prolonging the life, of the people.

By means of the sanitary survey, and the more effectual execution of the registration law, Massachusetts can do that which is already doing by some of the most enlightened European nations, and coöperate with them in the improvement and the increase of life, and thus accomplish here what the registrar-general of England says, in his fifth report, can be accomplished every where, by proper efforts. A sanitary survey, and “a comparison of the duration of the successive generations in America, England, France, Prussia, Austria, and other states, would throw much light on the physical condition of the respective populations, and suggest, to scientific and benevolent individuals in every country, and to the governments, many ways of diminishing the sufferings, and ameliorating the health and condition, of the people; for the longer life of a nation denotes, more than it does in an individual, a happier life, a life more exempt from sickness and infirmity, a life of greater energy and industry, of greater experience and wisdom. By these comparisons, a noble national emulation might be excited; and rival nations would read of sickness diminished, deformity banished, life saved, of victories over death and the grave, with

as much enthusiasm as of victories over each other's armies in the field ; and the triumph of one would not be the humiliation of the other ; for, in this contention, none would lose territory, or honor, or blood, but all would gain strength."

Respectfully submitted.

EDWARD JARVIS,

Chairman of the Committee on the Sanitary Survey.

The American Statistical Association appointed a committee, on the 13th of October, 1847, to prepare a memorial to the Legislature of Massachusetts, on the subject of a sanitary survey.

In accordance with this appointment, the preceding memorial was read and accepted, January 12th, 1848, and ordered to be presented to the general court by the chairman.

Attest,

JOSEPH B. FELT.

Recording Secretary.

as much as possible of the other side of the question, and the triumph of the world will be the triumph of the other; for in this contention, none would be so likely to honor of fact, but all would gain equally."

EDWARD JARVIS

Chairman of the Committee on the Economy of the House.
The American Statistical Association appointed a committee on the 15th of October 1844, to prepare a memorial to the Legislature of Massachusetts on the subject of a railway survey.
In accordance with this appointment, the preceding memorial was read and accepted, January 13th, 1845, and ordered to be presented to the general court by the chairman.

Attest
JOSEPH B. FULTON

Recording Secretary