

**REPORT  
OF THE  
SANITARY COMMISSION  
OF  
MASSACHUSETTS  
1850**

*BY  
LEMUEL SHATTUCK  
AND OTHERS  
WITH A FOREWORD BY  
LARRY GORDON*

**REPORT**

**OF A GENERAL PLAN FOR THE**

**PROMOTION OF PUBLIC AND PERSONAL HEALTH**

**DEvised, PREPARED AND RECOMMENDED**

**BY THE**  
**COMMISSIONERS**

**APPOINTED UNDER A**  
**RESOLVE OF THE LEGISLATURE OF MASSACHUSETTS**

**RELATING TO A**  
**SANITARY SURVEY OF THE STATE**

**PRESENTED APRIL 25, 1860**

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# INTRODUCTION

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The Shattuck Report: *Perhaps the most significant single document in the history of public health. -- I know of no single document in the history of that science quite so remarkable in its clarity and completeness and in its vision of the future.*  
C.-E.A. Winslow, 1948.

The 1850 Report of the Sanitary Commission of the State of Massachusetts is commonly termed the Shattuck Report. In 1849, Lemuel Shattuck, Nathaniel Banks, Jr. and Jehiel Abbott were appointed by the Governor as Commissioners to prepare *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.*

Lemuel Shattuck was a teacher who later became a bookseller, publisher, genealogist and legislator. His interest genealogy caused him to become a statistician. Shattuck would not be considered a public health professional. He was a visionary who developed and applied a broad ranging knowledge of public health and positively impacted the public policy process. Through his efforts, the Massachusetts System for registration of births, deaths, and marriages was established in 1842. In 1845, he conducted a sanitary survey of Boston. In 1849, as a state legislator, he secured enactment of authorization for the Governor to appoint the three Commissioners to prepare the Sanitary Survey.

When the Shattuck Report was re-published in 1948, public health giant C.-E.A. Winslow wrote the Foreword and stated that "the report is one of the most remarkable documents -- perhaps the most significant single document -- in the history of public health." More than half a century after Professor Winslow's appraisal, this is still true. I number among untold thousands who have frequently quoted portions of the Shattuck Report in public and professional presentations.

While 2,000 copies of the original report were originally printed in 1850, it was re-printed by the Harvard University Press in 1948 in time for the City of Boston to present a copy to each member of the American Public Health Association Governing Council meeting in Boston that year.

Shattuck used the term sanitary in the broadest sense as meaning relating to health. *When applied to the inhabitants of a town or district, in their social capacity, it relates to public health; when to individuals, it relates to personal or private health.*

More than 150 years following the Shattuck Report and its numerous seminal recommendations, public health practitioners still believe:

- *That the conditions of perfect health, either public or personal, are seldom or never attained, though attainable;*
- *That the average length of human life may be very much extended, and its physical power greatly augmented;*
- *That in every year, within this Commonwealth, thousands of lives are still lost which might have been saved;*
- *That tens of thousands of cases of sickness occur which might have been prevented;*
- *That a vast amount of unnecessarily impaired health and physical disability exists among those not actually confined by sickness;*

- *That these preventable evils require an enormous expenditure and loss of money, and impose upon the people unnumbered and immeasurable calamities, pecuniary, social, physical, mental, and moral which might be avoided;*
- *That means exist within our reach for their mitigation or removal;*
- *And that measures for prevention will affect infinitely more than remedies for the cure of disease.*

The Shattuck Report covered a wide range of public health matters in detail. Many of its visionary and far reaching recommendations have been implemented widely. But to mention just a few of the many that are still applicable in Century 21, note the following:

- *We recommend that provision be made for obtaining observations of the atmospheric phenomena, on a systematic and uniform plan at different stations within the Commonwealth.*
- *We recommend that measures be taken to prevent, as far as practicable, the smoke nuisance.*
- *We recommend that, in laying out new towns and villages, and in extending those already laid out, ample provision be made for a supply, in purity and abundance, of light, air, and water; for drainage and sewerage, for paving, and for cleanliness.*

The report also contained far reaching recommendations relative to housing, schools, occupational health, and adulterated food and drugs, and recommended *that persons be specially educated in sanitary science.*

In Century 21, the Shattuck Report is still an amazing document and might appear to have been more than a century ahead of its time. Our progress in public health has not been so rapid as to be cause for concern. It was an astounding document for 1850, and remains astounding today. The Report will continue to motivate future public health students and leaders.

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, be and he is hereby authorized to appoint three persons to be Commissioners, to prepare and report, to the next General Court, 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 Commisioners 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 General Court; 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 Commonwealth, and shall be deposited in the State library when the commission shall be dissolved :provided, the whole expense of said commission shall not exceed five hundred dollars ; and that warrants be drawn accordingly.

*House of Representatives, May 1, 1849*

*Passed.*

*Francis B. Crowninshield, Speaker*

*In Senate, May 2, 1849*

*Passed.*

*Joseph Bell, President*

*May 2, 1849. Approved*

*Geo. N. Briggs*

## REPORT OF THE COMMISSIONERS

The Commissioners, appointed on the third day of July last "to prepare and report, to the next General Court, 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," have considered the matters referred to them, as far as the limited time at their command, and other circumstances, since their appointment, would permit, and submit their REPORT.

As the object of our commission is comparatively new, and may not be clearly understood by every person, we will state what we understand to be its intention. By a Sanitary Survey of the State is meant, an examination or survey of the different parts of the Commonwealth, -its counties, its towns, and its localities, -to ascertain the causes which favorably or unfavorably affect the health of its inhabitants. The word *sanitary* means *relating to health*.<sup>1</sup> When we speak of the sanitary condition of a town, we include a description of those circumstances which relate to, or have an effect upon, the health of its inhabitants. When applied to the inhabitants of a town or district, in their social capacity, it relates to public health ; when to individuals, it relates to personal or private health.

The condition of perfect public health requires such laws and regulations, as will secure to man associated in society, the same sanitary enjoyments that he would have as an isolated individual; and as will protect him from injury from any influences connected with his locality, his dwelling-house, his occupation, or those of his associates or neighbors, or from any other social causes. It is under the control of public authority, and public administration; and life and health may be saved or lost, and they are actually saved or lost, as this authority is wisely or unwisely exercised. The condition of perfect personal health requires the perfect formation of all the organs of the body, and the perfect performance of each of their functions, in harmony with all the others. Such a condition gives to its possessor, strength, energy, power, buoyancy of spirit, happiness. Disease may be a imperfection in some organ, or a derangement or improper action in some function, or both: and it may exist, and does actually exist, in all communities, in an infinite number of degrees, from the slightest deviation from a standard of perfect health, through all the varieties of sickness, to the lowest standard of vitality, just as the body is about to perform its last

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<sup>1</sup> *This word is derived from the Latin sanitas, meaning" soundness of health." It is sometimes written, erroneously, as we think, sanatory, sanotary, and sanitary. The most correct authors, however, now write, sanitary. Hygiene (from a Greek word, derived from Hygeia, the goddess of health, meaning to be well,) is defined "health, the preservation of health, that part of medicine which regards the preservation of health." Hygiean and hygienic have the same meaning as sanitary. these words are sometimes used as technical terms, especially by medical men; but we dislike, and see no good reason for substituting them for more simple, proper and comprehensive English words, health and sanitary, which are generally understood. We would divest our subject of all mystery and professional technicalities; and as it concerns every body, we would adapt it to universal comprehension, and universal application.*

respiration. Such a condition gives to its possessor, weakness, lassitude, inability, depression, pain, misery, death. And one or the other of these conditions may be chosen, and is actually chosen, to a greater or less extent, by almost every human being.

*WE BELIEVE that the conditions of perfect health, either public or personal, are seldom or never attained, though attainable;- that the average length of human life may be very much extended, and its physical power greatly augmented;-that in every year, within, this Commonwealth, thousands of lives are lost which might have been saved ;-that tens of thousands of cases of sickness occur, which might have been prevented ;-that a vast amount of unnecessarily impaired health, and physical debility exists among those not actually confined by sickness ;-that these preventable evils require an enormous expenditure and loss of money, and impose upon the people unnumbered and immeasurable calamities, pecuniary, social, physical, mental, and moral, which might be avoided ; -that means exist, within our reach, for their mitigation or removal ; -and that measures for prevention will effect infinitely more, than remedies for the cure of disease.*

Some of the reasons for this belief will be given in the pages of this report. If it shall appear that it is well founded, -if, indeed, there are facts to support, and legitimate arguments to sustain it, -what subject, it may be asked, can come up for consideration, that shall transcend it in importance ? We look upon things as valuable, that are worthless without life, and that cannot be enjoyed without health. How much more valuable, then, the means to possess and to enjoy both life and health, which alone give value to other objects! When compared together, all other matters this side the grave dwindle into insignificance.

But whom does this great matter of public health concern? By whom is this subject to be surveyed, analyzed, and practically applied? And who are to be benefited by this application? Some will answer, the physician, certainly. True, but only in a degree; not mainly. It will assist him to learn the causes of disease; but it will be infinitely more valuable to the whole people, to teach them how to prevent disease, and to live without being sick. This is a blessing which cannot be measured by money value. The people are principally concerned, and on them must depend, in part, at least, the introduction and progress of sanitary measures.

An eminent physician has recently said: "Our education has made our calling exclusively a curative, and not a conservative one, and the business of our responsible lives has confined us to it. Our thoughts are devoted to, our interests are concerned in, and our employments are connected solely with, sickness, debility, or injury ,-with diminution of life in some of its forms. But with health, with fullness of unalloyed, unimpaired life, we, professionally, have nothing to do."<sup>2</sup> Though this may generally be true, professionally, yet the intelligent physician "can see arrows of disease, invisible to anyone else ; watch their havoc, and know whence they come, and how they may be stayed;" and there are many eminent medical men, who have, as individuals, nobly used the means which their superior position and knowledge have

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<sup>2</sup> Dr. Edward Jarvis ; Communications, Mass. Medical Society, Vol. VIII, p.1

placed within their control, in the prevention of disease, and in the promotion of public health. And we wish to increase the number of such professional men. We would not, however, confine it to them. We would not make it the object of anyone profession exclusively. <sup>3</sup> We would bespeak the attention of intelligent men of all classes and all professions, whatever their prejudices or opinions may have been, to a candid consideration of the whole subject; and if found worthy, would solicit their cooperation and assistance, in its practical application and its onward progress.

"Ignorant men," says Dr. Simon, " may sneer at the pretensions of sanitary science; weak and timorous men may hesitate to commit themselves to its principles, so large in their application; selfish men may shrink from the labor of change, which its recognition must entail; and wicked men may turn indifferently from considering that which concerns the health and happiness of millions of their fellow-creatures ; but in the great objects which it proposes to itself, in the immense amelioration which it proffers to the physical, social, and, indirectly, to the moral condition of an immense majority of our fellow-creatures, it transcends the importance of all other sciences; and, in its beneficent operation, seems to embody the spirit, and to fulfil the intentions, of practical Christianity." <sup>4</sup>

In a subject of such vast importance, on which so little is generally known, and so much ought to be universally known, and which is so full of interesting and useful illustrations, it is difficult to confine ourselves within the limits of a single report of reasonable length. This great matter cannot, however, be presented so as to be understood, without some detail. And though we shall restrain any inclination to go into minute illustration, yet, in our judgment, it would be unworthy of Massachusetts, under whose authority we act, and it certainly would be unsatisfactory to ourselves, if we failed to make the attempt, at least, to present the subject so that the people of the State may know what we mean ; so that they may be able, if they choose, to carry our recommendations into practical operation ; and so that, if thus applied, they will add to their physical power, and increase their intellectual, social, and personal happiness. <sup>5</sup>

It should be borne in mind, however, that this report is designed to suggest a plan for a sanitary survey of the State, and not to contain the survey itself. We were authorized, however, by the resolve, to embrace a statement of such facts and suggestions as we might think proper to illustrate the subject. And as this is, in some respects, a report introductory to other useful information, which may hereafter be diffused, if our recommendations should be adopted, it has seemed to us that it would be instructive and proper here, to make a general survey of what has been suggested, and what has already been done on the subject, abroad and at home. Without such a view, we cannot wisely form a plan for our own

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<sup>3</sup> *The medical department of the National Institute have said, in the Transactions of the American Medical Association, Vol. I, p 306, that "they had reasons to know, that the medical profession in this country, as a general rule, has many preconceived prejudices to research, which can alone make its deductions practically useful." We sincerely hope, however, that this prejudice does not extensively exist.*

<sup>4</sup> *Report on the Sanitary Condition of the city of London," p.38, by Dr. John Simon, Officer of Health,; presented Nov.6, 1849, To this valuable report we shall have occasion again to refer.*

<sup>5</sup> *The valuable Reports of the Commissions, heretofore existing in Massachusetts, are of considerable length. That on Insects contain. 460 pages; that on Invertebrata, 374 pages ; that on Fishes, Reptiles, and Birds, 416 pages; and that on Trees and Shrubs, 547 pages; besides illustrative plates in each. The first of these reports has been ordered to be reprinted this year. It would be reasonable to suppose that MAN was entitled to a consideration equal to either of these subjects.*

guidance. We have accordingly been at no inconsiderable labor and expense, to obtain the most recent authentic information concerning the history and present condition of the sanitary movement ; and we shall proceed to give some of the results of the investigation, before presenting our plan for a sanitary survey of this State.

### *I. THE SANITARY MOVEMENT ABROAD*

The sanitary movement goes back to great antiquity, and is traced up to the direct revelation of the Supreme Lawgiver. "In the day that thou eatest thereof thou shalt surely die," may be regarded as the first sanitary as well as moral precept. And from that time, down through the patriarchal ages, there is evidence that the preservation of health was inculcated as one of the primitive duties. The sanitary laws revealed to the Jews, constituted a part of their religion. The regulations for cleanliness, purification, protection from contagious diseases, and for the general preservation of health, are said to have been well adapted to the country in which they lived, and are still observed by the Arabs in that climate.

The advantages of public health were known in many of the cities of Greece, at the height of her civilization. The Spartans paid great attention to the physical education of young men and young women, and trained them to temperance, sobriety, and athletic exercises. Plato and Aristotle thought that no city could exist, without health officers; and Epaminondas, Demosthenes, and Plutarch, served in that capacity. Hippocrates, "the Father of Medicine," considered a knowledge of the causes of disease essential to the physician. When asked, "Who is the physician that is an honor to his profession?" he replied, "He who has merited the esteem and confidence of the public, by profound knowledge, long experience, consummate integrity; who has been led through the whole circle of the sciences; who has a due regard to the seasons of the year, and the diseases which they are observed to mark carefully the localities of towns, and of the surrounding country, whether they are low or high, hot or cold, wet or dry; who, moreover, neglects not to mark the diet and regimen of the inhabitants, and, in a word, all the causes that may produce disorder in the animal economy."<sup>6</sup> In conformity with the above observations, he spent a great part of his life in exploring the islands of the Grecian seas, and of the Archipelago, in relation to the subject of the health of the inhabitants. His life was spent in tracing nature, and in observing and recording facts, as interpreted by her. Hence the immortality stamped upon his name and writings.

"But the Romans were the most sagacious and extensive legislators in such matters. They were in many things masters of the practical; and have left vestiges still pregnant with the wisdom of experience. With them, nothing seems to have been deemed 'common or unclean' that could protect the public health. We find Pliny writing to Trajan about a fetid stream passing through Amastris, as if it were an affair of state.

The cloacae of the Tarquins are still among the architectural wonders of the world. The censors, ediles, and curators, who at different periods had charge of the buildings, and of the apparatus for the removal of impurities,

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<sup>6</sup> *Boston Medical Journal*, Vol. X V, p. 197. See also "*Traite de la Salubrite*," p. 14.

were invested with great powers for the execution of their functions, and derived a corresponding dignity from them. The arrangements for supplying the houses of Rome with water were most minute. Those for ventilation and drainage, still traceable in the several remains of Roman amphitheatres, have struck our most advanced sanitarians with surprise at their remarkable adaptation to their purpose; while Mr. Chadwick tells the commissioners of sewers that he has lately received from a friend in Zurich a specimen of exactly such an earthenware pipe as he is now recommending for the distribution of sewage. It had been laid down by the Romans, and 'has worked until recent times under 500 feet of pressure !' Indeed, it is easy to see from Vitruvius, and from portions of the collection of Graevius, that the rules and operations for the protection of health in Rome, were of a very radical and peremptory character, and allowed no minor interests to interfere with them. It seems to have been a rule with them, that from the time when the foundation of a city was laid, to that of the summit of its greatness, no structural operation, public or private, should be permitted to take a shape which might render it a harbor either for disease or crime; and it is to this vigilant forethought that, in the absence of other organising agencies discovered only in our later times, we may attribute the success with which that remarkable people preserved social order, throughout so dense and vast a mass of human beings as the inhabitants of the imperial city in the days of its greatness." <sup>7</sup>

The cause of public health received a fatal check, when Rome fell. What was previously known, perished on the invasion of the barbarians, and in the general wreck of civilization. Some dietetic precepts, derived from the Greeks and Romans, were retained, but they were devoid of practical utility. It does not appear that any sanitary regulations existed, from the seventh to the fourteenth centuries. In those dark ages, the people lived without rule of any kind; and consequently, frightful epidemics often appeared, to desolate the land. Although so ancient, few subjects have since made so slow and so little progress, as the science of public health.

In France, in 1350, King John II established the first Sanitary Police; <sup>8</sup> and this has been considered the commencement of sanitary reform. The ordinance provided, that hogs should not be kept in the cities; that streets should be cleansed, and the offal removed; that butchers should not sell meat more than two days old in winter, and one and a half in summer; and that fish should be sold the same day they were caught. Ordinances in 1486

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<sup>7</sup> Edinburgh Review, Vol. XCI, for January and April, 1850, pp. 214,405.

<sup>8</sup> Bthere are three terms which are sometimes used, when speaking of public health,= 1. Industrial Police; 2. Sanitary Police; and 3. Medical Police, - which it may be proper to define. 1) Industrial Police is meant, the laws and regulations concerning the occupations of the people. Under it are included regulations for the location, and for preventing the location, of healthy or unhealthy Trades; the hours of labor, &c., and the officers and agents by which they are controlled. 2) By Sanitary Police is meant, laws and regulations for the prevention of disease, and promotion of health. Under it are included the laws establishing, and the regulatios of boards of health; regulations for cleansing and purifying cities, villages, and private establishments; removal of nuisances, burying the dead, &c.; and the officers or agents by which these matters are carried forward. 3) By Medical Police is meant, laws and regulations for the cure of disease. Under it are included laws prescribing the qualifications and duties of physicians, apothecaries, midwives, &c.; the regulations for their own government among themselves; and the officers and agencies by which they are controlled.

Industrial, sanitary, and medical police, exist in nearly all the governments on the continent of Europe, and will be illustrated to some extent in this report. Those who wish more particular information on these matters, are referred to the lists of books and articles in the appendix; and also to the German work, "Frank (Johann Peter) System einer vollstaendigen medicunischen Polizey". Complete System of the Medical Police, 6 vols., 8vo; - to an article on Medical Police, in the Westminster Review, Vol. XLV for 1846, p. 56; and to the works there reviewed. Also Transactions Am. Med. Association, Vol. II, p. 326.

and 1497, excluded potteries from the center of Paris. Soap is to have been unknown, until the fifteenth century. In 1567, and at later periods, tanneries, dye-houses, and like establishments, were required to be located out of the towns, and near the water. Henry IV quieted the people of Paris, who were alarmed at the use of English coal, by obtaining from the physicians a declaration that no harm could come of it. L. Reyn consulted the physicians on the manufacture of bread. Instructions were given, but unfortunately they were not carried out. The greatest number of houses, in cities, had no privies, in the sixteenth century. The ancient parts of cities show that the streets were narrow and crooked, and the houses low, damp, and without light or air. Paving and lighting the streets are modern inventions. The last part of the eighteenth century wrought some improvements, but public health did not become a well-ordered measure, until the commencement of the nineteenth century.

The first permanent "Conseil de Salubrite," Council of Health, designed especially for the city of Paris, was established by Dubois, the Prefect of the Police, on the 6th July, 1802, and was modified by new decrees in 1810 and 1815. The services of this council are rendered gratuitously, yet it has been considered a great honor to belong to it.<sup>9</sup> It was at first composed of four members, - MM. Deyeux, Parmentier, Huzard, senior, and Cadet-Gassicourt. It has since been increased to twenty-four, besides the president and secretary.

In 1803, M. Thouret called to the council; afterwards, in 1807, Leroux and Dupuytren; in 1810, M. Pariset replaced M. Thouret, and it was at the same period that the nomination of Dr. Petit took place. From that time, the men of the greatest consideration sought to have a part in the labors of the "Conseil de Salubrite." Thus we see enter successively, M.d' Arcet, in 1813; M. Marc, in 1815; M. Berard, in 1817; the engineer Girard, and Huzard, junior, in 1819; Pelletier and Juge, in 1821; M. Gautier de Claubry, and M. Parent-Duchatelet, in 1825 ; MM. Adelon, Andral, junior, Barruel, and Labarraque, in 1828 ; Dr. Esquirol in 1829 ; afterwards MM. Payen and Boussingault, members- of the institute; Dr. Flandin; M. Begin, member of the council of health for the army; and M. Bruzand, architect; and other great men of the nation. MM. Deyeux, Parmentier, Huzard, senior, Cadet-Gassicourt, Thouret, Leroux, Dupuytren, Marc, Girard, Parent-Duchatelet, Barruel, Esquirol, Pelletier, de Larrey, de Botiillon-Lagra11ge, de D' Arcet, d 'Olivier , ( d ' Angers, ) de Rohaul t de Fleury, no longer live to direct the labors of the council, and contribute their long experience and indefatigable activity.

This council is merely consultative. Its advice, in all matters submitted to it, is considered and acted upon by the administration. Its labors and decisions are, however, held in so high estimation, that they are seldom if ever reversed. Their reports were published annually, until 1828, when they were discontinued. In 1840, a general report of their labors for the eleven years, 1828-1839, was published; and, in 1847, another report for the six years, 1840-1845.

During the first period 4431 reports, and during the last period 3087 reports, were made to the administration on the numerous questions ,which

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<sup>9</sup> See Traite de la Salubrite, pp. 23 and 25; also, pp. 319-359, where the ordinances appear. Annales d' Hygiene publique, tome I, I. 13.

it submitted to the council. This is an average of over eight reports weekly, during the whole periods. And many of these reports required much scientific investigation, and great labor to prepare them. From these facts some idea may be formed of the immense amount of gratuitous service which has been performed by this council. <sup>10</sup>

These reports relate to three great divisions, *health, salubrity, and industry*. Under *health* are classed, among other things, the researches on the adulteration of food, on the vessels used in its preparation, on the precautions to be taken with respect to the vessels and utensils of copper, regard being had to the uses for which they are employed; the experiments on the adulteration of salts, on the adulteration of bread and of flour by different substances, on the poisonous substances employed to color bonbons, liqueurs, &c. ; the examination of the methods employed in preparing pork; the examination of the water used for drink ; the adulteration of the flours of linseed and mustard; the use of meat of animals which had died of disease; the researches into the salubrity of dwellings. The *head* of salubrity comprises the anatomical theatres, their construction, the means of remedying the causes of the Unhealthiness which these establishments present; the discharge of sulphurous waters from the public baths, the utility of street fountains, the inspection of barracks, and the sanitary measures to which they should be subject; the improvements to be made in the fires of the establishments ,which employ coals; the arrangements to be made for the deposit of filth in the rural districts; the purification of sewers; the supply of water for domestic and industrial purposes; the steps to be taken in exhumations; the examination of different contrivances to empty privies, the ameliorations to be introduced into this portion of service; the wholesomeness of the markets, the inspection of prisons. The reports which relate to *industry* principally treat of the construction of slaughter-houses; the condensation of the gas and vapors resulting from the refining of metals; the fabrication, preservation, and sale of fulminating and lucifer matches; the precautions to be taken in the construction of fulminating powder-mills, and in the manipulation of the substances employed there; the measures to be taken for the conveyance of the fulminate of mercury; the researches into the employment of bitumens, and the conditions to be prescribed to the makers; the making of wax candles; the conditions to be imposed on catgut factories; the researches on the fires of wash-houses, and on the necessity of decomposing the soapy water to prevent putrefaction; the sanitary measures applicable to white-lead manufactories, and the researches on the diseases of the workmen; the propositions of classification for different trades, such as the silk hat factories, the forges, the places for making and keeping ether; and the beating of carpets.

Thus health, salubrity, industry, offer to the "Conseil de Salubrite" a vast field of researches and investigations, and we may affirm that there is no question relating to these three great departments of the administration, which they have not profoundly meditated, and in part resolved. If now we

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<sup>10</sup> These reports appear under the title, " Report generaux des Travaux du Conscil de Salubrite, pendant les Annes 1829 a 1839 illclusivement." Abstracts of these reports were published in the Annales d' Hygiene publique, tome XXV, po61, and XXXVI1I, p, 79. A translation of the former is published in the Report on the Sanitary Condition of the Laboring Population of Great Britain, pp 409.

turn to other subjects, we still find important labors which touch in several points on the different matters of which we have just spoken, but which have not, like them, a special and clearly defined character: such are the reports on epidemics and smallpox; the measures to be taken to prevent or combat them; the *epizooties* that have prevailed at different epochs among several species of animals, and particularly among milking cows; the sale of horses with glanders, and the regulations to which they should be subject, as well as other animals seized with contagious diseases; the measures to be taken against rabid dogs, and the precautions in case of bites from these animals; the modeling, examination, and embalming of corpses; the aids to be afforded to the drowned and suffocated; the measures to be taken to ascertain the number of these accidents, as well as of suicides; the compilation of a new nomenclature of diseases and causes of death; the measures to be taken to prevent fires in theatres, and various other matters.

"The law has divided manufactures into three classes, each being annoying and insalubrious in different degrees. Those of the first class are not permitted at all near dwellings, and can only be established by a royal ordinance, issued by the Conseil d'Etat. In this category are included manufactories of the nitric, sulphuric, and hydrochloric acids, and of leashes; melting establishments using a naked fire; workshops for the preparation of taffetas and varnished tissues; the premises of knackers, tripemen, and catgut manufacturers; those also in which are prepared animal black, glue, Prussian blue, blood manures, 'orseille,' (a kind of dye,) and starch; and factories of phosphorus and lucifer matches, or fulminating compounds. The reasons for placing these in the first class is the danger of fire, their actual injuriousness to health, or the intolerably fetid odors which they emit, although not actually noxious. They can only be established after prolonged and numerous formalities. The demand for permission to do so is first addressed to the prefect, and is then posted, by order of the communal mayors, in those places situated within a radius of six kilometers (about 13,000 feet) round the proposed locality. It remains posted for one month, and during this period the mayor receives objections, and enters them in a special register. The local authorities then draw up a report *de commodo et incommodo*, and transmit all the documents to the prefect. The prefect transmits the file of papers to the Council of Health, which appoints a commission of inquiry to visit the spot and hear the objections; their report on the facts is then discussed by the council, and it afterwards returns all the documents to the prefect, with its opinion as to the propriety of granting or not granting the required permission. If there be an opposition to this permission, as is ordinarily the case, the matter is referred to the council of the prefecture. The opinion of the latter is not a judgment, against which the condemned manufacture has no appeal; it is communicated to the proprietor, who may either desist or persist in his speculation; if the latter, all the documents are referred to the Minister of Commerce, and a royal ordinance is granted or withheld. If withheld; and the manufacturer have already constructed his premises, he is required to pull them down, or not to use them for the purpose intended: this often occurs.

"The second class of manufacturing establishments comprises those, of which the removal from an inhabited locality is not strictly necessary, but which can only be permitted after it has been clearly shown that no process

will be adopted in them which will either inconvenience or injure the neighboring holders of property. Lime or plaster kilns, high pressure steam engines, gas-works, tanneries, foundries, hat factories, manufactories of sulphate of iron and zinc, of sulphate of soda in close vessels, of phosphorus, of imitation trinkets, bituminous mastic, chandleries, whether for tallow or composition candles, and workshops for cleansing verdigris from copper, are all in this category.

"None of these are actually injurious to the health, but many are disagreeable, and annoy either with smoke, noise, stench, or the danger of fire. The demand for permission to establish anyone of them is addressed to the prefect or vice prefect, who transmits it to the mayor of the commune, that he may make an inquiry *de commodo et incommodo*. The Council of Health then gives its opinion, as in the preceding class, and the prefect issues his decree. If permission is refused, the applicant can appeal to the council of the prefecture, and from thence he can go to the Conseil d'Etat. The same course is open to the opponents.

" The third class comprises lime-kilns that are ill operation one month only in a year, potteries, brick and tile works, manufactories of gelatine and is in glass, crucible foundries, dyeworks, &c. The method of obtaining permission is the same as in the second class. They are sanctioned near habitations, but are subject to the inspection of the prefect who grants the permit." <sup>11</sup>

Councils of Health, similar to that of Paris, were established in Nantes in 1817; in Bordeaux soon after; in Lyons in 1822 ; in Marseilles in 1825; in Lisle in 1828; in Rouen in 1831 ; and other large cities followed their example.

The important results derived from the investigation of these councils stimulated the labors of private individuals, and very many important works have been published on the subject. In consequence of these works, and of the example of England and other governments in the cause of public health, the " Conseil d'Etat " passed an ordinance, on the 18th December, 1848, for a general health regulation throughout the French Republic.

France is divided into 86 departments, and subdivided into 363 arrondissements, 2,834 cantons, and 37,187 communes, bearing some resemblance to our counties, towns, and districts. Each department is governed by a *Prefect*, each arrondissement is superintended by a sub-prefect, and each commune by a mayor or other magistrate.

The health ordinance provides that there shall be in each arrondissement a Council of Public Health; the members to consist of not less than seven, nor more than fifteen persons. An order drawn up by the Minister of Agriculture and of Commerce regulates the number of the members and the composition of each council. The members of each council of health of an arrondissement are nominated for four years by the prefect, one-half removable every two years. Commissions of public health may be instituted in the chief towns of a canton, by a special order of the prefect, after having consulted the council of an arrondissement. There must be a council of public health in each department, and located in the chief towns of a prefecture ; the number of members to be the same as above, and holding their office for

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<sup>11</sup> British and Foreign Medico-Chirurgical Review, Vol. I, for 1848, p. 364.

the same periods. These councils of health are pre-sided over by the prefect or sub-prefect, and the commissioners of a canton by the mayor of the chief town. Each council has a vice-president and secretary, who hold their offices for two years. The boards of health and commissions hold joint meetings at least once every three months, and whenever they are convoked by the proper authorities. The members of commissions of health of a canton may be called to attend meetings of the council of health of an arrondissement, where their voice is merely advisory. If a member of the boards, or of the commissions of a canton, absent himself from three consecutive meetings, without assigning reasons that are approved by the prefect, he is considered as dismissed.

The council of health of an arrondissement are charged with the examination of all questions relative to the public health which may be submitted to them by the prefect or sub-prefect, and they have special charge of the following subjects :-the sanitary regulations of localities and habitations, taking measures to prevent and to control endemic, epidemic, and contagious diseases; epizooties and diseases of animals; the propagation of the vaccine disease; the organization and distribution of medical aid to the sick poor; to furnish means to alleviate the sanitary condition of the laboring and agricultural population; to protect the health of workmen ; to provide for the salubrity of workshops, schools, hospitals, lunatic asylums, almshouses, and charitable establishments, barracks, arsenals, prisons, asylums, etc., etc. ; to decide questions relative to foundlings; the quality of foods, drinks, condiments, and medicines known to commerce; the amelioration or improvement of establishments of mineral waters belonging to the state, to the departments, to communes, or to individuals, and to provide means to render their use accessible to the sick poor; the abatement by requisition of dangerous, unhealthy, or inconvenient establishments; great works of public utility, the construction of edifices, schools, prisons, barracks, harbors, canals, reservoirs, fountains, markets; the establishment of market places, ponds for soaking hemp, sinks, sewers, cemeteries, butchers' stalls, etc., etc. All these matters are to come under the organization of councils of health.

The council of health of an arrondissement is to combine and arrange documents relating to mortality and its causes, with the topography and statistics of the arrondissement touching the public health. Reports are to be made regularly to the prefect, who must transmit a copy to the Minister of Agriculture and of Commerce. It is made the duty of the respective councils of health of each department to give advice upon all questions of public health that may be submitted to them by the prefect, upon all questions common to the general arrondissement, or relating to an entire department. It is their duty also to condense and arrange the reports made to them by the council of health of the different arrondissements, at the request of the prefect. This report is immediately transmitted by the prefect, with the accompanying reports and documents, to the Minister of Agriculture and Commerce.<sup>12</sup> The city of Paris has special regulations for the protection of the public health.

In the German and Prussian States, systems of sanitary and medical police exist in greater perfection, and have been applied more extensively to society, than in any other parts of the world. They are under the control of

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<sup>12</sup> *Annuaire Medical et Pharmaceutique de la France, annie 1849, p. 60.*

government, and especially the Home Secretary or Minister of the Interior, by means of a central medical department, the director of which is a kind of under-secretary of state. This department consists of three physicians, two apothecaries, and two veterinary surgeons. A registrar and library are attached to it, the latter containing, among other documents, copies of the laws relating to sanitary or medical police by foreign governments. Besides these there is a scientific council of health, composed of those practitioners who have attained to professional eminence, whose duty it is to advise the Executive. Subordinate to these are provincial boards and councils, the director of which, termed medicinal rath, superintends the medical police of his province, and is assisted by the medical superintendent (Icreis-physici) of districts, corresponding to our counties.

It is the duty of the medical superintendents to report to the medical council, quarterly, meteorological observations ; the state and prospects of the crops; the epidemic constitution of each quarter, and the prevailing epidemic; suggestions for improvements in the ordinances relating to his duties; prove actions for offences against medical laws, or for quackery; and the veterinary practice of the quarter. A yearly return of all medical practitioners, midwives, apothecaries, veterinary surgeons, persons vaccinated, state of the apothecaries' shops, &c., is made to the secretary of state. The medical superintendent must pass an examination in state medicine, and be approved as a physician, surgeon, and veterinary surgeon. He must reside in the centre of his district, and cannot be absent without leave of the provincial board. He has to inspect the profession within his district; see that surgeons and midwives do not overstep their proper line of practice; look after quacks; inspect the shops of apothecaries; superintend the medical topography of his district; the pauper medical relief, public hospitals, baths, schools, prisons, &c., in relation to their sanitary condition. He must attend to sudden accidents, and assist surgically, or procure assistance, and make *post-mortem* examinations, and give evidence at inquests. He has under him a district surgeon, to act as his assistant or deputy. They each have an official seal. To each provincial executive is attached a council of health, whose duties, like those of the central council, are to advise the executive, and to act as a board of examiners for the province.<sup>13</sup>

In all the governments on the continent of Europe, laws exist by which every birth, every marriage, and every death, which takes place, is recorded. These records are compulsory and universal. In every case of death, too, the body is inspected by an authorized medical officer, generally appointed by government, who certifies the cause of death. The practice varies in different places. The following are the regulations in Hamburgh, communicated to us by Dr. Schroeder of that city :-

1. A certificate of a physician on the actual and natural death of anyone that is to be buried, must be delivered at all the churches and chapels of the city, at the foreign religious chapels, and at the Jewish synagogue, before they will be allowed to give the permission for burial. This certificate contains a formula, which must specify the name,

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<sup>13</sup> See article on Medical Police; Westminster Review, Vol. XLV, for 1846, p. 72.

residence, age, day of death, and disease of which the person died, and its duration. Without such certificate no permission of burial is given in any case.

2. No physician is permitted to give this certificate, otherwise than on the most convincing signs of death, and on finding no trace whatever of an unnatural cause. In case of doubt of the actual death, the physician must immediately apply all means for restoring life, and immediately inform the police officers, if the relatives refuse the required assistance. It is also made his duty to give speedy information, on heavy responsibilities, whenever he finds traces of an unnatural death.
3. An inquest is held gratuitously on all those who have died without the treatment of a physician, or who, in cases of sudden death, have not been found alive by the physician called in, either by the magistrate, surgeon, or by one of the members of the council of health, who are appointed to this office for a stated time, and whose names are duly published.
4. In the poorhouses and hospitals this certificate is given by the resident physicians. The physician of the poor of the pauper district gives it to those who enjoy the out-door privilege of these institutions.
5. In the principal hospital, a list is made up weekly, by the resident physician, of those that have died within the week, with their names, ages, and last diseases.
6. All these certificates are collected on Mondays, Wednesdays, and Saturdays, by the messenger of the council of health, from the different presiding officers of the churches, and the other proper authorities, and are immediately carried to the city physician. If he should think it necessary, on account of a deficiency in the certificate, or from any other reason, to examine the corpse himself, nobody can refuse him this examination, which is done gratuitously, under heavy penalties.
7. The city physician presents an abstract of these certificates every month, and in dangerous cases immediately, specifying the numbers, names, sexes, ages, and causes of death of those that died within the month. At the end of the year an exact list of all the buried is handed in to the police officer by the proper authorities, and by him handed to the city physician, who from it prepares and publishes in the newspapers a general report.

Every citizen and inhabitant is urged conscientiously to conform to this regulation, since, beside the advantages in a scientific view, it is the only means to avoid the interment of living bodies, and prevent secret murders; and the only way to discover, seasonably, contagious diseases. "

Besides the monthly reports of the city physician on the mortality in the city and the suburbs, the president for the time being of the physicians for the poor, exhibits every three months an exact list of the newly-received sick, distinguishing their diseases, taken from the sick lists of the physicians for the poor, together with the reports of these physicians on the same."

One of the most interesting points connected with the excellent system of registration in Geneva, is the mode of establishing the accuracy of the details concerning mortality, which serve as the basis of the reports. The deaths, without any exceptions, are all certified to, not only by the

attendant physicians, but those specially appointed to this duty by the health office. By these, notes more or less extended are made out in regard to the deceased, and the morbid or accidental causes which led to death. These notes are examined every fifteen days by a medical board, discussed, and sometimes extended or modified. Even after all this, the note of registration is carried, by a person employed by the council of health, to the attending physician, who adds to it all the information of interest to be recorded. <sup>14</sup>

" In Paris and Munich, the verification must in every instance be made by public officers, who are generally medical men in practice, and who receive a fee for each verification. At Leipzig, the duty is performed by the regular medical attendant of the family, if there be one, but if the decease has taken place without a medical man having been in attendance, the verification must be made by the public officer. At Berlin and Frankfort, the certificate is filled up by the family attendant."

Where there are regularly appointed verifiers, the districts of the city are divided between them; and as soon as death takes place, the fact must be communicated to the district verifier, who proceeds to the house, and signs the certificate after making the necessary examination.

The instructions under which these officers act are of a very stringent character, and the procedure is intended to obviate premature interment, and to detect crime.

" The French and German methods of verification are intended to be *preventive*. A number of instances were mentioned to us, in which crimes, which would otherwise have escaped notice, were detected by the keen and practised eye of the verifier, and the general opinion certainly was that much crime was prevented. We heard of no cases of that cold, calculating destruction of successive members of the same family, which has disclosed itself in England. Such a succession of murders, or the poisoning of children, or allowing them to die from neglect, in order to obtain the burial-money from a club in which they were insured, or from other causes, too frequently pass unnoticed, but Under the system of verification they could hardly escape being brought under judicial inquiry, and crime might possibly be diminished by a knowledge of the certainty of its discovery." <sup>15</sup>

In Great Britain, the sanitary welfare and improvement of the people seems to have attracted very little attention until within the last twenty-five years. Boards of health had existed in many cities, but they were generally void of much vitality. The report from the select committee of the House of Commons, on the laws relating to Friendly Societies, was published July 5, 1825 ; and a second report on the same subject, June 29, 1827. In the Westminster Review for April, 1828, there appeared an able article on the matters suggested in these reports, the object of which was "to exhibit the present state of the information possessed relative to the casualties of sickness and mortality, and the conduct of the government respecting the departments of the public expenditure appropriated as means to diminish the evil effects of these casualties." These works have been considered as the dawning twilight of sanitary improvement.

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<sup>14</sup> *D'Espine-" Annuaire de la Morlalile Genevoise," p. 4.*

<sup>15</sup> *Chadwick's Report on a General Scheme for Extramural Sepulture, p. 171.*

The review was written by Edwin Chadwick, Esq., of the Inner Temple, barrister-at-law, the individual to whom, perhaps, more than to any other, the cause is indebted. A leading London periodical, of December, 1849, has described him as then " a student at law in the Temple. He was not a man of varied or profound attainments, nor distinguished by any extraordinary brilliancy of intellect. But he was remarkable for his sagacity in extracting from masses of detail the master facts, and bringing these to bear for the elucidation of a master thought. He would confront, undaunted, any amount of intellectual labor ; exploring mountains of blue books and statistical returns, till he had fully ascertained and brought to light their true riches. For some years his peculiar power had been wasted on sifting evidence in private cases for attorneys. But in 1828, a slight incident threw the idea of which we have spoken across his track. He seized it, and it became the ruling thought of his life." His name should be handed down to posterity as one of the greatest and most useful reformers of his age.

Dr. T. Southwood Smith, Professor in the London Fever Hospital,-another individual who has been prominent in all the sanitary movements, and to whom the world is greatly indebted,-called the public attention to the causes of fever, in his treatise on that subject, in 1830; and subsequently published a valuable work on the Philosophy of Health. He was appointed, in 1832, by Lord Melbourne, in conjunction with Mr. Took and Mr. Chadwick, to investigate the question of factory labor, which Lord Ashley and Mr. Sadler had at that time pressed upon public attention. This resulted in the appointment of Factory Inspectors.

In 1832, a commission of nine persons was appointed to inquire into the practical operation of the laws for the relief of the poor in England and Wales. Mr. Chadwick was one of this commission. Their report was the basis of " An Act for the Amendment and better Administration of the Laws relating to the Poor in England and Wales," which was passed, August 14, 1834. That act placed the whole pauper system under the management .of three commissioners and a principal secretary. Rt. Hon. Thomas Faulkland Lewis, John George Shaw Le Fever, Esq., and George Nichols, Esq., were immediately appointed commissioners, and Edwin Chadwick, Esq., secretary. He is the author of most of the able papers which have appeared in the fifteen annual reports made since that time. These important documents exhibit one-fourth of all the pauperism as the result of preventable disease; if so, then is pauperism in itself in a similar degree preventable.

March 28, 1833, a select committee of twenty-seven persons, among whom were. John Wilks, Esq., Lord Viscount Morpeth, Sir George Grey, Lord John Russell, the solicitor-general, Col. Davis, and other distinguished men, was appointed by Parliament, "to consider and report on the general state of parochial registers, and the laws relating to them; and on a general registration of births, baptisms, marriages, deaths, and burials, in England and Wales." On the 15th of August succeeding, after a thorough investigation, a full report of the result of their labors was submitted. The conclusions of the committee were...

1. That the subject is urgently important :

2. That it involves matters of great public and national interest, as well as individual satisfaction, and rights and claims to property; and deserves the attention of the humblest artisan, as well as of the most philosophical and statesmanlike inquirer:
3. That the existing law is imperfect and unjust, and requires not only partial amendment, but real fundamental reform
4. That great trouble, vast expense, utter uncertainty, capricious changes, and local and general evils exist, while no means are supplied to obtain the information other countries possess, and justly value, *as to the state of disease, the operation of moral and physical causes on the health of the people*, the progress of the population, and other matters, on which accurate knowledge can scarcely be too highly appreciated or too intensely pursued. "

In consequence of the information contained in this report, an "Act for the Registration of Births, Marriages, and Deaths, in England and Wales," was passed June 6, 1836, and went into operation July 1, 1837. This act was brought into Parliament by Lord John Russell, the present Prime Minister of Great Britain, and was advocated by him in a very able speech, in which he said, "It was most desirable that a general system of civil registration should now be carried into effect. It was a most important subject: important for the security of property; important to ascertain the state and condition of individuals under various circumstances; important to enable the government to acquire a general knowledge of the state of the population of the country, that there should be a general registration of births, marriages, and deaths." Sir Robert Peel, Dr. Bowring, Lord Morpeth, and other distinguished members of Parliament, were also its warm supporters.

Under the operation of this system, a central office was established in London, presided over by an officer styled the Registrar-General of Births, Deaths, and Marriages. England is divided at present into 11 divisions, 623 districts, and 2189 sub-districts. In each district there is a superintendent registrar; and in each sub-district, a registrar. London is divided into 5 divisions, -east, west, north, south, and middle, 36 districts, and 135 sub-districts. Copies of the records of all births, marriages, and deaths, which take place during the preceding week, are made by the registrars of the sub-districts, every Saturday evening, and transmitted every Monday to the superintendent registrars, and by them transmitted to the Registrar-General. An abstract is made of these returns on the same day, and published on Tuesday, and accompanied by remarks on the state of the health and weather during the week. Notwithstanding the greatness of the metropolis, containing over 2,000,000 inhabitants, nearly equal to three times the population of Massachusetts, the returns are made with so great regularity that it seldom happens that a single one is missing. The deaths by each disease are shown, the prevailing epidemics recorded and exhibited, and everyone is traced from its origin to its termination. A quarterly report, comprising an abstract of the returns from all the districts of England, is published ; and from all these documents an annual report is prepared. Nine annual reports have been published ; the first three by T .H. Lester, Esq., the first Registrar-General. Since the death of Mr. Lester, George Graham, Esq.; has held the office, and

he has made the last six reports. These reports contain a vast fund of information, of the greatest value, relating to the life, the health, and the welfare of man.

This was the most important sanitary measure ever adopted in England; and it has been the foundation of nearly all others. Without it they would have been comparatively of little value. A recent writer says –

" The first bill of health was the act for the registration of births, marriages, and deaths. Before that time, a perfect chaos, respecting population and mortality, reigned. Since that time, a mass of statistics, relating to life, health, and disease, has been accumulating, which will exert, and is exerting, an immensely beneficial influence upon the physical and moral welfare of the population of these realms, and indeed, ultimately, upon every people upon the face of the globe. The discoveries in astronomy have not a more palpable application to navigation and commerce, nor the investigations in chemistry to manufactures, than have the statistics of health and disease to physical and moral regeneration." <sup>16</sup>

"The Quarterly Reports of the Registrar-General are among the most interesting and instructive documents of the day. They are to us what, in an inferior degree, the Saxon Chronicles were to the 11th and 12th centuries. They engrave, in brief but expressive phrases, the national vicissitudes, prosperities, trials, and calamities. With those faithful and unerring indices, marriages and deaths, the Registrar-General measures the robustness of national vigor, or probes the depth of national suffering. Backed by those ranks of expressive figures, which permit no exaggeration, and are susceptible of no fallacy, he presents to us a true picture of the present condition of our country and nation. No false rhetoric or untrue coloring is suffered to mar the truth of the hard and simple outlines. No political creed conceals the facts, or perverts their meaning. No unjust law orders the distortion of half the truth by the concealment of the other half. These reports are, indeed, something more than current history; they are the judgments of the time upon itself: and, untinged as they are by party spirit, and unswayed by personal considerations, those judgments are as true and faithful as those of future times can be. It is no objection to the value of these records, to say that they chronicle with greater minuteness and accuracy the national ills and chastisements, than the national happiness and success. The most dreary and painful side of human existence is certainly most largely presented to us. The shadow of imperfection and decay tinges all things with its melancholy hues. Our path is rather through the gloomy valley, and under the shade of cypresses, than on the invigorating mountain side, resplendent with the light of heaven. But this seems to be the necessary result of all true histories of the social condition of a people. That which is strongest and most permanent presses aside that which is less vigorous and enduring. Happiness and comfort escape the chronicler; the gaunt features of misery and distress are ever before him. The happy hours of a nation's, as of an individual's life, are as the sandy ripples which the advancing tide washes into smoothness ; the hours of sorrow and of trouble are like those ripples fossilized into stone." <sup>17</sup>

These reports are regarded as of the highest authority. "If there is anyone whose information may be supposed to be accurate, whose

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<sup>16</sup> *London Lancet*, Vol. II, for 1848, p. 457.

<sup>17</sup> *British and Foreign Medico-Chirurgical Review*, Vol. V, 1850, pp. 216, 222.

impartiality may be relied upon, and whose judgment may be trusted, it is the Registrar-General. He is biassed by no theories and is above the reach of all suspicious leaning."

We have compiled from the Appendix to the Ninth Annual Report of the Registrar-General, (pp. 17,36, and 70,) the table on pages 34 and 35, to show the rate of mortality among four different populations in England. The first part embraces the whole of England; the second, (District No.35,) one of the most healthy districts; the third, Liverpool, one of the most unhealthy districts; and the fourth, London. It shows the population, on the night between the 7th and 8th of June, 1841; the deaths for seven years, 1838 to 1844,-three years before and three years after the enumeration and the average annual mortality per cent. for that period. It also shows the influence of locality, age, and sex, on mortality. This important table will be hereafter referred to, and should be carefully studied and understood.

AGES	Population, June 6-7th, 1841					
	1. England		2. Part of Surrey		3. Liverpool.	
	Males	Females	Males	Females	Males	Females
Under 1,	210,341	218,851	444	496	3,365	3,348
1 to 2,	215,322	214,250	436	465	3,002	2,935
2 to 3,	218,035	219,006	492	506	2,918	3,022
3 to 4,	203,492	206,368	436	457	2,685	2,729
4 to 5,	201,080	200,263	454	424	2,480	2,458
Under 5,	1,048,270	1,058,738	2,262	2,348	14,450	14,492
5 to 10,	953,235	952,450	2,113	2,158	10,983	11,245
10 to 15,	880,907	852,517	1,974	1,848	10,554	10,389
15 to 20,	1,507,944	1,633,939	4,073	3,039	21,389	25,458
20 to 30,	1,178,131	1,275,849	3,431	2,568	22,894	23,495
30 to 40,	871,845	902,863	2,144	1,730	14,777	14,100
40 to 50,	621,142	653,065	1,435	1,316	7,504	7,841
50 to 60,	398,937	433,202	976	800	3,738	4,408
60 to 70,	224,863	259,283	539	520	1,553	2,053
70 to 80,	86,736	103,707	202	207	435	683
80 to 90,	12,635	17,906	18	40	59	106
Over 90,	579	1,091	0	3	3	19
All Ages,	7,785,224	8,144,610	19,167	16,577	108,339	114,289

Deaths in the 7 years, 1838 - 44.

Under 1,	301,378	236,261	426	323	7,155	6,004
1 to 2,	100,874	95,764	97	82	3,575	3,455
2 to 3,	53,785	53,449	55	59	1,856	1,743
3 to 4,	35,826	35,802	46	49	1,172	1,038
4 to 5,	26,034	25,634	29	35	767	720
Under 5,	517,897	446,910	653	548	14,525	12,960
5 to 10,	61,659	59,903	99	99	1,333	1,252
10 to 15,	31,028	32,662	44	47	466	434
15 to 20,	84,833	95,152	177	170	1,476	1,407

20 to 30,	79,703	89,967	152	136	2,030	2,007
30 to 40,	76,093	78,431	151	115	2,234	1,785
40 to 50,	77,047	70,680	118	112	1,767	1,448
50 to 60,	87,539	84,275	156	173	1,387	1,441
60 to 70,	103,873	106,692	240	206	1,155	1,347
70 to 80,	87,218	95,723	217	190	631	872
80 to 90,	26,167	34,497	54	71	133	229
Over 90,	1,727	3,112	0	9	7	38
All Ages,	1,234,784	1,198,004	2,061	1,876	27,144	25,220

**LAW OF MORTALITY - Rate of Mortality, &c.- Continued.**

Annual Mortality per Cent						
AGES.	1. England		2. Part of Survey		3. Liverpool	
	Males	Females	Males	Females	Males	Females
Under 1	20.510	15.440	13.702	9.296	30.401	25.609
1 to 2	6.706	6.393	3.177	2.517	17.027	16.810
2 to 3	3.531	3.490	1.597	1.665	9.094	8.237
3 to 4	2.520	2.481	1.507	1.0531	6.241	5.432
4 to 5	1.853	1.831	.921	1.178	4.422	4.183
Under 5	7.072	6.037	4.123	3.332	14.372	12.771
5 to 10	.926	.900	.669	.655	1.735	1.590
10 to 15	.504	.548	.318	.363	.631	.597
15 to 20	.805	.883	.621	.799	.987	.789
20 to 30	.968	1.009	.633	.756	1.268	1.220
30 to 40,	1.249	1.242	1.006	.949	2.162	1.808
40 to 50	1.776	1.548	1.174	1.215	3.367	2.637
50 to 60	3.141	2.782	2.283	3.087	5.305	4.668
60 to 70	6.613	5.885	6.359	5.655	10.634	9.370
70 to 80	14.394	13.201	15.342	13.103	20.740	18.232
80 to 90	29.646	27.553	42.843	25.338	32.230	30.851
Over 90,	42.697	40.795		42.825	33.361	28.561
All ages-	2.270	2.104	1.536	1.616	3.582	3.151
Living to 1 dth.	44.1	47.5	65.1	61.9	27.9	31.7
<b>(2) Of the Rate of Mortality among the Population of London.</b>						
AGES	Population, 1841.		Deaths, 7 years, 1838-1844		Annual Mortality, per Ct.	
	Males	Females	Males	Females	Males	Females

Under 1,	22,987	24,495	37,617	30,665	23.420	17.905
1 to 2	22,625	23,245	16,906	16,033	10.694	9.865
2 to 3	24,927	25,147	9,285	9,082	5.331	5.164
3 to 4	21,933	23,221	5,997	6,067	3.912	3.737
4 to 5	20,977	21,184	3,982	3,978	2.717	2.685
Under 5,	113,449	117,292	73,787	65,825	9.309	8.027
5 to 10	95,653	98,317	8,269	7,867	1.237	1.144
10 to 15	88,535	89,271	2,982	2,906	.482	.466
15 to 20	176,825	217,887	9,371	9,435	.759	.619
20 to 30	167,987	199,973	12,557	12,825	1.070	.917
30 to 40	121,002	136,253	15,120	13,122	1.788	1.377
40 to 50	78,369	88,198	14,927	12,341	2.726	2.001
50 to 60	43,423	51,299	14,604	13,649	4.812	3.805
60 to 70	20,995	27,882	13,478	15,262	9.185	7.827
70 to 80	5,982	9,573	7,721	10,823	18.472	16.170
80 to 90	738	1,478	1,649	3,134	31.995	30.326
Over 90	49	96	128	269	37.304	39.994
All ages	913,007	1,037,519	174,593	167,458	2.737	2.308

By examining the first part of this valuable table, and following down the left hand column, it appears that in the whole of England, in 1841, there were 1,048,270 male persons under five years of age, among whom 517,897 males died in the seven years, 1838-1844, or an annual average of 7.072 per cent. And in the second part, following a line across the page, it appears that, in London, in 1841, there were 136,253 females between the ages of thirty and forty, among whom 13,122 females died in the seven years, 1838-1844, or an annual average of 1.377 per cent. And if the part relating to the annual mortality per cent. be examined alone, it appears that in the most healthy districts in England, 4.123 per cent. of the males die under five years of age; while in the most unhealthy, 14.372 per cent. die in the same age. In like manner, other facts may be ascertained, by examining other parts of the table.

In resuming our history of the sanitary movement, it appears that in October, 1835, the Secretary of War instituted an inquiry " into the extent and causes of the sickness and mortality among the troops in the West Indies, with a view of founding thereon such measures as might appear likely to diminish the great loss of life annually experienced in these colonies." The investigation was conducted under the superintendence of Major Alexander M. Tulloch, and in 1838 his report on the subject was published; and it was followed by three other volumes, by the same author, under the following titles: -

Statistical Reports on the Sickness, Mortality and Invaliding among the Troops : -

- Vol. I. The West Indies. Published in 1838.
- Vol. II. The United Kingdom; The Mediterranean; and British America. Published in 1839.
- Vol. III. Western Africa; St. Helena; The Cape of Good Hope; and The Mauritius. Published in 1840.
- Vol. IV. Ceylon; The Tenasserim Provinces; and The Burmese Empire. Published in 1841.

These reports extend over 597 folio pages, and contain a vast mass of facts relating to medical topography and diseases, during the period of 1818 to 1836. They justly attracted great attention at the time of their first appearance, and are of real permanent value.

In the mean time, in 1836, the Lords Commissioners of the Admiralty issued orders for the preparation of similar documents relating to the navy. Dr. John Wilson was appointed to superintend the work, and his reports appear in two volumes : -

Statistical Reports on the Health of the Navy, for the years 1830, 1831, 1832, 1833, 1834, 1835, and 1836 :-

- Vol. I. South American, West Indian, and North American; Mediterranean, and Peninsular Commands. Published in 1840.
- Vol. II. Cape of Good Hope, and West Coast of Africa, and East India Commands; Home, and Various Forces. Published in 1841.

March 12, 1840, a select committee of fifteen members of the House of Commons was appointed "to inquire into the circumstances affecting the health of the inhabitants of large towns and populous districts, with a view to improved sanitary regulations for their benefit. "The report was presented, June 17th following, under the title of "Report from the select Committee on the Health of Towns, together with the minutes of evidence taken before them."

On the 2d of October, 1840, a commission, consisting of Thomas Tooke, Esq., T. Southwood Smith, M. D., Leonard Homer and Robert John Saunders, Esqs., was appointed by the government, to inquire into the employment of the children of the poorer classes in mines and collieries, and the various branches of trade and manufacture in which numbers of children work together; and to collect information as to the ages at which they are employed, the number of hours they are engaged in work, the time allowed each day for meals, and as to the actual condition and treatment of such children, and as to the effects of such employments, both with regard to their moral and their bodily health." Two reports were made by this commission: one in 1841, on the physical, and the other in 1843, on the moral aspects of the inquiry, comprising five large folio volumes. An abridgement was published in 1843, under the title of "The Physical and Moral Condition of Children and Young Persons employed in Mines and Manufactures." <sup>18</sup>

In 1838, the Poor-Law Commissioners instituted inquiries into the effects of different methods of managing pauper children; and the results of their inquiry appeared in 1841, in a "Report from the Poor-Law

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<sup>18</sup> See reviews of these reports in *London Quarterly*, Vol. LXX, for 1842, p. 160; also, in *Westminster*, Vol. XXXVIII, for 1842, p. 86.

Commissioners on the Training of Pauper Children." This work contains several valuable papers relating to health, as well as education in general.

A "Report on the Prevalence of certain Physical Causes of Fever in the Metropolis, which might be removed by proper Sanitary Measures; by Neil Arnott, M. D., and James Phillips Kay, M. D.," dated 12th May, 1838 ; and another " Report on some of the Physical Causes of Sickness and Mortality to which the Poor are particularly exposed, and which are capable of removal by Sanitary Regulations; exemplified in the present condition of the Bethnal Green and Whitechapel Districts, as ascertained on a personal inspection by Southwood Smith, M. D., Physician of the London Fever Hospital," dated May, 1838, were published in the Fourth Annual Report of the Poor-Law Commissioners, (8vo. ed., pp. 103, 129,) and also in a separate form. And a "Report on the Prevalence of Fever in Twenty Metropolitan Unions Or Parishes, during the year ending the 20th March, 1838. by Southwood Smith, M. D.," was published in the Fifth Annual Report, (p. 160. )

In consequence of these reports, Lord John Russell, then Secretary of the Home Department, on: motion of the Bishop of London, addressed a letter to the commissioners, dated August 21, 1839, directing them to inquire " as to the extent to which the causes of disease, stated in these reports to prevail among the laboring classes of the metropolis, prevail also among the laboring classes in other parts of England, Scotland, and Wales." The commissioners began this inquiry through the agency of their secretary, Edwin Chadwick, Esq., in November, 1839; and that distinguished sanitary reformer digested the information obtained; and presented his very able and most valuable report, July 9, 1842, which was published under the title, "Report on the Sanitary Condition of the Laboring Population of Great Britain, by Edwin Chadwick, Esq."

In 1843, appeared "A Supplementary Report on the Results of a Special Inquiry into the Practice of Interments in Towns, by Edwin Chadwick, Esq."

March 8, 1842, a select committee of fifteen were appointed, " to consider the expediency of framing some legislative enactment to remedy the evils arising from the interment of bodies within the precincts of large towns, or of places densely populated." They reported the 14th of the succeeding June, under the title of " Report from the Select Committee on Improvement of the Health of Towns." - " Effect of Interment of Bodies in Towns."

The facts thus far developed began to make a profound impression upon the public mind ; and Sir Robert Peel, foreseeing their importance, on the 9th May, 1843, appointed another commission, consisting of thirteen gentlemen of eminence, to inquire " into the present state of large towns and populous districts in England and Wales, with reference to the causes of disease among the inhabitants; and into the best means of promoting and securing the public health under the operation of the laws and regulations now in force : and the usages at present prevailing with regard to the drainage of lands, the erection, drainage, and ventilation of buildings ; and the supply of water in such towns and districts, whether for purposes of health, or for the better protection of property from fire; and how far the public health and the condition of the poorer classes of the people of this realm, and the salubrity and safety of their dwellings, may be promoted by the amendment of such laws, regulations, and usages."

This commission made their first report, June 22, 1844, and their second report, February 3, 1845. These works contain 1363 folio pages, besides numerous maps, and other pictorial illustrations; embracing an immense mass of facts on the subjects to which they relate. Two editions have been published: one in two volumes, large folio, and the other slightly abridged, in four volumes octavo, under the title of "Reports of the Commissioners for inquiring into the state of Large Towns and Populous Districts." These reports have been justly characterized as "certainly among the ablest and most comprehensive state papers that ever issued from a government office."

September 24, 1847, another commission, consisting of Lord Robert Grosvenor, Edwin Chadwick, Thos. Southwood Smith, Richard Owen, and Richard Lambert Jones, was appointed to inquire "whether any and what special means may be requisite for the improvement of the health of the metropolis, with reference more particularly to the better house, street, and land drainage; street cleansing and paving; the collection and removal of soil and refuse, and the better supply of water for domestic use, for flushing sewers and drains, and cleansing streets; and also, to the best means of using existing works, and of erecting new works requisite, and of maintaining them in good action; and also, to the most equitable provisions for regulating the charges, or assessing, collecting, and paying the moneys requisite for such purposes, more especially in the districts chiefly inhabited by the poorer classes of the population." They made their first report, November 19, 1847; their second, February 19, 1848; and their third, July 13, 1848. The commission is still open.

The following interesting statement of facts, containing a condensed summary of the information then possessed, is taken from the speech of Lord Morpeth, made in the House of Commons, March 30, 1847, on introducing his "Bill for improving the Health of Towns in England." (pp. 6, 33. )

" By a statement drawn up by Dr. Guy, Physician to King's College Hospital, from the reports of the Registrar-General, it appeared that the relative mortality in the town and country districts was as follows :-

	<u>Country District</u>	<u>Town District</u>
Population to the square mile	199	5,100
Annual deaths in 1,000,000	19,300	27,073
Annual excess in town districts		7,773
Rate of mortality	1 in 52	1 in 37

"He also supplies further particulars as to the rate of mortality in different places:-

#### CONDITION OF ENGLAND

Isle of Anglesea	1 in 62	Leeds and Birmingham,	1 in 37
Isle of Wight	" 58	Sheffield, .	" 33
England,	" 45	Manchester Union	" 30
London,	" 39	Liverpool (Parish,) .	" 29

“Thus the inhabitants of London, compared with England at large, lose eight years of their lives; of Liverpool, nineteen. The population of the large towns in England being 4,000,000, the annual loss is between 31,000 and 32,000. But all towns are not necessarily equally unhealthy, as appears by the following statement :-Liverpool, deaths per 1,000, 35; Manchester, 32; Bath, Coventry, Derby, Dudley, Shrewsbury, and Sunderland, 26; Carlisle and Norwich, 25; Halifax and Kidderminster, 21. Now it may be thought that low wages, and the consequent comparatively small command over the necessaries of life, may occasion the, greater rate of mortality in certain districts; but I find the following statement, made by a colleague of my own, Lord Ebrington, in a lecture which he delivered at Plymouth: ' The mortality of the southwestern district, which includes Cornwall, Devon, Somerset, Dorset, and Wilts, is only 1 in 52, not 2 percent; while that of the northwestern, including Cheshire and Lancashire, is 1 in 37. Now let it not be said that this is owing to extreme poverty and want of the necessaries of life ; the condition of the laborers of the west, the badness of their dwellings, the lowness of their wages, the consequent scantiness of their food and clothing, have been the subject of public animadversion. With the exception of the Cornish miners, the condition of the laborers throughout the western counties is described as nearly the same: yet in Wiltshire, the county of lowest wages, the deaths are 1 in 49 ; in Lancashire, 1 in 36. The average age at death, in 1841, was, in Wiltshire, 35 years; in Lancashire, 22 ; at Liverpool, 17; that of the laborers in Wiltshire, 35; operatives in Liverpool, 15. At Manchester, in 1836, the average consumption per head of the population, was 105 lbs. of butcher's meat,-about 2lbs. a week, -exclusive of bacon, pork, fish, and poultry; (what a different average would our county produce !) the average age at death was twenty. The proportion of paupers in the fifteen principal agricultural counties, is 1 in 8 ; in the twelve principal manufacturing counties, 1 in 13; in Lancashire, 1 in 11 : and of the deaths in 31500,000 of town, and about an equal number of a country population, there were, respectively, in 1838 and 1839 together,-country, 1 in 54.91, of whom above 70 years of age, 20 per cent. ; town, 1 in 38.16, of whom above 70, 9 per cent. ; all England, 1 in 4.6.60, of whom above 70, 14 per cent.'

"The following was Dr. Guy's statement of diseases which occasion the excessive mortality in large towns :-, Deaths in 1,000,000, from small-pox, in the country, 500; town, 1,000. From measles, Country, 350; town, 900. Scarlet fever, country, 500 ; town, 1,000. Typhus, country, 1,000 ; town, 1,250. J Epidemic and contagious disorders together, country, 3,400 ; town, 6,000. (Waste of life in towns, under this head, 2,600 a year. ) Diseases of infants: teething, convulsions, water in the head,-country, 1,300; town, 3,500. (Waste of infant life, under this head, 2,200 a year.) Scrofulous diseases and consumptions, country 1 3,800; town, 4,600. Total excess of deaths, 5,500 in the 1,000,000, So that there is a waste of 22,000 lives in the 4,000,000 inhabiting large towns.'

“ Dr. Guy also said, ' The total number of deaths in England and Wales, during the year 1841, was 343,847, or some what less than 1,000 a day. Now this is at the rate of one death in 4.6 inhabitants. But if, instead of one death in 46 inhabitants, there had been one death in 50 inhabitants, or 2 per cent., no less than 25,407 lives would have been saved. Now all men who have paid any attention to this subject, agree in the opinion that, by proper

sanitary measures, it is possible to insure such a state of health among the community at large, that the mortality shall not exceed that proportion. If the sanitary state of the entire country could be raised to the condition of the most healthy counties, so that instead of one death in 46 inhabitants, there should be only one death in 54, we should have an annual saving of no less than 49,349 lives, or about one-seventh of the whole number of deaths! At first sight, it may appear extravagant to represent such an improvement of our sanitary condition as possible; but, when it is recollected that, on the one hand, even our most agricultural counties have not yet attained to their best sanitary state, and that our large towns have been hitherto almost entirely neglected, and admit of immense improvement, -the attainment, for the whole country, of a sanitary condition represented by one death in 54 inhabitants, is at least within the bounds of possibility.'

" Dr. Southwood Smith said :- 'In some localities there was not a single house in which fever had not prevailed, and, in some cases, not a single room in a single house, in which there had not been fever. The districts in which fever prevails, are as familiar to the physicians of the fever hospital, as their own names. In every district in which fever returns frequently, and prevails extensively, there is uniformly a bad drainage, a bad sewerage, a bad supply of water, a bad supply of scavengers, and a consequent accumulation of filth; and I have observed this to be so uniformly and generally the case, that I have been accustomed to express the fact in this way :-If you trace down the fever districts on a map, and then compare that map with the map of the commissioners of sewers, you will find that the commissioners of sewers have not been, there fever is prevalent; and, on the contrary, wherever they have been, there fever is comparatively absent. Some idea may be formed of the evils which our negligence in the matter of sewerage and drainage inflicts, when I tell you that the annual deaths from typhus fever amount to 16,000, and the attacks of this loathsome disease to between 150,000 and 200,000.'

" Further still, Dr. Lyon Playfair calculates that, for one unnecessary death, there are 28 cases of unnecessary sickness; consequently, in our large towns, above 700,000 cases of unnecessary sickness. The same calculations in the metropolis would save 10,000 deaths, and 250,000 cases of unnecessary sickness.

" Then it may be asked whether all parts of our towns are equally subjected to these causes of sickness and death? So that being the case, I find, from one of the reports of the Registrar-General, that the metropolis is divided into three of ten districts each, under the title of the healthiest, the medium, and the most unhealthy districts. The result is as follows :-10 healthiest, with an allowance of 202 square yards to each person, have a mortality of 1 in 49 ; 10 medium, with an allowance of 102 square yards to each person, have a mortality of 1 in 41; 10 unhealthiest, with an allowance of 32 square yards to each person, have a mortality of 1 in 36. Liverpool-gentry, 1 in 35 ; working classes, 1 in 15. The Rev. Mr. Clay, of Preston, makes four classes of streets :-Well conditioned, mortality among children under one year, 15 in 100 ; moderately conditioned, 21 in 100; ill conditioned, 38 in 100 ; worst conditioned, 44 in 100, or three times as much as the first. I will only refer back to the very last half-year's report, where it appears, from tables prepared by Mr. Chadwick, that, in St. George's

Hanover square, the average age at which the gentry die is 45; laborers, 27; St. Giles's and St. George's Bloomsbury-gentry, 4.0; working classes, 17.

"There are items of expense which may be reckoned to be incurred under the present system, or rather want of system: - Direct attendance on the sick; loss of what they would have earned; premature death of productive contributors to the national wealth; and expenses of premature funerals. Dr. Playfair estimates this loss for Manchester at nearly £1,000,000 ;Mr. Hawkesley calculates the loss for Nottingham at £300,000 ; Mr. Clay estimates the loss for Preston at £990,000; Mr. Coulthait takes the loss for Ashton-under-Lyne at £235,000 ; and Dr. Playfair considers the loss of London to be above £2,500,000; and that of England and Wales little short of £ 11,000,000 ; and of the United Kingdom, £20,000,000," or nearly \$100,000,000 ! And this an annual loss !

On the 31st of August, 1848, the great measure which had been brought into Parliament by Lord Morpeth, (now Earl of Carlisle, ) became a law, under the title of "An Act for promoting the Public Health." Under this act a General Board of Health has been organized, consisting of the Earl of .Carlisle, Lord Ashley, Edwin Chadwick, Esq., and Thomas Southwood Smith, M. D. Henry Austin, Esq., is their secretary.

While these various governmental measures were in progress, the people were not inactive. Public opinion kept ahead of public measures. In November, 1844, an important meeting was held at Exeter Hall, composed of some of the ablest men in the kingdom, which formed the "Metropolitan Health of Towns Association."<sup>19</sup> April 23, 1845, the Liverpool Health of Towns Association was organized; and soon after, similar associations were formed in the principal towns in England. A monthly periodical work, entitled "The Liverpool Health of Towns Advocate," was commenced Sept. 1, 1845, and continued until July 1, 1847. In November, 1847, the "Journal of Public Health, and Monthly Record of Sanitary Improvement," was commenced in London, and was continued until December, 1849, under the management of the Metropolitan Association. The books, pamphlets, and documents, official and private, which have more recently appeared on the subject, and the different sanitary movements that have been made for the public benefit, are too numerous to be specified. The whole country seems to be interested; and the people, with some few exceptions, view the sanitary question as *The Great Idea of the Age*. Able articles have, from time to time, appeared in the leading periodical reviews, miscellaneous as well as medical ; and among other newspapers, The Times, and The Morning Chronicle, the leading journals of the world, have been its powerful advocates. The Times, during nearly the whole of last year, teemed with able articles. The Chronicle commenced, on the 18th of October, 1849, three series of most valuable papers on "Labor and the Poor;" one relating to the metropolitan districts, one to the manufacturing districts, and one to the rural districts.

Even the Queen, in her recent speech at the opening of Parliament, recommended the subject to public consideration :-

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<sup>19</sup> Associations for scientific and benevolent purposes, in England, are generally managed by "committees." The following gentlemen composed the committee of the London Health of Towns Association. Others, equally eminent, in that city and in other parts of the kingdom, are earnestly engaged in the cause :-

"In the summer and autumn of the past year, the United Kingdom was again visited by the ravages of the cholera; but Almighty God, in his mercy, was pleased to arrest the progress of mortality, and to stay this fearful pestilence. Her Majesty is persuaded that we shall best evince our gratitude by vigilant precautions against the more obvious causes of sickness, and an enlightened consideration for those who are most exposed to its attacks."

It would be impossible here to give even an analysis of these documents and works. The following are among the many conclusions to which we are led from the information they contain :-

1. *It is proved* that there die annually, in each 100 of the population, of the whole of England, 2.27; of the most healthy district, 1.53 ; and of the most unhealthy district, 3.58. And that the living to one death are, in these districts, respectively, 4.4, 65, and 27.

2. *It is proved* that the various forms of epidemic, contagious, and other diseases, caused, or aggravated, or propagated, by atmospheric impurities, produced by decomposing animal or vegetable substances, by damp and filth, and close and over crowded dwellings, prevail amongst the population in every part of the kingdom, whether dwelling in separate houses, in rural villages, in small towns, or in the large towns, as they have been found to prevail in the lowest district of the metropolis."

3. *It is proved* that disease and mortality fall more heavily upon those who live in large towns and populous places, than in the country districts, and particularly upon those who live in narrow streets, confined courts, damp dwellings, close chambers, cellars, undrained, unventilated, and uncleaned; and affect most severely the infantile portion of the population, and the heads of families between twenty and thirty years of age.

4. *It is proved* that, in such situations, the average duration of life is five to twenty-five years less than it might otherwise be; and that, during this curtailed period of existence, the working power of those who live, and their capacity for enjoyment, are greatly diminished by a constant depression of health and spirits, and by the active attacks of fever, cholera, scrofula, and consumption.

5. *It is proved* that such diseases, wherever their attacks are frequent, are always found in connection with the physical circumstances above specified; and that where these circumstances are removed by drainage, proper cleansing, better ventilation, and other means of diminishing atmospheric impurity, the frequency and intensity of such diseases are abated; and where the removal of the noxious agencies, and other causes of disease, appears to be complete, such diseases almost entirely disappear."

6. *It is proved* that the annual mortality might be reduced, in the whole kingdom, from 2.27 per cent., or 1 in 44, to less than two per cent., or 1 in 50; and in all large towns, as low as that general average.

7. *It is proved* that this unnecessary excess of mortality above 2 per cent., occasions an annual loss of more than 50,000 lives in the United Kingdom, -" greater than the loss from death or wounds in any wars in which the country has been engaged in modern times; "and that the causes of these unnecessary deaths occasion at least twenty cases of unnecessary sickness, on the average, to each death, or one million cases annually, which might have been prevented.

8. *It is proved* that of the 43,000 cases of widowhood, and 112,000 cases of destitute orphanage, relieved from the poor rates of England and Wales alone, the greater proportion of deaths of the heads of families occurred from specified removable causes ; and that the average of their ages was under fortyfive years, or thirteen years below the natural robability of life, as shown by experience.
9. *It is proved* that the preventable causes of disease, and the unnecessary mortality, impose upon the people immense pecuniary burdens which might be avoided.
10. *It is proved* that the younger population, bred up under noxious physical agencies, is inferior in physical organization and general health to a population preserved from such agencies; and that these adverse circumstances tend to produce an adult population, short-lived, improvident, reckless, intemperate, immoral, and with excessive desires for sensual gratifications.

## II. THE SANITARY MOVEMENT AT HOME

*Sanitary Police.* Some historical notice of the sanitary legislation of Massachusetts, seems proper, preliminary to any statements of its present condition. We have accordingly presented, in the appendix, the titles of all the acts relating to matters connected with the public health, from the commencement of the provincial charter, in the year 1692, to the present time, arranged in chronological order; and referred, in connection, to the printed works where they may be found. The subject seems to have received little attention from the General Court, during the old colonial charter.<sup>20</sup> Two acts, which have some relation to it, we shall presently notice. Laws were passed by the provincial government, relating to nuisances, drainage, small-pox, and some other matters; many of which were special acts, or partial in their operation. But though imperfect, they ate honorable to the State, and exhibit the care which the legislature has ever wished to exercise over the people. To them we have been indebted for many excellent sanitary municipal regulations, which have continued until the present time.

*Nuisances.* In 1692 and 1708, acts were passed, providing that " in Boston, Salem, Charlestown, respectively, and other market towns in the province?" "slaughter-houses for killing of meat, still-houses, and houses for the trying of tallow, currying and dressing of leather, either with time, alum, or oil, be assigned by the selectmen to places where it may be least

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<sup>20</sup> *Towns, however, under the general authority which they possessed, sometimes made regulations regarding sickness. The selectmen of Salem, in 1678, " ordered that William Stacy, who is sick of the small-pox, doth not presume to come abroad till three weeks after this date; and that be very careful that when the time be expired he shift his clothes, and do not frequent company till he wholly clear of the infection," And again-" The selectmen being informed that William Lord, Jr., is visited with the small-pox, at his fathers house, do order that William Lord, sen., his wife and children that live with him, do keep within their house, and that they do not offer to sell any of their wares, viz. : bread, cakes, gingerbread, and the like; and that they suffer none to come to their house, but what necessity requires, upon the penalty of 208, in money for each offence. It is ordered that Thomas stacey doth forbear grinding at the mill, and that he be careful he doth not infect others, on the penalty of 208. A house is ordered to be impressed for our sick, having the small-pox."-Felt's Annals of Salem, Vol. II, p. 423. The following act was passed by the Massachusetts Colony, in 1660 :-" This court, considering how far Satan doth prevail upon several person within this jurisdiction to make away themselves, judgeth that God calls them to bear testimony against such wicked and unnatural practices, that other may be deterred therefrom : "Do therefore order, that from henceforth, if any person, inhabitant or stranger, shall at any time be found by any jury to lay violent hand on themselves, or be wilfully guilty of their own death, every such person shall be denied the privilege of being buried in the common burying-place of Christians, but shall be buried in some common highway, where the selectmen of the town where such person did inhabit shall appoint, and it cart-load of stones laid upon the grave as a brand of Infamy, and as a warning to others to beware of the likedamnable practices." Ancient Charters and Laws, p. 187.*

offensive," and prohibited elsewhere; and records were to be kept of such assignment. The provisions of these acts, were incorporated into that of June 7, 1785, and then extended to Newburyport, and other towns in the State, in which the selectmen and two justices might judge it to be necessary; and included earthen ware in the list of manufactures to be regulated. A fine of £5 was imposed for a breach of the law, which, by the additional act of March 4., 1800, 'Was fixed at \$20. The Revised Statutes modified this act, and extended its provisions to any town in the State, at the option of the selectmen, and included " any trade or employment offensive to the inhabitants, or dangerous to the public health."

*Drainage and Sewerage.* In 1702, an act was passed providing "for appointing commissioners of sewers, for the draining and removing of the banks and obstructions of the passage of waters in rivers, brooks, or ponds that occasion the overflow and drowning of meadows and low lands; and also for the draining and flowing of swamps and other unprofitable grounds, and drying of them." Another act, " for regulating drains and common shores," [sewers,] was passed in 1709, placing them under the direction and control of the selectmen of the town. These provisions were incorporated into the two laws of the State, passed Feb. 26, 1796, and Feb. 20, 1797, and remained in force until their repeal in 1836, when they were reenacted in the modified form of the Revised Statutes.

*Sickness.* Legislation on this subject, principally with reference to the small-pox, has been frequent in the history of the State. As early as 1701, " an act providing in case of sickness," was passed, "for the better preventing the spreading of infection." By this act, when persons " were visited with the plague, small-pox, pestilential or malignant fever, and other contagious sickness, the infection whereof may be communicated to others," the selectmen were empowered, "for the preservation of the inhabitants," to remove such infected persons to separate houses, and to provide " nurses, tendance, and other assistance and necessaries for them, at the charge of the parties themselves, their parents or masters, (if able,) or otherwise at the charge of the town or place whereto they belong." And the sheriff of the county, his deputy, or the constable of the town, were required, under direction of the selectmen, " to impress and take up convenient housing, lodging, nurses, tendance, and other necessaries for the accommodation and relief of the sick." And if a vessel arriving in the province happened " to be visited with the plague, small-pox, pestilential or malignant fever, during the voyage, or to come from any place where such sickness prevailed," they were authorized to prevent all persons belonging to the ship coming on shore, or those on shore having any intercourse with them. This has been the foundation of all the sanitary laws passed since that time. Its provisions were retained and much extended in the great act of June 22, 1797, which was the most important sanitary act passed in the United States, prior to the passage of the Massachusetts registration laws.

The small-pox has often prevailed in the State an epidemic, and legislation to guard against its effects has been frequent. In 1730, an act was passed, "empowering courts to adjourn and remove from the towns appointed by law for holding courts, to other towns, in cases of sickness by the smallpox." Another act was passed, in 1751, respecting clothing and other goods supposed to be infected, containing almost the same provisions

as were reenacted in 1797, and incorporated into the Revised Statutes in 1836. Other acts respecting the small-pox were passed in 1742, 1757, 1776, 1777, 1792, and 1793. On the 6th of March, 1809, an act was passed, making it the duty of towns to choose a committee to superintend the vaccination of the inhabitants. This excellent law was so modified, improperly as we think, in the Revised Statutes, as to leave it to the discretion of the selectmen, to act or not to act under its authority, as they might choose.

*Insanity:* In 1694, towns were required to provide for the "relief, support, and safety" of persons "naturally wanting of understanding, so as to be incapable to provide for him or herself, or by the providence of God shall fall into distraction, and become non compos mentis." Acts "for suppressing rogues, vagabonds, common beggars, and other idle and disorderly and lewd persons," were passed in 1758 and 1798, by which justices were empowered to commit insane persons to the house of correction. These acts were repealed in 1834, though some of their bad features are still retained. It seems to us that, unless crime has actually been committed, insane persons should not be treated as criminals, but should be restrained and provided for by some other tribunal than a criminal court.

*Quarantine.* We have already alluded to one law, partially quarantine. In 1700, the master of ships were required to furnish a list of all passengers to the selectmen of towns, and give security for the support of any "impotent, lame, or infirm person" who might be discharged. At a subsequent period, not exactly known, a hospital was erected on Spectacle Island, by the town of Boston; and, in 1736, an arrangement was made between Boston and the Commonwealth, for a permanent quarantine establishment on Rainsford's Island. No hospital, however, appears to have been erected until some time afterwards. In 1757, "An Act for regulating the Hospital on Rainsford's Island, and further providing in case of sickness," was passed. This act commences, "Whereas a good and convenient house that been provided at the charge of the province, on the island called Rainsford's Island, for the reception of such persons as shall be visited with any contagious sickness;" and then follow the general provisions of law on the subject. An additional act was passed in 1758; and in 1799 the whole quarantine regulations were transferred to the Boston Board of Health; and there it rested, as it always should have done) until the Revised Statutes were passed.

*Special Legislation.* The first Board of Health in the State was established in Boston, by a special act of the Legislature, passed February 13, 1799. This first act was, however, repealed, and another, more comprehensive and extended, was passed in its stead, on the 20th of June in the same year. This act contains twenty-five sections, and has since formed the basis of our special legislation. Besides its own provisions, it imposed upon the board all the powers and duties of the general act of June 22, 1797. Additional acts were passed in 1803, 1804, 1806, 1809, and 1810. In the last-named year, the Board of Health were authorized to make roles and regulations for burial grounds, and for the interment of the dead; and under that act, in that year, was commenced the excellent plan of recording the name, age, and disease of every person buried; which records have been continue until the present time. June 20, 1816, a revised act for establishing the Board of Health, drawn by Benjamin Whitman, Esq., was passed, and

repealed so much only of the previous acts, as were inconsistent with its provisions. By the city charter, all the powers of the Board of Health were "transferred to and vested in the city council."

Boards of Health have since been established in other places, according to the following statement :-

Towns	When Established	History	Date
<i>Boston</i>	<i>Feb. 13, 1799</i>	<i>Transferred to City Council</i>	<i>Feb.23, 1822</i>
<i>Salem</i>	<i>June 21,1799</i>	"	<i>March 23,1836</i>
<i>Marblehead</i>	<i>Feb. 22, 1802</i>	<i>Still existing in the town</i>	
<i>Plymouth</i>	<i>Feb. 27. 1810</i>	"	
<i>Charlestown</i>	<i>June 12,1818</i>	<i>Transferred to City Council</i>	<i>Feb. 22,1847</i>
<i>Lynn</i>	<i>June 16, 1821</i>	"	<i>April10,1850</i>
<i>Cambridge</i>	<i>March 2,1828</i>	"	<i>March 17,1846</i>

The acts of 1799 and 1816, establishing the Board of Health for Boston, provide, "that all the powers and duties which are given to or required of the selectmen of the town of Boston, by a law of this Commonwealth passed the 22d of June, 1797, entitled 'an act to prevent the spread of contagious sickness,' and by the several acts in addition thereto, shall be and they hereby are transferred to and made the duty of the Board of Health of the town of Boston, any thing to the contrary notwithstanding." These acts have been models, after which the charters of other boards of health, and the municipal ordinances, rules and regulations to carry them into effect, have been formed. The law of 1816 ,was principally a modification of that of 1799, and repealed only such parts of it as were inconsistent with its provisions. The former acts were occasioned by the then recent outbreak of two' great epidemics in Boston,-the small-pox, and yellow fever, which will presently be noticed. The special acts creating boards of health in Salem, Marblehead, Plymouth, and Charlestown, all refer to the act of 1797 as part of their charters. Those of Lynn and Cambridge do not. The law of 1797, here referred to was repealed by the Revised Statutes; but neither the special acts, nor any part of them, creating the local boards of health, were repealed; hence the general act of 1797 is in force in Boston, Salem, Marblehead, Plymouth, and Charlestown, but nowhere else!

Such was the history and condition of sanitary legislation, prior to the codification of the laws as they appear in the Revised Statutes. The commissioners who performed this work, say, in a note to their report of the twenty-first chapter, relating to public health, that " several provisions of this chapter are adopted with proper modifications from the statute of 1816, relating to the city of Boston; the general laws being deficient in various details, which seem to be requisite in cases where it shall be deemed expedient to appoint such boards. The provisions of that act, being the result

of long experience will probably be found to be adapted to the wants of other populous places, in which such offices are required." <sup>21</sup>

And in looking at the act itself, as thus modified, it appears that two sections, 47 and 48 were taken from the act of 1785 ; that nine sections, 35 to 43 inclusive, were taken from the act of 1792, relating to the small-pox; that fifteen sections, 5, 6 , 9, 10, 11, 16 to 24 inclusive, and 33, were taken from the act of 1797, that one section, 12, was taken from that of 1801 ; that two sections, 45 and 46, were taken from that of 1810 ;and that eighteen sections, 1, 2, 3, 4, 7, 8, 14, 15, and 25 to 32 inclusive, and 34, were taken from that of 1816.

And to what trials of legislation have the Revised Statutes been subjected ? In 1837, sections 16 and 40 were repealed, and two others substituted in their places. In 1838, sections 16, 17,38,40, 41,42,43, and 44, were repealed, (being the second repeal of 16 and 40.) In 1840, the 43d and 44th sections, repealed in 1838, were restored and reenacted. In 1848, the two sections substituted in 1837 for 16 and 40 of the Revised Statutes, were repealed, so far as relates to the small-pox. And, in 1849, sections 10, 11, and 46 (among the most important in the whole act) were repealed, and others, applicable only to cities, and not to towns, substituted in their places! And many of the provisions thus repealed are in the act of 1797, and are still in force in Boston; Salem, Marblehead, Plymouth, and Charlestown, though not in other places! All this will appear in the acts whose titles we have referred to in the appendix.

The result of this examination has led us to conclude :-

1. That the present health laws of the State are imperfect in their provisions, and are arranged on an imperfect plan ; and that the whole have been rendered more defective by the removal of some of the original parts.
2. That it is difficult, if not impossible, even after wading through many works not easily accessible, to know what the laws really are, or what parts are or are not in force.
3. That they are partial in their application and operation ; and, if occasion should require, it is extremely doubtful, now, whether towns, not cities, have any authority to enforce them.
4. That, if they could be understood and enforced, they are entirely inadequate to the present condition of society, and the present wants of the age.

It is hardly necessary to remark that, under the operation of these laws, but few facts have been preserved which would illustrate the sanitary history of the people. Records of deaths have been made in some of the towns ; and the imperfect abstracts Of these records which have been published, relating to Boston, since 1810, under the title of " Bills of Mortality," have been noticed. <sup>22</sup>

The most important laws for ascertaining the facts regarding the sanitary condition of the State, in Massachusetts as in England, are those

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<sup>21</sup> *Report of Commissioners, p. 124.*

<sup>22</sup> See *American Journal of Medical Sciences, for April, 1840 ; Shattuck's Census and Statistics of Boston, pp. 126-177, and Appendix, pp. 71-95 ; Curtis's Sanitary Report-Transactions of the American Medical Association. Vol. 1, p 487. .*

relating to the registration of births, marriages, and deaths. Before these laws were passed, great defects existed. Efforts to remedy these defects had often been made; and an order was introduced into the Boston city council, March 22, 1838, for the appointment of a committee to consider the subject. But circumstances existed, at that time, which prevented any useful action. After frequent communications with the late Hon. John Pickering, then President of the American Academy of Arts and Sciences; and with the late Drs. Hale and Fisher, active members of the Massachusetts Medical Society; the subject was brought before their respective associations ; and hence originated the petitions to the Legislature for a modification of the laws, whose subsequent history has already been noticed.<sup>23</sup> Some facts obtained under these laws will presently be given.

A notice of the *Medical Organization*, the professional efforts, and the means for the cure of disease, which have existed in the State, form a part of the history of the sanitary movement. Previous to the formation of the Massachusetts Medical Society, medicine had been recognized rather as an art than as a science. Little or no public instruction on the subject of medicine had been given. The profession was indeed recognized as distinct, and there had been several physicians of eminence.<sup>24</sup> Clergymen, however, at that early period, frequently prescribed for the diseases of their brethren; and although they were not endowed with high attainments in medical science, they were nevertheless qualified for great usefulness in their respective stations. "Altogether unlike the ignorant empirics of the present times, they were actuated by the purest motives; and the highest consideration of benevolence. By their amiable manners, zealous attention, and pious conversation, they endeared themselves to their people; mutual attachments were formed, and the fullest confidence was reposed in their skill."<sup>25</sup>

For the first hundred years in the history of the colonies, midwifery was almost exclusively in the hands of females. The male practitioner was seldom called in, except in difficult cases. Dr. James Lloyd visited London in 1753,

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<sup>23</sup> See first, second, and fourth Registration Reports ; Senate Document No.24, for 1848, and House Document No.65, for 1849.

<sup>24</sup> LAWS IN THE OLD COLONIES. The following acts, relating to the practice of physic, appear among the laws of the old colonies, and are the oldest acts on the subject in the United States. The first was passed in Plymouth, ill 1642. ; and the second ill Massachusetts, in 1649 :- 1." If any children or elder persons shall be sent or come from one town to another, to be nursed, schooled, or otherwise educated ; or to a physician, or chirurgeon, 10 he cured of any disease or wound, &c. : if they come to stand in need or relief, they shall be relieved and maintained by the townships whence they came, or were sent from, and no1 by that township where they are So nursed, educated, or al cure ; and in case they come or be sent from any town or place out of this colony, then if the nurse, educator, physician, or chirurgeon, take not sufficient security of the person to be nursed, educated, or cured, to discharge the township or and from all cost and charge which shall or may come and befall the said township in which be or they is so to be nursed, educated, or cured: then they the said nurse, educator, physician, or chirurgcon, as neglects the same, shall discharge the said township of them themselves." Plymouth Colony Laws, p.72. 2."Forasmuch as the law or God allows no man to impair the life or limbs or any person, but in a judicial way: . " It is therefore ordered, that no person or persons whatsoever, employed at any time about the bodies or men, women, or children, for preservation of lite or health, as chirurgeons, midwives, physicians, or others, presume to exercise or pUI forth any act contrary to the known approved rules or art, in each mystery and occupation, nor exercise ally force, violence or cruelty upon or towards the body fl any, wether young or old, (no, not in the most difficult and desperate cases) without the advice and consent of such as are skilful in the same art, (if such maybe had) or at least of some of the wisest and gravest then present, and consent of the patient or patients, if they be mentis compotes, mush less contrary to such advice and consent, upon such severe punishment as the nature of the fact may deserve; which law, nevertheless, is not intended to discourage any from all lawful use of their skill, but rather to encourage and direct them in the right use therof, and inhibit and restrain the presumptuous arrogancy of such as, through previdence of their own skill, or any other sinister respects, dare boldly attempt to exercise any violence upon or towards the bodies of young or old, one or other, to the prejudice or hazard of the life or limb of man, woman, or child."- Ancient Charters and Laws, p. 76.

<sup>25</sup> Thatcher's Medical Biography, Vol I, p.14. In these volumes, the lives of many physicians are noticed.

and witnessed the practice of some of the eminent physicians there; and, on his return, he commenced the practice himself, and has. the credit of being the first male practitioner in this branch of the profession in Massachusetts.<sup>26</sup>

During the revolutionary war, the deficiency in medical knowledge became apparent, and "philanthropic men, in and out of the profession, were desirous that the standard of medical education should be raised, medical information diffused, and means devised to secure to the community a succession of well educated physicians, competent to its wants;" and these deliberations resulted in the formation of the Massachusetts Medical Society, which was incorporated Nov. 1, 1781. Their act of incorporation contains this passage :-

" As health is essentially necessary to the happiness of society ; and as its preservation or recovery is closely connected with the knowledge of the animal economy, and of the properties and effects of medicines; and as the benefit of medical institutions, formed on liberal principles, and encouraged by the patronage of the law, is universally acknowledged."-" And whereas it is clearly of importance that a just discrimination should be made between such as are duly educated, and properly qualified for the duties of their profession, and those who may ignorantly and. wickedly administer medicine, whereby the health and lives of many valuable individuals may be endangered, or perhaps lost to the community: be it enacted,"&c.

Additional acts were passed in 1789, 1803,1818, 1819, 1830,1834, 1836, (Rev. Stat., p. 214,) and 1850.

By-laws for the regulation of the society have been adopted at various periods, but they have never been enforced very stringently. Cases of expulsion for violations have sometimes, though very rarely, occurred. The influence of the society has, however, been most salutary, in raising the standard of medical education, and in producing a more respectable, more highly educated, and better qualified class of. physicians.<sup>27</sup>

The acts of 1818 and 1819 provided as follows :-" No person, entering the practice of physic, or surgery, shall be entitled to the benefit of law for the recovery of any debt or fee accruing for professional services, unless he shall, previously to rendering those services, have been licensed by the officers of the Massachusetts Medical Society, or have been graduated a doctor of medicine in Harvard University." The legal advantages of these acts were, however, seldom or never improved ; and they were repealed in 1836, at the suggestion of the society. *There is no such thing as a legal MEDICAL POLICE existing in the State.* No restriction is laid upon anyone in the practice of physic, or in dealing in drugs and medicines. Anyone, male or female, learned or ignorant, an honest man or a knave, can assume the

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<sup>26</sup> Communications, Massachusetts Medical Society, Vol. ", P.243

<sup>27</sup> The following extracts are from the by-laws of the society:-

XII. Any person engaged in the practice of medicine or surgery in this commonwealth, who has not received such a medical education as is required; and any one who shall be guilty of practices forbidden to fellows, shall be deemed an irregular practitioner; and it shall be unlawful for any fellow to advise or consult with any such regular practitioner, or in any way to abet or assist him as a practitioner of medicine medicine or surgery. For any breach of this law, a fellow of this society, or of the district society of which he may be a member. He shall also be liable to the censure and reprimand of the counsellors, and in aggravated cases, to expulsion.

XIII. Any person who shall Publicly advertise for sale, or otherwise offer, any medicine, the composition of which he keeps a secret medicine, shall be considered an irregular practitioner; and if a fellow of this society, shall be liable to expulsion, or to such other penalty as the society, at the society, at their annual meeting, may think proper to inflict."

name of a physician, and "practice" upon anyone, to cure or to kill, as either may happen, without accountability. "It's a free country!"<sup>28</sup>

That the influence of the Massachusetts Medical Society upon the health of the people may be more clearly seen, we have compiled the following account of the *movement of the medical profession in the State*, since its formation :-

The number of Fellows belonging to the society in 1789, 1808, 1826, and 1840, has been ascertained from its publications ; in 1847, from a communication from Dr. Z. B. Adams, in the Transactions of the American Medical Association, (Vol. I, p. 366); the physicians in 1850, from Capen's State Record; and the deaths and ages, previous to 1840, from Dr. Ebenezer Alden, of Randolph.<sup>29</sup>

From the history of the society, it appears that 1139 Fellows, (including 94 honorary members,) joined the society prior to 1840, exclusive of those belonging to Maine before its separation ; of whom 664 were then living in the State, 65 had resigned, 105 had removed, and 276 had died.

Since 1840, as far as can be ascertained from the records, 439 Fellows have been admitted, of whom 165 were in Suffolk county. About 65 have resigned or removed, and 125 have died, leaving still connected with the society, 254; which, added to those belonging to it in 1840, make 918, as the present number of Fellows. Capen's State Record gives 1216, which probably includes physicians from other states, who are not connected with the society, and some who are not considered "regular" physicians. The number of regular physicians in the State estimated at 1100, and the others at 400; besides dentists, and those who devote themselves exclusively to one particular branch, and paid for medicine, including the patent nostrums) is much more. *Two millions of dollars*, at least, are expended annually the State, for the cure of disease.

The *Medical School* connected with Harvard University was founded in 1783, though the first degree was not conferred until 1788. Degrees were conferred upon 25 persons, prior to are called " doctors." The average annual charges of physicians in the State have been estimated, by intelligent members of the profession, at \$800 each, and the actual receipts at \$600 each. If this estimate be correct, about \$900,000 is paid for medical advice. The amount 1800 ; upon 124, from 1800 to 1820 ; upon 393, from 1820 to 1840; and upon 259, from 1840 to 1850.

The *Berkshire Medical School*, at Pittsfield, was incorporated in 1823, and probably more than 700 have since graduated.

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<sup>28</sup> The following are the legal requirements of the medical profession in other states " Maint. Formerly, none but regularly licensed physicians could collect their dues; several years since, however, the law was repealed, and the field is now open to all. "New Hampshire. The state laws of New Hampshire do not require any license. There are no laws on the subject of medicine." Vermont. The state laws require no license. A law was passed in 1821, requiring the M. D. or A. B. degree. but it was repealed in 1838."Rhode Island. " The legislature has done nothing for the suppression of quackery.' There are no laws on the subject. Connecticut. The legislature, several year since, repealed the law requiring" a license for the legal collection of fees,-thus virtually licensing all practitioners. The State Medical Society admits to membership only such as have the diploma of M. D., or the legal license.

" New York. No restrictions since 1844, when the law was repealed. All persons now have the right to practice, and recover compensation for services.'

<sup>29</sup> For a more particular history of the society, and medicine generally, see American Quarterly Register, Vol. XII, p. 358, and Vol. XIII, p. 75. Also, Thatcher's History of Medicine, prefixed to his American Medical Biography.

Counties	Fellows of The Society				Z.B. Adams 1847	Physicians in 1850	Dead in 1842	Ages known	Avg Age
	1789	1808	1826	1840					
Barnstable	1	1	2	16	31	34	5	4	78.25
Berkshire	3	8	27	36	70	69	20	10	53.6
Bristol	2	4	13	35	72	78	7	4	66.25
Dukes	0	0	0	2	3	5	1	0	
Essex	9	30	44	86	124	130	42	35	62.03
Franklin	1	4	10	19	54	48	9	4	60.25
Hampden	3	4	19	17	58	54	13	9	60.77
Hampshire	1	7	12	25	57	59	14	10	66.50
Middlesex	7	15	60	127	184	183	43	30	57.73
Natucket	0	1	1	3	11	3	1	1	68.00
Norfolk	4	11	31	50	82	77	13	12	63.92
Plymouth	3	10	22	34	56	52	19	15	61.66
Suffolk	13	25	60	136	280	261	53	42	53.59
Worcester	5	23	55	78	155	163	36	18	61.39
Total	52	143	356	664	1237	1216	276	194	60.23

The Boylston Medical School, incorporated in 1847, and the *Tremont Medical School*, formed in 1838, and incorporated in 1850, are located in Boston. These schools are entirely independent of that connected with Harvard University, and they receive students at any time.

It is said, by those who are familiar with the medical schools in Europe and this country, that few places can be found where greater facilities exist for obtaining a thorough education than in Boston ; whether we consider the high character of the scientific instruction given, the opportunities of witnessing the practical application of those principles, the ease with which subjects are obtained, or the expenses incurred.

Schools for instruction in other modes of practice have also been formed in the State.

Various medical associations for improvement in medical science and medical practice ; and public hospitals, and other public institutions for the cure of disease, are to be found in the State, in as good condition as in any other part of the world.

The *Medical Literature* of the State has had considerable influence upon the health of the inhabitants. It was stated in 1810, as a remarkable fact,

that " twenty-seven foreign medical books had been republished in Massachusetts !" <sup>30</sup>

The *Medical Repository*, the first periodical work devoted to medicine in the United States, was commenced in New York in 1797. The *New England Journal of Medicine and Surgery* was commenced in Boston, in 1812, and continued until 1827. The *Boston Medical Intelligencer*, edited by Dr. J. V. C. Smith, was commenced in 1822, and was published weekly until 1828. The two latter works were united; and, on the 19<sup>th</sup> of February, 1828, the first number of the Boston Medical and Surgical Journal was issued in their stead, which has since been continued, under the editorial charge of Dr. Smith. The *Boston Medical Magazine*, commenced in 1831, and the New England Quarterly Journal of Medicine and Surgery, commenced in 1842, were each discontinued after the first volume was published.

These periodical publications, and several separate works and essays, contain some facts concerning the prevalence of epidemic and other diseases in Massachusetts, though they are very imperfect and disconnected. They, however, show the great value of more complete and thorough investigation and knowledge. The sanitary history and condition of the State should be known ; for this knowledge might suggest the remedial measures proper to be adopted ; and we deem it proper, in this connection, to refer briefly to some of the facts which we have gleaned on the subject.

In 1618, two years before our forefathers arrived at Plymouth, there appeared, among the Indians of the country, one of the most remarkable epidemics of which we have an account. So was the pestilence, that the warriors "were reduced from nine thousand to a few hundreds." The Massachusetts tribe supposed to have lost 2, 700 out of 3,000 persons. In 1621, many places which had been populous Indian villages " all deserted--all dead." The bones of those who perished were lying unburied. Hutchinson says some have supposed the disease to have been the small-pox ; but from the we might infer otherwise. Gookin says, "What the disease was which so generally and mortally swept them away, I cannot learn. I have discoursed with some old Indians then youths, who say that the bodies allover were yellow, ( describing it by a yellow garment they showed me,) both before they died, and afterwards." It has inferred from this that it was the yellow fever; but whether correctly or not seems undetermined.<sup>31</sup>

1621. At the commencement of the settlement of Plymouth, our venerable ancestors suffered severely from sickness. At the end of three months after their arrival, fifty-five only survived of the one hundred and one who came in the Mayflower. " The sick were destitute of almost all the comforts which their miserable condition rendered indispensable. Their sufferings were increased by the want of well persons to perform the duties among the sick; there being, at one time, not more than six or seven persons in tolerable health." <sup>32</sup>

1631. The small-pox, first breaking out at Saugus, spread from Narraganset to Piscataqua, and westward to Connecticut River, and swept off entire villages of the Indians. When Increase Mather wrote, there were

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<sup>30</sup> *Communications, Massachusetts Medical Society, Vol. If, p. 265. See New York Journal of Medicine, for March, 1850.*

<sup>31</sup> *Mass. Historical Collection, Vol. I, p.143 ; Hutchinson's Hist. Mass., Vol. I, p. 34*

<sup>32</sup> *Thalcher's Hist. Plymouth, p. 32.*

living some old residents, who on that occasion helped to bury whole families of the natives at the same time.

1633. At the close of this year the small-pox again broke out, and made great devastations among the unfortunate native races of Massachusetts. Chickatabut, the great sachem of the tribe, was among the victims.

1634. Plymouth was again visited with a mortal sickness, of which twenty men, women and children died; among whom was that most excellent and pious man, Dr. Samuel Fuller, the first physician of New England. " It must have been occasioned by a fever of domestic origin, as the colony had at that time no intercourse with foreign countries, except England."

1639 was sickly in the colonies, and a general fast was observed on account of the small-pox and fevers.<sup>33</sup>

1645. Great sickness prevailed among the Indians at Martha's Vineyard. Few escaped.

1647. A malignant fever prevailed, " occasioned by the excessive heat of summer;" and an epidemic influenza passed through the whole country, an universally affected the colonists and natives; but it was not very mortal: " where in a special providence of God appeared, for not a family nor but a few persons escaping it; our hay and corn had to be lost for want of help; but such was the mercy of God to his people, as few died-not above forty or fifty in the Massachusetts, and near as many at Connecticut." <sup>34</sup>

1654. A general fast was appointed, on account of " the mortality which had been among the people of Massachusetts : What the disease was does not appear.

1655: Another epidemic distemper, similar to that of 1647, passed through New England. It began in June, and few persons escaped. Among those who died was Rev. Nathaniel Rogers, of Ipswich.

1658: Sickness and mortality throughout New England.

1659: Croup is first mentioned in the annals of the country. Other malignant diseases also prevailed about this time. Thirty children died in Rowley. A day of thanksgiving was appointed in Connecticut, for the " abatement of the sickness in the country, and a supply of rain in time of drought."

1668: was a year of great sickness, though few facts are preserved concerning its extent. In New York a public fast was held on account of it.

1677: Small-pox was very fatal in Charlestown. The records state that thirty-one died of the disease, one of whom was the Rev. Thomas Shepard.

1678: Small-pox in Boston; but we have seen no account of its victims.<sup>35</sup> Seven or eight hundred are said to have died of it in the State. About this time " the seasons were unfavorable, and the fruits blasted, while malignant diseases prevailed among the people. The sickness and bad seasons were attributed by our pious ancestors to the irreligion of the times, and to their disuse of fasting; and a meeting was held to investigate the causes of God's judgments, and to propose a plan of reformation."<sup>36</sup>

1697-98: The influenza began in November, and prevailed until February, in Massachusetts. Whole families and whole towns were seized

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<sup>33</sup> Webster, Vol. I, p.187.

<sup>34</sup> Winthrop s Journal, II, p. 310.

<sup>35</sup> Felt: Annals of Salem, Vol. II, p.413.

<sup>36</sup> Webster, Vol. I, p. 203.

nearly at the same time. In the same year, a " mortal disease prevailed so much, in Fairfield, Connecticut, that well persons were not found to take care of the sick and bury the dead. Seventy died in three months, out of a population of less than one thousand. At the same time, a dreadful mortality occurred in Dover, New Hampshire. Rev. Dr. Mather said, in a sermon preached in Boston, in 1698 : " The smallpox has four times been a great plague among us. Often had one hundred bills, desiring prayers for the sick, been read in one day, in one of our assemblies. In one twelve month about one thousand of our neighbors have been carried to their long home."

1702: Smallpox in Boston: two hundred and thirteen, exclusive of blacks, died; about. 4.4 per cent. of the inhabitants. It began in June, 1702, but the first death was in August of that year. In September, it became very mortal, and was attended with a fever resembling the scarlet fever. In October many died. The General. Court sat at Cambridge, and they passed the first law for protection against the small-pox already noticed. It began to subside in February, 1703.<sup>37</sup>

1715: Plymouth lost forty of its inhabitants by a malignant disease, but no particulars are known.<sup>38</sup>

1717-1718. From November to February, "a very malignant and mortal distemper" prevailed in Concord. Twenty seven persons, chiefly heads of families, died; many very suddenly. The disease is not named in the record.<sup>39</sup> A fast was held in Danvers, February 13, on account of a fatal disease that prevailed at the village, which threatened at one time to sweep away the entire population.<sup>40</sup>

1721: The small-pox again made its appearance in Boston, with more than its usual ravages and horrors, and was the occasion of one of the most remarkable and important events in the sanitary history of the State. Inoculation with the virus of small-pox, as a substitute for the disease taken in way , -to disarm it of its malignity, and to reduce it to comparative mildness and safety , -was first introduced this year. Rev. Dr. Cotton Mather, having read, in the Transactions of the Royal Society of London, favorable accounts of the operation, recommended a trial of it to the physicians of Boston ; but all of them unanimously and decidedly opposed it, excepting Dr. Zabdiel Boylston. That enlightened and upright man became forcibly impressed with the importance of the discovery ; and, to show his confidence in it, made the first experiment on his own son, thirteen years of age, and persons in his family, one two, and the other thirty-six old; and all with complete success. Subsequently, others were inoculated.

The controversies which accompanied the introduction of this useful measure, were most disreputable. Many persons were struck with horror ; some thought it was sinning against God, thus to interfere with the disease; and others that, if any patients died, Dr. Boylston ought to be treated as a murderer. Pamphlets and newspaper articles frequently appeared; and the populace, chiefly led on by the inflammatory conduct of the physicians, at the head of whom was Dr. Douglass, became so exceedingly enraged, that Dr. Boylston was frequently insulted in the streets, and forced to secrete

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<sup>37</sup> Webster, I, p. 216.

<sup>38</sup> Ibid, I, p. 224

<sup>39</sup> Shattuck's History of Concord, p. 223.

<sup>40</sup> History of Danvers, p. 42.

himself for more than four-teen days, and afterwards to visit his patients only at midnight. His family were hardly safe in his own house. Passion and prejudice on the one side, however, were met with decision and on the other; and inoculation soon triumphed over opposition, and became general.<sup>41</sup>

During this epidemic, 5,759 persons,-more than half the inhabitants,- had the disease in the natural way, of whom 844 died Two hundred and forty-seven were inoculated by Dr.Boylston and thirty-nine by other physicians, of whom six only died. This was one death in seven of those not inoculated and one in forty-seven of those inoculated, showing decidedly the advantages of inoculation.

1735. On the 20th of May, in this year, scarlatina, or putrid appeared in Kingston, New Hampshire, and became of the most dreadful epidemics which have ever desolated New England. The first person seized was a child, which died in three days. In a week, three other children, in a family four miles distant, were taken, and died on the third day afterwards. Of the first forty, none recovered. In August, it appeared in Exeter, and soon after spread into other places. In fourteen towns in New Hampshire, 984,- chiefly persons under twenty years of age,-died, between June, 1735, and July, 1736. Of those taken sick, in some places one in three, in others one in four, and in scarcely any less than one in six, died.

In Boston, the first case occurred on the 20th of August. Subsequently the disease spread through the town. Dr. Douglass says, in the eight previous years of medium health, about 263 persons in Boston, on the average, died in seven and a half months,-October to May 18; but in this year, 382, or 114 above the usual number, died. About 4,000, or one-quarter of the inhabitants, had the disease, of whom one in thirty-five died.

In Newbury, it began in September, and, before February, 81 persons died. Thomas Smith lost two children; John Boynton four, -all buried in one grave,-two on Saturday, and two on Sunday. Benjamin Knight had three buried in one grave. In Byfield, between October, 1735, and October, 1736, 104 died i supposed to have been about one-seventh of the population. Thirteen families buried all their children. In one family eight died ; four of them were buried at one time, in the same grave. In Rowley, 190 died; " probably about one-eighth of the whole town." In 1736, in Andover, 35 died; 31 in 1737, and 123 in 1738; mostly children and young people. " Capt. James Stevena, his wife, and three children, died within a month. Nine families lost three children from each in a few days. Four families lost four children from each in less than fourteen days. John Wilson lost eight

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<sup>41</sup> Those who may wish to investigate this curious subject are referred to a volume of these pamphlets, preserved in the library of the Massachusetts Historical Society; and to Thatcher's American Medical Biography, Vol.I, pp.20, 185, 255, where will be found notices of Drs. Boylston and Douglass.

Douglass had his prejudices and eccentricities. In his "Summary", Publish in 1753. (II, p.351,) he wrote as follows, of the medical profession:-"In general, the physical practice in our colonies is so perniciously bad, that excepting in surgery, and some very acute cases, it is better to let nature, under a proper regimen, take her course, than to trust to the honesty and sagacity of the practitioner: our American practitioners are so rash and officious, the saying in the Apocrypha (38 and 15) may with much propriety be applied to them-'He that sinneth before his Maker, let him fall into the hands of the physician!" Frequently, there is mre danger from the physicians than from the distemper. our practitioner deal much in quackery and quackish medicines, as requiring no labor of thought or composition, and highly recommended in London quack bills, (in which all the reading of many of our pratitioners consists,) in advertently encouraged by patents for the benefit of certain fees to some offices, but to the very great damage of the subject." "In most trifling cases they use a routine practice. When I first arrived in New England, I asked a most noted facetious practtioner what was their general method of pratice; he told me their practice was very uniform: bleeding, vomiting, blistering, purging, anodynes &c.; if the illness continued, there was repetendi, and finally muderandi; nature was never to be consulted, or allowed to have any concern in the affair. what sydenham well observes is the case with our practitioners: Eger nimia meicici diligentia ad plures migrat."

children in seven days. In 1139, fourteen children died in four families in a few days. Ebenezer Lovejoy lost three children in one day, and another in five days after. Joshua Stevens lost three children in four days. The disease raged most from August to December." In Haverhill, 199 died, from November, 1735, to October, 1737. What is here exhibited was to be seen in very many other towns in the State. It was indeed the "plague among children."<sup>42</sup>

1740-1744 was a sickly period. Scarlatina prevailed in Massachusetts. In 1742 a destructive fever prevailed in Holliston. Rev. Mr. Stone, the minister, and fourteen of his congregation, died. In 1753, fourteen perished also, by a fever, in that town.

From 1745 to 1749, several sickly seasons occurred; but we have seen no definite account of them, which would exhibit their extent.

1752. Smallpox in Boston: 7,669 cases occurred, -5,545 in the natural way, and 2,124 by inoculation, -in a population of 15,684, of whom 569 died.

1755. An alarming fever. appeared in Pepperell, and spread to some of the neighboring towns, during this and the three subsequent years. From its origin and great mortality, it acquired the popular name of the Pepperell Fever. Physicians called it a "putrid malignant nervous fever;" probably the same as a severe form of the typhus. One hundred and eighty persons were sick, from August 5 to the last of October, 1756, of whom eighteen died. September 16 was kept as a day of fasting and prayer; and December 13 as a day of thanksgiving, when the sickness seemed entirely removed. Two hundred and nineteen persons were sick, from July 1 to October 15, 1757, of whom twenty-five died, -seventeen heads of families. Ninety-six persons were sick, from August 1 to October 15, 1758, of whom eleven died, -of which number seven were of families. The population of the town was then about seven hundred. January 3, 1760, was set apart, by Rev. Mr. Emerson and his people, as a day of thanksgiving, "to commemorate the goodness of God to them the past year, especially in the removal of sickness, and the return of "so many soldiers to the army." The sermon preached on the occasion was "In the four years," says Mr. Emerson, "there were 540 persons sick; 103 died, of whom 16 were soldiers from home, or just after their return; no less than 48 heads of families; 64 grown persons. How great was our distress for two years, especially in the height of the sickness, and we, notwithstanding, obliged to find our quota for the war! I know not that we were eased more than a single man, excepting the time of the general alarm, when Fort William Henry was besieged, in 1751, when our proportion was above twenty men, at which time there were not so many able to bear arms in the place, besides those who were necessarily taken up in attending on the sick in their own families, the field officers were so good as not to call for any. One of the years, there were near two hundred confined at the same time. Your pastor at the point of death, and then confined from the house of God for four months. And of this large number who have been sick, I know not of ten persons who have been visited by the same distemper twice. Nor should we

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<sup>42</sup> See Dougalss' History of the Epidemic. This tract was republished in the New England Journal of Medicine, Vol XIV, for 1825, pp.1-13. see also Coffin's History of Newbury, pp.204,205; Gage's History of Rowley, p. 432; Abbot's History of Andover, p. 182; New Hampshire Historical Collection, Vol V, p.20; Webster's History of Epidemics, Vol. I, p.233; Rev. Messrs. Fitch and Brown's account

forget the bounty we received by order of authority, namely, fifty pounds, to be distributed amongst the greatest sufferers." The cause of this Pepperell fever was thought to be the miasma arising from decayed vegetable matter. The swamp or meadow of John Shattuck, near Henry Jewett's, had been overgrown with bushes and various vegetables; and, in order to kill them; and bring the land into a state of cultivation, a dam was built, and the swamp overflowed with water. When the water had been drawn off, and the vegetable matter exposed to a summer's sun, the stench was very offensive, and extended perceptibly for several miles around." <sup>43</sup>

1763. " In August, the Indians on Nantucket were attacked by a bilious plague; and, between that time and the February following, their number was reduced from 358 to 136. Of 258 who were affected, 36 only recovered." The Indians on Martha's Vineyard suffered from the same fever. Not a family escaped. Of 52 attacked, 39 died. It was confined in both places to the Indians, and none but those of full-blood died! <sup>44</sup>

1764 to 1780. During this period there were many years of sickness, but we have few facts preserved to show its extent. Throat distemper and small-pox prevailed in 1764. In Salem, 44 died of the dysentery, in 1769; 56 of fever, in 1771; 51 of dysentery, 29 of fever, and 17 of small-pox, in 1773. Dysentery was very prevalent in 1775, in various places. In Concord about forty died. In the Andover South Parish about 200 were sick, and 56 died. Small-pox occurred in 1777 -8, in Boston, and many of the country towns. Rowley " established a smoke house, in which they required all persons and baggage from Boston to take a smoking."

In 1780 a malignant typhus appeared in Boston, having been introduced by the Alliance frigate. Many were sick, and several died.

1792. This was the memorable small-pox year in Massachusetts. On its appearance in Boston, the inhabitants were greatly alarmed." The whole town was inoculated in the course of three days, owing to the infatuation of the inhabitants with respect to the danger of infection, founded on a preposterous notion that so soon as any person had been inoculated the whole neighborhood was endangered. Those whose circumstances admitted had generally sent their children to the neighboring hospital for inoculation. Those which remained were, therefore, generally in low circumstances. Whole families were often crowded together in single rooms, where fires were constantly kept up for the purposes of cooking, and the patients were destitute of most of the comforts of life, with very little personal attendance, from the disproportion of nurses to the numbers of the sick.

" The consequences which ensued constituted a scene of confusion and wretchedness which no one, who was a witness of it, could have viewed with out horror and commiseration. It is to be hoped, for the cause of humanity, that the inhabitants of Boston will never again experience this calamity; as they have it now in their power, by embracing the means which heaven has put into their hands in the vaccine inoculation, to secure themselves forever from its desolating ravages." <sup>45</sup>

Two hundred and thirty-two took the disease in the natural way, of whom 33 died; and 8,114 by inoculation, of whom 165 died. The population

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<sup>43</sup> *Butler's History of Groton*, p. 350. See also *Holmes's Prize Dissertation*, p. 113.

<sup>44</sup> *Webster*, Vol. I, p. 252.

<sup>45</sup> *Communications, Massachusetts Medical Society*, Vol. II, p: 482.

of the town was then 19,484. Of these, 10,655 had previously had the disease, 262 removed out of town, and 221 only, who remained, liable to the disease, escaped. The following table exhibits the cases by smallpox at the different times of its appearance in Boston :-

Year	Cases	Deaths	Ratio per 100 of the Population		Natural			Inoculated		
			Sick	Died	Cases	Deaths	Ratio %	Cases	Deaths	Ratio %
1721	6006	850	54.6	7.7	5759	844	14.8	247	6	2.4
1730	4000	500	26.6	3.3	3600	488	13.5	400	12	3.0
1752	7669	569	48.9	3.6	5545	539	9.7	2124	30	1.7
1764	5646	170	36.4	1.1	669	124	18.5	4977	46	0.9
1776	5292	57	44.1	1.0	304	29	9.5	4988	18	0.5
1778	2243	61	16.6	0.4	122	42	34.4	2121	29	0.9
1792	8346	198	46.0	1.0	232	33	14.2	8114	165	1.8

In Charlestown, in September and October, 1,352 were inoculated, of whom nine died. Twelve took the disease the natural way, of whom three died. Eight hundred and seventy-nine were inhabitants; the others belonged to the neighboring towns, and came in to be inoculated.<sup>46</sup>

In Concord, a hospital was fitted up, where 130 persons were inoculated. Some took the disease in the natural way. Ten died, -two had the disease by inoculation, and eight by contagion, -and they were all buried in a separate burial ground.<sup>47</sup>

In Framingham, it appeared in this and the next year. Barry, in his valuable history of that town, says : "In September, 1792, according to the records, 'it having been proposed by the physicians of the town to receive permission *to inoculate the small-pox,*' the town voted' not to have the small-pox in town, by inoculation, nor any other way, if it can be prevented.' May, 1793: ' Voted, that the selectmen be a to prosecute any person that shall spread the small-pox, by inoculation, or any other way .' At the same time, the town granted £30 to assist the sick, and appointed a committee of distribution. A hospital was provided at the house of Mr. George Pratt. The disease was introduced into the town by one David Butler, who came to Framingham from Peterborough, and falling sick with the disease, his nurses, to the number of seventeen, took the infection, and five persons besides Butler died."

In Scituate, a small-pox hospital was opened, but it did not restrain the disease. Twelve died, in different parts of the town. "An action was commenced against the physicians, for a breach of bond for faithful

<sup>46</sup> *Medical Repository, Vol. II, p. 10.*

<sup>47</sup> *Shattuck's History of Concord, p. 224.*

discharge of duty, &c. but after the panic which had seized the people was a little calmed, the action was withdrawn." <sup>48</sup>

1796: This was a very sickly year. In Boston, a very malignant typhus appeared on the 25th of August; and between that time and December many were sick, and thirty died. It created great alarm i some were buried in the night. Dr. John Warren, who wrote an account of it, says that the physicians were unanimous in the opinion that it originated from local Causes.<sup>49</sup> " A very great portion of those taken sick were situated near extensive flats, particularly about the easterly, southeasterly, and westerly skirts of the town. The place called Oliver's Dock, where the disease was most prevalent, was exposed to exhalation from foul substances lodged about the wharves and docks of that quarter, with buildings so' constructed as to admit of but very imperfect ventilation, and with large numbers of inhabitants crowded together in a small space." The following prophetic language proves that the writer then well understood the causes of disease, which have been, in recent years, brought so fully before the public: " That it originated from noxious substances, exhaled into the atmosphere from putrifying animal or vegetable matter, or both, is extremely probable, from the places in which it was most prevalent; and that a confined situations, or filthy state of the streets, alleys, and by-places of the town, will, as it becomes more populous, rents higher, and consequently the poor more closely crowded together, further expose us to the danger of such diseases, is a serious truth, which may, perhaps, in some future day, be too fatally evinced." <sup>50</sup>

In this year, also, a very malignant dysentery and bilous fever appeared in Sheffield. It was confirmed principally to a section of the town not over one and a half miles in diameter, - in the vicinity of a pond known as Hubbard's Pond, - containing about 100 families, or 600 inhabitants. Of these, over 300 were sick, and 44 died; 12 adults, and 32 children. Among 150 who lived near the pond, on the southeasterly side, less than 10 escaped. Of those on the westerly side, about 50 were affected.

The cause of this remarkable sickness, and others of similar character, which that town suffered in other years, was attributed to this pond. A dam was built at the outlet, and at times of high water, a large tract of land was overflowed. In dry seasons the water was drawn off, and large quantities of decomposing vegetable matter were exposed to the action of the sun, which produced a poisonous exhalation, or malaria, which affected nearly all who inhaled it. The accompanying cut will show the situation of the pond.<sup>51</sup>

1798. The yellow fev er appeared in Boston, June 17, in a family living on Stoddard's wharf. Of eight persons in the family, five had the disease, of whom two died. It spread to Long Wharf, and in July to Fort Hill. On the southeast south side of the hill, scarcely a family who resided below the summit escaped; one family lost five out of six. And probably the greatest part of the inhabitants in that part of the town would have fallen victims to the disease, if they had not removed into the country. In August, September,

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<sup>48</sup> *Deane's History of Scituate*, p. 113.

<sup>49</sup> *Communications, Massachusetts Medical Society, Vol II*, p. 445.

<sup>50</sup> *New York Medical Repository, Vol. I*, p.139, 140.

<sup>51</sup> *Dr. William Buel, of Litchfield, Conn., communicated to the New York Medical Repository (Vol. I, p. 453) an account of the sickness in 1796; and to the Massachusetts Medical Society, in 1835, a more general description of the sanitary condition of the Housatonic Valley. Large parts of these papers were published by Dr. O. W. Holmes, present Dean of the Medical Faculty of Harvard University, in his valuable Prize Dissertation on Intermittent Fever, pp. 60-81. We are indebted to this work for several valuable facts, and also for the above illustration.*

and October, it spread to the northern and western parts of the town. The number sick was not ascertained. Dr. Rand, who wrote a particular account of the epidemic, says, of 103 patients he lost 11. Whether the general proportion was the same, does not appear. He conjectured that 8,000 inhabitants removed into the country. The number who died, between June 23 and October 22, was stated by Dr. Rand at 145; by Dr. Brown at 250, and he said, " I believe that 300 is not above the real amount." The disease was supposed to have been of domestic origin and was distributed to the filthy condition of the streets and docks, and to decayed animal and vegetable matter. The N.Y.Med. Repository contains several articles on the subject.<sup>52</sup>

In Newbury port, the yellow fever appeared in June, and between that time and the 16th of October, about forty persons died, principally on the fourth, fifth, sixth, or seventh day of the attack. It excited great alarm.<sup>53</sup>

1800 The question whether overflowing lands for mill ponds or other purposes, generated a malaria which was purposes, generated a malaria which was unfavorable to health, was much discussed about this time, especially by the people in the westerly part of Massachusetts, and in Connecticut. As it is a question at all times of great importance, it has seemed proper to gather up some of the facts which were elicited at that time.<sup>54</sup> We have already described its effect in Sheffield.

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<sup>52</sup> See Vol. II, pp.212,333,390,466.

<sup>53</sup> Medical Repository, Vol. I, p.504; Coffin's History of Newbury, p. 270.

<sup>54</sup> We insert the following " Brief Accountant of a Trial at law, in which the influence of Water, raised by a Mill-Dam, on the health of the inhabitants in the neighborhood, was considered. By Hon. David Daggett":-

" Before the superior Court, held at Litchfield, on the fourth Tuesday of January, 1800, was tried an action of trespas , instituted by Joseph Ruggles, of New Milford, against Elijah Boardman, and others, inhabitants of New Milford. " The claim on the part of the plaintiff was, that the defendants, in January, 1799, destroyed a part of his mill-dam, erected across the Housatonic River, and nearly opposite the most compact part of the town. The defendants acknowledged that they had injured the dam in manner as alleged , and justified on the ground that the dam was a public nuisance, in that it was the cause of a distressing sickness which had for several years visited New Milford. It was agreed that a dam had stood at or near the place of the present dam for about sixty years past; and that the dam complained of had been, by the plaintiff, in July and August, 1796, raised about ten inches. It was also agreed that a bilious remitting fever, and the fever and ague, had raged with great virulence in the vicinity of this dam, in the years 1796-7-8 and 9. The great question, therefore, in the case was, whether the raising of the dam in 1796 was the sine qua non of the disease? A variety of testimony was produced by the parties, tending to convince the court and jury of the truth of the affirmative and negative of this questions. It was proved that, in each of the year above mentioned, an unusual sickness had prevailed; that the whole number afflicted with the bilious fever was about 300; that this fever commonly began in july, and ceased in October; that the fever and ague had also been prevalent in the period aforesaid , but was not confined to place or season. It was also approved that there were upwards of Fifty years of low, Marshy ground on the west side of the river, opposite the town; that there was, in July and August, much stagnant water in and about those marshes; and it was contended ( through the fact was doubtful) that the waters in and about those sunken places were materially affected by the raising of the dam. to prove that this state of the water , &c., might and probably would produce the fever , the opinion of physicians, and the existence of similar facts in other places, were resorted to. "It was generally agreed by the medical gentel men, that the bilious remitting fever, and fever and ague, of our country, are produced by marsh effluvia; that this effluvia is caused by animal and vegetable putrefaction; that the action of the sun on vegetables or animals, upon the receding of waters from them, frequently causes this putrefaction; and that the months of July and August are seasons peculiarly favorable for the production of this effluvia, and its operation upon the human constitution. It was also agreed that water, though stagnant, does not become dangerous till it is so fetid as to offend the senses; and that been a disease of New Milford; that the towns through which the housatonic River runs, have been frequentlyvisited with bilious fevers, and the too, where no mill-dams could be resorted to as the causes. "the physicians concured in opinion, that persons are seldom attacked with this fever more than once during the epidemic, but that the fever and ague frequently visits the patient in the spring or summer following. they also agreed, unanimously, that from 1793 or 4, fevers have been more frequent and malignant than in nay preceding years, expecting that in the last season there appeared an abatement in the number of cases and violence of the disease. "It was proved that the same disease with the one under consideration had prevailed in many places, in this and the States of New York and Massachusetts, with in the last five years, when no mill-dams or ponds could have operated, - on the most elevated hills, and in situations heretofore deemed the most healthy; that in Great Barrington , and West Stock bridge, the disease appeared remote from the ponds, while the people in the vicinity of them enjoyed usual health. A respectable physician, from Sheffield, gave an account of very distressing fever, which had prevailed there since 1795. That a mill-dam was erected in 1787,

" The Housatonic is a stream of two or three hundred yards in width, running near the western border of the States of Massachusetts and Connecticut, and emptying into Long Island Sound. This stream, for thirty or forty miles above Canaan Falls, meanders through a valley of from one to five or six miles in width, of alluvial formation. Its course is serpentine, and, from the circumstance of the region being nearly of a dead level, its current is ordinarily very sluggish. It is very liable to be so swollen by heavy rains as to overflow its banks, and extensively inundate the adjacent flats. Such an inundation almost uniformly succeeds the thawing of the snow in the spring, and not unfrequently occurs at all times in the year. From the frequent occurrence of new channels, occasioned by the abrasion of its alluvial banks on one shore, and deposits on the other, new channels are constantly forming, leaving beds of the old one isolated reservoirs of stagnant water, charged with copious deposits of decaying vegetable substances floated into them by successive inundations, being thus rendered sources of permanent deleterious exhalation.

" Situations circumstanced like those above described have been from time immemorial recognized as originating gaseous matter, having an agency in the production of intermittent fever and its kindred diseases. And although it is not cognizable to any of the senses, the existence of such an agent may be considered as indubitable, as, where such a state of things is found to exist, there a specific class of diseases is developed ; and where that, or something analogous, does not exist, none of that class of diseases are to be found. "

Mill-dams on the Housatonic and its tributary streams, by forcing the water, for miles above their location, into low grounds, marshes, and coves, and thereby producing macerating reservoirs of vegetable substance, produce foci of pestiferous exhalations, to which intermittent fevers, in all their grades and varieties, have been obviously traceable." <sup>55</sup>

" That the stagnant water in Sheffield," says Dr. Buel, " and the sickness which prevailed there in 1796, already mentioned, and the other late sickly years, stand in the relation of cause and effect, is, I think, a position which no person, capable of reasoning, can withhold his assent to, after admitting and candidly considering the facts which I have stated. I am sensible that new facts were not wanting to confirm a belief, among physicians and philosophers, that marsh exhalations are a poison which most infallibly produces what are called bilious fevers. But, however astonishing it may appear, it is a fact, that many of the people who dwell in the vicinity of the stagnant waters of this town, and even those who have been the greatest sufferers in the several sickly years, disbelieve the local

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to which it was by many ascribed, yet he declared that, from 17887 to 1795, great health prevailed, though the dam, during that period, was as high as it has been since. He also said that, during the dam, during that period, was as high as it has been since. He also said that, during the spring of 1799, the dam was lowered, and that the disease, the summer following, was much more mild. "It was admitted that the exposing of vegetables or animals, or other substances capable of being reduced to sudden putrefaction, to the sun, by drawing ponds, or clearing up low grounds, tended to produce disease; but certainly, or even connection, as to particular instances in which this consequences had followed, seemed scarcely attainable. "It was obvious to all the hearers of this trial, that the more proof, the more doubt, and that the questions grew perplexed by investigation. And so fully were the court and jury impressed with this idea, that they decided in favor of the owner of the dam, and gave damages accordingly; saying that they could not find it proved a nuisance."-Memoirs of the Connecticut Academy of Arts and Sciences, Vol.I p.131. It is not strange that the court came to this decision. Sufficient observations had not then been made, with exactness, to afford the means of deciding the question intelligently; and especially in opposition to the wishes of interested parties. It is presumed that the opinions of physicians were formed from general information, not from exact facts.

<sup>55</sup> *Homles's Prize Essay*, p.46.

origin of their misfortunes, and strongly oppose all attempts to remove or lessen the force of their cause." <sup>56</sup>

" Near the village of Pittsfield, between forty and fifty years ago, a mill-dam was erected, which caused the water to set back, and cover over more than one hundred acres of land, then clothed with its native forest trees of soft maple, alders, red ash, and other timber and shrubs peculiar to low alluvial lands upon the streams. Soon afterwards all the timber perished; then commenced bilious fevers, and the fever and ague, as it was called. It was very sickly; many died, all were alarmed. The owner of the mill was prosecuted, and the dam destroyed. There have been no indigenous cases of intermittent within my residence here, say forty years. The sickness above mentioned ceased soon after the destruction of the mill-dam." <sup>57</sup>

Dr. Charles Seeger has stated that, " in 1792, when a company built the South Hadley Canal, between eight and ten miles below the centre of Northampton, to convey boats and rafts round the falls in Connecticut River, a dam was made at the head of the falls, eleven feet high, across the river, which raised the water for ten miles above about four feet higher than its common level. In consequence of this, the spring freshets flowed back much farther than before, and left large quantities of stagnant water when they withdrew. A great many of the inhabitants of this town, living and working near and amidst these low, marshy places, were for several years afterwards afflicted with the fever and ague, a disease which was unknown in this town for more than sixty years. Several of the inhabitants instituted suits against the proprietors of these works, under the nuisance Jaw, which compelled the latter, some years after, to remove the dam, and deepen the canal sufficiently to fill it without the aid of the dam. After removing this cause, its effect of course gradually ceased, and the town recovered its character of a healthy place. The facts as to the origin of the disease, and its continuation from 1799 to 1803, were proved during the repeated trials.; and many cases coming under my observation, I was called upon to inform the court and jury of what I knew of the causes and treatment of this disease." <sup>58</sup>

1802. The yellow fever again appeared in Boston, near the lower end of Summer sheet, in the vicinity of Tileston's wharf, and about Fort Hill. About .fifty died, eleven of whom were in one house. The origin of the disease ,was not satisfactorily accounted for. Some supposed it was imported; others, " that it arose from filth, consisting of putrid animal and vegetable matter collected near the wharves, or in a cellar in the neighborhood of the place where it commenced." The flatter opinion was generally entertained. No case was known of its being communicated from the sick to the attendants.<sup>59</sup>

1804-05: A typhus of " uncommon malignity" appeared in Boston: fifteen died of the disease.

1805-1810: The spotted fever and other epidemics prevailed during this period in some parts of the State, though no very particular account has been published concerning them. In 1808, in Amherst, six cases were fatal. In one town in Worcester County, one hundred and thirty were sick, and two died. Of ninety-one cases in Barre, nine were fatal. On the 19th of March,

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<sup>56</sup> *Holmes's Prize Essay*, p. 72.

<sup>57</sup> *Ibid*, p. 82.

<sup>58</sup> *Letter of Charles Seeger, M.D.: Holmes's Prize Essay*, p.86

<sup>59</sup> *Communications, Massachusetts Medical Society, Vol. II, p. 469.*

1810, a gentleman from Petersham wrote :-" The distress in this part of the county is beyond anything you can concieve. Seven men and women, and one child, were buried in Barre, this afternoon: sixty are now sick. Dr. Holmes told me that twenty physicians would not be too many for that town alone." The same disease spread in various other parts of the State. <sup>60</sup>

1812-1814: This period witnessed the introduction of a most fatal and alarming epidemic. It first appeared among the soldiers at Greenbush, opposite Albany, in October, 1812, and about the same time in Sackett's Harbor and Burlington. It afterwards spread through Vermont, New Hampshire, and Massachusetts. Dr. Gallup estimated that 6,400 persons died of the disease in Vermont alone, in five months, in a population of 217,913. In Boston, 60 deaths are recorded by typhus fever, in 1812 and 1813, and 81 of "pulmonic fever" in the same time, probably by the same disease: 400 or 500 are said to have been sick. It attacked adults principally, and was generally fatal to old people. It prevailed very generally in Worcester, and many other country towns, though the records are too imperfect to afford very accurate information. <sup>61</sup>

1815-1816: This winter, a typhus fever of malignity, similar to that of 1812-1814, already noticed, and confining its attacks principally to old people, appeared in Sharom, in Norfolk County. In ten days, eighteen out of the first twenty-four cases terminated fatally. Many were afterwards sick, and many died. It spread into Mansfield, Wrentham, and other places in the southerly part of the State. In Attleborough, more than one hundred died of this disease in three months. In Rochester, fifty died. " It is stated, as a fact, that this epidemic followed the course of rivers, tracing up the Accushnet and Mattapoiset, to the great pond in Freetown, and extending but very little beyond the meetinghouse Rochester, which has ever been one of the most healthy in New England, and where it is dry and sandy. Dr. states, that scarce a person escaped this fever, who lived a mile of the great pond in Sharon, where it prevailed so fatally. Six persons, of the family of Ashley, died of this fever in one house, situate near the great pond in Freetown. This singular disease seems, therefore, to choose for its location humid and swampy situations." <sup>62</sup>

1819. The yellow fever, again appeared in Boston, and created great alarm. The first victim ,vas Patrick Murphy, an Irish laborer, who lived at the northerly end of Purchase, near Broad street. He died the third day after the attack, on the 30th of June. On the 3d of July, a female died, in the family of Josiah Bradley, on Fort Hill. On the 5th, Mrs. Thayer, (who kept a boarding-house in Purchase street, nearly opposite the present stone church,) her daughter and her son, were all attacked in the morning, and died before three o'clock the same day. Others died soon after. On the 1st of August, the ship " Ten Brothers" arrived, in a foul condition. Mr. Eaton, (the custom-house officer;) and two laborers, who boarded her, died the night after. By order of the Board of Health, the vessel was taken into the harbor and scuttled. The effluvia of the bilge-water that flowed from the vessel was exceedingly offensive; and two persons who scuttled her, and some others

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<sup>60</sup> *Communications, Massachusetts Medical Society, Vol. II, p. 138; Gallup on Epidemics pp. 53, 58.*

<sup>61</sup> *The works which afford some further information on this epidemic are: Gallup on Epidemics p. 69; Mann's Medical Sketches; New England Medical Journal, Vol. II, p. 241. Vol. IV, p. 98; Lincoln's History of Worcester J. p. 311; New Hampshire Journal, Vol. I, p. 23, and Vol II, p. 199. See, also, Sanitary History of Franklin County, in appendix.*

<sup>62</sup> *Massachusetts Historical Collection, Vol IV, p. 303, and New England Medical Journal, Vol. V, p. 317.*

who happened to be passing in a sail-boat, took the disease and died. The alarm now became very great, and very many of the in the city.

The disease was confined principally to the southeastern declivity of Fort Hill, in the vicinity of Purchase, High, and Giffin streets, and Gibbs' Lane. Many persons were on board the ship, after her arrival, most of whom remained in health. About twelve, however, were seized with the fever, almost all of whom died. They and a few others were sick and died in different parts of the town.

It is not certain how many were victims to this epidemic. On the town records, thirty-four deaths by this "malignant fever" are recorded, but this does not include the whole number. Patrick Murphy, according to the record, died in consequence of "drinking cold water ;" and Mrs. Thayer and her family, by " disease unknown." Probably others died of the disease, though not so entered. This was done, perhaps, to prevent alarm. The bills of mortality, for that year, state that 108 died by "typhus," and 46 by "pulmonic fever," both of which may include some cases of yellow fever. One physician informs us that he attended seventy-five cases of this disease in that year. It was at first exceedingly malignant, and soon terminated in death; but gradually it became more and more mild and manageable, and entirely ceased about the 1st of November.

The cause of the disease was never satisfactorily ascertained. Some attributed it to the " Ten Brothers ;" but this could not have been the original and principal cause, for it prevailed here a month before the arrival of that vessel. It undoubtedly arose from some local influence, which might have been aggravated by the foul condition of that ship, as it would have been by any other similar cause, combined with the peculiar condition of the atmosphere that then existed.

It is a remarkable fact, that the disease was never known. To be communicated from one sick person, or from the clothing of such person, to another, notwithstanding exposure by nurses and others to the disease in the sick and the dead, except in a single instance; and concerning that there is some doubt. The poison existed in the atmosphere of the locality, and operated where the personal condition was favorable to its reception.<sup>63</sup>

1831-1832: In Boston, 70 died of Asiatic cholera in 1832. Of scarlatina, 84 died in 1831, and 199 in 1832. Typhus was also charged with 45 deaths. The cholera excited great alarm, and caused special preparations to be made in the city for its avoidance.<sup>64</sup>

On the 5th of August, 1832, at the State Prison in Charlestown, 190 were taken with cholera,-115 in the first twenty four hours, the remainder soon after,-all of whom recovered.

For the last forty years, notwithstanding the mass of medical literature that has been published, less definite information has been obtained concerning epidemics than in the previous periods, The almost entire neglect of records, prior to the adop tion of the registration system, renders it

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<sup>63</sup> New England Medical Journal, Vol. VIII, p. 380, and Vol. IX, p. 98.

<sup>64</sup> The sanitary expenses of the city of Boston, for 1832, were :-

For Internal Health Department,	\$21,610 67
For External Health and Quarantine Establishment,	5,222 95
For Special Measures against the Cholera, about.	<u>23,600 00</u>
	Total, \$50,433 62

difficult to give any thing approximating to an accurate view of the subject. If a careful examination were made into the history of each town, many important facts might be gathered. But it is curious and lamentable to observe, in looking over our published local histories, how little attention has been paid to this matter. *The History of the Health the People* should be regarded as the most important part of history, yet it has generally been considered unworthy of notice, or) if noticed at all, merely among the incidental matters of little consequence. It is hoped that hereafter more attention will be paid to this subject by our local historians, and that our local sanitary surveyors will make it a matter of particular investigation. The rapid, imperfect review we have taken of the sanitary history of the State,- containing, as it does, brief notices of some of the prominent epidemics merely ,-suggests many important considerations, which, if more fully illustrated, might convey the most important practical lessons.

In some towns, records have been made, and especially since the registration law went into operation. From these and other sources of information we find that dysentery, typhus fever, scarlatina, consumption, and other fatal diseases, are common in nearly all parts of the State. They are constant visitors. In some periods and places more so than in others, but in all so common that they have become familiar to us, and cease to excite notice or alarm. An amount of sickness which formerly would have thrown the whole community into a state of consternation) may now occur as an ordinary event, and elicit no special attention.

To complete this general view of the sanitary condition of the State, and as further illustrations, we have compiled from the Registration Reports, from the "Bills of Mortality" of Boston, and from other sources of information, several tabular statements, which we shall now present. A general view of the *influences on human life and longevity*, existing in the State, is presented in the table, (p. 82,) which exhibits the rate of mortality among the inhabitants of Boston at three different periods; and among those of an interior town of the State, of an average health.

This important table has been compiled with great care, and will be found to represent the law of mortality in different places in Massachusetts, more accurately than anyone heretofore published. The columns relating to Boston have been carefully compiled by a comparison of the population with the deaths for nine years , four before and four after that in which the enumeration was made. This admits of a fair average, and an accurate result. The column under " country towns" is compiled from a careful examination, abstract, and combination of the records of deaths in Concord and Worcester , Massachusetts, and in Arnherst, N. H., for the ten years, 1826 to 1835, inclusive, with the abstract of the census of 1830. The records of those towns were at that time supposed to be full; and, though not the healthiest, may be considered, among the country towns, of about an

*Statement of the Rate Mortality among the inhabitants of Boston, for 1830, 1840 and 1845; and of and interior country town in Massachusetts, for 1830*

AGES	POPULATION OF BOSTON					Population of Country Towns. Both Sexes
	1830	1840	1845			
	Both Sexes	Both Sexes	Males	Females	Both Sexes	
Under 5	8,068	11,522	7,234	7,214	14,448	1,249
5 to 10	6,106	8,956	5,690	5,668	11,358	1,036
10 to 15	5,501	7,221	4,708	4,928	9,636	963
15 to 20	6,903	8,841	5,199	5,750	10,949	1,013
20 to 30	16,182	22,960	15,009	14,586	29,595	1,791
30 to 40	9,070	112,675	10,455	9,526	19,981	1,129
40 to 50	5,019	6,707	4,991	5,038	10,029	752
50 to 60	2,569	3,561	2,142	2,618	4,760	488
60 to 70	1,316	1,640	1,062	1,406	2,468	356
70 to 80	504	673	3315	578	893	241
80 to 90	140	212	73	146	221	86
Over 90,	14	32	12	16	28	9
All Ages	61,392	85,000	56,890	57,476	114,366	9,113
<b>Deaths in Boston for 9 years</b>						<b>Deaths for 10 Years.</b>
Under 5	4,334	7,660	6,224	5,481	11,705	38.2
5 to 10	448	738	703	609	1,912	6.2
10 to 15	274	397	292	341	633	3.1
15 to 20	309	483	330	408	738	5.3
20 to 30	1,526	2,036	1,556	1,747	3,303	13.2
30 to 40	1,484	1,766	1,540	1,377	2,917	11.1
40 to 50	1,025	1,276	1,138	810	1,948	11.0
50 to 60	678	903	679	594	1,273	9.4
60 to 70	544	723	516	541	1,057	11.0
70 to 80	420	589	324	463	787	13.8
80 to 90	205	293	137	242	379	11.6
Over 90	41	54	28	47	75	2.1

All Ages	11,288	16,858	13,467	12,660	26,127	136.0
<b>Annual Mortality percent</b>						
Under 5,	5.96	7.32	9.55	8.44	9.00	3.05
5 to 10	.81	.91	1.37	1.19	1.28	.59
10 to 15	.55	.61	.68	.76	.72	.32
15 to 20	.49	.60	.70	.78	.74	.52
20 to 30	1.04	.98	1.15	1.33	1.24	.73
30 to 40	2.01	1.54	1.63	1.60	1.62	.98
40 to 50	2.24	2.11	2.53	1.78	2.15	1.46
50 to 60	2.93	2.81	3.52	2.52	2.97	1.92
60 to 70	4.58	4.89	5.39	4.27	4.75	3.08
70 to 80	9.24	9.71	11.42	8.89	9.78	5.72
80 to 90	16.21	15.33	20.82	18.10	19.04	13.48
Over 90	32.14	18.75	25.83	32.50	29.64	23.33
All ages	2.04	2.20	2.63	2.44	2.53	1.49
Living to 1 dth	48	45	38	41	39	67

average health. In many places, a comparison of the whole number of deaths with the population gives a much more favorable result, and in others not so favorable. This table deserves to be carefully studied. By it we may learn the liability to death at different ages, in the places specified. For all ages, the average rate of mortality for the last nine years, in Boston, was 2.53 per cent., or 1 in 39 of the whole population. In the country towns, in 1830, it was 1.49 per cent., or 1 in 67. In Boston, of those under five years of age, 9 out of every 100 died ; while in the country, 3.05 only, or about one-third as many, of the same age, died. At other ages, also, a great difference may be seen between, the rate of mortality in the city and country", and between one period and another. A comparison of the table with that of England (p. 34) will show a very near agreement of the health of our country towns with that of the most healthy districts in England, and of Boston with London.

The *influence of the seasons* upon health has universally been regarded as important. Some diseases prevail with more frequency and malignity at one season than at another. Persons at the extreme ages of life,-the young and the old,- and those of feeble health, are, however, most liable to be affected by the changes of the seasons. We have compiled the following statement, to show the extent of this influence in this State. It gives the number of deaths in Boston, in each month, for the five years, from 1840 to 184.5 ; distinguishing those under 15, those between 15 and 60, and those

over 60 years of age ; and those out of Boston, in the seven years covered by the Registration Reports, (1842-1848,) without distinction of age; and the proportion per cent. that each bears to the whole ;-

By this statement, it appears that the summer quarter (July, August, and September) is uniformly the most fatal, both in city and country; autumn stands next, winter next, and spring is least so. August and September are the most unhealthy months in the city, and October in the country. This arises from the greater prevalence in the city of diseases of the digestive organs, and in the country of fevers. The effects are, however, confined principally to persons under 15 years of age. And it is curious and important to observe that, to those over 60, these diseases are less fatal than to those of other ages. The winter and spring quarters are most fatal to diseases of the organs of respiration, especially pneumonia, or inflammation of the lungs, and consumption. Old people and those of feeble health, also, suffer most, at this season. The importance of the subject will repay a careful inspection of the table, to learn the effect of mortality in each month, and in each class of ages.

The *influence of occupation* on health and longevity is worthy of consideration. The Registration Reports, from which we have compiled the subjoined statement, relating to those who died in the period to which they refer; the American Quarterly Register ,<sup>65</sup> and other sources, furnish some information to illustrate the subject.

Of the clergymen who lived and died in Massachusetts, prior to 1825, the ages of 888 have been ascertained. Divided into periods, according to the time of their decease, the following is the result :-

	<u>Agregate Ages</u>	<u>Average Age</u>
90 who died prior to 1700 had	5,560 years	61.77 years
123 " 1700 to 1750 "	7,996 years	65.00 years
303 " 1750 to 1800 "	18,957 years	62.55 years
372 " 1800 to 1825 "	23,986 years	64.47 years
<b>Totals 888</b>	<b>56,499</b>	<b>63.62</b>

The Quarterly Register (Vol. X, p. 39) gives the aggregate ages of 840 clergymen, who graduated at Harvard University, and died prior to 1835, at 53,447 years ;63.62 years being the average age: 41 in each 100 attained the age of 70. This corresponds very nearly with the preceding statement ; 61/2 years may be considered as the average age of the clergymen, in this state during the last century, and prior to 1825. In the quarterly lists of deaths of clergymen, as given in the fifteen volumes of the Register, prior to 1841, the ages of 147 in Massachusetts are stated, amounting in the aggregate to 8,642,-averaging 58.49; and of 167 in other New England States, amounting in the aggregate to 9,423,- Averaging 56.42. The average age of 114, who died in the period covered by the registration reports, is given below, at 56.64 years. This shows an average decline in the longevity of clergymen, of seven years.

<sup>65</sup> The statistics of the churches and ministers are contained in several volumes. the fifteenth volume, page 500, contains a reference by which those of each county may be found . See, also, vol X p.39, and vol XIII, p. 75.

Number of Deaths					Months	In Each 10 There Died				
In Boston, 1840 to 1845				In State 7 years All ages		In State 7 years All ages	In Boston, 1840 to 1845			
Under 15.	15 to 60	Over 60	Total				Total	Under 15	15 to 60	Over 60
438	292	96	826	4,752	January	7.52	7.93	4.21	2.80	.92
431	315	84	830	4,932	February	7.80	7.96	4.14	3.02	.80
373	306	87	766	5,351	March	8.46	7.35	3.58	2.94	.83
421	322	100	843	5,041	April	7.97	8.09	4.04	3.09	.96
425	330	101	856	4,599	May	7.28	8.21	4.08	3.16	.97
356	291	82	729	4,398	June	6.96	6.99	3.41	2.79	.79
475	296	75	846	4,946	July	7.82	8.12	4.56	2.85	.71
698	335	64	1,097	6,032	August	9.54	10.53	6.70	3.22	.61
671	327	88	1,086	6,614	September	10.46	10.42	6.44	3.14	.84
449	339	77	865	7,127	October	11.27	8.30	4.31	3.25	.74
377	351	80	808	4,667	November	7.38	7.75	3.62	3.37	.76
429	337	104	870	4,765	December	7.54	8.35	4.12	3.23	1.00
5,543	3,841	1,038	10,422	63,224	Total	100.00	100.00	53.21	36.86	9.93
1,242	913	267	2,422	15,035	Winter	23.78	23.24	11.93	8.76	2.55
1,202	943	283	2,428	14,038	Spring	22.21	23.29	11.53	9.04	2.72
1,844	958	227	3,029	17,592	Summer	27.82	29.07	17.70	9.21	2.16
1,255	1,027	261	2,543	16,559	Autumn	26.19	24.40	12.05	9.85	2.50
5,543	3,841	1,038	10,422	63,224	Total	100.00	100.00	53.21	36.86	9.93

*Physicians.* It appears by the table (p. 58) that 194 members of the Massachusetts Medical Society, who lived and died in this State prior to 1840, and whose ages are known, died at the average age of 60.23 years; of whom 42 in Boston lived 53.59 years, and 134 in other parts of the State lived 64.04 years. Of 900 physicians who had then died in the State, the ages of 490 were known, and they averaged 57.35 years: 35 in each 100 attained the age of 70. For the seven years prior to May, 1849, there died 95 members of the Massachusetts Medical Society, whose aggregate ages amounted to 5,428, averaging 57.13 years. The abstract of the Registration Reports, as stated, (p. 87,) gives 55 years as the average of 137 physicians, none of whom resided in Boston. This shows a decline, from the longevity of the old physicians, of over nine years.

David Bennett died in Rowley, Feb. 4, 1719, aged 103 years, 2 months, and 3 days. He never lost a tooth, and retained his senses to the last. Hezekiah Meriam, of Ward, ,who died in 1803, lived with his wife 78 years, and she survived him. John Crocker died in Richmond, May 1, 1815. And Edward Augustus Holyoke died at Salem, March 31, 1829, aged 100 years and 7 months. All these physicians lived beyond the age of 100 years.

*Lawyers.* Less means are at hand to illustrate the longevity of the legal profession, than the two others above noticed. The ages of 52 are given in the Quarterly Register, (Vol. XII, p. 47,) amounting to 2,428 in the aggregate, - averaging 46.68 years. Fifty-three are given, (p. 87,) whose average age was 55.47. It would seem that they lived rather a less number of years than those belonging to either of the other professions ;though the number of observations is too small to found there on a correct opinion.

The Registration Reports contain an abstract of the number and ages of all over 20 years, whose occupations are specified in the returns. We select and combine the facts in all the reports, relating to the following occupations, as further illustrations :-

#### OCCUPATIONS AND DOMESTIC CONDITION

	Occupations	Agg. Age	Avg Age		Occupations	Agg. Age	Avg Age
4737	Farmers	313,606	64.89	46	Bakers	1,961	46.69
39	Hatters	2,293	58.79	81	Cabinet-makers	3,629	44.80
110	Coopers	6,313	57.39	73	Stone-cutters	3,246	44.46
114	Clergymen	6,457	56.64	17	Paper-makers	753	44.29
55	Lawyers	2,940	55.47	902	Shoe-makers	39,169	43.41
137	Physicians	7,535	55.00	1609	Laborers	68,858	42.79
287	Blacksmiths	15,639	54.49	1061	Seamen	45,070	42.47
613	Carpenters	31,366	51.16	110	Painters	4,657	42.36

323	Merchants	16,386	50.73	138	Fishermen	5,745	41.63
65	Tanners and Curries	3,244	49.90	115	Manufacturers	4,656	40.48
135	Masons	6,541	48.45	110	Mechanics	4,095	37.20
213	Traders	9,967	46.79	34	Printers	1,255	36.91

Dr. Casperi of Berlin, Prussia, has calculated that the age of 70 was attained by 42 clergymen in 100, by 29 lawyers, by 28 artists, by 27 professors, and by 24 physicians. Dr. Madan, an English author, in comparing the average age of celebrated men of different classes, found that naturalists lived 75 years; philosophers, sculptors, and painters, 70; lawyers, 69; physicians, 68; and clergymen, 67.<sup>66</sup> These, probably, however, were select lives, and not the whole of the classes.

The *influence of domestic condition* on the sanitary welfare of the people is supposed to be great; and, to estimate this accurately, the age at marriage, and the ages at death of the married and widowed, should be ascertained and stated. From the Registration Reports we are enabled to give the following statements, showing the age, in Massachusetts, at which 12,949 men and 12,916 women were married for the first time, during the four years, 1844 to 1848 ; and at which 16,060 men and 15,969 women were married at all times, (including first, second, and subsequent marriages, ) during the same period. To render the statement still more interesting, we have inserted similar facts concerning marriages generally in England, and first marriages in Belgium ;-

Ages	First in Massachusetts		All in Massachusetts		All in England		First in Belgium	
	Males	Females	Males	Females	Males	Females	Males	Females
Under 20	249	3,688	257	3,909	537	2,711	757	2,685
20 to 25	6,493	6,764	6,790	7,475	10,383	10,424	4,530	6,966
25 to 30	4,654	1,934	5,283	2,545	5,103	3,951	9,420	8,067
30 to 35	1,052	373	1,551	828	1,900	1,498	5,497	3,841
35 to 40	346	100	775	481	944	739	2,488	1,719
40 to 45	86	35	462	282	603	532	1,000	653
45 to 50	39	11	320	201	371	273	340	225
50 to 55	26	6	220	117	271	161	137	76
55 to 60	2	3	146	67	147	69	56	27

<sup>66</sup> *Trait'e D' Hygiene Publique et privee; par Michel Levy : tom.II, p.737. Annales D' Hygiene, tom.XIV*

Over 60	2	2	256	64	178	79	72	38
All ages	12,949	12,916	16,060	15,969	20,437	20,437	24,297	24,297
Average age	25.71	22.61	28.27	24.5	27.3	25.35	29.47	27.47

From this statement, it appears that the average age at which men marry, for the first time, in Massachusetts, is 25.71 years ; and women, 22.61 years. In England, the first marriage of men is at 25.45 years, and of women at 24.30; and in Belgium of men at 29.47, and of women at 27.43. This shows that there is a difference in the ages at which females marry, between Massachusetts and England, of nearly two years ; and between Massachusetts and Belgium, of five years. The average age of all marrying in Massachusetts, ( either first or subsequent marriages,) is, of men, 28.27 years, and of women, 24.50; and in England, of men, 27.30, and of women, 25.35.

The last four Registration Reports give the number, aggregate ages, and average age, of all persons over 20 years, who, according to the returns, died unmarried, married, and widowed; and separately of males and females. Combining these facts, we obtain the following results :-

	Males	Females
Number that died unmarried	1,655	1,984
Their aggregate ages	59,292	90482
Their average age	35.82	45.60
Number that died in the married condition	4,920	5373
Their aggregate ages	268,725	240,569
Their average age	54.61	44.77
Number that died in the widowhood	1,051	2909
Their aggregate ages	77,720	214318
Their average age	73.94	73.67

By comparing this remarkable statement with the average age at first marriage, (see page 88,) and deducting that age from the age at which persons die in the married condition, we obtain the average length of the married life; and find it to be,-of men, 28.90 years, and of women, 22.16 ! And by deducting the average age of those who died in marriage from the average age of those who died in widowhood, we obtain the average length of the period of widowhood; and find it to be,-of men, women, 28.90 years!<sup>67</sup>

The *influence of disease* is the most important test of the Sanitary condition of the State. We have accordingly prepared the accompanying table, (pp. 90, 91, 92,) to illustrate this part of our subject. It contains the

<sup>67</sup> Some interesting information concerning the domestic condition of the population of Boston may be found in the Census Report for 1845, pp. 57-63. The length of married life in the living individuals is there stated at 12.50 years.

number of deaths in Boston, by each known cause, for the 39 years,-1811-1849, inclusive,<sup>68</sup> divided into four periods; and those in the remainder of the State, for the seven years,- 1842-1848, Covered by the registration report; and the proportion per cent. that the number by each known cause bears to all the causes, in the respective periods. There may be, and undoubtedly are, some errors in the returns from which this table is compiled, and allowances should therefore be made; but admitting our data to be generally correct, it will afford the means of judging, approximately, if not with entire accuracy, of the comparative prevalence of the different diseases.<sup>69</sup> The diseases are classified according to the plan recommended by the Registrar General of England. The table relates to 571,948 specified causes of death in Boston, And 57,484 out of Boston; and they are divided into twelve causes, to each of which we propose to allude.

*Fatal Disease and Causes of Death In Massachusetts*

Deaths in Boston in 39 years				State.	Causes of Death.	Per Ct. In state. & years 1842 to 1848	Per Centage in Boston				
1810 to 1820	1820 to 1830	1830 to 1840	1840 to 1849	7 years 1842 to 1848			1840 to 1849	1830 to 1840	1820 to 1830	1810 to 1820	1800 to 1810
7,522	9,551	15,077	25,795	57,484	Specified Causes,	100	100	100	100	100	
1,192	2,037	4,155	8,148	15,839	1.Zymotic Diseases, Sporadic diseases of	27.55	31.59	27.56	21.32	15.85	
2,204	1,584	2,121	3,606	7,467	2.Uncertain Seat	12.99	13.98	14.07	16.58	29.3	
562	980	1,717	2,391	5,200	3.Nervous Organs	9.05	9.27	11.39	10.26	7.47	

<sup>68</sup> Errors are sometimes made by beginners in statistical inquiries, in dividing ages and periods of time; and it may be well to state what we understand to be correct method. When we say from " 20 to 30", we mean, from the end of the 20th year, or from the beginning of the 21st, to the end of the 30th, not the 29th. It is not 30 until that year is completed. "21-30" has the same meaning; the dash indicating that the years, at each end of it, -21 and 30, - are included; not from 21 to 30, or 21 to 30, which would exclude 21. When "to" is used between the numbers, it is understood to mean from one to the other; and hence it has a different meaning from the dash. So the period 1811-1820 means, from the beginning of the year 1811 to the end of 1820, and has the same meaning as from 1810 to 1820. From 20 to 30, and other divisions, are sometimes written in the form of a fraction, thus, 20/30; or thus, .25-, giving the number intermediate between the two periods. The middle of the Century is the end of the moment when the 50th year ends, and before the 51st begins.

<sup>69</sup> Though this method of comparing diseases with the diseases is interesting, yet it has its imperfections. It is more correct when means exist to compare the number of deaths by each disease with the number of the living inhabitants. We are able at present, however, to make such a comparison in few places in Massachusetts, beside Boston.

2,460	2,802	3,611	5,778	17,010	4. Resperative Organs	29.59	22.4	23.95	29.33	32.7
24	90	215	446	1,105	5. circulative organs	1.92	1.73	1.43	0.94	0.32
228	645	1,236	3,105	2,814	6. Digestive Organs	4.9	12.21	8.2	6.75	3.03
9	30	22	77	261	7. Uranative organs	0.45	0.3	0.14	0.31	0.12
64	132	214	408	654	8. Generative organs	1.14	1.58	1.42	1.38	1.85
26	61	76	136	292	9. Locomotive organs	0.51	0.53	0.5	0.64	0.35
3	17	30	61	92	10. Integumentive Organ	0.16	0.23	0.2	0.18	0.04
379	420	645	635	4414	11. Old age	7.68	2.46	4.28	4.4	5.04
371	756	1035	939	2336	12. Violent Causes	4.06	3.72	6.86	7.91	4.93
7522	9554	15077	25795	57484	Totals	100	100	100	100	100
103	60	164	724	299		0.52	2.81	1.09	0.63	1.37
19	89	198	473	1042		1.81	1.83	1.98	0.93	0.25
43	245	415	681	1387		2.41	2.64	2.75	2.57	0.57
4	66	52	320	677		1.18	1.24	0.34	0.59	0.06
111	363	390	955	2413		4.2	3.7	2.59	3.8	1.48
1	12	74	202	5719		0.99	0.78	0.49	0.13	0.01
110	133	124	167	-		-	0.65	0.82	1.39	1.47
2	5	13	7	13		0.02	0.03	0.09	0.05	0.03
13	6	-	-	35		0.06	-	-	0.06	0.17
623	458	680	1664	5222		9.09	6.45	4.51	4.79	8.28
728	184	326	344	513		0.89	1.33	2.16	1.93	1.04
5	7	72	60	192		0.33	0.23	0.48	0.07	0.06
28	332	341	387	417		0.73	2.28	2.26	3.48	0.37
30	48	972	1500	2933		5.1	5.82	6.45	0.5	0.4
6	8	214	345	106		0.19	1.34	1.42	0.08	0.08
16	17	17	20	7		0.01	0.08	0.11	0.18	0.21
-	4	3	99	12		0.02	0.38	0.02	0.04	-
1192	2037	4155	8148	15		27.55	31.59	27.56	21.32	15.85
13	37	40	50	839		0.12	0.19	0.27	0.39	0.17
61	36	211	518	70		0.36	2.01	1.4	0.38	0.81
32	58	103	144	204		1.23	0.36	0.68	0.61	0.42
44	82	132	266	706		0.28	1.03	0.88	0.86	0.58
193	237	321	428	163		2.47	1.66	2.12	2.48	2.57
12	8	4	1	1420		0.03	0.03	0.03	0.08	0.016
23	10	21	77	16		0.34	-	0.14	0.1	0.31
1587	883	983	1738	198		6.41	6.74	6.52	9.24	21.1
-	26	35	5	3687		26.26	0.02	0.23	0.27	-

-	-	2	-	152		0.07	-	0.01	-	-
69	77	65	33	38		0.62	0.13	0.43	0.81	0.92
14	35	72	111	359		0.39	0.43	0.48	0.47	0.19
153	83	96	127	222		0.23	0.49	0.64	0.87	2.03
3	12	36	108	130		0.18	0.42	0.24	0.12	0.04
220	158	2121	3606	102		12.9	13.9	14.0	16.5	29.3
4	4					9	8	7	8	
109	107	188	188	7467		1.02	0.73	1.25	1.12	1.45
22	73	98	130	586		0.77	0.5	0.65	0.76	0.29
239	309	479	602	440		2.16	2.33	3.18	3.24	3.18
-	38	72	64	1240		0.13	0.25	0.48	0.4	-
-	12	10	22	75		0.13	0.09	0.07	0.13	-
86	270	554	947	77		2.12	3.67	3.67	2.83	1.14
14	22	20	17	1220		0.23	0.07	0.13	0.23	0.19
80	113	132	205	131		1.66	0.79	0.87	1.18	1.06
7	6	9	10	953		0.07	0.04	0.06	0.06	0.09
5	30	155	206	42		0.76	0.8	1.03	0.31	0.07
562	980	1717	2391	5200		9.05	9.27	11.3	10.2	7.47
							9	6		

1. The Zymotic,<sup>70</sup> or epidemic, endemic, and contagious diseases, or causes of death. The extent to which these diseases prevail is the great index of public health. When the proportion is comparatively small, the condition of public health is favorable; when large, it is unfavorable. If, as a class, these diseases are found to decrease, it must be inferred that the general health of the people is improving ; if otherwise, that it is growing worse. Let us look at the table, and see how, stand the facts.

It appears, by an inspection of the right-hand columns, that in Boston, in the first period, 15.85 per cent. of the causes of death were in this class ; in the second period, 21.32 percent.; in the third period, 27.56 per cent.; and in the fourth period, 31.59 per cent; showing the remarkable fact, that these causes of death have doubled in the city within the last thirty years, and that the public health has been constantly growing worse. In the country, the proportion is 27.55 per cent.;-nearly the same as it was in Boston in the period, 1830 to 1840,-a more unfavorable condition than has been generally supposed to exist. By an inspection of the facts concerning the different diseases of this class, it will appear that nearly all of them have somewhat increased ; but those which exhibit the greatest difference, are dysentery, cholera infantum, and other diseases of the digestive organs, and scarlatina,-diseases which press most heavily upon infancy and childhood. *Scarlatina*, that dreadful enemy of the young, has increased from 30, in the period 1810 to 1820, to 972 and 1500, in the periods 1830 to 1840, and 1840 to 1849 ;. or from forty hundredths of one per cent. to 6.45 and 5.82 per cent. ! This disease, also, is the second of the class in fatality in the country ! Small-pox, too, has increased, in the same time, from 6 to 345, or from .08 to 1.34 per cent. ! It is not creditable to the age that it has permitted that disease to slay nearly half as many persons in the .first four months of the present year, 'as it did in the great epidemic of 1792, before the preventive remedy of vaccination was known Typhus fever (under which

<sup>70</sup> This and several other medical terms will be explained in the appendix.

is included typhoid, nervous, and continued fevers) does not seem to exhibit a comparative increase in Boston, though always a formidable disease; but in the country it is the leading disease of this class. It is most fatal in September and October. In some known localities, in some kinds of seasons, it is almost sure to make its appearance. That 9.09 out of every 100 deaths, in the country towns, should be produced by this fever, is a fact that should arrest attention to ascertain its cause and the means of prevention. The information which may be derived from a more particular examination of the table, will compensate for devoting more time to it. When the Registration Report for 1849 is published, it will probably show a large increase in most of the zymotic diseases.

2. In the *Diseases of Uncertain Seat*, the greatest number appear against infantile ; and there is an appearance of a proportional decrease" in Boston, since 1811-1820. But this should be ascribed partly to more accurate records, which have transferred other definite causes, some which were previously entered under the indefinite term, infantile. For the same reason, the number should be still further reduced. *Dropsy* and *Cancer* seem to be the most prominent diseases. About one-eighth of all the deaths in Boston, and in the State, for the last nine years, have been assigned to this class.

3. The *Diseases of the Nervous Organs* have prevailed in about the same proportion at the different periods. The annual number of deaths by *Hydrocephalus*, which principally affects children surrounded by bad sanitary influences, has nearly doubled in Boston within the last thirty years.

4. The *Diseases of the Respiratory Organs* furnish one of the largest classes of causes of death; and, in this class, consumption and pneumonia (inflammation of the lungs, or lung fever) are preeminent.

*Consumption*, that great destroyer of human health and human life, takes the first rank as an agent of death; and as such we deem it proper to analyze more particularly the circumstance under which it operates. Any facts regarding a disease that destroys *one-seventh* to *one-fourth* of all that die, cannot but be interesting. We have compiled the following table, to illustrate the influence of the seasons upon this disease. The Registration Readmit of classifying the sexes for four years only. The months are given for both sexes, in all the reports. We have added Boston for 1849,-the only year in which the abstract specify the months,-and New York for six years :---

Months	Massachusetts -except Boston		Boston 1year-1849	New York	
	7 years. 1842-1848. Both sexes	4 years 1845-1848.			
		Male			Female
January	1,113	273	446	68	888
February	1,134	296	439	43	865
March	1248	317	484	57	923
April	1242	306	484	75	916
May	1195	273	463	50	799

June	1084	270	410	49	711
July	1159	302	434	62	698
August	1197	315	474	56	718
September	1270	315	498	45	754
October	1198	286	470	34	766
November	1060	277	417	50	690
December	1127	272	439	65	751
<b>Total</b>					
Total	3502	3502	5458	654	9471
<b>Winter</b>					
Winter	3495	886	1369	168	2676
<b>Spring</b>					
Spring	3521	849	1357	174	2427
<b>Summer</b>					
Summer	3626	932	1406	163	2161
<b>Autumn</b>					
Autumn	3385	835	1326	149	2207

This statement shows that, in this State, the seasons do not exercise much influence upon the disease, especially in its terminating period. As in other diseases, the largest number of deaths occur in September ;though in March and April they are nearly the same. In November, and the autumn quarter, the smallest number occur. This seems to be the general law in New York and London, as well as in Massachusetts. It has been supposed, however, that in no season are the seeds of the disease more extensively planted than in the autumn and winter. Spring has usually been considered the most unfavorable, though accurate statistical investigation does not prove it. The duration of the disease varies very much in different persons and under different circumstances; and death may take place in any month, without reference to the time of its commencement. It would be useful to learn the influence of the seasons upon the causes, rather than the termination, of this disease.

Age and sex have a greater influence, in modifying the operations of this disease, than the seasons, as will appear from the following statements, relating to this State, and to the cities of New York, Philadelphia, and London :-

Ages	Massachusetts			New York City 6 years 1838-1843		New York State . 2 year 1847,1848 Male 110		Philadelphia. 10 years 1836-45 both sexes	London 4 years	
	7 year s 1842 - 1848 Both sexes	4 yrs 1845-48		Mal e	Femal e	Mal e	Femal e		Mal e	Femal e
Under 1	396	172	151	110	93	116	144	240	593	583
1 to 2	255	97	79	123	119	87	82	194	491	525
2 to 5	208	65	79	157	136	84	70	247	344	378

Under 5	859	334	309	390	348	287	296	681	1428	1486
5 to 10	192	62	82	107	101	56	74	142	350	439
10 to 15	304	68	142	52	82	48	110	102	263	389
15 to 20	1065	182	518	518	245	146	367	405	757	895
20 to 30	3368	708	1409	959	1165	631	1010	2124	3199	1367
30 to 40	2412	567	945	1065	949	417	572	1815	3478	2999
40 to 50	1649	431	610	812	498	339	372	1180	2819	2004
50 to 60	1241	338	453	443	254	289	302	592	1644	1027
60 to 70	1239	364	423	260	163	257	286	405	723	471
70 to 80	1062	310	365	67	79	220	206	183	145	86
Over 80	320	79	128	37	27	86	71	37	18	11
Total	13711	3443	5384	4350	3911	2776	3720	7666	14824	12964
Under 15	1355	464	533	549	531	391	480	925	2041	2314
15 to 60	9735	2226	3935	3437	3111	1822	2623	6116	11897	10092
Over 60	2621	753	916	364	269	563	617	625	886	568

This important table shows that this disease takes its subjects principally at the productive period of life,-15 to 60,-the most precious and most useful season. In the ages 20 to 30,- " the beauty and hope of life,"-far more die than at other ages. In more advanced life, however, it selects its victims in nearly the same proportion from the same number of living individuals.

It seems to be partial, too, in this State, in its selection from the sexes. It appears from the table that, at, the ages 20 to 30, the number of females who die of consumption is nearly double that of the males,-being 1409 of the former to 708 of the latter. At the ages 30 to 40, the next in the number of its victims, it also selects from the sexes in nearly the same proportion. The operation of the disease does not seem to be the same in the country as it is in cities, as will appear from the following statement :-

Places		Both sexes	Males	Females	Proportion of each
Massachusetts	4 years	8827	343	5384	As 39.01 to 60.99
New York City	7 years	9606	4938	4668	" 51.41 to 48.59

New York State	2 years	6715	2827	3888	" 42.08 to 57.92
Philadelphia	10 years	7666	3851	3815	" 50.23 to 49.76
London	4 years	27788	14824	12964	" 53.35 to 46.65
England	1 years	52136	24048	28088	" 46.13 to 53.87

These remarkable facts show that, while the disease destroys more males than females in the cities of New York and London, it destroys nearly the same of both sexes in Philadelphia. In the country towns in Massachusetts, the proportion of the sexes is as 39.01 males to 60.99 females; in New York, it is as 42.08 to 57.92; and in England, except London, it is as 46.13 to 53.87. A difference appears in all the ages over 20. It would seem, from these facts, that some causes exist in country towns to extend the disease among females; while different causes exist in cities, to aggravate the disease in the other sex.

The influence of *occupation, place of birth, personal habits, and hereditary tendency*, is worthy of investigation, but it is here omitted.<sup>71</sup>

We next desire to ascertain the influence of locality on the disease; and for this purpose have compiled the following statement, showing its prevalence in each county in the State, in the period, 1842-1848. We have arranged the counties into four divisions: the four western; the three middle; the six eastern and southern) bordering on the ocean, exposed to the easterly winds; and the metropolis. In each we have given the whole number of deaths by all causes, and the number by consumption) and the proportion the latter bears to the former:<sup>72</sup>

Places	Periods		All causes	Consumption	In 100	1 in
Berkshire	7 years	1842 - 1848	3055	559	18.29	5.43
Franklin	"	"	2270	492	21.67	4.61
Hampshire	"	"	3226	672	20.83	4.8
Hampden	"	"	3252	675	20.75	4.81
		Total	11803	2398	20.31	4.92
Worcester	7 years	1842 - 48	11269	2373	21.05	4.74
Middlesex	"	"	12564	2584	20.56	4.87

<sup>71</sup> See some interesting information on this subject, in *Annales D'Hygiene Publique*, tom. XI, p.5.

<sup>72</sup> In this statement are included 5,935 deaths, -about one-tenth of the whole, - returned without a specified cause. Some of these were by consumption. If they had been included, it would have given an increased proportion to this disease. It is probably really larger than here represented. The still-born deaths are excluded from all tables in this work, as they should always be in estimating relative mortality.

Norfolk	“	“	5049	1028	20.36	4.91
		Total	2888 2	5985	20.72	4.82
Essex	7 year s	1842 -48	10721	2578	24.04	4.15
Plymouth	“	“	3680	802	21.79	4.58
Banstable	“	“	2441	622	25.48	3.92
Bristol	“	“	4599	972	21.13	4.73
Dukes & Nantucket	“	“	1489	359	24.11	3.87
		Total	2293 0	5333	23.25	4.29
State, exclusive of Boston	7 year s	1842 - 1848	63615	13716	21.08	4.63
Boston	10 year s	1810 to 1820	8470	1891	23.22	4.47
“	“	1820 to 1830	11470	2054	17.82	5.58
“	“	1183 0 to 1840	16414	2306	14.01	7.11
“	9 year s	1840 to 1849	26127	3795	14.1	6.88
Salem	5 “	1768 to 1773	642	117	18.22	5.49
“	10 “	1799 to 1808	1932	483	25	4
“	10”	1818 to 1828	2178	527	94.19	4.13
Lowell	13”	1836 to 1848	6168	929	15.03	6.63

It appears, from this statement, that the proportion of deaths in the four western counties, by consumption, does not vary much from that on the sea-coast ; a fact that has been supposed not to exist. In Suffolk and Middlesex Counties, diseases affecting the digestive organs prevail in greater proportions than in other parts of the State; and this fact will produce an apparently less number in the proportion by consumption.

It thus appears that this dreadful disease is a constant visitor in all parts of our Commonwealth,-on the mountains of Berkshire, and in the valley of the Connecticut, as well as along the sea-coast. The occasional visit of the cholera, or some other epidemic disease, creates alarm, and precautionary measures are adopted for prevention. But where is the alarm an precaution against a more inexorable disease, which, in this State, in every day in every year, deprives more than seven human beings of their lives ? Over this disease curative skill has little or no power. It generally goes

on, from its commencement to its termination, uncontrolled and Uncontrollable by any remedies as yet discovered. Cholera, typhus, scarlatina, though terrible in themselves, when compared with this disease, are far less so in fatality. *But it may be avoided*, before it attacks. Its onset and its developed ment may be prevented. And if it is ever to be ameliorated or eradicated, it can only be done by prevention, and not by cure. May the people be wise in time to learn the causes and apply the proper remedies to avert this greatest of calamities,-the invasion of consumption !

The average population of Boston, in the periods , the table, was, in 1810-1820, 38,642; in 1820 to 1830, 52, 345; in 1830 to 1840, 73,196; and in 1840 to 1849, 111,429 The deaths by consumption in those periods were 1,891 ; 2,054; 2,306, and 3,795 ; or, an annual average proportion of 1 death in 204 living persons in the first, 1 in 254 in the second, 1 in 317 in the third, and 1 in 264 in the fourth; showing a comparative decline from 1810-1820 to 1830-1840, but an increase since that period. In New York, for the six years 1838-'43, there was, on the average, annually, one death by consumption to 194 inhabitants; in Philadelphia, in the ten years, 1836-'45, 1 in 284; and in London, in the four years, 1838-'42, 1 in 205.

We subjoin some additional facts respecting this disease in places without this Commonwealth :-

Places		Periods	All causes	Consumption	In 100	1 in
Portsmouth,N.H.	19 years	1801-'11	2,367	471	19.81	5.02
“	3 “	1829, '30	329	72	21.88	4.58
		32,				
Providence	5 “	1841-45,	3,032	718	23.68	4.22
New York city	10 “	1811-'20	25869	6061	22.4	4.27
“ “ “	10 “	1831-40	42816	8010	18.7	5.34
“ “ “	10”	1841-45	68965	13415	19.45	5.14
“ “ “	5 “	1847, 48	43084	7437	17.28	5.79
“ “ County	2”	1811-20	242378	6715	25	4
Philadelphia	10 “	1821-30	23582	3629	15.38	6.49
“	10”	1831-40	37914	5522	14.56	6.86
“	10”	1841-45	49678	7070	14.23	7.02
“	5	1821-30	27238	3959	14.53	6.88
Baltimore	10	1831-40	18099	2810	15.52	6.44
“	10	1841-15	23878	3778	15.82	6.32

“	5	1822-30	12618	2450	19.41	5.15
Charlestown, S.C.	9	1831-40	7523	1139	15.14	6.6
“	10	1841-45	6663	968	14.63	6.88
“	5	1838-42	2974	475	15.97	6.26
ENGLAND	5	1840-47	1734435	297390	16.1	6.2
London	8	1840-47	397871	57047	14.33	6.97
“	8 YEARS Winter	Quarters	106713	14581	13.66	7.31
“	8 years spring	Quarters	89965	14978	16.64	6
“	8 years summer	“	92538	13927	15.05	6.64
“	8 years autumn	“	108655	13561	12.48	8.01
Paris,	4	1816-19	85339	15375	18.01	5.55
Geneva	2	1844-45	2936	296	1008	9.91
HAMBURGH	6	1833-38	27257	5224	19.16	5.22
Berlin	10	1830-39	73216	12800	17.48	5.71
Stuttgard	10	1828-37	4356	924	21.21	4.71

We might this statement, and show the prevalence of this disease in the milder climates of the West Indies, and on the sunny shores of Italy ; and demonstrate how fruitless, generally, are the attempts to arrest its ravages. It is stated that, "of thirty-five consumptive patients who went to Madeira in 1821,two-thirds died at sea; three died in the first month after their arrival; five or six survived the winter, and about the same number survived the following spring ; three or four lived to the second winter; but, of the whole number, there were but thirteen living in 1824. The grave-yards of Rome, Naples, Marseilles, Pisa, Nice, and Malta, bear ample testimony to the fatality of this disease among those who have been induced to seek a foreign clime in the vain hope of recovery ." <sup>73</sup>

5. The *Diseases of the Circulative Organs* are principally confined to those affecting the heart. These seem to have increased, both in the State and in Boston. In the latter, from .31 to 1.73,-more than 500 per cent.

6. The *Diseases of the Digestive Organs* embrace a very large class. Some may be zymotic or sporadic, as circumstances occur by which they are developed. The zymotic diseases, affecting these organs, are cholera, cholera infantum, diarrhea, and dysentery; and the principal diseases of the

<sup>73</sup> *British and Foreign Medical Review, Vol. XXIV, p.107.*

sporadic class, as they appear in the tables, are enteritis, or inflammation of the bowels, teething, and the undefined disease of these organs. The whole of both classes, in the table, may be stated as follows :-

	State		City	
	Number	Proportion	Number	Proportion
Zymotic diseases	4431	7.71	2472	9.68
Sporadic disease	2814	4.90	3150	12.21
Total	7245	12.61	5622	21.89

This statement shows that these diseases cause 12.61 per cent. or about one-eighth, of the deaths in this State, and 21.89, or about one-fifth, in Boston.

The influence of seasons and ages is greater in these diseases than in any other class, as will appear from the statement on the next page.

This table illustrates, in a remarkable manner, the modifying influences of the seasons and ages upon the diseases specified. When it is known how dangerous the months of July, August, September, and October, are to children, we should be especially taught to guard against all the causes which, at that time, excite these diseases.

Months	Cholera	Cholera infantum	Diarrhea	Dysentery	Total	Ages	Cholera	Cholera infantum	Diarrhea	Dysentery
January	7	4	4	19	34	Under 1	22	469	254	341
February	3	5	6	8	22	1 to 2	20	246	122	377
March	7	6	17	13	43	2 to 5	14	47	63	372
April	6	7	17	12	42	5 to 10	8	8	20	119
May	9	10	17	14	50	10 to 20	11	-	11	86
June	9	19	20	23	71	20 to 30	14	-	21	97
July	40	93	73	165	371	30 to 40	17	-	14	69
August	72	275	179	544	1070	40 to 50	15	-	8	73
September	25	184	170	660	1039	50 to 60	23	-	18	73
October	10	55	65	281	411	60 to 70	32	-	14	57
November	2	19	20	38	79	70 to 80	20	-	26	75
December	6	7	14	20	47	Over 80	17	-	16	42
Total	196	684	602	1797	3279	Total	219	770	587	1781

7. The *Diseases of the Urinary Organs* do not constitute a large class, and in neither period amount to one per cent. Gravel and diabetes are the most numerous of the class.

8. The *Diseases of the Generative Organs* are all important though not a large class. Cases of puerperal fever are classed under the diseases of child-birth; and they have been in nearly the same proportion in all periods of our history, in Boston and in the country.

9. The *Diseases of the Locomotive Organs*. Rheumatism, or rheumatic fever, has occasioned the greatest number of deaths. Spinal diseases are also increasing.

10. The *Diseases of the Integumentive Organs* have caused about the same uniform proportion" Ulcers are stated to have produced more deaths than all other diseases of this class.

11. *Old Age* has fewer deaths, in proportion to the whole, to record among its victims now, than at the former periods of our history. In Boston, in 1810 to 1820, it destroyed 5.04 per cent. ; in the last period, only 2.46 ; a decrease of more than one-half.

12. The *Deaths by Violence* are nearly as great in the country as in Boston, though the proportional numbers vary in both places. Accidents and drowning are the most numerous causes. Burns and scalds, intemperance and suicide, cause nearly the same proportions.

The following are some of the many important conclusions to which the fact thus far disclosed lead us:-

1. *It is proved* that there is a great difference, in this State, in the longevity of people living in different places and under different circumstances. This fact is presented in a forcible manner in the subjoined illustration, taken from Census of Boston, (p. 158). The cut is drawn in ten divisions, each way; those from left to right representing the ages of life; those from top to bottom, the percentage of survivors:-

Take one hundred persons from each of four different classes of people: 100 of those who died at Newton, in 1810 to 1830; 100 of those who died in Boston. In 1840 to 1845; and 100 of the Catholics of Boston. If each of the hundred persons in all these classes had lived 100 years, each class would have enjoyed 10,000 years of life. But persons die at all ages, and in some classes very much earlier than in others. Accordingly four lines are drawn diagonally across the cut, from the top on the left to the bottom on the right, to represent the amount of, life that each class enjoyed. The white and shaded spaces below" these lines represent life, and the dark and shaded spaces above the lines represent death. The upper line represents the survivors in England ; the next below, those in Newton; the third, the general population of Boston; and the fourth, the Catholics. It will be perceived that 82 per cent., or 82 out of every 100, of the lives in England pass the line of 10 years, or survive that age; while only 34 percent., or 34 out of every 100 Catholics, pass the same line! That 38.75 per cent., in Newton, survived 60 years, while only 9.95, in Boston, survived the same age! Other comparisons, equally striking, may be made.

2. *It is proved* that causes exist in Massachusetts, as in England, to produce premature and preventable deaths, and hence unnecessary and

preventable sickness; and that these causes are active in all the agricultural towns, but press most heavily upon cities and populous villages.

3. *It is proved* that measures, -legislative, social and personal, -do not at present exist, or are not so fully applied, as they might be, by the people, for the prevention, mitigation, or removal, of the causes of disease and death.

4. *It is proved* that the people of this State are constantly liable to typhus, cholera, dysentery, scarlatina, small pox, and the other great epidemics; and to consumption, and the other fatal diseases, which destroy so many of the human race in other parts of the world.

5. *It is proved* that the active causes of disease and death are increasing among us, and that the average duration of life is not as great now as it was forty or fifty years ago.

We are fully aware that the general opinion does not coincide with this fact, and that a directly opposite one has been expressed. It has been frequently said, that, owing to the different modes of living, the increased medical skill, and other causes, diseases have been ameliorated, and the average length of human life has been extended; and particularly within the last fifty years. We have long thought differently, especially in regard to the more recent periods of our history. Those who make this assertion seem to rely upon imperfect or uncertain data to support their opinion. Statistical observations of the living and the dead, gathered in ancient times, should be taken with great caution as comparative tests. Ten years since, it was said that "the average value of life is not as great as it was twenty years ago; that it was at its maximum in 1810 to 1820 ; and that it has since decreased." <sup>74</sup>

Subsequent investigation have fully established the correctness of this statement. Taking the mean duration of life as our guide, it appears that the average age of all that died in Boston, in 1810 to 1820) was 27.85 years, while in 1840 to 1845 it was 21.43 years only, showing a difference of 6.42 years. In New York, in 1810 to 1820, it was 26.15 years, and in 1840 to 1843 it was 19.69, -a difference of 6.46 years. In Philadelphia in 1810 to 1820, it was 26.25, and in 1840 to 1844 it was 22.01 -a difference of 4.24 years. If the more recent and last years were included, it would show a still further decline.

Taking a comparison of the number of the whole population out of whom one may die annually, as our guide, it appears from the table, (p; 82,) that, in Boston, in 1830, the deaths were 1 in 48, and in 1845 they were 1 in 39. Compare the annual mortality per cent. of the different ages, (an undoubted test, ) and it appears that, in those under 5 years of age, 5.96 per cent. died in 1830, 7.32 in 1840, and 9 in 1845 ; nearly doubling in less than 20 years; and, in all the years under 40, there also appears an increased mortality.

We have shown (pp. 85, 86) that neither clergymen nor physicians live as long now as they did during the last century; and within the last thirty or forty years, the former, on the average, have lost seven years, and the latter nine years of life. And, it would be difficult to find a physical power of endurance, and an average longevity, among men and women, in the ordinary occupations of life, as great as existed at the time of and before the

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<sup>74</sup> *American Journal of Medical Sciences, Vol. I, for 1841, p. 382.*

revolution. This, it seems to us, might be fully proved, by examining and analyzing the pension list of Massachusetts, and other authentic sources of information.

It is undoubtedly true, that in many things society has improved; that medical skill in the cure of disease has greatly increased ; and that some diseases are not as fatal as formerly, or are. now better understood and controlled. But while all this may be true, it is no less true that the active causes of disease have increased faster than the appliances for their prevention and cure; that new diseases, or old ones in a new and modified form, equally fatal and uncontrollable, have appeared ; and that sickness and death advance more rapidly than the improvements devised to arrest them.

These statements, concerning the decreasing vital energies of man, are confirmed by recent investigations in England. Thos. Rowe Edmonds, Esq., Actuary to the Legal and General Life Assurance Society, in London,-a good authority in this matter,-has recently published some interesting papers, from which it appears, "that the mortality of the population of England, after decreasing for 35 years to the year 1815, has since that time, up to the end of 1848, been regularly increasing ; that nearly the Whole of this increase arises from the increase of the mortality of children under 10 years of age, which increase has amounted 44 per cent. in twenty years; that the mortality of every age above 20 years has remained the same, with little or no variation, for the last 30 or 40 years, and probably for a longer period ; that in the greatest part of the population of England, with the exception of the population of larger towns, the mortality of females exceeds that of males in the interval of age comprehended between 8 and 45 years; and that at other intervals of age it is in excess over that of females in England as in other countries."<sup>75</sup> And he confirms the statement by the following tabular

Ages	England-18 years 1813-1830		England- 7 years 1838-1844		Carlisle- 9 years 1779-1787
	Males	Females	Males	Females	Both sexes
Under 5	4.9	4.22	7.07	6.04	8.23
5 to 10	0.66	0.61	0.93	0.9	1.02
10 to 15	0.46	0.48	0.5	0.55	0.54
15 to 20	0.66	0.7	0.7	0.79	0.64
20 to 30	0.93	0.95	0.94	0.94	0.75
30 to 40	1.05	1.14	1.09	1.13	1.06
40 to 50	1.37	1.37	1.45	1.32	1.43
50 to 60	2.14	1.98	2.26	1.98	1.83
60 to 70	4.15	3.78	4.28	3.79	4.12
70 to 80	9.28	8.88	9.22	8.42	8.3
80 to 90	20.82	19.67	20.11	18.32	17.56
Over 90,	33.93	34.09	36.53	34.58	28.44
All ages	1.99	1.90	2.27	2.10	2.50

<sup>75</sup> *London Lancet*, Vol. I, for 1850, pp.301,329. Mr. Edmonds had previously contributed some valuable papers on vital statistics to the *lancet*. Sec Dec. 5 and 12, 1835, pp. 364,408; Oct.28, 1837, p. 154; Vol.II, for 1838-9, pp.185,353,778,837. He also published, in 1832, a new theory in regard to Life Tables

comparison of the mortality in England in 1813-1830, with 1838-1844 ; and in Carlisle in 1779-1787:- An exception to these statements, in their general application, may be found in Geneva, which has often been quoted to show the improving condition of human life. Great improvements have undoubtedly taken place in that city; and they arise from the excellent system of registration and the superior sanitary regulations that exist there, by which the people are made better acquainted with the laws of health and the means of preventing disease. But the improvements are not so great as they may at first sight appear to be. The proof rests upon a comparison of the average age at death, which, as we shall presently show, is an uncertain test. Mr. Mallet, from whom the statement was originally derived, gives some facts , in the same paper which partially account for the great apparent , improvement. He says marriage there is now deferred to a later period of life than it was in the 18th century ; that each marriage then, on the average, produced five children, and now less than three; and that, during the 16th century, 25.92 in each 100 deaths were those of children under one year old; while in the period he describes, 1814-1833, only 13.85 died of that age !" This shows that there were less children *to die*, and consequently the average ages of *all that died* would be greater. It shows, however a higher 'state of civilization, and that a greater proportion of the children born were preserved to the ages of maturity and usefulness.<sup>76</sup>

### III. PLAN FOR A SANITARY SURVEY OF THE STATE

We now proceed to give an outline of a plan for the Sanitary Survey of the State which we propose for adoption. In drawing it up we have carefully inquired into the circumstances of many cities and towns in the State, and the sanitary condition of the inhabitants; and have, with no inconsiderable labor, matured a series of measures, which seem to us best adapted, under all the circumstances, as the plan which would be most likely to be practical and useful. In the progress of the inquiry, we have examined many printed works on the subject, and have availed ourselves of the information elicited in correspondence with gentlemen in Europe and in this Country, whose knowledge, experience and judgment in these matters are entitled to the highest regard.

In a valuable communication, presented in the appendix, received from the councillors of the Massachusetts Medical Society, a preference is given to the plan of appointing a single individual to make the survey, after the manner of the agricultural, zoological, and other scientific surveys, which have heretofore been made by the State. Objections are, however, urged with considerable force against this plan. It is said that to intrust so great and important a work to one mind, however well qualified, would be less likely to receive public confidence and approbation, and hence would be less useful, than if it were the joint production of several minds, or received their joint approval ; that if made with the facts at present accessible, although it would afford much valuable information, it might lead to erroneous

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<sup>76</sup> *Annales d' Hygiene publique, tom. XVII, p. 114.*

conclusions; and that it would be merely transient , and not of permanent usefulness.

The English sanitary surveys have generally been the results of the joint labors of several individuals; and nearly all of them, of authority and usefulness, have been based principally upon the facts furnished by the efficient system of registration of births, marriages, and deaths, in operation there. Those which have departed from these facts, or have made a partial selection from them, are more or less mixed up with error.

Health is a variable matter, capable of improvement or deterioration. It may be good in one year, and not in another, and not alike in two places at the same time. No plan can therefore be extensively useful, or permanently valuable, which shall be confined to a single year or a single survey. It should extend over a series of years, and through a series of successive observations and examinations. In this way only can the laws of health and life of any place be accurately ascertained, and a sanitary survey produce all the good that might be attained by it. People are prone to neglect their own and the public health, and this fact is a reason why the subject should be frequently brought to their notice.

Our plan consists of a series of measures, which may be rendered permanent if desired; presented in the form of separate recommendations. They are divided into two classes, and are to be regulated and controlled by the agencies which are proposed to be established; one by the legislative authority of the State, and the municipal authorities of towns and cities, and the other by social organization and personal action. Though intimately connected, these measures are in some respects independent of each other. They are not of equal importance, and it is not expected - they will all be immediately made use of; a part only may be adopted at one time, and another part at another time, as circumstances may require. They are here presented together, as necessary to - give fullness and unity of design to the whole plan. It is not supposed, however, that they are all the useful sanitary measures which a complete and perfect plan would require. The progress of this inquiry, and the circumstances which it develops in different years, -the discoveries which will be made by the united intellectual efforts that will be brought to bear upon this subject, will suggest others. Some of these measures are of great magnitude, and would each furnish matter for a volume, if, fully explained and illustrated. All we propose to do in this connection is, to name and define each, and to give a brief explanation and illustration of its character and design. These measures, it must be recollected, however, are only a series of plans by which a sanitary survey might be carried forward. The accompanying information is inserted merely to illustrate these plans.

## I. STATE AND MUNICIPAL MEASURES RECOMMENDED.

Under this class of recommendations are to be included such measures as require, for their sanction, regulation and control, the legislative authority of the State, or the municipal authority of cities and towns. They may be called the legal measures, -the Sanitary Police of the State, (p. 16. )

I. WE RECOMMEND *that the laws of the State relating to Public Health be thoroughly revised, and that a new and improved act be passed in their stead.*

We suppose that it will be generally conceded that no plan for a sanitary survey of the State, however good or desirable, can be carried into operation, unless established by law. The legislative necessary, to give it efficiency and usefulness. The efforts, both of associations and individuals, have failed in these matters. We have shown that the present health laws of the state are exceedingly imperfect, even for the general object for which they were designed -that it is difficult, and perhaps impracticable, to ascertain what precise powers they confer, and what duties they require; and that they are not adapted, in any way, to the purposes of a sanitary survey. This must be apparent to any one who may examine them.

There are two remedies for these defects: one to amend the existing laws; and the other, to combine such amendments as it would be desirable to make with such provisions of the existing laws as it would be desirable to retain, and to present the whole together, in this amended form, as a complete health act repealing such acts as are inconsistent with its provisions. We prefer the latter remedy. It will be better understood, and more easily carried into practice, by the people. Such legislation has been common, in this State and elsewhere, in relation to this and other matters.

Entertaining these views, we suggest that a general health law should be passed, which should be comprehensive in its design and simple in its provisions,-be adapted to the present circumstances of the State, and be so framed that it might be clearly understood and carried into practical operation; and which while it would answer all the purposes of a general health act as heretofore understood, would, at the same time, accomplish all the purposes of a sanitary survey.

We have accordingly drawn up, and present in the appendix, a draft of such an act as, in our judgment, it would be expedient to pass, to secure the advantages designed to be attained. It creates a permanent agency, for the regulation and control of all matters relating to the sanitary condition of the State and its inhabitants. It retains such provisions of the existing laws as are deemed worthy of being retained; and incorporated such others as are deemed necessary to form a complete legal sanitary system. " It confers no summary powers not now possessed by Boards of Health, but it limits more closely, and defines more clearly, the duties of those by whom these powers are to be exercised. The objects of all the sections of the revised Statutes now in force are provided for. The first four sections are contained in a more extended form, and provided for by other agencies, in the first 15 sections of the new act; 18 sections,-5, 6, 7, 15, 17, 18, 35 to 42 inclusive, 45,47, and 48,-in section 16th i 8 sections,-24 to 34 inclusive,-in the 17th; 2 sections,-43 and 44,-in the 18th ; 4 sections,-24,49,13 and 12,-are inserted with but little modification; 5 sections of the act of 1849, which take the place of 10 and 11 of the Revised Statutes, are inserted, so modified as to apply to towns as well as cities. With these provisions, various other new and important ones are incorporated ; and the whole is so arranged as to form a simple but systematic, efficient, and practical plan, adapted to the present condition and wants of the State. The whole act, long as it seems to be, is not so long

as the act relating to public health in the Revised Statutes. That contains 49 sections, and this 39 only. <sup>77</sup>

II. WE RECOMMEND *that a GENERAL BOARD OF HEALTH be established, which shall be charged with the general execution of the laws of the State, relating to the enumeration, the vital statistics, and the public health of the inhabitants.*

The act establishing the Board of Education was one of the most important acts relating to common schools, ever passed in Massachusetts. That central agency, under the guidance of its late talented secretary, has given to the cause of public education an importance, and to the common schools a standard of elevation and usefulness, not before attained. The cause of Public Health needs a similar central agency, to give to the whole sanitary movement a uniform, wise, efficient, economical and useful direction. If different local authorities, or in always possessed of the best means of information left to originate plans for their own guidance, and anything is done, they will be more likely to make unintentional mistakes, and create unnecessary expense, than if wise and able minds were devoted to the subject, and suggested what ought to be done, and the best and most economical mode of doing it. Such an agency would have an exact knowledge of the condition of every city and town in the State, and by these means of information would be able to suggest the measures best adapted to the different circumstances. They would prevent a wasteful expenditure of money in imperfect or inefficient measures. The advantages which would result to the whole State, and to every part of it,-to each and all of the inhabitants,-from the establishment of such a central General Board of Health, composed of the best scientific counsel and the best practical experience which the State can afford having constant access to the most enlightened intellects, and to a knowledge of the labors of the best practical men in the world, and assisted by at least one mind wholly devoted to the object in view, are too great to be fully seen at once, and can scarcely be over-stated or over-estimated.

The duties of the Board are pointed out in the fourth section of the act. They are to have the general direction of each census; to superintend the execution of the sanitary laws of the State; to examine and decide upon sanitary questions, submitted to them by public authorities; to advise the State as to the sanitary arrangements of public buildings and public institutions; to give instructions to local Boards of Health, as to their powers and duties; to suggest local sanitary rules and regulations; to recommend such measures as they may deem expedient, for the prevention of diseases and the promotion of the public health; and to report their proceedings annually to the State.

III. WE RECOMMEND *that the Board, as far as practicable, be composed of two physicians, one counselor at law, one chemist or natural philosopher, one*

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<sup>77</sup> The "Act relating to Public Health in the City of New York." Passed by the legislature, April 10, 1850, covers 48 octavo pages and contains 89 sections and 31 sub-sections; the acts relating to the board of health in Philadelphia cover 111 pages; that relating to the public health in England fills a duodecimo volume of 330 pages; that of Liverpool, contains 231 sections, and several sub-sections; that of Edinburgh, 260 sections, or 101 closely printed octavo pages.

*civil engineer , and two persons of other professions or occupations; all properly qualified for the office by their talents, their education, their experience, and their wisdom.*

The constitution and powers of the Board are prescribed in the first seven sections of the act proposed for its establishment and organization. It is intended that it shall be composed of seven persons, besides the governor and secretary of the Board of Education for the time being. And that the disadvantages of too frequent changes may be avoided, that successive Boards may know the proceedings of their predecessors, and that the outgoings and incomings of new members may not destroy its system and vitality, it is provided that the members shall be appointed for seven years, and go out of office alternately.

The members should not be selected exclusively from one profession, for two reasons :- (1) Numerous questions, requiring a knowledge possessed by different professions, will be presented for discussion and decision; and it is desirable that the Board should be able to bring competent knowledge to the investigation of every subject. And (2) To show to all that the promotion of public health is a matter which does not belong exclusively to the medical profession, but concerns every profession and every person. The idea which too generally prevails, that every thing relating to health belongs exclusively to one profession, operates against sanitary improvement. The services of medical men are indispensable; but the services of other professions, and of every person in their respective spheres must be put in requisition, before reform can be complete. The Board should therefore contain-

1. Two physicians, at least, of scientific attainments, and of extensive practical experience in their profession, thoroughly understanding sanitary science, and deeply feeling the importance of wise sanitary measures.
2. One counsellor at law, who, besides the general knowledge of law and medical jurisprudence which he could bring to the purposes of the Board, might especially be able to investigate any legal question that might arise.
3. One chemist, or natural philosopher. Many questions relating to the influence of the elements on the production or prevention of disease, may require the special investigation of an experienced chemical philosopher, and this important branch of science should be ably represented at the Board.
4. One civil engineer, possessing competent knowledge to determine the best methods of planning and constructing public works, and the best architectural sanitary arrangements of public buildings, workshops, and private dwelling-houses, would be an exceedingly valuable member.
5. Two other persons, of acknowledged intelligence, good judgment, and of practical experience in the common business affairs of life, and capable of investigating and fully understanding the principles of sanitary science, might compose the remainder.

All should make themselves thorough masters of the objects of their appointment; have sagacity and foresight to perceive bearing and effect of every measure proposed; be eminently wise in deliberation, and judicious in decision. The objects of the Board will be of the greatest importance and interest; and it should, and undoubtedly will, command, not for its pecuniary emoluments, but for its high respectability, honor, and

usefulness, the greatest talent in the Commonwealth, and the services of those who, in an eminent degree, possess the public confidence.<sup>78</sup>

IV. WE RECOMMEND *that the Board be authorized to appoint some suitable and competent person to be the Secretary of the Board, who should be required to devote his whole time, and energies to the discharge of the duties of his office, and be paid a proper salary for his services.*

The duties of the Secretary are defined in the eighth section of the proposed act. Besides keeping the records and accounts of the Board, he is to superintend the taking, and prepare the abstracts of each State census; to perform the duties relating to the registration of births, marriages, and deaths, now performed by the Secretary of State; to make special sanitary surveys of places, when directed; to report annually an abstract of the information obtained; to perform such other duties as may be legally imposed upon him; and to diffuse "throughout the Commonwealth information relating to the sanitary condition of the State and its inhabitants, to the end that the laws of health and life may be better understood, the cause of disease ascertained and removed, the length of human life extended the vital force and productive power increased, and the greatest amount of physical improvement and of happiness attained and enjoyed."

He should be amply qualified, in all respects, for the office; know what to do, and how to do it, and what information to obtain, and how to obtain it. He should be thoroughly educated in the science of public health, and the causes and prevention of disease; and be capable of arranging, analyzing; abstracting, combining, and publishing the facts that may be collected, with

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<sup>78</sup> Dr. Duchatelet, an eminent member of the council of Health of Paris, in describing the qualifications of officers of Public Health, says:- "It is generally thought in the world that the medical knowledge acquired in the schools is all that is necessary to become a useful member of the Council of Health. The greater part of medical men themselves share this opinion; and on the strength of some percepts which they have collected from books on health and professions, they think themselves sufficiently instructed to decide on the instant the gravest questions, which can only be resolved by special studies. A man may have exhausted medical literature; he may be an excellent practitioner at the sick-bed, a learned physician, a clever and eloquent professor; but all these acquirements, taken in themselves, are nearly useless in a council like that of Paris. To be really useful in the Council, it is necessary to have an extended knowledge of natural philosophy; to know with exactness them, and the much more important action of manufactories of every species on men congregated in towns, on animals and on plants. This knowledge, so important, of the action of manufactories and trades, is not to be acquired by ordinary study, or in the science of the cabinet. It is not to be obtained without positive nations on the arts, and on the greater part of the processes peculiar to each trade. It requires habit, and particularly the public health, a special study; and to join with them chemists, and other professions."-Chadwick's Sanitary Report, p.423 The Edinburgh Review for Jan., 1850, (p.221) in an article on Sanitary reform, holds the following language in relation to the Board of Health in England;- "we believe that some not unnaturally jealousy has been felt by the medical profession, as to the constitution of the Board; but we cannot regret the circumstances that its chief operative leader is not a physician. It is very necessary that such a department should have the best scientific counsel and assistance that the country can afford, and the debt which it owes to the recent services of Dr. Southwood Smith, Dr. Sutherland, and other physicians, cannot well be overrated; but, on the other hand, it seems indispensable that an administrative body, coming in contact with constitutional rights and responsibilities, should have another kind of leadership. To balance the heroism and disinterestedness, for which we most willingly give them credit, the medical body have some defects, especially in their jealousies and prejudices. It is difficult to them to countenance anything inconsistent with what they have long seen and practiced; and they would certainly not be so ready as laymen to give way to the collective wisdom of their own brethren. We firmly believe, in short, that the first physicians in the country will more frankly communicate to such a board as the present, their individual convictions, than to any convocation of their professional brethren; and that the board will more candidly weigh and more cheerfully adopt their views. The value of unprofessional superintendence, - the same class of persons who are to execute arrangements never being entirely the same as those who devise them, - has been evinced in the management of admiralty. It has been appositely remarked, that Nelson never would have obtained high command from a board of old admirals. Nor is it uninteresting to remember that, though they have liberally responded to it, the idea of sanitary reform, on the scale which are now considering, did not originate within the medical profession. And, in truth, the constant direction of the faculties to the cure of actual disease, does not seem likely to leave much observation to devote to the study of its external causes."

proper deductions and conclusions from them, in such form as will be most useful to science, and contribute most to the improvement of practical life. To discharge the duties of such an office in such a manner as they might and ought to be discharged, would, in our judgment, be enough to satisfy the desires of any man who wished to be honored and useful.

V. WE RECOMMEND *that a LOCAL BOARD OF HEALTH be appointed in every city and town, who shall be charged with the particular execution of the laws of the State, and the municipal ordinances and regulations, relating to public health, within their respective jurisdictions.*

The constitution, and the powers and duties of these Boards are defined and prescribed in the proposed act. They are each to be composed of not less than three nor more than seven persons, besides the mayor and city registrar of cities, ( or the city clerk, where there is no city registrar,) and the chairman of the selectmen, and the town clerk, of towns; and are to be appointed for the same number of years as there are members constituting the Board; and to go out of office alternately, like the General Board of Health, and for the reasons already given. Anyone, however, being duly qualified, may be reappointed. These Boards should be filled by men of similar character to the General Board, and without reference to any peculiar political or religious opinions they may entertain. One or more physicians, educated in sanitary science, should be members of each Board. Persons of sound judgment and good education, of other professions or occupations, and qualified and fitted for these peculiar duties, might supply the remainder. All should have the public respect and confidence. It is intended that they shall be appointed by the mayor and aldermen of cities, and the selectmen of towns, because this mode would be more likely to secure a better Board, than a nomination and election in general town meeting.

The duties of these Boards are pointed out in the act, and particularly in the sixteenth section; and also in the several recommendations in this report. They will be required, generally, to carry into execution, within their own town, the sanitary laws of the State, and the orders of the General Health; and, as far as possible, to prevent disease, and raise standard of public health to the highest point.

We have referred ( pp. 48-54) to the sanitary laws and customs of this State; and we deem it proper again to refer to the subject, that we may compare them with the measures proposed in this recommendation. The Revised Statutes (p. 208) provide that -

"Every town, respecting which no provision is made, by any special law, for choosing a Board of Health, may, at their annual meeting, or at any other meeting legally warned for the purpose, choose a Board of Health, to consist of not less than three, nor more than nine persons; or they may choose one person to be a health officer; and, in case they shall not choose any Board of Health, or health officer, the selectmen shall be the Board of Health."

Each of the charters incorporating the nine cities in this State, contain a provision similar to the following :-

"All the power and authority now by law vested in the Board of Health for the town of -, or in the selectmen of said town, shall be transferred to and vested in the city council, to be carried into execution by the appointment of

Health Commissioners, or in such other manner as the city council shall deem expedient."

And the act of May 2, 1849, provides that -

" 1. All the powers vested in, and the duties prescribed to Boards of Health of towns, by the general laws, shall be vested in, and prescribed to, city councils of cities, in case no special provision to the contrary is made in such laws themselves, or in the special laws applicable to any particular city.

" 2. The powers and duties above named may be exercised and carried into effect by city councils, in any manner which they may prescribe, or through the agency of any persons to whom they may delegate the same, notwithstanding a personal exercise of the same, collectively or individually, is prescribed in the instance of towns, as above referred to. And city councils are hereby authorized to constitute either branch, or any committee of their number, whether joint or separate, the Board of Health for all, or for particular purposes, within their own cities."

In addition to these general provisions of law, some special Boards of Health, as we have already shown, have been incorporated. Under their operation, it is left optional with each city and town to make or not to make ordinances and regulations on the subject of public health. The practice of different cities and towns, in exercising their powers, has been various.

In Boston, the mayor and aldermen are constituted Health Commissioners, and they appoint, annually, a Committee on Internal Health, on External Health, on Streets, on Drains and Sewers, on Water, and on Burial Grounds; each consisting of three members, who examine into all complaints and matters affecting the public health in their respective departments. The city council choose, annually, the following officers :-

1. A *Superintendent of Streets*, to have the general care of sweeping and cleansing the streets, lanes, alleys, public walks, squares, &c., of the city.

2. A *Superintendent of Common Drains and Sewers*, to superintend the location and construction of these important aids to comfort and health.

3. A *Water Board*, to superintend the distribution of the inestimable blessing to health, which is now furnished in all desirable quantities by the Boston Water Works.

4. A *City Physician*, " to examine into all nuisances, sources of filth, and causes of sickness, which may be on board of any vessel at any wharf within the harbor of Boston, or in any article which may have been landed from any vessel on any wharf or other place, and, under direction of the mayor and aldermen, to cause the same to be removed and destroyed;"-" to vaccinate all persons who may apply to his office for the purpose, and to give certificates of vaccination, without charge;"-" to attend upon all cases of disease in the jail," and "within the city, whenever he shall be called upon by the Health Commissioners, or overseers of the poor."

5. A *Port Physician*, to be the physician of the city establishments at Deer Island, and to superintend the the quarantine of all vessels and passengers which arrive in the harbor of Boston.

6. Five *Consulting Physicians*, " in case of an alarm of any contagious, infectious, or other dangerous disease, occurring in the city or neighborhood, to give the mayor, or either branch of the city council, all such professional advice and information as they may request, with a view to the prevention of the said disease, and at all convenient times to aid and assist with their

counsel and advice in all matters that relate to the preservation of the health of the inhabitants."

7. A *City Registrar*, to record births, marriages, and deaths, and to superintend the interment of the dead.

8. A *City Marshal*, to act as health officer; " from time to time to pass through the streets, alleys, and courts of the city to observe nuisances, to receive complaints from the inhabitants," &c.

Each of these departments is independent of the others. The superintendent of streets collects the street dirt and house dirt, deposits it in an outer limit of the city, and sells it as wanted. He also collects the house offal, and delivers it at a given place within the city, to contractors, who remove it without the city, and who paid \$8,000 for it in 1849. The night soil is removed under the direction of the city marshal; the householders paying \$3.00 per load for its removal in summer, and \$1.50 in winter.

The annual net expenses of all the health departments have been as follows, for the years ending May 1: -

For	1847	1848	1849	1850
	16,705.	18,532.	25,872.	37,268.1
Sewerage and Drainage	68	14	56	1
	53,014.	67,273.	68,792.	88,441.7
Internal Health	44	04	16	1
		1,339.3	1,121.9	
External Health	805.84	3	5	3,531.51
	70,525	87,144	95,786	129,241
Total	.96	.51	.67	.33

The extra expense of \$28,245 87 for the Cholera Hospital, and other precautionary measures on account of the cholera, in 1849, are included in the amount under 1850.

In Salem, Roxbury, Charlestown, and most of the cities, the superintendence of all matters relating to the public health is placed under the city marshals, as health officers, subject to the control of the mayors and aldermen. No Boards of Health or health committees are appointed, and no separate accounts are kept of the expenses incurred.

The towns of Marblehead and Plymouth have Boards of Health under their special acts, though often inactive. Springfield, Danvers, and some other towns, have had health committees for several years. Danvers has published some valuable reports of their committees. But, as far as our knowledge extends, few towns have chosen Boards of Health, or health committees, nor have the selectmen often acted in that capacity. With the exception of a few cities and towns, nothing whatever has been done on the subject. Much good has resulted in Boston and some other places, from their health regulations, but not so much as might and ought to have been effected. The whole plan, where any plan exists, for the sanitary police of the State, is essentially defective. The sanitary laws are inefficient and inoperative. They *allow* something, but *require* little or nothing to be done, and consequently little or nothing is done. Health, if attended to at all, is considered merely a secondary, incidental matter, and not, as it should be, a leading, essential matter. In some towns, when Boards of Health or health

committees have been chosen, it has been done in open town meeting, by nominations at large, like fence-viewers, or other unimportant town officers. Such a practice is not likely to secure competent men. And in places where more consideration is given, persons holding office for one year only are often appointed, who, though worthy in other respects, cannot, from their education and position, be supposed to be qualified to act intelligently on these great matters.

Even in Boston, where so much has been done, and well done, far more might be accomplished, at the same expense, by the plan which we propose, than by the existing regulations. This it would be easy to show, if space were allowed for discussion and illustration.

A permanent Board of Health, having the general superintendence of all sanitary matters, constituted as it might and should be, would supersede the consulting physicians, relieve the over-burdened aldermen of some of their onerous labors, and manage every department with more uniformity, wisdom economy, and efficiency. The city registrar and mayor would be ex officio members of the Board. Through the former they would have access to the records of every death which takes place and thus be made acquainted, at all times, with the prevailing diseases, and the public health; and through the latter a constant intercourse might be kept up between the Board and the city government. The annual reports, which such a Board would be required to make, might be made of far more interest and usefulness than any now distributed. They would be annual sanitary surveys of the city, affording suggestions of the highest importance to the welfare and improvement of the citizens.

And what might be done on a large scale in Boston, might be done on a smaller one in all the towns in the State.

VI. WE RECOMMEND *that each local Board of Health appoint a Secretary; and also, if occasion require, a Surveyor and Health Officer .*

The 12th section of the proposed act provides for the appointment, and the 13th, 14th and 15th sections prescribe the duties, of the officers of Boards of Health. Every Board should have a secretary, to keep its records, books and papers, and perform such duties as usually pertain to such an office. A surveyor or engineer would also be useful, especially in cities and populous villages, to examine into all questions which may require the investigation of such an officer, as prescribed by the act, or for the office of engineer of the General Board, page 113. In many of the small country towns this officer might be dispensed with, though in all he would be useful. Each Board should have an Officer of Health, who should, where practicable, be an intelligent physician, well educated, and especially acquainted with sanitary science, having no peculiar theory to build up or support, as regards different modes of practice for the cure of disease, but conscientiously desirous of doing all within his power to prevent disease, and to raise the standard of health within his jurisdiction, by carrying into execution all proper local regulations, and those of the general Board of Health. Some towns may not be able to select such an one, and in such cases, persons of other professions or occupations may be substituted. All officers of local Boards of Health should possess, in as great degree as possible, the qualifications already stated as proper to be possessed by the

members and officers of the general Board of Health. (Page 113. ) From an examination of the sections of the proposed act to which we have referred, and of the various recommendations and suggestions of this report, officers of local Boards of Health will be able to learn their duties, without a recapitulation in this place.

The 3d and 4th sections of the health laws in the Revised Statutes, authorize Boards of Health to "appoint a physician to the board," and to "establish the salary or other compensation of such physician, and shall regulate all fees and charges of every person, appointed by them in the execution of the health laws and of their own regulations." This is a power greater than is proposed to be conferred by the new act.

VII. WE RECOMMEND *that local Boards of Health endeavor to ascertain, with as much exactness as possible, the circumstance of the cities and towns, and of the inhabitants under their jurisdictions; and that they issue such local sanitary orders and make such regulations as are best adapted to these circumstances.*

The sixteenth section of the proposed act, authorises local Boards of Health to issue orders and make rules and regulations for nineteen purposes. This authority, however, is to be exercised only in certain contingencies, of which they are to be judges. If, in their opinion, the public health suffers; or if it would be promoted by making such regulations, in regard to either particular, they are bound to make them; if otherwise they may omit doing it. No regulations inconsistent with the constitution and laws of the State, however, can in any case be made. Any regulation may be modified or annulled, as circumstances may require. Discretion and wisdom, in this as in other matters, will be required in carrying this provision into effect. The powers conferred are not greater than those now possessed under the Revised Statutes, nor in some respect are they so great and summary. The proposed act limits, defines, and restrains existing powers, though it allow them to be extended to some other matters not now specially provided for, which seem to us properly to come under the cognizance of local Boards of Health.

In the appendix, we have given several regulations for local Boards of Health, extracted from many existing codes in our possession; and from them may be formed and arranged, by modification, alteration, abridgement, and extension, a system adapted to different localities.

VIII. WE RECOMMEND *that local Boards of Health endeavor to carry into effect all their orders and regulations in a conciliatory manner ; and that they resort to compulsory process only when the public good requires it.*

In carrying any public measure into effect the favorable opinion and cooperation of the people is desirable. It can thus be accomplished more easily and more thoroughly. Boards of Health should diffuse information concerning their regulations, and the measures they propose for execution; and public opinion should be educated and properly influenced in their favor. It would be unwise, in most cases, to enforce any regulation or measure against the general and deliberate wishes of the inhabitants, after such a regulation has been fully and fairly laid before them and comprehended. It sometimes happens, however, that opinion are given from interested motives, or from local or party prejudices, which are not the

deliberate, unbiassed sentiments of the people generally. Such opinions should not be received as guides of public action. Caution and careful examination should be used before executing any measure not generally sanctioned.

Under the operation of sections 19 to 24, of the 21st chapter of the Revised Statutes, the sheriff can, if he chooses, with or without the consent of those interested, appropriate any person's house and anyone's provisions and personal services, for the use of the sick. This summary power has existed in this commonwealth for nearly two hundred years; but, notwithstanding its antiquity, it is deemed proper to modify it in some degree, as in the 21st section of the proposed act. Cases may occur, however, where, in a house or a locality, a nuisance or a disease may exist, which is directly injurious to the health of the neighborhood, and which the owner or occupant, even after persuasion and remonstrance, refuses to remove or abate. In such cases it becomes the *duty* of the Board of Health to interfere. Public safety requires it-human life demands it. And for such cases the authority of this section is very properly given.

IX. WE RECOMMEND *that an appropriation be made annually by the State, for the purchase of books for the use of the general Board of Health; and by each city and town for the purchase of books for the use of each local Board of Health.*

We have said that a knowledge of what ought to be done, and of the best way of doing it, is an important requisite in the discharge of any duty; and in none is it more important than in matters relating to health. The principles on which the science of public health is founded, the different modes by which those principles have been applied, and the practical experience of those by whom they have been carried forward, are from time to time published, and are accessible to the public. And as a means of enlightened action and judicious economy, an appropriation should be made by the State, and by each city and town, of such a sum as circumstances may render expedient, for the purchase of the most useful and important of these publications for the use of the several Boards of Health. They would aid in the adoption, application and administration of different measures, in different localities; and thus enable us to avoid the useless and expensive mistakes made by others and to which we may be liable. The expediency of this measure is too obvious to need discussion. The Board of Health of Philadelphia is the only one in this country, to our knowledge, which has commenced the formation of a Sanitary library. Their excellent example is worthy of imitation by others. Section eleven of the act provides for this matter. In the appendix we have given a list of several works that have come under our own immediate examination, and which we have found to be valuable for such an object.

X. WE RECOMMEND *that each local Board of Health be required to make a written report annually to the town, concerning its sanitary condition during the next preceding year; and to transmit a written or printed copy of the same to the General Board of Health.*

The cause of education is not of greater importance than the cause of public health; and what has been done for the former may very properly be

done for the latter. It is now twenty years since one of this Commission, being then a member of the school committee of the town of Concord, prepared published a new code'. of school regulations for that town. Among other matters it was provided that bound blank books for school registers for each school district, prepared under such form as he prescribed, should be furnished by the general school committee to the several teachers at the commencement, and returned at the end of the successive school terms; and that the committee should make written reports to the town at the annual meeting, concerning the schools, under their superintendence, during the next preceding year. The first written report was prepared, presented, and published by him in 1831. This regulation was *original with him*; and as far as his knowledge extends, *this was the first annual school report of that description ever presented in a public town meeting in Massachusetts*. Subsequently this regulation was introduced into Cambridge, Northborough and other places; and it operated so well that, at his suggestion, while a member of the legislature, the law of April 13th, 1838, relating to this subject, was matured and passed. And it may with perfect truth be said that no one measure, aside from the establishment of the Board of Education, has done so much good.

What has done so much for education may do as much for public health. The annual school reports have made education a subject of abiding interest among the people, prevented ignorance and saved the intellectual character of the State. The sanitary reports would bring matters of no less importance before the people of every town; make public and personal health a subject of no less abiding interest; and thus tend to prevent disease and physical suffering, and save life. They would be annual lessons on sanitary science, localized and reduced to practice in the known experience or observation of the citizens.

The materials for the composition of these reports will of course vary in different places and in different years. Concerning large towns and epidemic seasons, more may, with propriety, be said than concerning small towns and healthy seasons. But to the Boards of Health of every town, in every year, a sufficient number of topics will be suggested for a report, which might be so drawn as to be made interesting and valuable. The births, marriages and deaths; the different diseases and causes of the deaths, and the external circumstances under which they occurred ; the amount and kind of sickness suffered among different occupations, and in the public schools; a description of localities where diseases have been most prevalent; facts which develop the causes of disease ; means suggested for their prevention; and the various subjects mentioned in this report, and especially in the circular in the appendix, relating to a sanitary survey, or developed in the practical discharge of duties, will furnish to Boards of Health ample materials and facts for discussion. We have inserted in the appendix reports which might have been made in two towns for the last year, to illustrate our ideas of what such reports might contain.

A copy of the reports from every town in the State is to be transmitted to the General Board of Health to furnish materials for their annual reports. In this way a sanitary survey of the State would be made and published every year, imparting information of the utmost importance.

XI. WE RECOMMEND *that the sanitary and other reports and statements of the affairs of cities and towns which may be printed should be in octavo form, on paper and page of uniform size,( similar to the public documents of the State, ) and designed to be bound together, as THE ANNUAL REPORTS OF THE TOWN; and that five copies be preserved by the Board of Health, one copy be furnished to the General Board of Health, one to the state Library, and that others be given to Boards of Health elsewhere in exchange for their publications.*

The system of exchanges of public documents and works, was introduced into this State, by a member of this commission, by a resolution which passed the Legislature, April 23, 1838. This was some years before Mr. Vattemare was known in this country as its promoter. Though much less has been accomplished in carrying out the provisions of that resolve, than might have been done, yet considerable benefit has already resulted from the measure. A uniform collection of all the printed documents of a city or town, bound and preserved ; and in addition a collection of similar works of other towns and public bodies, would constitute an exceedingly valuable fund of the recorded experience of the age; and could not fail of being of great use to all interested. We have accordingly provided for it in section eleven.

The city of Baltimore requires reports from all the departments of the government and city institutions, to be made annually in January; and these reports are published together, in a volume, forming an exceedingly valuable depository of official papers, showing the history and progress of the city. A similar practice, embracing a part only of the city institutions, prevails in Salem, Lowell, Cambridge-, and in some other places, in our own State. It should be generally adopted by all municipal corporations, any of whose documents are printed.

XII. WE RECOMMEND, *that the successive enumerations of the inhabitants of the State be so made, abstracted, and published, that the most useful and desirable information concerning the population may be ascertained.*

Several important purposes are attained in an accurate enumeration or census of the inhabitants. The constitution of the United States and of this State both require such enumerations to be made, as the basis on which the number of representatives to the national and state legislatures shall be determined. This is a political purpose. The character of man, as a social being, is modified by the circumstances of his existence, and varies as these circumstances vary in their development in different places and at different periods; and it is desirable for a social and scientific purpose that such characteristics may be ascertained as will exhibit these varieties or differences. *An exact knowledge, too, of the living inhabitants in a given locality, is the first, and an essential element, for estimating their sanitary condition.* This is the third most important purpose.

It should be the main design of every census, taken for a scientific or sanitary purpose, too ascertain some positive facts, concerning the then existing persons enumerated, which may be compared with other similar facts, as a common standard, or together, to show the characteristics of different populations. Two censuses, one containing a class of facts as to ages or other circumstances, and another, a different class, cannot be so compared together, and hence are nearly useless. The value of the six

different enumerations of the inhabitants of the United States, would have been much greater than they are, if all of them, both of the free and slave population, had been made and abstracted upon a well digested and the same uniform plan. As they are, they contain but, a few classes of facts which admit of comparison with each other. It is well to consider, before taking a census, what facts or characteristics are most desirable important; and, when determined upon, the same facts should be obtained in every subsequent census.

To fulfil all the political requirements of the constitution of the United States, and of this State, an enumeration of the whole number of the inhabitants, merely, without any particulars except a statement of the free and slave population separately, and "excluding Indians not taxed," is all that is required. But the scientific and sanitary inquirers are not satisfied with such an enumeration. They desire to know some thing more than the mere numbers of the people. They know that the social character and elevation, and the sanitary welfare of the population, depend upon various other characteristics, not possessed by all populations alike, or in the same degree; and that these cannot be ascertained by the number alone. What then are the characteristics of a population, which it is desirable and important should be known, and which admit of positive ascertainment? In our judgment, the following classes of facts are desirable in every census: <sup>79</sup>

1. *Color and Freedom.* Three classes of persons exist in this country, -the whites, the colored, and the Indians; and of the colored there are two sub-classes-the free and the slave. The political rights, possessed by each of these classes, differ in different states; and it has been supposed that they are not all affected alike by the same sanitary influences. The numbers possessing each of these characteristics should therefore be ascertained both for political and sanitary purposes.
2. *Sex* is another characteristic universally acknowledge as important, and the numbers of each should be carefully obtained.
3. The *Ages* of the population are characteristics, interesting and important in many respects, and indispensably necessary in all sanitary inquiries. Without them a census is comparatively useless. They should be ascertained by the enumerator with as much exactness as possible; and afterwards so abstracted that uniform comparisons may be made between the populations of the same ages living in different places, at different periods, and under different circumstances; and with the dead.
4. The *Domestic Condition*, or the number of unmarried, married, and widowed, is an interesting characteristics, which has been ascertained in

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<sup>79</sup> *The purpose of this report will not admit of so full an explanation and illustration of these several classes of facts, nor of the plan obtaining them and of making the abstracts for publication, as may be necessary to make them clearly understood. Those who desire further information on the subject, are referred to a report on the state census of Massachusetts, (House document No. 127 for 1849); to the Instructions issued for taking the seventh census of the united States; to the Report on the Census and Statistics of Boston for 1845; to an article in the Journal of the Statistical Society of London, on the Best Mode of taking the census of the United Kingdom for 1841, Vol. III, p.72, for April, 1840; to the three volumes of Abstracts of that Census, Published under the titles of the Enumeration Abstract, Occupation Abstract, and Age Abstract; to the admirable but voluminous Report of the Commissioners for taking the Census of Ireland for 1841; to the series of Reports of the Registrar General of Births, deaths and marriages in England, and especially to the Appendices to the Ninth Annual Report, and to the "Recensement General"- the General Census of Belgium for 1846,- a work admirably executed, under the central Statistical Commission, of which M.Quetelet is President. These works contain the results of the more recent experience, and should be carefully studied by all who may have the superintendence of the census.*

the censuses made by nearly all the governments of Europe, and should be known for its important social and sanitary influence.

5. The *Occupations* of the people have an influence upon their character and health. The facts should be obtained, at least, in relation to all males over fifteen years of age, and engaged in the principal professions and occupations.
6. The *Place of Birth* should be known, so far as to specify separately those born in the town or city where they reside, (to show the sanitary influence of locality) those born in the different States of the United States, and those born without the United States.
7. *Education* has an influence upon the sanitary condition of the people and some facts regarding it should be known concerning all persons over 20 years of age. An answer to the question, "Can you read and write?"-will afford a simple and definite fact, and may be obtained concerning every person.
8. *House Accommodation* is quite important. The number of persons to a family, and the number of families and persons to a house, and the extent of their accommodations, should be known. Life and health are often affected by over-crowded dwellings.
9. *Means of Subsistence and Comfort* also have an influence upon the sanitary condition of a people. A simple but definite, certain and important fact, as to this characteristic, might be determined by the number of "owners of real estate," (not "the value of real estate owned," which is indefinite and uncertain as applied to individual inquiry.) A comparison of the proportion of this number or class of persons with the whole population of different places and at different periods, would exhibit interesting results.
10. *Health*. Useful information concerning four special diseases,-blindness, deafness, insanity and idiocy,-has been ascertained in the last two censuses. The number of persons thus afflicted, as well as the number of paupers and criminals, should be known.

Two plans have been devised for obtaining the facts in a census.

1. By abstract inquiry; and by the use of a blank tabular form of a schedule, containing headings, under which are to be entered the different classes of facts, and in such form, as they are intended to appear in the final printed abstract. They are elicited by the inquiry, -How many are in this class, and in this, and so on, naming each class. It is obvious that even by this plan, *if accuracy is intended*, the characteristics of every person and of every elementary fact, so far as relates to all the particulars required by the schedule, must first be obtained separately and afterwards, though, at the same time, they must be analyzed, abstracted and combined, and entered under the respective heads to which they belong. By this complication of the matter errors are likely to occur, and cannot easily be avoided. This plan may answer for guesses, or estimates, but affords no check against over-estimates or imperfections, nor is it any test of accuracy; and besides, such a plan admits of no other combination or abstract of the facts than the one pointed out in the schedule.
2. By *individual or elementary inquiry*; and by the use of a blank schedule, in which the name of every person enumerated is to be entered; and opposite the name, under separate designed to be ascertained. These may be more or

less extended at pleasure. By this plan, the single object of obtaining the elementary facts of the census, in the most simple, correct and positive manner, without complicating the labor at the time with any combination or abstract, is all that is attempted by the enumerator. The abstracts for publication are made in a different form by another agency. It is obvious that by this plan errors will be much less likely to occur, and may be more easily corrected at the time if they should happen, than by the plan of abstract inquiry. Taking the name of every person will be a guarantee that no more will be returned than actually exist. And the same facts may be accurately obtained, more easily, rapidly, and economically. And besides, the facts thus obtained may be abstracted and combined in very many different ways, to show a much greater variety of interesting and important results.

The first is the plan hitherto adopted in the censuses of the United States. The second, however, is now regarded by all correct statisticians, who have carefully examined the two plans, as very much the best, and as the only one which will ensure accuracy. It was first introduced into this country in the census of Boston, in 1845; and, since then, that example has been commended and followed by other cities. A modification of the plan, designed for general application, was prepared, at the special request of the Census Board at Washington, and has been adopted, though not without some deviations, for the seventh census of the United States, to be taken this year.<sup>80</sup>

The schedule recommended, relating to the free inhabitants, contained the following headings:

1. Dwelling-house, numbered in the order of visitation
2. Families, numbered in the order of visitation
3. Name of every person whose usual place of abode, on the first day of July 1850 was in this family
4. Description- Age
5. Description- sex
6. Description - Color (White, black, or mulatto)
7. Domestic condition \_ Married
8. Domestic condition- widowed
9. Profession, occupation or trade of each male person over fifteen years of age
10. Owners of real estate
11. Place of - Born in the town , where each resides
12. Place of - Birth - In what other states, territories or countries born.
13. at the school during last year
14. Persons over twenty years of age who cannot read and write
15. Whether deaf and dumb, blind insane, idiotic, a pauper or a convict

These schedules are designed to contain complete *Registers of the Population*. Three sets, or copies, are to be made; one of which is to be deposited in the office of the court of the county, and one in the office of the secretary of the state, to which they relate; and the other is to be forwarded

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<sup>80</sup> *The design of the schedule should be to obtain some positive, existing, known characteristics of the population, at the time of the enumeration. Whether " married within the year " is a historical inquiry, and the " value of real estate owned " a collateral one, which destroys the unity of the design.*

to the Secretary of the Interior, at Washington. Under his superintendence, or that of some person whom he shall appoint, these schedules are to be arranged. They are not to be published, nor are they to be considered as models for publication ; but they are to serve the simple purpose of containing a comprehensive mass of useful elementary facts concerning the people. These facts are to be classified, abstracted, and published, in such form, to such extent, and with such deduction, as shall be deemed useful and proper. An excellent plan for the abstracts, as to the ages, for general or sanitary purposes, is furnished in the example, (p. 34,) taken from the English census. The ages of the population of every county in the United States, and of every town in this State, should be abstracted in this way. Every census should be made under the superintendence of intelligent, competent persons, familiar with statistical science, and especially with that part of it which relates to human life,-its reproduction, its continuance, and its extinction. The value of the results will greatly depend upon the degree of intelligence applied to their production. The plan we recommend is not an exception to this general rule . Like others, it must have intelligence to carry it into successful execution; but, if so executed, it will secure a far more complete and perfect census than any whitherto taken. A competent central commission, at Washington, with power to appoint subordinate commissions in each state, has heretofore been recommended for the national census. For our State enumerations, we have proposed that they shall be made under the direction of the General Board of Health. The plan above recommended might be fully carried out by them, and as complete and as accurate a State census as can be desired, might thus be obtained. The same agency that abstracts and publishes information concerning the dead, should make and publish information concerning the living. The abstracts should be made on a uniform plan, so as to be easily compared together.

Every local Board of Health should have, for their own use a manuscript Register of the Population of their own city or town, as proposed, with an index for reference to each family. It would be of great service in the various sanitary matters which might come before them.

Enumerations of parts of the population, for a special purpose, are often made. The number of children between certain ages is required to be known every year, as a basis for the division of the income of school funds, in different states. In a letter contained in the appendix to the fourth Registration Report, the writer said :-" The *educational age*, as fixed by the laws of Massachusetts, is 4 to 16. It seems to me, however, that this specific classification is injudicious, and that 5 to 15 would be better. The latter points or ages are universally adopted by nations, as important in the divisions of the population, and in the statistics of the dead ; and there are many reasons why the educational age should be within these points. It would be less labor to make the enumeration; and, from examinations which have been made, it appears that the children attending school more nearly correspond to them. Comparisons could be more readily made with the ordinary divisions of the population. I agree in opinion with a recent eminent writer, in thinking, in its application to schools, that 'hereafter 15 will be the age at which, in any census it will be considered that, in the mass of the community, occupation begins, and education ends.' " In 1849, this hint was

matured into a law; and 5 to 15 is now the legal Educational Age in Massachusetts.

XIII. WE RECOMMEND *that the Constitution of the State be so altered, that the State Census shall be taken in 1855, and at the end of every subsequent period of ten years.*

The constitution of this State, as amended in 1839, [Chap. Sect. 2, Art. I, and Sect. 3, Art. 2,] provides that " a census of the inhabitants of each city and town, on the first day of May, shall be taken and returned into the office of the Secretary of the Commonwealth, on or before the last day of June, of the year one thousand eight hundred and forty, and of every tenth year thereafter, which census shall determine the apportionment of senators and representatives for the term of ten years." <sup>81</sup>

The constitution of the United States originally provided [Art.I, Sect.II,] that "the actual enumeration [of the inhabitants] shall be made within three years after the first meeting of the Congress, and within every subsequent period of ten years, in such manner as they shall by law direct," for the purpose of determining the number of representatives which each state shall be entitled to send to Congress. And by the act of March 1, 1790, the first enumeration of the inhabitants of the United States was made that year. New acts have been passed, ordering new censuses every ten years, since that time. The seventh national census is to be taken this year, ( 1850. )

By the operation of these two constitutions, two enumerations of the inhabitants of this State were taken in 1840, are to be taken this year, and will continue to be taken at the end of each succeeding period of ten years, so long as neither of these constitutions remain unaltered. Two enumerations of the inhabitants of a place, made in the same year by different authorities, are not only inexpedient, but may be of positive inconvenience. If they should be essentially different, as was the case in some places at the last census, a doubt might be thrown over the authenticity of both, and neither taken as correct. Besides, two, if equally correct, would afford no information that one might not give. If one were taken in the intervening period, both would be of great value. Besides affording the means of showing the growth of different places, they would enable us to make much more accurate sanitary comparisons and deductions. The whole matter, too, being under the control of the State, such a plan might be adopted and successfully carried out, as would secure the best and most useful results, as suggested in the last recommendation. This period might also be used for the ascertainment of other statistics, beside such as relate to the population.

The words "in the year one thousand eight hundred and forty" occur three times in Sect. 2, Art. 1, and twice in Sect.3, Art. 2; and the proposed amendment would require merely that the words *fifty-five* be substituted for the word *forty* in these five instances. It is worthy of consideration, however, whether the time for taking the census should not be the 1<sup>st</sup> day of July,-the middle of the year,-instead of the 1st day of May.

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<sup>81</sup> *Rules and Orders of the House of Representatives, pp. 68, 100, 105.*

We are opposed to frequent alterations of the constitution of the State; but what we now recommend affects no principle. Its expediency and utility are so obvious, that it must commend itself to general approbation. The constitution of New York provides for a state census at the same period here proposed.

To avoid the expense and inconvenience of two enumerations, an arrangement has been proposed that the United States should unite with the State, and take one census only. But this has not been effected, because the United States could not with propriety delegate an authority to one state, to return a basis of representation, which it did not to another.

XIV. WE RECOMMEND *that the laws relating to the public registration of births, marriages, and deaths, be perfected and carried into effect in every city and town of the State.*

We have already said that an accurate knowledge of the living inhabitants of a place forms the first element for estimating its sanitary condition. An exact knowledge of the births, marriages, and deaths, forms the second essential element. Without both of these elements, we cannot determine, with any considerable degree of accuracy, whether the public health at one place is better than at another, or whether at the same place it is better at one time than at another. By them we can determine both of these propositions.<sup>82</sup>

A new act relating to registration was passed on the 3d of 1849, and instructions have been prepared for carrying it effect, and issued by the Secretary of State. The law is becoming more and more popular; and if superintended by an efficient State agency, and faithfully carried into operation by the local authorities of all the towns, it may secure the many important benefits designed by its passage. The heading of the registry books now in use are as follows:-

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<sup>82</sup> The following extract from the Quarterly Return of the Registrar-General in England, for April, 1850, shows some of the purposes to which this information may be applied:- "While the returns of the exports, imports, and revenue, furnish good indications of the production, consumption, and commerce of great classes in the country, the marriages, births, and deaths supply a surer test of the condition of the whole population. It is gratifying to find that the general results of both classes of returns are favorable. The marriages, which in 1847 were so much depressed, and increased almost imperceptibly in 1848, rose to 141,599 in the year 1849; and the autumn quarter were 43,632; which is a higher number than has ever before been celebrated, expecting in the autumn quarter of 1845. The deaths have also declined; they were 98,607. The country, which, after the failure of the potato crop in 1846, was covered with funerals, - in the train of a multitude of disease, and of two great epidemics, the fatal influenza of 1847-8, and the more deadly cholera of 1849, - is now in health again. The deaths in the first quarter of 1850 were less by 21,065 and 21,414 than the deaths in the corresponding quarters of 1847 and 1848. Fewer children have been left fatherless, fewer parents have been bereaved of their children. Sickness and suffering, - though perhaps not precisely in the same ratio as the mortality, - have diminished. The skillful and active industry of the kingdom has been less of workmen and the incapacity of masters; the parishes have had fewer poor to relieve; the friendly societies fewer sick members to support; insurance societies less to pay on policies; everything dependent on the duration of human life has been relieved of pressure; the minds of the people have not been irritated by hunger, fever, and discontent."

Births		Registrar (Back of the Book)
1	No	7
2	Date of Birth	8
3	Name, (if any)	9
4	Sex and	1
	Condition	0
5	Place of Birth	1
	Name of	1
6	Parents	2
		Residence of Parents
		Occupation of Father
		Place of Birth of Father
		Place of Birth of Mother
		Informant
		When registered

Deaths in		Back of Book	Registrar
	No	8	Place of Birth
	Date of Death	9	Names of Parents
	Name & Surname of the Deceased	10	Disease, or Cause of Death
	Years	AGE	Place of Interment
	Months		
	Days		
	Place of Birth	11	Informant, or Undertaker
	Sex and Conditions	12	When Registered
	Occupation	13	

Marriages Solemnized in, County of		Back of Book	Registrar
1	No	8	Names of Parents What Marriage – Whether 1 <sup>st</sup> , 2 <sup>d</sup> , 3 <sup>d</sup> , &c. Name and official station of the person by whom married
2	Date of Marriage	9	
3	Names & Surnames of Groom & Bride	10	
4	Residence of Each at the Time of Marriage	11	Date of Register
5	Age of Each		
6	Occupation of Groom		
7	Place of Birth of Each		

The returns to the Secretary of State contain all the Information in the books of records, excepting columns 11 and 12 relating to births; 10 and 11, relating to marriages; and 12 and 13, relating to deaths. These returns are printed on paper of uniform size, -18 inches square, -and are designed to be bound into annual volumes. These volumes are thus easily accessible, and afford the means of investigating the operation of any diseases which prevail in the State, as well as the personal history of individuals.

A few important improvements should be made in the administration and execution of the law; and the local Boards of Health are authorized to make any regulations they may deem expedient for this purpose. Efforts should constantly be made to obtain the records of the events *at or near the time at which they take place*. When delayed to the end of the year, or even for a much shorter period, -owing to the frequent changes in the residences of our people, and to other causes, -mistakes and omissions are inevitable.<sup>83</sup>

<sup>83</sup> We are convinced, after repeated attempts, that it is impossible to obtain accurate accounts of past unrecorded events, concerning either the living or the dead. Hitherto, every trial to obtain the number of births, marriages, and deaths, a year or more after they happen, has been failure. This conviction has been expressed in relation to the national census this year. A

The facts as to *births* might be obtained, by the clerks and registrars by their own personal agency, or by making proper arrangements with physicians, or by district officers of the town, or by requiring the parent or person interested to make the return within a fixed period, under penalty.

As to *deaths*, by the appointment of competent undertakers: by requiring them to obtain and record, in each case, all the information desired, *before the burial*. The certificates of the causes of death should always be obtained, when practicable, from the attending physician; and we have no doubt that few instances would occur in which they would be refused: upon request. The English physicians, says a recent medical writer of the highest authority, "have daily and hourly written out the causes of death, bringing the whole knowledge of the profession to bear upon this single point, as unpaid services. In the aggregate, this labor has been enormous, but it has been given, freely rendered, by the profession, to the government, without fee or reward. It may seem a plain, un consequential matter, this gratuitous return of the causes of death, but it makes up a bulk of unpaid service to the state, such as can be presented by no other body or profession in the empire." <sup>84</sup>

As to *marriages*, it is difficult to perceive a reason for going out of the State to be married, or for neglecting to have the marriage recorded, unless the parties are ashamed of the connection formed, or misapprehend the importance of the record to themselves personally, or to the public.

A new act relating to the publication of intentions of marriage was passed, March 28, 1850, which removes many of the salutary checks imposed by previous laws. Under this act, the parties, by entering their intentions in the office of the clerk have permission to marry immediately,

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*strong desire, however existed in the Census Board, that measures should be provided for obtaining the information; and a separate schedule in relation to deaths was prepared, at their request, for the purpose.*

*This duty is required by law, in some places, under heavy penalties. The act in relation to public health in the city of New York, passed this year, has the following provisions:-*

*"SECT. 10. It shall be the duty of each and every practicing physician in the city of New York, "1. Whenever required by the Board of Health, or the Mayor and Commissioners of Health of said city, to report to the City Inspector of said city, at such times, in such forms as said Board may prescribe, the number of persons attacked with any pestilential, contagious, or infectious disease, attended by such physician for the twenty-four hours next preceding, and the number of persons, attended by such physician, who shall have died in said city during the twenty-four hours next preceding such report, of any such pestilential, contagious, or infectious disease. "2. To report in writing to the City Inspector, the Board of Health, or to the Mayor and the Commissioners of Health, every patient patient he shall have laboring under any pestilential, contagious, or infectious disease, and within twenty-four hours after he shall ascertain or suspect the nature of the disease. '3. To report to the City Inspector, when required by the Board of Health, the death of any of his patients who shall have died of disease, within twenty-four hours thereafter such death shall have occurred, and to state in such report the specific name and type of such disease. "SECT. 27. Every practicing physician who shall refuse or neglect to perform the duties enjoined on him by the tenth section of this title, shall be considered guilty of a misdemeanor, and shall also forfeit for each offence the sum of two hundred and fifty dollars, to be sued for and recovered by the Board of Health." <sup>2</sup>*

*The following are provisions of this act:-*

*SECT. 1. All persons intending to be joined in marriage, shall cause notice of their intentions to be entered before their marriage, in the office of the clerk or registrar, or other officer appointed for such purpose, of the city or town in which they may respectively dwell, (if within the State,) and if there be no such clerk in the place of their residence, the like entry shall be made with the clerk of an adjoining town. SECT. 2. The clerk shall deliver to the parties a certificate under his hand, specifying the time when notice of the intension of marriage was entered with him, which certificate shall be delivered to the minister or magistrate in whose presence the marriage is to be contracted, before he shall proceed to solemnize the same. SECT. 3. Whenever parties living in this Commonwealth shall go out of it for the purpose of having a marriage solemnized between them in another State, and a marriage shall be so solemnized, and they shall return to dwell here, they are hereby required to file a certificate or declaration of their marriage, including the facts concerning marriages now required by law, with the clerk or registrar of the town or city where either of them lived at the time, within seven days after their return, under a penalty of ten dollars, to be recovered in the manner and to the uses specified in the third section of the "Act relating to the Registration of Births, Marriages, and Deaths," passed on the 2d day of May, 1849. Sect. 4. The fee of the clerk or registrar for making the record of such marriage shall be fifty cents, to be paid by the said parties Sect. 5. So much of the seventy-fifth chapter of the Revised Statutes as is inconsistent With this act is hereby repealed: provided, nevertheless, that nothing herein contained shall be so constructed as to modify or alter the provisions of the twenty-second section of the said seventy-fifth chapter, which relates to marriages among the people called Friends or Quakers, but the same shall remain in full force.*

without the fourteen days' publishment heretofore required. Very properly, however, it does not supersede the necessity of entering the particulars concerning the parties, now required. by law; and it imposes a penalty-upon anyone who does not give such information, whether married in the town or State, or not.<sup>2</sup>

Death affects the human race nearly according to a uniform law, modified in its operation only by exchange of circumstances; but it does not affect different ages alike, even if all other circumstances are the same. At some ages persons are much more liable to death than at others. Some, however, suppose that, in a school composed of youth, or in a manufactory composed of operatives of more advanced life, or in a prison or in the army, filled with persons in middle life, if the living to one death, or the average age at death, are the same as the whole population of the town or place where located, then their health would be the same; and if it differed, it would indicate a different degree of health. But it is not so. These are select lives, and they are governed by the laws of their age only, and not by those applicable to the whole population of the town, composed of persons of all ages. This matter is so little understood, and so many mistakes are made, even by eminent statisticians, that it should be clearly illustrated.

On returning to the table already given on page 35, the law of mortality is given for the whole of England, and for Surrey, One of the most healthy, and for Liverpool, one of the most Unhealthy districts of England. Now let us suppose the existence of three communities, A, B, and C, each containing 1,000 persons, but differently constituted as to ages. In A there are 200 families, containing 100 persons between the ages of 30 and 40 years, 300 between the ages of 20 and 30 ; and each of these families contain, on the average, 3 children under 5 years of age. In B there are several boarding-schools, in the families connected with which there are 100 persons between 20 and 30 years, 300 scholars and other persons between 15 and 20, and 600 between 10 and 15. And in C, composed principally of elderly persons, there are 100 persons between 40 and 50 years, 300 between 50 and 60, 400 between 60 and 70, 150 between 70 and 80, and 50 between 80 and 90. And let us suppose that each of these communities have been subjected to the same sanitary laws, alternately, as the most healthy and the most unhealthy districts of England, as given in the table already referred to, and the result would be as in following table :-

Ages	Suppose the number and ages of the whole population in each of three different communities - A, B and C,- are as follows:-			Subject these several populations, alternatively to the same rates of mortality in different localities, the number who would die					
				In a healthy locality would be			In an unhealthy locality would be		
	In A	In B	In C	In A	In B	In C	In A	In B	In C
Under 5	600	-	-	24.7	-	-	86.2	-	-
5 to	-	-	-	3	-	-	3	-	-

10									
10 to 15	-	600	-	-	1.90	-	-	3.78	-
15 to 20	-	300	-	-	1.86	-	-	2.96	-
20 to 30	300	100	-	1.90	.63	-	3.80	1.26	-
30 to 40	100	-	-	1.00	-	-	2.16	-	-
40 to 50	-	-	100	-	-	1.17	-	-	3.36
50 to 60	-	-	300	-	-	6.85	-	-	15.91
60 to 70	-	-	400	-	-	25.4 3	-	-	42.53
70 to 80	-	-	150	-	-	23.0 1	-	-	31.11
80 to 90	-	-	50	-	-	21.4 2	-	-	16.11
Total	100 0	100 0	100 0	27.6 3	4.29	77.8 8	92.1 9	8.00	109.0 2
Deaths in 100 living, or percent				2.76	.43	7.78	9.92	.80	10.9
Or to the whole living, one in				36.1	232.	12.8	10.8	125.	0
The average age of each was				9	55	4	4	00	9.17
				5.22	16.4	73.5	4.17	16.2	68.7
					1	5		8	3

It appears from this table that in these three communities under healthy circumstances, alike in all respects expecting 'age, the deaths were 27.63 persons, or 2.76 per cent., in A; 4.39 persons, or .43, or less than i of 1 per cent., in B; and 77.88 persons, or 7.78 per cent., in C;-that there were living to 1 death, 36.19 persons in A ; 232.55 persons in B ; 12.84 persons in C ;-and that the average ages at death of those who died were, 5.22 years in A, 16.41 years in B, and 73.55 years in C ! And under unhealthy circumstances the facts as strikingly appear.

It may perhaps be said, that communities so constituted have never existed. They have not, exactly in this reation, but they may and actually do exist in some degree approximating' to it. If so, nothing need further be given to illustrate the incorrectness and even absurdity of using the average age at death, or the number of a population out of which one may die annually, alone, as accurate standards for sanitary comparisons. And it follows, also, that it is necessary, not only to know the number of the living at each age, but how much life is created and produced, or how many persons are born, on which the laws of mortality operate. By this knowledge alone we might estimate the number of deaths, and the average age at death, with considerable exactness.

The following principles may be considered as settled ; though we have not space in this connection to illustrate them fully. They should govern all those who make sanitary surveys of different places or populations.

1. That a uniform law of mortality exists, which destroys more persons at one age than at another, in all other circumstances exactly similar ; and that this law is modified in its operation in a healthy and in an unhealthy locality, only by its the one than in the other.

2. That the generative power and ability to produce a healthy is mainly ascertained by the number of marriages, the age marriage, and the number of married persons living in the procreative ages, combined with other personal circumstances ; and hence arises the sanitary importance of ascertaining in a census, as a characteristic of the population, the number of the married at different ages, and of recording each marriage and the age at marriage.

3. That when the number of births is great, the number of deaths is proportionally great, and the average age at deaths proportionally low; and that an excessive production of life is one of the causes, not consequences, of great mortality; and hence the number of births is a necessary element in the sanitary condition of a population.

4. That the average age at death, as well as the aggregate number of a population out of the whole of which one dies is a fallacious test of its sanitary condition; and cannot be employed alone, for that purposes, with out leading to serious errors. It can be applied, as an accurate test, only when the ages of the living inhabitants compared are alike.

5. That selecting a class of the population, such as the professional men, the tradesmen, the laborers, the rich, or the poor, and giving their average age, or the average number of years of life that either live less than the others, or that either lose more than the others, as a test of the sanitary condition of the class, may mislead the inquirer, and cannot be relied upon as an accurate test.

6. That the information concerning the rate of mortality supposed to have prevailed in past ages, when the calculations have been made upon the erroneous basis mentioned in the last two conclusions, cannot be taken as an exact test for comparison with the present age, without some allowance of error. Few observations concerning the living or the dead were made with accuracy in the olden times.

7. That the only accurate tests of measurement for one place are those founded on a joint comparison of the number of persons living at each age, with the number of deaths at the same age; or for different places, a comparison of the same facts regarding the population of the same ages in both places; or the same population, in two places, supposing it to be removed from the one place to the other.

8. That in estimating the effects of immigration and emigration on the sanitary condition of a population, the difference both between the ages of those who come in and those who go out, and the ages of the permanent population, must always be considered. Other circumstances being equal, a difference in this respect will produce a different rate of the whole mortality.

9. The same joint comparison should be made seperatley of the ages of the living and the ages at death of all who die, by each disease; in each season of the year; of each sex ; of each occupation; and of those characterized by

other circumstances. The number, as influenced by either of these circumstances, will be increased or diminished in proportion as more or less are found of one age more than of another. For this purpose a variety of tables might be constructed to exhibit the facts in a condensed form.

10. That an accurate enumeration of the number, ages, &c., of living persons, and an accurate public registration of every birth, every marriage, and every death, with all the information desired relating to each, are absolutely essential as the foundation of every estimation of the sanitary condition of a population; and a sanitary survey, where this is wanting, can be of little value.

11. That for all practical purposes, as means of comparison, the living and the dead may be divided as to the ages, into decennial periods, or periods of ten years each, for those over twenty; into quinquennial periods, or periods of five years each, for those under twenty, and into each year of life for those under five years. This admirable division has been adopted in England, ( see table, p. 34. ) For special purposes three divisions should be made ;-of those under 15, of those between and 60, and of those over 60,-as the Dependent, the and the Aged classes. The division, sometimes made between those under 20, and over 20, as "boys and girls," and " men and women ;" or as "children and adults," is indefinite, unmeaning, and useless; as are also the ages 4, 8, 14, 16,21 and 45, which have been sometimes used as dividing points.

12. That to secure such uniformity at different places and at different times, in the abstracts of the facts concerning the living inhabitants, and the dead, that each may be accurately compared both should be made under the superintendence, of one agency, and that agency should be the General Board of Health.<sup>85</sup>

XV. WE RECOMMEND *that provision be made for obtaining Observations of the atmospheric phenomena, on a systematic And uniform plan, at different stations in the Commonwealth.*

The atmosphere or air which surrounds the earth is essential To all living beings. Life and health depend upon it; and Neither could exist without it. Its character is modified in Various ways; but especially by temperature, weight, and composition; and each of these modifications have an important sanitary influence.

The *temperature* of the atmosphere is measured by the rise and fall of the mercury in the *thermometer*; and it varies greatly in different times and seasons, and in different places In Massachusetts, it sometimes, rises 100 degrees above; and sometimes sinks to 20 or more below zero. Health is often affected when extremes of heat or cold are long continued, or when the changes from one to the other are sudden.

The *weight* of the atmosphere is determined by the rise and fall of the mercury in the barometer. This rise and fall is about 3 inches-generally from 28 to 31. It is seldom more than 2 inches in the same locality ; and sometimes not more than 1. In Massachusetts the rise has been known to be as high as 31.11, and the fall as low as 28.47, showing a difference of 2.64

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<sup>85</sup> Those who may wish further information on the subject of Registration of Births, marriages and deaths, may consult the books already referred to, in notes pp.30-36, 55,128.

inches. The weight of the atmosphere at the earth's surface is 14.6lbs. to the square inch. Allowing the surface of a man's body of medium size to be 15 square feet, or 2160 square inches, he suffers the enormous pressure of 31,536 lbs., or more than 15 tons! It is, however, generally unperceived, because the pressure is equal, within and without. It is only by its variations that we are affected. But these variations, when analyzed, will appear immense. *Each fall or rise of one tenth of an inch indicates a difference of about 100 lbs.* A fall of 1/10 of an inch shows the removal of a pressure of about 100 lbs. 2/10, 200lbs.; 5/10, 500lbs.; 1 inch, 1,000 lbs.; 3 inches, 3,000 lbs., &c. If these variations were sudden, inconvenient and fatal consequences might follow. When the pressure is removed we do not feel light as we should do by the removal of the same number of pounds of iron or other substance; but we feel sluggish, heavy and spiritless, owing the excessive expansion of the fluids of the vessels, the nerves and other living fibres, produced by an excessive expansion and escape of a portion of the air incorporated within them.

The *atmosphere* is composed of two principal gases, and they exist in all places in nearly the same proportions-about four-fifths of nitrogen and one-fifth of oxygen. The latter is the principal supporter of life. Other gases may also be diffused in greater or less quantities. Brand's Encyclopedia of Science states the average ordinary composition per cent. of the atmosphere as follows :-

	By Measure	By Weight
Nitrogen,	77.60	75.55
Oxygen,	21.00	23.32
Aqueous Vapor,	1.32	1.03
Carbonic Acid,	0.08	0.10
	100.00	100.00

Aqueous vapor exists in greater and more varied proportions than carbonic acid gas, though the quantity of that gas is very different at different times and places. Sulphuretted hydrogen, ammonia, and other gases, may also be diffused in quantities so great as to be detected by the senses, or by chemical analysis, or so minute and inodorous as to escape detection, and in either case may be the cause of disease. Some idea may be formed of the almost infinite divisibility of matter, diffused in the atmosphere, from the fact that the hound in the chase discerns the track of man and animals by the odoriferous particles thrown off from their foot-prints; and that we detect the odor of musk, notwithstanding the single grain from which it proceeds was deposited twenty years previous, and has since been constantly diffusing its particles in the surrounding atmosphere!

The atmosphere is corrupted in various ways. Man himself cannot breathe the same air twice with impunity. Every minute of every day he appropriates to the vitalization of his blood of carbonic acid gas. When present in large quantities, from whatever cause produced, carbonic acid gas is destructive of Life. Charcoal burned in a close room is an illustration. Some other gases are also very destructive. The experiments of Thenard and

Dupuytren proved that birds perish when the vapors of sulphuretted hydrogen and ammonia exist in the atmosphere to the extent of a fifteenth thousandth part; that dogs are deprived of life when the air contains a thousandth part; and that man cannot live when the air he breathes is impregnated with a three-hundredth part; and suffers in corresponding degree when a less proportion of these poisonous gases exists. Persons frequently fall dead when entering a well, vault, tomb, sewer or other place, filled with these gases, or with stagnated air in which are diffused emanations from decomposing animal, vegetable or mineral substances.

Such are a few only of the facts which illustrate the important agency of the atmosphere in the animal economy. What that peculiar condition is which produces a specific disease, or what changes produce different diseases, are as yet unknown ; it has not been ascertained, " because meteorological science, as connected with the propagation and spread of disease, is as yet in its infancy. We have, indeed, some knowledge of the influence of two of the obvious conditions, namely, those of heat and moisture ; but of the action of the subtler agents, such as electricity and magnetism, the present state of science affords us little information. Still there are unequivocal indications that there is a relation between the conditions of the atmosphere and the outbreak and progress of epidemic diseases, though we are as yet ignorant of the nature of that relation."<sup>86</sup>

" The earth, it is well known, " says the Registrar General, " is surrounded by an atmosphere of organic matter, as well as of oxygen,

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<sup>86</sup> *Report of the General Board of Health on Quarantine, p. 10. In Edinburgh, particular attention has been paid to the influence of atmospheric causes on the production of disease. Dr. James Stark, in his Report on the Mortality of Edinburgh and Leith, for the last quarter of 1847, (pp. 4 and 5) says, "Influenza suddenly attacked great masses of the population twice during the course of November ; first on the 18th, and again on the 28th of the same month. In both these cases it Booeard after a keen frost, and an excessively damp thick fog, which came on rather suddenly after a sudden after a few days of very mild weather. The disease was therefore clearly dependent on atmospheric causes." Though influenza was so exceedingly general, it did not of itself materially increase the mortality during November; but this disorder and its atmospheric causes greatly increased the mortality of all other diseases. So much has this been the case, that from the 18<sup>th</sup> of November, when influenza first appeared, the mortality daily increased till it reached 61 deaths on the 30th day of the month. In fact, influenza and its atmospheric causes apparently attacked the weak point in every individual. be that the lungs, bowels, or other organs, and hastened to a fatal termination ease. which, in ordinary seasons, might have survived for month. or years." Again, in hi. Report for June, July and August, 1848, the same author says :-" The influence of weather on disease was, however, still more strikingly manifested in regard to bowel complaints and affections of the organs of digestion, registered under the heads of diarrhea, dysentery, cholera, teething, inflammation of the bowels, &c. During the heats of summer and autumn, these diseases in general become exceedingly prevalent and fatal, and it has been the too Common belief that the use of fruit and vegetables was the cause of these affections. The mortality of these diseases, however, during the above months, most satisfactorily proves that these diseases do not depend on, or are caused by the use of fruit and vegetables as article of diet, but that atmospheric agencies, and especial, temperature, exert a most marked influence on their prevalence and fatality. During 1847, when the mean temperature of these months was 59.09 degrees, the barometric pressure above the average, and the air very dry, the deaths above 60 rose to the proportion of 15 out of every 100 deaths at all ages. And during 1846, when the mean temperature was still higher, , viz., 60.76 degrees, the barometric pressure above the average, and the fall of rain excessive, the proportion of deaths among the aged rose to 18 percent of the total deaths. The greatest absolute number of the deaths, however, among the aged occurred during the three months of 1847, when the mean temperature was high and the atmosphere very dry. In former reports the baneful effects of a low temperature on the aged have been frequently pointed out. The facts, therefore, stated in this and former reports seem to warrant the conclusion that a mean temperature such as we have had this year, with a moderately moist condition of the atmosphere, and a low barometric pressure, are the conditions of the atmospheric phenomena which are most favorable to the health of those advanced in years. But, in fact, these are the conditions most favorable to life at all ages, seeing the above facts seem to prove that though excessive heat, generally speaking, is most baneful to certain classes of disease, even those, under the same temperature, are rendred more or less fatal according as the atmosphere is more or less dry humid. Thus extreme heat with drought seems to cause a greater mortality among those laboring under diseases of the respiratory organs, and of the brain, as well as in all persons above 60 years of age, than when an equally high temperature is accompanied with considerable atmospheric moisture. On the other hand, bowel complaints and heart diseases seem to be more under the influence of temperature alone. These facts relative to the influence of atmospheric agencies on disease might be rendered more tangible by arranging them in a tubular form. The following table, then, exhibits the influence of weather on disease, by showing the varying number of deaths in the population of Edinburgh from certain classes of disease during the months of June, July, and August of the years 1846, 1847, and 1848.*

nitrogen, carbonic acid, and watery vapor. This matter varies and is constantly undergoing transformations from organic into inorganic elements: it can neither be seen, weighed, nor measured. The chemists cannot yet test its qualities. Liebig, with all the appliances of the Giessen laboratory, cannot yet detect any difference between the

DISEASES	1846: Heat great; moisture excessive; high barometric pressure. Mean Temperature, 60.76 degrees. Fall of Rain, 12.77 in. Mean Barom. 29.68 in.	1847: Heat drought great; high barometric pressure. Mean Temperature, 59.09 degrees. Fall of Rain, 4.07 in. Mean Barom. 29.70 in	1848: Heat moderate; moisture moderate; low barometric pressure. Mean Temperature, 55.79 degrees. Fall of Rain, 9.40 in. Mean Barom. 29.36 in
Respiratory Organs	219	280	180
Bowel Complaints, & c.	173	177	150
..Or during August,	81	71	33
Brain Disease	116	120	79
Heart Diseases	29	26	21
Aged above 60	180	242	124
Or percentage of Aged to total	18	15	13
..mortality			

pure air of the Alps, and the air through which the hound can tell a hare, a fox, or a man has passed; or the air which observation show will produce small-pox, measles, scarlatina, hooping cough, dysentery, cholera, influenza, typhus, plague. These matters may either be in a state of vapor, that is elastic, or inelastic or like water, they may exist in both states. They are most probably in the state of suspension; hang, like the smoke in cities, over the places in which they are produced, but are spread and driven about like vesiclllar water in clouds. A stream of aqueous vapour of the same elasticity from the Atlantic, passing over England, is, in one place, perfectly transparent; in another, mist; in another, rain: so clouds of epidemic matter may fleet over the country, and in one place pass harmless by, in another destroy thousands of lives. The emanations from the living, the graves, the slaughter-houses, the heaps of filth rotting, the Thames,-into which the sewers still empty ,raise over London a canopy which is constantly pervaded by zymotic matters; in one season this, in another that, preponderating."

Although we are as yet uninformed on this subject, it is unreasonable to suppose that we shall always remain so. It opens a vast field for examination, which is as yet almost entirely unexplored; but it promises results of great value and importance to science and to human life. The meteorological observations, which have hitherto been made in this country, have been published rather as contributions to general science, than to show their specific relation to health. In England, and in some places on the continent of Europe, these observations are made with more care, and for a more specific purpose. For several years past Mr. Glazier, director of the Royal Observatory at Greenwich, has published his meteorological observations and remarks on the weather, in connection with the returns of the Registrar General of births, marriages and deaths. M. Quetelet, director of the astronomical observatory at Brussels, and other observers on the continent, have published similar observations. They afford an invaluable fund of information on the subject, and cannot fail to lead to important practical results.

We have supposed that a similar plan of observations might with advantage be introduced into our own State. Our desire has been that these observations should be made at six or eight different stations in the Commonwealth, on a uniform plan, in similar localities, at the same time of day, and by sets of similar instruments, each compared, corrected, and made to agree with a common standard ; and that these observations should be analyzed, abstracted, combined, and published by a compeand vegetables as articles of diet, but that atmospheric agencies, and in especial, temperature, exert a most marked influence on their prevalence and fatality. During 1847, when the mean temperature of these months was 59.09 degrees, the barometric pressure above the average, and the air very dry, the deaths above 60 rose to the proportion of 15 out of every 100 deaths at all ages. And during 1846, when the mean temperature was still higher, viz., 60.76 degrees, the barometric pressure above the average, and the fall of rain excessive, the proportion of deaths among the aged rose to 18 percent. of the total deaths. The greatest absolute number of deaths, however, among the aged occurred during the three months of 1847, when the mean temperature was high and the atmosphere very dry. In former reports the baneful effects of a low temperature on the aged have been frequently tent agency, and accompanied by such general remarks and deductions as they might suggest, in connection with the sanitary reports of the General Board of Health. To ascertain how far our plan was practical, and might be approved by competent judges, we addressed a communication to Wm. Cranch Bond, Esq., of the Cambridge Observatory. His communication appears in the appendix, together with an extract from the report of the Royal Observatory at Greenwich.

After the above was "written, the legislature passed the following "Resolve relating to meteorological observations."

"*Resolved*, That his excellency the governor be authorized and requested to fix upon suitable stations, not exceeding twelve in number, in which shall be included the three Normal Schools and the three Colleges in this Commonwealth, where shall be deposited the instruments necessary for making systematic observations in meteorology, according to the plan recommended by the Smithsonian Institute, at an expense not exceeding one hundred dollars for each station, to be defrayed from the school fund, and that he be authorized to draw his warrant therefore accordingly."

If suitable agents are appointed under this resolve, our recommendation can be fully carried out without further legislation.

XVI. WE RECOMMEND *that, as far as practicable, there be used in all sanitary investigations and regulations, a uniform nomenclature for the causes of death, and for the causes of disease.*

In making a survey of different places, or different articles, it is proper that uniform names should be given to measures and weights; and that uniform instruments should be used. In a sanitary survey the causes of death and the causes of disease will be the principal objects of investigation; and it is expedient, and even necessary, that such names should be given to each as have a definite meaning and can be universally applied. They are the measures and weights, -the instruments by which the computations are to be made. Without such a uniform standard of comparison no just conclusions

can be drawn. It would be equally proper to use Fahrenheit's thermometer in one place and Reaumur's in another, to estimate the comparative temperature of the atmosphere; or two different kinds of instruments as measures of weight and length, in other matters, as to use one name or classification of causes of death, or causes of disease, in one place, and a different name or classification for the same causes in another. Hence the reason for the above recommendation in a plan for a sanitary survey of the State will be apparent.

A report containing a nomenclature and classification of the *causes of death* was drawn up, and adopted by the National Medical Convention in 1847. Extracts from a revised copy, approved by the Massachusetts Medical Society, are inserted in the appendix. We hope that the directions and Suggestions they contain will be carefully observed by all physicians, and others concerned in carrying the sanitary laws of the State into effect.

The *causes of disease*, in all sanitary inquiries, deserve equal if not greater attention, than disease itself, They have been differently classified and named by different authors. By some they have been divided into *external or extrinsic*, and *internal or intrinsic* ;by others, into *principal and accessory* " and into *remote and proximate* " and in other ways. Copland (Diction, Vol. I, page 645,) divides them into four classes,- *predisposing, exciting, specific, and determining or consecutive* causes; and makes several sub-classes under each. Bigelow and Holmes (Marshall Hall's Practice of Medicine, Am. Ed. pp, 67-83) divide them into *general* and *specific* causes ; and subdivide the former into predisposing and exciting, and the latter into *contagious* and *non-contagious*. Williams (Principles of Medicine, p. 23, Am. Ed. ) divides them into *predisposing* and *exciting* causes; and makes a subdivision of the second into *cognisable* and *non-cognisable* agents, None of these classifications, however well they may be adapted for professional use, seem well designed for general sanitary purposes, They are not sufficiently clear to be generally understood and practically useful. Bigelow and Holmes say, this classification "must be considered convenient rather than strictly philosophical. " Even Williams himself says that "these divisions of causes are rather conventional and convenient than natural and philosophical ;" and everyone who may examine them will probably come to the same conclusion. It is easy to perceive that one may be a predisposing cause in one case and an exciting cause in another; and vice versa, according to circumstances.

As in the nomenclature and classification of causes of death it has been found difficult to make one which shall be universally approved, so in classifying the causes of disease the same difficulty may occur. Yet we deem it proper to recommend that all causes of disease should be divided into three general classes :-1. ATMOSPHERIC; 2. LOCAL; and 3. PERSONAL.

I. Under ATMOSPHERIC CAUSES, we would include those to which all persons in a country or district, in circumstance in all respects alike, are equally exposed. *Sub-classes*; 1. climate; 2. Seasons; 3. Winds and weather; 4. Electricity; 5. Atmospheric weight, temperature, moisture, and composition ; 6. Malaria; 7. Unknown conditions of the atmosphere. What have been called epidemic causes of disease come under these classes.

II. Under LOCAL CAUSES we would include those to which living in a particular neighborhood or dwelling house, in circumstances in all respects

alike, are equally exposed. .Sub-classes; 1. Elevation or depression of situation; 2. Deficiency or impurity of water; 3. Defective sewerage, drainage, and surface cleansing; 4. Animal and vegetable effluvia ; 5. Confined and corrupted air ; 6. Irregular and imperfect supply of light and heat; 7. Filthy or damp habitations; 8. Existing contagious diseases; 9. Unknown local causes. What have been called endemic causes of diseases come under these classes. We would, however, restrict them to a particular house, street, or neighborhood. When the influence spreads over a whole town or district, it becomes an atmospheric cause.

III. Under PERSONAL CAUSES we would include those which originate with the person alone, independent of atmospheric or local causes. Sub-classes; 1. Hereditary constitution, organization or vitality.; 2. Acquired constitution, organization or vitality; 3. Deficiency and excess in quantity, and improper kind of food; 4. Improper quantity and kind of clothing; 5. Occupations and habits; 6. Excessive physical exertion ; 7. Excessive mental action; 8. Alienation of mind; 9. Exposure; 10. personal contact with a diseased person, virus or poison; 11. Violence and accidents; 12. Unknown personal causes.

Atmospheric, and local, and personal contagion may exist as causes of disease. Some diseases can be communicated only by actual contact with another person, or with the poison of the disease of the person; as itch, syphilis, necusia, &c. This is *personal contagion*. Others may be communicated either by contact with the air of the locality where the diseased person is or has been; as small-pox, measles, &c. ; or with the poisonous emanations from decomposing animal or vegetable matters, or from other substances; this is *local contagion*. Others may be communicated by contact with the atmosphere while in a peculiar condition; as influenza, dysentery, cholera, &c. ; this is *atmospheric contagion*. All these kinds of contagion may exist, to a greater or less extent, and press upon us with greater or less power.

Atmospheric contagion is generally harmless unless attracted by local causes; and if atmospheric and local contagion be combined, it may be successfully resisted by a person fortified with sufficient personal vitality. There seems to be a chemical affinity between the epidemic constitution of the atmosphere, and filth and unfavorable local circumstances, which combine readily with the conditions of the particular persons whom it affects; and the combination gathers together the poison of disease in so great intensity that few who are exposed are able to resist it. Under such circumstances those who are healthy, and live temperately and regularly, often escape; while the debilitated, intemperate, irregular livers, generally become victims! An illustration of this fact may be drawn from the history of that terrible disease, the Asiatic Cholera,-a disease which derives its terrific power chiefly or entirely from the accessory or accompanying circumstances which attend it. It bounds over habitation after habitation where cleanliness abides ; and generally leaves unharmed those inmates who have preserved and improved their natural constitutions: whilst it alights near some congenial abode of filth or impurity, and finds subjects prepared for easy conquest by previous violations of the laws of health and life.

Dr. Mitchell, of Philadelphia, suggests the " cryptogamous" origin of epidemic diseases, and some English periodicals have speculated on the

alleged discovery of sporules or organic cells, as causes of cholera. But it would seem difficult to ascertain the cause of these causes, even if they are causes, (which is yet to be proved, ) without looking to some peculiar antecedent atmospheric condition to account for their production.

If this were the proper place it would be easy to show that this classification is more natural, simple, comprehensive, and philosophical, and better adapted to general practical purposes, than the classifications in general use. The extracts we have already given under our XVth recommendation, prove that a similar distinction has been indirectly acknowledged by the best medical writers. Many other similar quotations might be given. We are aware that it may sometimes be difficult exactly to draw the line which separates atmospheric from local causes, though not, as seems to us, for general purposes, in the restricted sense in which we use the terms. It seems to us that any retiologist would have more difficulty in drawing definite lines to separate contagious from infectious, or predisposing from exciting, or cognizable from non-cognizable causes of disease.

XVII. WE RECOMMEND *that, in laying out new towns and villages, and in extending those already laid out, ample provision be made for a supply, in purity and abundance, of light, air, and water ; for drainage and sewerage, for paving, and for cleanliness.*

It is a remarkable fact, that nearly the whole increase of the population of Massachusetts, during the last twenty years, is to be found in cities and villages, and not in the rural districts. The tendency of our people seems to be towards social concentration. And it is well to inquire what will probably be the consequences of these central tendencies; and "how, if evils are likely to arise from this cause, they may be avoided. It has been ascertained that the inhabitants of densely populated places generally deteriorate in vitality; and that, in the course of years, families frequently become extinct, unless recruited by a union with others from the country, or with other blood of greater vital force. This is a significant fact, which should be generally known. Cities are not necessarily healthy, but circumstances are permitted to exist, which make them so.

" Every population throws off insensibly an atmosphere of organic matter, excessively rare in country and town, but less rare in dense than in open districts; and this atmosphere hangs over cities like a light cloud, slowly spreading-driven falling-dispersed by the winds-washed down by showers. It is matter which *has lived*, is dead, has left the body, and is undergoing by oxidation decomposition into simpler than organic elements. The exhalations from sewers, churchyards, vaults, slaughter-houses, cesspools, commingle in this atmosphere, as polluted waters enter the Thames; and notwithstanding the wonderful provisions of nature of organic matter in water and air, accumulate, and the density of the poison (for in the transition of decay it is a poison) is sufficient to impress its destructive action on the living- to receive and impart the processes of zymotic principle to nect by a subtle, sickly, deadly medium, the people agglomerated in narrow streets and courts, down which no wind blows, and upon which the sun seldom shines.

"It is to this cause that the high mortality of towns is to be ascribed; the people live in an atmosphere charged with decomposing matter, of vegetable

and animal origin; in the open country it is diluted, scattered by the winds, oxidized in the sun; vegetation incorporates its elements ; so that, though it were formed, proportionally to the population, in greater quantities than in towns, it would have comparatively less effect. The means of removing impurities in towns exist partially, and have produced admirable effects; but the most casual observation must convince anyone that our streets were built by persons ignorant. as well of the nature of the atmosphere, as of the mortality which has been proved to exist, and is referable to causes which, though invisible, are sufficiently evident.

" The occupations of men in towns are mostly carried on in-doors, often in crowded workshops, while the agricultural laborer spends the greater part of the daytime in the open air. From the nature of the particles of animal matter thrown into the atmosphere, it is impossible to place the artisan in circumstances as favorable as the laborer; the sun and wind destroy and waft away the breath as soon as it is formed; but in the workshops of towns the men are shut from the sun, and no streams of the surrounding air carry off the steaming breath and perspiration, so that the mortality of workingmen in the metropolis is much greater than the mortality of women at the corresponding ages." <sup>87</sup>

The different sanitary investigations in England have related principally to the subjects suggested in this recommendation ; and facts have been brought to light, in relation to the manner in which many human beings live, that have made a profound impression upon the public mind."

There are," says Dr. Simon," many, very many courts and alleys hemmed in on all sides by higher houses, having no possibility of any current of air, and (worst of all) sometimes so constructed, back to back, as to forbid the advantage of double windows or back doors, and thus to render the house as perfectly a *cul-de-sac* out of the court, as the court is a *cul-de-sac* out of the next thoroughfare.

" It is surely superfluous to observe that these localities are utterly incompatible with health. Among the dense population it is rare to see any other appearance than that of squalid sickness and misery; and the children, who are reproduced with the fertility of a rabbit warren, perish in early infancy. In the worst localities probably not more than half the children born survive their fifth year, and of the 3,799 deaths registered last year in the city of London generally, 1,410 were at or under seven years of age.

"The diseases of these localities are well marked. Scrofula more or less completely blights all that are born, often extinguishing life prematurely; in childhood, by hydrocephalus; in youth, by pulmonary and renal affections, which you read of as consumption and dropsy, often scarring and maiming where it does not kill, and rendering life miserable by blindness, decrepitude or deformity; often prolonging itself as an hereditary curse in the misbegotten offspring of those who, under such unnatural conditions, attain to maturity and procreation. Typhus prevails there, too, not as an occasional visitor, but as an habitual pestilence.

"It is impossible for me, by numbers, to give you an exact knowledge of the fatality of such spots, because, in the greater part of the city, hospitals,

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<sup>87</sup> Fifth Report of the Registrar-General, pp. 418, 419, 420.

dispensaries, and private practice divide the treatment of the sick with the parochial' officers and diminish the returns of sickness which those officers would otherwise have to show. But this I may tell you, as an illustration of what I state, that in the few houses of Seven-steps Alley, there occurred last year 163 parochial cases of Princes Place and Princes Square, 176 cases; that behind in east side of Bishopsgate, in the small distance from Widegate Street to New Street, there were 126 cases; that behind them west side, from Primrose Street to Half-moon Street, there were 245 cases; that the parish of Cripplegate had 354 cases over and above the number (probably a very large one ) treated by private practitioners, by hospitals, and especially by dispensaries. Similarly, though with less perfect information, I am enabled to trace fever to a terrible extent in very many other localities of the city, even on the verge of its better residences, and close behind its wealthiest thoroughfares.

"It was in districts such as these that, in 1665, the great Plague of London found the readiest facilities for its reception and it was by the destruction of such districts that the Great Fire of the following year rendered the utmost conceivable service to the sanitary progress of the people, and completed their emancipation from the horrors of an unparalleled pestilence. Long intervening years have sufficed to reconstruct these miserable habitations almost after their first type, and to re exemplify all the evils which belong to them ; so completely, indeed, that if the infection of that same plague should light again amongst us, I scarcely know why it might not traverse the city and decimate its population as quickly and as virulently as before. Meanwhile, however, typhus, with its disorders, and the occasional epidemics of influenza, cholera, and other diseases, maintain their attachment to the soil, and require no further reinforcement from the pestilence of other climates."

This picture is reproduced, sometimes with more frightful details, in very many places in Europe, and in this country-in *Massachusetts!* The evils which it portrays may not exist to so great extent with us, as in the ancient cities and populous places of the old world; but even here their magnitude is very much greater than is generally supposed. Places may be found in the cities and towns of this State, as we shall show further on, that are scarcely to be paralleled in England. This fact will be developed to the astonishment of anyone who makes These evils seem almost inseparable from all so long as the people remain uninstructed and not cared for. It is of the highest importance, that all proper sanitary measures should be adopted to prevent those calamities which have been suffered elsewhere, and which will inevitably increase with us, unless seasonably prevented.

1. " *Light,*" says the Liverpool Health of Towns Advocate, (pp 125,) " is necessary to health. Dr. Edwards, of Paris, has shown, that if tadpoles be deprived of light, they do not advance beyond that state of development, however well they may be fed, although they increase in size; and he thence concludes, , that the action of light tends to develop the different parts of the body in that just proportion which characterizes the type of the species :' and that, in warm climates, 'the exposure of the whole surface of the body to light will be very to the regular conformation of the body.' Baron Humboldt strikingly corroborates this opinion, for he says, after a five years' residence amongst many American tribes, ' I have not seen a single individual with a

natural deformity.' *We may thus conclude that abundance of light is essential to the proper development of form in man:* and it follows, as a consequence, that if children, at the time of early growth, be deprived of this necessary agent, their development will be materially modified, and the foundation for a weak constitution will be laid, and consequent incapacity for labor, and tendency to disease superinduced. Dr. Edwards gives it as his opinion that 'the want of sufficient light must constitute one of the external causes which produce these deviations of men affected with scrofula; which conclusion is supported by the observation, that this disease is most prevalent in poor children, living in confined and dark streets.'

"The opinions of Dr. Edwards are fully borne out Ward, in his evidence before the Sanitary Commission says that his experience 'most strongly' bears outments; and that, 'from noticing hundreds of times facial consequences of the alteration the evils resulting from the want of light, I am satisfied that it is a matter of the highest importance.'

" 'My advice to young people who are about to marry, and can afford only one or two rooms, to choose they can find, and in which they can obtain the greatest quantity of solar light; the amount of disease in light compared with that in dark rooms, being infinitely less.'

" Other medical observers have arrived at similar conclusions. Sir James Wylie relates a remarkable instance in point, in regard to an extensive barrack in St. Petersburg, one which was exposed to the light, and the other was comparatively dark. The result to the soldiers living in the building was, that uniformly, for many years, there were three many taken ill on the dark side as were attacked on side of the barrack. We need hardly insist on the importance of these facts, as showing that the want of light predisposes to disease."

2. *Air.* We have already spoken (pp. 143-148) of this important element, and shall hereafter refer to works where the subject is fully discussed. Streets should be of sufficient width to permit a free circulation of air. Restrictions should be so imposed as to permit few lanes, alleys, and courts, and none that would so obstruct the circulation as to endanger the public health. Every place from which light is excluded, or into which pure air, in any desirable quantities, cannot at pleasure be introduced, should be pronounced unfit for habitation.

3. *Water .*" The following are the chief conditions in respect of water supply, which peremptorily require to be fulfilled :-

" 1. That every house should be separately supplied with water, and that where the house is a lodging-house, or where the several floors are let as separate tenements, the supply of water should extend to each inhabited floor. "

"2. That every privy should have a supply of water applicable as often as it may be required, and sufficient in volume to effect, at each application, a thorough flushing and purification of the discharge pipe of the privy. "

"3. That in every court, at the point remotest from the sewer grating; there should be a stand-cock for the cleansing of the court ; and

"4. That at all these points there should always and uninterruptedly be a sufficiency of water to fulfil all reasonable requirements of the population." <sup>88</sup>

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<sup>88</sup> *Dr. Simon's Report, p. 19.*

"We must have *soft* water. All hard waters are expensive, both for domestic consumption and manufacturing purposes. This hardness arises from the presence of earthy and saline substances, which decompose and destroy a certain quantity of soap in washing, and occasion a larger consumption of that article than necessary. It has been proved that the water which supplies Aberdeen contains only one grain per gallon of hardness, while that of Manchester contains fourteen grains. The water at present supplied to Liverpool contains rather more ; but we may assume the hardness at fourteen grains per gallon. Now Dr. Playfair has shown that water with fourteen grains per gallon *destroys and renders useless* a quantity of the soap used for washing purposes, equal in value to 16s. 8d. a year, to a family of five individuals. If we assume the present population of Liverpool at 330,000, and suppose there were a supply of water, of the same quality now used, adequate to the wants of that population, there would be an extra expense of no less than £55,000 a year to the town, in addition to the wear and tear of clothes. Water, however, could not be obtained quite pure, but if it could be had with a hardness of two degrees a gallon, *which we believe to be quite possible*, a saving would be effected to the town of nearly £50,000 a year; and this without taking into account the saving accruing in manufactories, steam boilers, breweries, &c. It is a low estimate, therefore, to state the *hard water tax* of Liverpool at £50,000 a year, every farthing of which is actually *thrown away, without any return whatever*. Now this sum represents a capital of *one million and a quarter* sterling, at four per cent." <sup>89</sup>

Several cities and villages in Massachusetts have constructed other works besides wells to supply them with water. Boston, by a structure that for artistic skill and thorough workmanship is probably unsurpassed any where, has introduced, at an expense to the city of about \$5,000,000, the water of Lake Cochituate, nineteen miles and a half distant; and it affords to every inhabitant an abundant supply of water of the best quality.

4. *Drains and Sewers* should be made to carry off water introduced in any way into cities and villages. If the surplus be permitted to remain, it often becomes stagnant and putrid and is then a fruitful source of disease. "Without a system of drains, a large supply of water is rather injurious than otherwise ; yet without a plentiful supply there can be no drainage at all." Every city and village should be no drainage elevations of the crossings of each street above a common level, and its descent to an outer termination, should be laid down and marked upon a public plan; so that all abutters, and others interested, may be guided to the proper construction of buildings with reference to drains and sewers. Some general, definitive plan should be fixed-upon for each city and village, and when so fixed it should be uniformly carried out under one authority, as circumstances may require. Surface drains will answer for some localities, but underground sewer are generally to be preferred. Boston has about 35 miles of such sewers.

5. *Paving* is of great importance as a sanitary measure. The following are the conditions requisite for a good system:-

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<sup>89</sup> *Liverpool Health of 'rowns Advocate*, pg 131.

1. Pavements should be made as impervious to fluids as possible, otherwise the subsoil remains moist, and pregnated with matters deleterious to the purity of the atmosphere. All stone pavements should therefore be closely joined ; and consequently those made of round boulders are inadmissible for sanitary purposes. Wood pavements are decidedly injurious to health. The street pavements in some of the Italian cities are better than ours for drainage. They consist of polygonal blocks of limestone, the joints of which are accurately fitted together with cement, so that the rain water flows off as easily as from the roof of a house, and there are neither ruts nor hollows. The old Roman pavements were similarly constructed.

2. Great care should al ways be taken to prevent the formation of pits and hollows, which are always injurious to health, by permitting the retention of solid and fluid substances in state of decomposition, and presenting great obstacles to cleansing.

3. All courts and passages should be *flagged*; the common is inadequate for sanitary purposes in such localities.

4. A complete reform should be effected in the manner of constructing street gutters. If anyone will take the trouble to go to the town on a wet day, he will be astonished to find how many of these conduits have the property of retaining the water, instead of facilitating its passage into the sewer. It should be never be forgotten that a badly made gutter is literally worse than none; for it only draws the foul water from the streets nearer the doors of dwellings, while the spaces between the stones allow of its free passage into the sub soil, so as to render the houses more damp than they would otherwise be. Perfect smoothness, and proper adaptation of the stones, along with a proper *continuous* declivity, are indispensable requisites a well made gutter." <sup>90</sup>

5. *Cleanliness* in towns is of such immense importance to health -that it should constitute an indispensable part of sanitary police. The only safe rule is, to remove out of town, and out of a house refuse as soon as it is produced. Refuse matter, either animal or vegetable, are constantly undergoing change and giving out vapors and gases which, even in extremely small quantities, are injurious to health, they are constantly inhaled. Conclusive proofs of this fact exist. Wherever there is a dirty street, court, or dwelling-house, the elements of pestilence are at work in that neighborhood. The cause of many and many a case of typhus fever, cholera, morbus, or other fatal diseases, in our cities, villages, and in the rural and isolated dwellings of the country, may be traced to decayed vegetable matter, or other filth, in or around the house, or in the water used. The most cleanliness is necessary in all places, but especially in confined localities, to preserve the public health; and nothing be permitted to interfere with it. It must never be forgotten that we have to do with *life*. It is not a question of convenience, or personal annoyance, but one of health. No person, therefore, should be permitted, on any plea of interest, to tamper with this matter; and every nuisance that occasions filth in streets or courts, or that accumulates it on any other surfaces, should be abated; if not otherwise, by the arm of the law. It is sometimes necessary to constrain men to do what would be useful, and to avoid what would be injurious to person should be permitted

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<sup>90</sup> Liverpool Health of Towns Advocate, p. 99.

to contaminate the atmosphere of his own house, or that of his neighbors, by any substance dangerous to the public health. Such a person should be looked upon as worse than a highway robber. The latter robs us of property, the former of life.

XVIII. WE RECOMMEND *that, in erecting churches, and other public buildings, health should be regarded in their site, structure, heating apparatus, and ventilation.*

To provide for all public buildings, where large people congregate, an abundant and constant supply its pure, natural state, and of a proper temperature, important, though difficult matter. It is so, too, in private dwellings: It has received much theoretical attention, and very many schemes have been attain the object. Which of them is to be preferred, anyone as yet known is unobjectionable are unprepared to decide. If the measures proposed should be adopted, the General Board of Health would become acquainted with the different methods of constructing and ventilating public and private buildings, and would be able to recommend to the local Boards of Health, and to the people generally, those plans which seem best adapted to the circumstances of each case. Such information would be great importance, whether regarded as contributing to the pecuniary or sanitary welfare of the people. <sup>91</sup>

<sup>91</sup> *The importance of free ventilation will appear from the statement of a few simple facts:- "The object of respiration ist to bring the oxygen of the air in contact with the blood, by which the latter is deprived of its carbonic acid, and absorbs a new supply of oxygen. When the atmospheric air taken into the lungs, it consists of about 79 percent of nitrogen, and 21 percent of oxygen, and nearly 1 percent of carbonic acid; when it is expelled, it is found to have lost about 9 percent of its oxygen, the place of which is supplied by an equal amount of carbonic acid. At the same time the blood has undergone an important change from a dark purple hue, indicative of carbon, which is unfitted for the support of animal life, to a highly oxygenized fluid of a florid red color, carrying health and vigor to every fibre of the body. "It is not our purpose to inquire into the manner in which these changes are effected: it is sufficient for us that they are produced, and that they are absolutely essential to the existence of animal life. "As the rapidity with which the air is vitiated is not generally appreciated, the following calculations may not be unimportant: An individual breathes, on an average, from 14 to 20 times in a minute, and inhales from 15 to 40 cubic inches of air at each inspiration. According to Southwood Smith, it appears that, in one minute an individual requires 616 cubic inches, or about 18 pints of air; and that, during the same space, 24 cubic inches of oxygen have disappeared, and been replaced by a like amount of carbonic acid; so that, in one hour, each adult person vitiates the air by the subtraction of 1440 cubic inches of oxygen . In one hour the quantity of air inspired amounts to 2 hogsheads, 20 gallons, and 10 pints; in one day, to 57 hogshead, 1 gallon, and 7 pints; and, during the same period of time, 24 hogshead of blood, or 1 hogshead each hour, and 144 ounces each minute, are sent to the lungs, to undergo the change already pointed out. Supposing 1 pint of air to be inhaled at each inspiration, which is very nearly the quantity, the amount decomposed is about one-fourth, or a quarter of a pint; so that each individual actually vitiates or poisons one-fourth of a pint of air every time he breathes. The rapid ity with which this deteriorating process goes on is very clearly shown by placing a mouse under a large, tight glass jar, full of air. In a few moments it becomes uneasy, pants for breath, and in a short time dies in convulsions. "There is another cause of deterioration of the air, not generally taken into account, which is of considerable importance. An adult gives off, by insensible perspiration, from 12 to 30 grains of vapor per minute; and it is ascertained that the air which has been some time in contact with the skin becomes chiefly carbonic acid gas. Tredgold states that it is desirable to change as much of the air of the room as the moisture given off would saturate in the same time. Accordingly, in a room at 60° , on the supposition, which is probably very nearly correct, that the moisture given off amounts to 18 grains, it will be necessary to change three cubic feet of air per minute for each individual in the room. If the temperature of the room be high, the exhalations of course will be in proportion. "Our rooms and public halls have also to be lighted at night; and here is another source of deterioration of the air. Each gas-burner is found to consume as much oxygen as eight candles, and each candle renders about 300 cubic inches of air unfit for breathing every minute; so that two candles deteriorate the air as much as one individual. The total quantity of air, then , which will be vitiated by these causes, for each person, will be-*

<i>By Repiration</i>	<i>800 cubic inches per minute</i>
<i>By Exhalation</i>	<i>5,184 cubic inches per minute</i>
<i>By lights</i>	<i>432 cubic inches per minute</i>
<i>Total</i>	<i>6,416 cubic inches per minute</i>

*Or Nearly 4 cubic feet, per minute. It is necessary, therefore, in order to preserve the purity of the air, that the above quantity should be changed every minute. For example: If a room contains 200 people, there should be 800 cubic feet of air changed every minute, or more than would fill a room nine feet square and nine feet high; 400 people will require 1600 cubic feet of fresh air every minute. From the above estimates, any person may calculate the rapidity of deterioration in a*

XIX. WE RECOMMEND *that, before erecting any dwelling-house, manufactory, or other building, for personal accommodation, either as a lodging-house or place of owner or builder be required to give notice to the Health, of his intention and of the sanitary proposes to adopt.*

The information which such a regulation might secure, would show the growth of a place, and the increase of house accommodations, but it would secure a much more important object. It would place within the possession of the local Board of Health a knowledge of the sanitary arrangements of every house. It is not intended that this regulation should in the least degree with private rights, but confer a substantial benefit. The Board of Health are supposed to possess a much better knowledge, generally, of the constructing dwelling-houses, in regard to the particular sanitary objects they have in view, than the great mass of the people; and few persons, it is supposed, will be found, who not feel grateful to them for any suggestion to real improvement. It is designed to be suggestive merely, not compulsory, unless a public injury is inflicted; become the duty of the Board to interfere. A regulation similar to this exists in New York, Philadelphia, and many places; and is found to work so well as to be worthy adoption.

XX. WE RECOMMEND *that local Boards of to prevent or mitigate the sanitary evils arising crowded lodging-houses and cellar-dwellings.*

Such places are universally acknowledged to be incompatible with health. The hints already given, (p. 145,) have shown the destructive influence of corrupted air. Such air exists in these places, to a great extent, and its deleterious effects should by all proper means be avoided. This matter has attracted much though not the undeserved attention of different sanitary inquirers. Dr. James Stewart, of New York, in March, this year, procured a census of the cellar population of that city, and found that 18,456 persons lived in 8,141 rooms, in 3,741 separate basements. This is about 1 in 25, or 4 percent of the whole population of the city.<sup>92</sup> The proportion of such is believed to be nearly as great in Boston. In Lowell, and other places in the State, the same evil also exists. We are pleased that the present legislature, on the 21st of March, the subject of so much importance, as to pass the substance act. It gives all requisite legal authority to regulate the matter –

“ Whenever the Board of Health of any city or town shall be satisfied, upon due examination, that any cellar-room, tenement, or building, occupied as a dwelling-place within such city or town, is unfit for that purpose, and a cause of nuisance or sickness either to the occupants or to the public, such a Board of Health may issue a notice in writing to such persons, or any them, requiring them to remove from or quit such cellar-room, tenement, or building, within such time as the said Board of Health may deem reasonable. And if the person or persons so notified, or any of them, shall neglect or refuse so to remove and quit within the time mentioned, it shall be lawful for such Board of Health to remove them

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*close room, of given dimensions, occupied by a given number of individuals .” – Dr. Charles A. Lee: Am. Ed. Copeland’s Medical Dictionary, Vol. I, pp. 137,138.*

<sup>92</sup> *A detailed account of the results of this highly commendable effort of pr. Stewart, is being published, whilc this sheet is passing through the press, in several interestinK and valuable artieles. See the New York Tribune, June 5<sup>th</sup>, 13<sup>th</sup>, 19<sup>th</sup> and July 9<sup>th</sup>.*

forcibly, and to close up such cellar-room, tenement, or building, and the same shall not be again occupied as a dwelling-place without the consent in writing of the Board of Health, under a penalty of not less than ten nor more than fifty dollars, to be recovered by indictment of the owner or owners, if they shall have knowingly permitted the same to be so occupied." <sup>93</sup>

XXI. WE RECOMMEND *that open spaces be reserved, in cities and villages, for public walks; that wide streets be laid out; and that both be ornamented with trees.*

Such an arrangement would have a good effect upon the beauty and social enjoyments of the place; but it would have a greater effect upon its general sanitary condition. Vegetation would absorb much of the carbonic acid gas which is produced in so great superabundance in populous places, and thus render the air more fit for respiration. Open spaces also would afford to the artizan and the poorer classes the advantages of fresh air and exercise, in their occasional hours of leisure.

XXII. WE RECOMMEND *that special sanitary surveys of particular cities, towns, and localities, be made, from time to time, under the direction of the General Board of health.*

It is of great importance that the exact sanitary condition of every town in the State should be ascertained, that any causes unfavorable to health may be removed or mitigated. Partial attempts have been repeatedly made, by individuals and associations for a general or special purpose, to accomplish this object. Very limited success has, however, attended their efforts. Experience, thus far, has led to the conclusion that no plan can be successful and useful, unless conducted by competent men under the sanction of legal authority.

In 1839 and 1841, Dr. John D. Fisher, late of Boston, issued circulars to obtain information relating to the causes and fatality of consumption. Answers to this important circular was issued and extensively circulated; but not two answers only were received from thirty-one individuals only.

In 1835, a committee was appointed to investigate the history of intermittent fevers in Massachusetts and New England generally, and a circular was issued but two answers only were received. And in 1845, the Massachusetts Medical Society sent other circulars to the several towns in the State, but received a single answer only in return.

In 1830, the New York Medical Society issued a circular to the different county medical societies, soliciting information concerning the medical

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<sup>93</sup> We are under great obligations to Dr. William H. Dunean, Medical Officer of Health of Liverpool, for the valuable communications on the subject of this recommendation, which are inserted in the appendix. *The Edinburgh Review for January, 1850, (p. 217.) in allusion to this matter, says :-" It may seem hard to deprive the wretch of the bulk-head or empty cellar, which he is content to make his idle home; but it is one of those hardhips with which acts of mercy often must begin. When the frightful demoralization of Liverpool was recently exposed, and it was shown that between thirty and forty thousand inhabitants of that fine city lived in dens called cellars, the bold resolution was taken of at once amputating this morbid mass, by rendering cellars illegal habitations. The operation commenced in 1842; and after about 3000 people were ejected, a more stringent method was adopted in 1847. The operation of removal-under the judicious management of Dr. the Medical Officer of Health-was padual, but systematic and steady; and near Time enough has not elapsed to let the full effect of this bold measure be seen; but the officer of health has already had to report the significant fact, respecting one of the districts formerly most afflicted by poverty and disease that, while the last epidemic preceding the clearance carried off 500 inhabitants, the cholera, which broke out during the time that the forced change of residence was in progress, slew the comparatively small number of 94."*

topography of that state. Replies relating to the following counties only have been received and published :-Kings, in 1832; Saratoga, 1833 and 1848 ; Columbia, 1834 ; Madison, 1834; Onondaga, 1835 and 1849 ; Tonrpkin&, 1836; Tioga, 1837; Binghampton, 1843; and Otsego, in 1848.<sup>94</sup>

The American Medical Association, in 1848-9, made the most successful effort of the kind ever attempted in this country. Answers to their circular were received, giving sanitary sketches of Portland, Me., by Dr. J. T. Gilman; of Concord, N. H., by Dr. Charles P. Gage; of Boston and Lowell, by Dr. J. Curtis; of New York, by Dr. John H. Griscom; of Philadelphia, by Dr. Isaac Parish; of Baltimore, by Dr. James Wynne; of Charleston, S. a., by Dr. P. a. Gaillard; of New Orleans, by Dr. Edward H. Barton; of Louisville, by Dr. L. P. Yandell; and of Cincinnati, by Dr. J. P. Harrison. These papers, including the report of the committee, were published in the Transactions of the American Medical Association, (Vol. . II, pp. 431-649,) and also in a separate volume. They are a highly valuable contribution on the subject.

Such surveys are exceedingly valuable and important, and it is desirable that they should be made, for general and not partial purposes, under the direction of the general and local Boards of Health, of several towns each year, until the exact sanitary condition of every part of the State shall be, as far as possible, definitely known. The annual reports of the local Boards of Health might furnish such additional information as would exhibit the changes or improvements which occur from year to year.

The matters which we recommend for consideration in such surveys, the mode by which they are to be conducted, and the manner of presenting the results to the public, may be ascertained by a careful examination of this report; and, especially, these recommendations; the circular ; the special reports of the sanitary surveys, which may be found in the appendix; the reports to which we refer in the list of books there recommended; and the circumstances which will suggest themselves to intelligent local Boards of Health.

XXIII. WE RECOMMEND *that local Boards of Health, and other persons interested, endeavor to ascertain, by exact observation, the effect of mill-ponds, and other collections or streams of water, and of their rise and fall, upon the health of neighboring inhabitants.*

We have seen (pp. 73-76) that the question involved in this recommendation has had an historical interest; though it seems of late to be almost entirely forgotten. The streams at the waterfalls, in all parts of the Commonwealth, are obstructed in their courses for manufacturing purposes ; and if cases of fever or other disease occur in the neighborhood, the people have generally attributed them to some uncontrollable agency; while possibly, perhaps, they may arise from causes their own hands have created, and which are capable of removal. It is then a question of permanent interest and importance. If mill-ponds, or stagnant waters of any kind, or places where they have existed, produce disease under certain conditions, it should be known, and certain other conditions should be provided, under which they may be permitted at all. Theory, vague suggestion, presumptive assertion, cannot decide the question. It can be fully done only by an

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<sup>94</sup> *Transaction of the New York Medica Society, Vol I, pp. 30, 36, 174, 342, app. 41; Vol. II, p. 223; Vol III, pp. 25, 151; Vol. V, p. 294; Vol. VII, pp. 61, 96, 131.*

extensive series of exact observations, through several years, concerning the nature of the diseases, the external circumstances under which they occur, and the condition of the water, and of the places where water has been, in the neighborhood, truthfully made, uninfluenced by party or pecuniary interests, for no other purpose than to obtain the truth. The plan of observation stated in our XVIth recommendation might be adopted. And or not some hundreds of lives, supposed .to be annually lost in this State for want of this information, worth our while to obtain it?

**XXIV. WE RECOMMEND *that the local Boards of Health provide for periodical house-to-house visitation, for the prevention of epidemic diseases, and for other sanitary purposes.***

The approach of many epidemic diseases is often foreshadowed by some derangement in the general health; and, if properly attended to at that time, the fatal effects may be prevented. This is especially proper in regard to cholera and dysentery. The premonitory symptoms of cholera are seldom absent; and if these are seasonably observed and properly treated, the disease is controllable. There are few diseases over which curative measures have less, and few over which preventive measures have greater power. This well-known characteristic of the disease led persons in many places in England, during last year, to organize a system of house-to-house visitation, by which every family, sick or well, in a given district, was visited daily by some authorized person, whether invited or not; and every inmate who had the least symptom of the disease received advice and treatment. The objects aimed at were-

" 1. The discovery and immediate treatment of every case of diarrhea, in localities where cholera prevailed, and where the patients had not applied at the dispensaries, in order to prevent, as far as possible, the development of the disease.

" 2. To prevent persons who might not apply for medical aid, even in cholera, from dying without such aid.

" 3. To bring cases of cholera under treatment. at the earliest possible period of the disease.

" 4. To keep a constant medical inspection over affected districts and houses, so as to insure their being kept in a proper sanitary condition.

" 5. To exercise a moral agency over the population, by giving such instructions in regard to cleanliness, ventilation, and personal habits, as might appear needful, and by explaining and enforcing the necessity for immediate application to the dispensaries, or medical officers, by all parties w ho might be taken ill during the intervals between the daily visits."

This measure was attended with eminent success, and was found to be one of the greatest economy as well as humanity. We select the following statement of its effects in one district, as an illustration of what occurred in many others :-

" In Sheffield, an effective body of medical officers have been appointed for the discovery of persons laboring under the premonitory symptoms of cholera, and for bringing such persons under immediate medical treatment. Besides an adequate staff of house-to-house visitors, numerous dispensaries have been opened in convenient parts of the town, for supplying all such persons gratuitously with proper medicine. Handbills have been extensively

distributed, particularly among the most susceptible part of the population, giving them the necessary information respecting these dispensaries, and warning them of the danger of neglecting any degree of bowel complaint. Every person, on making application to a dispensary for a dose of medicine, on receiving the medicine, is required to give his name and address; this is forwarded at once to a medical officer, who visits the patient without delay. So thoroughly have the people in Sheffield had their attention directed to the symptoms which precede cholera, and so well do they understand and appreciate the information which has been given them, that it is stated that the house-to-house visitors scarcely ever meet with a case of diarrhoea which has not been attended by a medical man in consequence of their having previously applied at one of the dispensaries for a gratuitous dose of medicine. During the first week that this system of visitation has been in practice, the visitors discovered 1582 cases of premonitory diarrhoea, and on the second week, 1387; in all in one fortnight, 2969. Out of this great number, only four deaths have occurred ; but in parts of the town not under visitation, among the wealthier classes, attended by their own private medical friends, there have occurred seven deaths. In a rural district connected with Sheffield, -namely, Altercliffe, -not during this period under visitation, with 279 cases of diarrhoea, there were 23 cases of cholera, and 11 deaths. No stronger evidence can well be conceived of the efficiency of that preventive measure which is founded on the fact, which experience has too fully proved, that persons in general laboring under premonitory symptoms are not aware of their danger, and that, if those persons are to be saved, they must be sought out in their dwellings, and placed at once under proper treatment."

The success which attended the measure in particular localities, led the Board of Health to issue, on the 1st of September, 1849, a general order for its introduction into London, and the result for the first 52 days, up to October 22, was as follows:-

Diarrhoea cases discovered	43127
Rice water purging discovered	976
Cholera discovered	779
Passed into cholera after treatment	52

Had it not been for these visitations, very many more of these cases would have terminated in cholera and death. What facts can more forcibly illustrate the utility of preventive measures ? We earnestly commend the plan to every city and village in which cholera, dysentery, and other similar diseases, may appear as epidemics. The expenses which would attend its execution would be far less than result from the effects of the

disease, when suffered to take its ordinary course under ordinary treatment. Small-pox, too, might in this manner be easily exterminated from any city.<sup>95</sup>

**XXV. WE RECOMMEND that measures be taken to ascertain the amount of sickness suffered in different localities; and among persons of different classes, professions, and occupations.**

Every person is liable to sickness. The extent of that liability, however, varies in different places and circumstances, and in the same place and circumstances in different ages and seasons. It has some, though not an exact, relation to mortality. Some diseases under some circumstances produce more sickness in proportion to the mortality than others. It has been supposed by Mr. Edmonds, an author entitled to credit (Lancet, Vol. II, for 1839, p. 185,) that the average relation existing between the rate of sickness and the rate of mortality is two years of sickness to each death. " If ailments of a lighter kind are included, the proportion of sickness rises to 2 1/2 years to each death. Assuming two years to be the proportion of sickness to each death at every age, it will follow that the proportion of the living constantly sick at any age will always be double the proportion of the population of the same age dying in one year. If the deaths at any age will rate of 2 per cent., or 1 in 50 per annum, the proportion of the living constantly sick will be 4 per cent., or 1 in 25."

There are several reasons why this subject should be fully and carefully investigated, and that exact facts in relation to different populations, existing under different circumstances, should be known. We should allude to two principal ones only: -

Particulars of Household Visitation in the parish of -. Medical Officer, Mr. Visitor, Mr. -.

Street
Number
Floor
Sex
Age
Symptoms requiring treatment

<sup>95</sup> Dr. Simon, the able officer of health for the city of London, issued, on 21<sup>st</sup> of September, 1849, the following excellent instructions to the house to house visitors under his supervision, as to the manner in which they should perform their duties-

" It will be his duty to visit every house in the district assigned to him by the ordinary medical officer of the locality, once each day, at the least; and whenever several families inhabit one and the same house, it will be his duty each visit to see one adult member at least of every such family.

" These visits should be made as early as possible in the day, and the severer the cases of indisposition should be revisited in the afternoon, (or as early and as often as may be necessary) in order to ascertain the result of treatment adopted.

" The visitor shall be provided with medicines suitable to any emergency likely to fall within his observation; but in cases of no urgency he shall prescribe, and shall refer the patient to the depot of his district, where medicines may be procured. "The visitor shall take notes of the particulars specified in the tabular form with which he will be furnished, and at the close of each day's visitation he shall communicate this return to the ordinary medical officer with whom he acts, and shall receive that officer's directions for the next day's visitation. "The visitor shall insert in his return a notice of every locality where cleansing (either external or internal) shall appear requisite; and wherever he shall find the condition of a house irretrievably bad, or the inhabitants so densely crowded as to endanger life, he shall make this the subject of a special report. " Especially he should impress on the persons with whom he communicates, the extreme danger of neglecting diarrhoea, and the necessity of obtaining Medical advice as speedily as possible. "He should likewise explain to them the arrangements for medical relief which prevail in the district, and should see that they know the residence of the ordinary medical officer; so that, in case of any sudden seizure in the intervals or his own visitation, there may be no ignorance of the best course of procuring medical assistance. " All persons suffering with the bowel complaint, however slight, or with sickness or other unusual ailment, are essentially requested to procure immediate assistance, either from their ordinary medical advisers, or from the medicines."

Passed into cholera since last report
Remarks on locality
Deaths

### Summary of Household Visitation in the City.

Union
District
Ordinary Medical Officer
Visitors
Total families visited since last report
New cases of persons requiring medical treatment
Total cases now under visitors' treatment
Cases terminated in cholera since last report

1. *It would subserve a pecuniary purpose.* The wealth of a country consists in its capacity for labor. That people who enjoy the greatest vital force,-the highest degree of health,- and apply it most skilfully to the production of wealth, are the most wealthy. It is their capital, their means of subsistence. Persons who sustain a low vitality only, generally have little skill to apply what they possess, contribute little or nothing to the general welfare, and may, and often actually do, become a public burden. This is one view. Another presents itself in the vast number of associations existing, under the names of Friendly Societies, Health Insurance Companies, Odd Fellows, and other titles, the object of which is, directly or indirectly, by the payment of a certain sum, to secure support to the members during the contingency of sickness. For the stability of these societies, and the security of the members themselves, it is necessary that the rate of sickness under different circumstances should be definitely ascertained. So long as it is not known, no just rates of payment can be established. Some of the Health Insurance Companies in this State have closed their business, because they have had to payout more than they received. Some lodges of Odd Fellows have also been obliged to curtail their payments. All these institutions are now groping in the dark in regard to these matters, and many of them, it is believed, cannot exist under the rates of payment proposed to be made. A misapprehension of the principles on which they should have been founded and managed, is a principal cause of their failure. Health insurance might be so managed as to be a legitimate business, of a useful character.

2. *It would subserve a sanitary purpose,* and show the exact condition of the people. Some interesting facts on this subject are already known. The Manchester Statistical Society have given the average number of days of sickness annually suffered by each of the operatives engaged in various branches of industry, from which it appears that, in the Staffordshire potteries, under the age of 60, it is 9.03 days; in the silk mills, 7.08 days; in the woolen mills, 7.08 days; in the flax mills, 5.09 days; in the cotton mills at Glasgow days; among the East India Company servants, 5.04 .days among laborers in the dock-yards, 5.38 days; in the Lancashire cotton mills, 5.35 days; and for those under 16, 3.14 days.

From M'Culloch's Statistics we compile the following table to show the average number of days of sickness per annum at different ages, suffered by each operative employed in the factories in Lancashire and Glasgow :-

AGES	Days of sickness per annum to every person employed				Days of sickness per annum to every person sick			
	Lancashire		Glassgow		Lancashire		Glassgow	
	Males	Females	Males	Females	Males	Females	Males	Females
Under 10	2.46	8.03	1.01	2.63	13.04	-	3.61	14.9
10-15	3.81	4.25	4.8	6.18	14.58	11.98	12.35	13.81
15-20	4.42	5.56	5.52	6.38	16.43	12.63	17.14	15.54
20-25	4.91	6.85	9.11	8.16	18.27	16.42	20.12	18.96
25-30	6.88	8.62	7.05	7.38	22.14	18.51	16.05	19.81
30-35	3.85	9.29	7.65	6.05	12.19	21.77	16.93	13.05
35-40	4.13	6.16	8.5	4.16	13.75	19.19	22.58	16
40-45	5.09	14.67	5.12	11.94	14.25	14.41	16.41	20.36
45-50	7.18	20.34	4.84	11.72	30.31	26.43	20.57	40.6
50-55	3.47	15.75	4.9	16.5	13.1	21	16.41	25.85
55-60	12.68	15.75	3.27	15	11.5	21	8.84	30.2

From this table it appears that, at the ages 15 to 20 every male operative in Lancashire sustains, on the average, 4.42 days of sickness annually, and every female, 5.56; in glassgow, the males 5.52 days, and females, 6.38 days; and that the average length of sick time that every male who is sick will be, in Lancashire, 16.43 days, and every female, 12.63 days; and in Glasgow, the males, 17.14 days, and the females, 15.54 days. An inspection of the table will show a difference in the amount of sickness in the two places, in other ages.

The most reliable works which exhibit the probable sickness which a laboring man will sustain through life, are - 1. A Report of the Highland Society, by Charles Oliphant Esq. This able work was published in 1824, and was the first publication of the kind. It was prepared from returns of 79 Friendly Societies, in 16 countries of Scotland, made from records kept between 1750 and 1821, and related to 104,218 members.-2. A Treatise on Friendly Societies, by' Charles Ansell, Esq., Actuary to the Atlas Assurance Company; published in 1835, under the superintendence of the Society for the Diffusion of Useful Knowledge. This work was drawn from Friendly Societies in most of the counties and related to 24,323 members, during five years, 1823 to 1827 inclusive.-And 3. Contributions to Vital Statistics, by F. G. P. Neison, Esq., Actuary to the Medical Invalid and General Life Office, published in 1846. This work was prepared from the returns of the Friendly Societies in England 1836 to 1840.

From these works we have compiled the following table, to the number of days of sickness which each person, on average, sustains annually, at each age, from 20 to 70 years: -

Age	Oliphant	Ansell	Neison	Age	Oliphant	Ansell	Neison
21	4.025	5.460	5.917	46	7.224	9.877	10.981
22	4.032	5.495	5.960	47	7.756	10.325	11.569
23	4.046	5.537	6.009	48	8.302	10.808	12.222
24	4.067	5.586	6.062	49	8.904	11.333	12.940
25	4.095	5.042	6.120	50	9.527	11.907	13.722
26	4.130	5.705	6.183	51	10.057	12.537	14.568
27	4.172	5.775	6.240	52	10.787	13.230	15.512
28	4.221	5.852	6.291	53	11.431	13.993	16.555
29	4.227	5.936	6.336	54	12.082	14.840	17.695
30	4.347	6.027	6.374	55	12.747	15.792	18.932
31	4.417	6.132	6.407	56	13.426	16.870	20.269
32	4.487	6.251	6.475	57	14.126	18.102	21.959
33	4.564	6.384	6.577	58	14.854	19.516	24.005
34	4.641	6.531	6.713	59	15.610	21.147	26.405
35	4.725	6.692	6.885	60	16.422	23.044	29.159
36	4.816	6.867	7.091	61	17.500	25.277	32.269
37	4.914	7.063	7.331	62	19.152	27.937	36.332
38	5.026	7.280	7.608	63	21.700	31.136	41.351
39	5.159	7.518	7.919	64	25.900	35.007	47.323
40	5.306	7.777	8.265	65	30.800	39.704	54.250
41	5.488	8.057	8.647	66	37.800	45.402	62.132
42	5.698	8.365	9.057	67	46.200	52.297	70.475
43	5.964	8.701	9.495	68	55.300	60.613	79.279

44	6.314	9.06 5	9.962	69	65.100	70.6 02	88.54 5
45	6.734	9.45 7	10.45 7	70	74.907	82.5 51	98.27 3

It appears from this table that the average number of days' sickness per annum, which each person in these societies suffered at the age of 21, was, according to Oliphant, 4.025 days according to Ansell, 5.460 days; and according to Nelson 5.917 days. At the age of 60 it is, respectively, 16.422, 22.044, and 29.159. There is considerable discrepancy in these results, probably arising from the different methods of observation, or the different circumstances of the person observed, or from an increase of sickness in the latter over the former periods, as we have before intimated, (pp. 103-106) We also compile from the deductions in Mr. Neison's Work, (p. 105,) the following table, to present other views of the relations of sickness :-

AGES	The number of attacks of sickness annually in each 100 member, will be,	Days of sickness which each member who is sick will suffer annually	To each 100 members who are sick, the proportion of deaths per annum will be	To each annual death the proportion of annual sick time, among the living will be,
10 to 15	21.9565	28.8617	.9901	416.4290 wks or 8 yrs. 3 days
15 to 20	22.0743	25.1209	2.8571	125.6032 " = 2 " 151 "
20 to 25	22.0386	26.9626	3.0539	126.1271 " = 2 " 154 "
25 to 30	21.6997	29.3447	3.3271	125.9977 " = 2 " 83"
30 to 35	21.0147	30.5095	3.7592	115.9411 " = 2 " 122 "
35 to 40	21.5471	34.6241	4.0686	121.5732 " = 2 " 190 "
40 to 45	22.9858	41.5926	4.5306	131.1468 " = 2 " 200 "
45 to 50	24.6042	47.9892	5.1657	132.7133 " = 2 " 226 "
50 to 55	27.6422	59.5728	6.2401	136.3839 " = 2 " 323 "
55 to 60	30.2424	76.4827	7.2732	150.2235 " = 2 " 142 "
60 to 65	35.5676	106.3825	8.6163	176.3808 " = 3 " 310 "
65 to 70	46.8493	169.5519	9.6004	252.2988 " = 4 " 62" "
70 to 75	58.3750	228.3925	12.1306	268.9679 " = 5 " 68"

75 to 80	73.5916	253.6579	11.3636	318.8876 “ = 6 “ 343 “
80 to 85	74.4624	264.3431	18.4116	205.1064 “ = 3 “ 215 “
85 to 90	79.4872	287.5803	17.2043	238.7943 “ = 4 “ 151 “

By this table it appears that, on the average, at the age of 45 to 50, in each 100 45 to 50, in each 100 members, 24.6 (omitting other fractions) attacks of sickness will take place, or that number of members will be sick every year; that the length of the sickness of each one who is sick will be 47.9 days ; that in every 100 who are sick, 5.1 will die; and that the length of sickness of each be suffered by all will be 132.7 weeks, or 2 years, 200 days. It also appears, from the age of 15 upwards, the amount of sickness will be found to increase in regular and uninterrupted series. While 26.96 days of sickness are suffered in a year by each person sick, at the period from 20 to 25, 169.55 days are 65 to 70. The relative chances, also, of being sick at the two periods of life, 20 to 25, and 65 to 70, the ratio of 22 to 46 ; while the mortality at the same period is in the ratio of 3 to 9 among those actually sick. At period of 30 to 35, for every 2 years and 83 days sickness there is one death; at 10 to 15, 8 years and 3 days; and at 65 to 70, 4 years and 310 days: or, in other words, a greater amount of sickness in proportion to the deaths is suffered in youth and old age, or at those periods of life in which the least force exists, than in the middle ages, when a greater of vitality is enjoyed.

These are some of the interesting results of the investigations made in England and Scotland, relating to sickness. How far they are applicable to this country we have not the means of knowing accurately. Some have supposed that the proportion of sickness to health is greater in Massachusetts than in England, but others are of a different opinion. The observations are too limited and imperfect to found thereon opinion.<sup>96</sup>

Ages	Insured	Sick	Average	Wks Sick	Average
16-30	533	122	4.36	539	4.4
30-35	130	39	3.3	161	4.12
35-40	59	19	3.1	108	5.68
40-45	26	3	8.66	25	8.33

<sup>96</sup> For some estimates on this subjects, see Shattuck's *Census and Statistics of Boston*, pp 173-176.. Dr. Jarvis (*Communications, Mass. Medical Society, Vol. VIII, p.50*) says:- There are no data to determine the amount of sickness in New England. Some of the health Insurance Companies here made up their rates of premiums according to those of the English Benefit Societies, but these have been found on trial, too low. Probably there is more sickness here than in England, and some these companies have been paying out in "benefits" more than they received in premiums. The *Boston Journal* of 30<sup>th</sup> July, 1847, -viz., the Massachusetts Health Insurance Company, -voted to discontinue farther business, and close up its affairs. The Lowell and Worester institutions decided on this course about a year ago. During the last six months, Essex company has been winding up, and paying from 20 to 30 cents on a dollar. The Siloam Lodge of odd Fellows, in Boston, found the same result and difficulty, and lately voted not pay for the first week of any case of sickness, but for all afterwards, and charge the same premiums as before. The average number of the members of the Siloam lodge, for the years 1844, '45, 46, and '47, was 549. The average time of sickness of all, in each year, for which benefit money was paid was 465 ¼ weeks. Average sickness, for each member drawing benefit money was 5.9 days in each year. Dr. Lyman has furnished us with with the following abstract of the records of Massachusetts Health Insurance Company, relating to those policies only which had expired:- According to this statement, 188 of 761, or 24.70 percent of the members insured were sick; and the length of sick time was 31.7 days to catch.

45-50	13	5	2.6	17	8.04
16-50	761	188	4.04	850	4.05

If the rule of doubling the annual mortality percent. be applied to obtain the rate of sickness, appear that.5.06 per cent. of the population, or 5,787 of both sexes, have on the average been constantly Boston, for the last nine years. By the same -- town of an average healthy standard, containing 2,000 ants, 60 will constantly be sick. This seems a large or amount of sickness, but it may nevertheless be true, where those in infancy and old age are included.

This subject is of vast consequence. It would interesting and useful to know the amount of sickness families, and among persons of the various occupations,-the farmers, the mechanics, the and others,-and how far it, differs in different places and under different circumstances. All the facts and used in favor of a sanitary survey, may be applied the utility and importance of this branch of the obtain the facts, some simple plan is needed, which may and without much labor be carried into operation plan we have given in the appendix.

XXVI. WE RECOMMEND *that measures be taken to the amount of sickness suffered, among the scholars the public schools and other seminaries of learning Commonwealth.*

It has recently been recommended that the ecology be taught in the public schools; should be universally approved and carried soon as persons can be found capable of teaching it.<sup>97</sup> Sanitary science is intimately connected with serves equal and even greater commendation as a branch of education. Every child should be taught, early in life , that to preserve his own life and his own health and the lives and health of others, is one of his most important and abiding *duties*. By obeying certain laws, or Acts, his life and health may be preserved; by disobedience, or performing certain other acts, they will both be destroyed. By knowing and avoiding the causes of disease, disease itself will be be avoided, and he may enjoy health and live; by ignorance of these causes and exposure to them, he may contract disease, ruin his health, and die. Every thing connected with wealth, happiness and long life depend upon *health*; and even the great duties of morals and religion are performed more acceptably in a healthy than in a sickly condition.

This matter has been too little regarded in the education of the young. Intellectual culture as deceived too much and physical training too little attention. Some measure is needed which shall impel children to make a sanitary examination of themselves and their associates, and thus elicit a

<sup>97</sup> *The following arc the provisions of an act relating to public hygiene, passed April 24, 1850 :*

*SECT. 1. Physiology and hygiene shall hereafter be taught in all the public schools of this Commonwealth, in all cases in which the school committee shall deem it expedient.*

*SECT.2. All school teachers shall hereafter be examined in their knowledge of the elementary principals of physiology and hygiene, and their ability to give instructions in the same.*

*SECT. 3 This act shall take effect on and after the first day of October, one thousand eight hundred fifty-one.*

*samc.*

*SECT.3. This act shall takc cffct on and after the first day or eight hundrcd fifty.one."*

practical application of the lessons of sanitary science in the every-day duties of life. The recommendation now under consideration is designed to furnish this measure. It is to be carried into operation in the use of a blank schedule, which is to be printed on a letter sheet, in the form prescribed in the appendix, and furnished to the teacher of each school. He is to appoint a sanitary committee of the scholars, at the com of the school, and, on the first day of each month, to fill it out, under his superintendence, according to the accompanying directions. Such a measure is simple, would take but a few minutes each day, and cannot operate otherwise than usefully upon the children, in forming habits of exact observation, and in making a personal application of the laws of health and life to themselves. This is education of an eminently practical character, and of the highest importance. All the reasons in favor of our twenty-fifth recommendation apply also to this. By adopting it, many and many a life would annually be saved in this Commonwealth, and the general health the rising generation would be greatly improved.

XXVII. WE RECOMMEND *that every city and town in, the state be required to provide means for the periodical vaccination of the inhabitants.*

The small-pox is a terrific disease; but it is almost entirely shorn of its terrors by the preventive remedy of vaccination. If a person is not vaccinated, there is more than two chances to one, that, if exposed, he will take the disease; but, if properly vaccinated, there is scarcely one chance in five hundred. Hence the importance of this preventive measure, and the guilt of neglecting it.

Dr. Waterhouse, of Cambridge, vaccinated his son in July, 1800 ; and this was the first person ever vaccinated in : America. In 1810, an act was passed in this State, providing "that it *shall* be the duty of every town to choose persons to superintend the inoculation of the inhabitants with the cow-pox." This law was repealed in 1836 ; and the Revised Statutes provides "that each town *may* make provision for the inoculation of the inhabitants." This substitution of the word *may* for *shall* left it optional with towns to do or not to do it ; and it has probably caused the loss of many lives. Under the operation of the old law many towns were accustomed, once in five or more years, to have a general vaccination of the inhabitants; but this custom, as far as our knowledge extends, has been generally discontinued, and the inhabitants have thus been left liable to the disease from every new exposure. Boston has provided that no child shall be admitted into the public school without a certificate from some physician that it has been vaccinated. It has also provided for the gratuitous vaccination of the poor who may choose to go to the office of the city physician for that purpose. These excellent regulations should be adopted in every place. And local Boards of Health should be required to provide for a general vaccination of the inhabitant at least as often as once in five years.

Since the repeal, in 1837, of the salutary laws of the state relating to small-pox, no more restraint has been laid upon persons sick with this than with any other disease, and it has consequently seldom been absent from the large cities. during more than 30 years, prior to 1837, the disease caused the death, in Boston, of 37 persons only; and most of these were at Rainsford's Island. It seldom occurred in the city proper. During the 12 years

ending December 31, 1849, since the repeal, it caused the death of 533 persons! and in the first six months of 1850, *one hundred and forty-six* have died! These were unnecessary deaths,-they might and *ought to have been prevented!* and so should the thousands of cases of sickness same disease which did not terminate fatally. The plan of house-to-house visitation, described in our twenty-fourth recommendation, might have been adopted. The city might have been divided into small districts, to each of which a physician might be assigned, who should have been assigned, who should have been required to visit every family, whether invited or not, and to vaccinate, or to revaccinate, every person, if necessary or expedient, By this plan the disease would soon have been deprived subjects to feed upon, and must have been starved out. It might thus have been expelled from the city in less one month; and the lives of more than one hundred persons which now have been lost, in less than six months might have been saved . The public expense, too, of such a measure would have been far less than that of the small-pox and the small-pox orphans which have been thrown the city for support, to say nothing of other expenses and the various other marked effects and calamities of the disease been avoided.

Under existing circumstances, it becomes the special duty of every person to protect himself against this disease. Any one who permits himself to be sick with it, is as justly chargeable with ignorance, negligence or guilt, as he who leaves his house open to be entered and pillaged by robbers, known to be in neighborhood . And upon that state, city, or town, which does not interpose its legal exterminate the disease, should rest the responsibility, as must rest the consequence, of permitting the destruction of the lives and the health of its citizens.

XXVIII. WE RECOMMEND *that the causes of consumption, and the circumstances under which it occurs, be made the subject of particular observation and investigation.*

We have given some facts, (pp. 94-99,) to illustrate the operation of consumption, and stated that if that disease is ever to be eradicated or ameliorated, it can only be done by preventive means and not by cure. Dr. Fisher, late of Boston, in the circular to which we have alluded, (page 166,) states, that "the disease, when once excited and seated in the system is necessarily fatal. No remedial agent has ever yet been and probably never will be, discovered, which will cure malady when once developed in the lungs. It becomes, therefore, the duty of those who are aware of this fact and of the mortality which consumption occasions, to ascertain the cause of the disease, and to inform the public how these causes may be avoided. If the mortality produced by this disease to be lessened, it is to be effected by preventive means. These means, when known and fully appreciated by the will be adopted, to a greater or less extent, and a vast amount of human suffering. This is the opinion of an eminent professional man, made this disease the subject of particular investigation, and his views are entitled to the highest regard.

The *causes of this disease*, and the means of removal, are the great objects of investigation; and they can; ascertained only by an extensive series of systematic, form and exact observations of the external circumstances, - atmospheric, local and personal, -occurring in each case.

And we cannot too strongly impress upon local Boards of upon the members of the medical profession, and others interested, the importance of making a energetic effort to obtain such observations case which occurs in every part of the 3,000 cases, in this State, annually terminate in death; they were properly observed, for a series of five, years, it is impossible to anticipate the good results might follow. Possibly, -and even *probably*, - discoveries might be made which would reduce the annual cases, certainly by hundreds, and perhaps by shall hereafter suggest a form of a Register of Cases to this object ; and the great importance of the the confident hope that some discovery can be will materially abate its melancholy ravages, should arouse us all to action.

**XXIX. WE RECOMMEND *that nuisances endangering human life or health, be prevented, destroyed, or mitigated.***

Nuisances are divided, in law, into two principal classes :-

I. Those which affect the community, or the public, denominated *public nuisances* ; and 2. Those which affect the rights or injure the property of individuals, denominated *private nuisances*. Some nuisances have a disagreeable and some a pecuniary character only. Others, a vital or sanitary character. The last class, only, immediately concerns this recommendation.

A street, highway, or bridge, is common property, and any obstruction, pit-hole, or defect, which endangers the lives of travelers, is a nuisance. Horses, cattle, swine, or other animals going at large in such street or highway, may also be a nuisance. Locomotive steam carriages, steamboats, or other vehicles or stationary steam engines, may become so by the manner in which they are managed. The manufacture, storage, and use of gunpowder and fireworks may be a nuisance, if within the neighborhood of living beings, since they endanger life. Gas, camphine, and other burning fluids, are often destructive of life. These and all other nuisances of a sanitary character, which often occasion direct accidental injury or death, should be so regulated as not to become dangerous to health and life. Those who cause them are liable to prosecution and damages. There is another class of nuisances which are equally obnoxious. Every kind of trade or occupation, - any filth or other substances which corrupts the atmosphere, - every kind of food or drink that is unwholesome, though it should not produce immediate death or disease, if it endangers the health or gradually injures it, -is a nuisance; and every man who causes a nuisance transcends his right, and renders himself liable to prosecution. Boards of Health should make such regulation that no person should prevent any other person from enjoyment of life and health; and no artificial obstruction should be permitted, that may destroy or injure either.

**XXX. WE RECOMMEND *that measures be taken to prevent or mitigate the sanitary evils arising from the use of intoxicating drinks, and from haunts of dissipation.***

That intemperance is an enormous evil is universally acknowledged. That it is the cause of a vast amount of direct sanitary suffering, -of unnecessary sickness, and of unnecessary death, -to those who indulge in it; and of a still greater amount of indirect sanitary suffering and death to their associates, relatives, and dependents, is equally true. The evil consequences

are so great, and so widely diffused, that they have long since arrested public attention. Good citizens, moral reformers, religious teachers, and other classes of philanthropist have deplored the evil, and devised various measures of its removal. It still exists, however, and fills the cup of suffering and provides a premature grave for many a person who might otherwise have lived to become a blessing instead of a curse to humanity. It is unnecessary, however, here to discuss the subject. Through thousands of channels it is brought to public notice. These channels should be widened and deepened, and the number should be increased, until all shall feel their influence. Local Boards of by a careful observation of the sanitary evils of , intemperance local and personal circumstances under which they occur, and by adopting and enforcing such salutary regulations as will remove or mitigate them, may confer an immeasurable benefit upon the people.

XXXI. WE RECOMMEND *that the laws for taking inquests upon the view of dead bodies, now imposed upon coroners, be revised.*

In our judgment, every matter relating to life, to health, and to death, should, to some extent, come under the cognizance of Boards of Health. The cause of the death of every person who dies should be fully known to them; in their offices records of inquests upon dead bodies should be preserved. These Boards, and especially the medical health officer, are presumed to be better informed than others in relation to questions as present themselves in investigations of hence they would be able to act more intelligently and correctly. It sometimes happens that inquests are held when there is no occasion for them, and unnecessary expense incurred. For the last nine years, this State has paid, for coroners' inquests, \$6,968.95; and, for the last years, the average annual payments have been \$1,030.33. This would be avoided, in part, if Boards of Health had some control over the subject, so far as to decide when inquests are necessary or expedient. We would suggest, eith that some members of the local Boards of health should be authorized and appointed to perform the duties now imposed upon coroners, in relation to holding inquests, or that the Boards should be consulted on the expediency of holding such inquests; and that, in all cases, a copy of the verdict of the jury should be returned to the Board.

XXXII. WE RECOMMEND *that the authority now vested in justices of the peace, relating to insane and idiotic persons, not arrested or indicted for crime, be transferred to the local Boards of Health.*

By persent laws of the State, no insane or idiotic person, other than paupers, can be committed to any hospital or place of confinement, except on complaint, in writing, before two justices of the peace, or some police court. Paupers may be committed by the overseers of the poor. By these proceedings, this unfortunate class of persons appear on the records as criminals, while they are guilty of no crime, unless the possession of an unsound mind be considered one. A sanitary question, merely is often the only one presented in such cases, and it has occurred to us that the local Boards of Health would be the proper tribunals before whom they should be brought, and by whom the should be disposed of. It may be supposed that such Boards will be better acquainted, generally, with the medical

jurisprudences of insanity, than those of criminal courts, in accordance with the spirit of humanity which has been extended to that class of persons.

XXXIII. WE RECOMMEND *that the general management of cemeteries and other places of burial, and of the interment of the dead, be regulated by local Boards of Health.*

The Revised Statutes provide that towns may grant money for burial-grounds, and that Boards of Health "shall make all regulations which the may judge necessary for the interment of the dead, and respecting burying-grounds in their towns." This is all the legal authority that is necessary for the purposes of this recommendation. Boards of Health and the selectmen of towns have ever had the management of these matters in this State. There are few if any states or countries, where more excellent regulations relating to the burial-grounds and the interment of the dead exist, where the burrial is conducted with more propriety, and where greater respect is paid to the deceased. Yet in some particular improvement might and ought to be made. The history and condition of burial-grounds, and the regulations for the dead, are intimately connected with public health, -and should form a part of the sanitary regulations of every city and town. We can, in this connection, notice only some general matters, which the subject suggests.

There are two principal objects which should be kept in view in these regulations, -1. To pay proper respect to the dead; and 2. To protect the health of the living. To accomplish these objects, there are several matters to be considered.

1. Plans for obtaining a *place of burial*. Several have existed in this State. One plan permits a family to select a private place of burial on its own estate. This is adopted in some parts of this Commonwealth, especially in the western and southern counties, but we cannot but regard it as highly objectionable. In this country, estates do not generations of the same family, as in Europe. In the vicissitudes and revolutions of American life, the owners of property, real as well as personal, often change; and there is no security that the remains of a person, if deposited on an estate he owned, will remain undisturbed by other owners who succeed him. The occupant has no guaranties from a public or responsible body that it shall be so. This single consideration, in our judgment, should induce everyone to and even to remove the remains already so secure and quiet resting-place.

Another plan allows proprietors, under the act of incorporation, to to sell lots, or places of burial, under such regulations as they choose to make. This is of recent date, and originated at Mount Auburn. This model cemetery was consecrated as a burial-place of the dead, Sept. 21, 1831. Cemeteries were subsequently incorporated at New Bedford, April 12, 1837; at Worcester, Feb 23, 1838; at Hingham, Feb 28, 1839; at Braintree, Feb. 18, 1839; at Salem, Feb. 19, 1839; at Dudley, March 23, 1840; and at Lowell, Jan. 23, 1841. A general law, passed March 17, 1841, allows ten or more persons in any town to organize themselves into a corporation for these purposes; and, since that time, numerous companies and cemeteries have been established in different parts of the State. Some object to these companies, however, because they make the burial of the dead too much a matter of commercial speculation.

Another, and the more general plan, vests the ownership of all burial-grounds in the town, which grants to families and to individuals, sometimes gratuitously, and sometimes for a consideration, rights for family lots, for tombs, and for single graves. This plan has been in existence from the first settlement of the State; and we much prefer it to the others. Every town should have the exclusive control in these matters, for many reasons, which it is unnecessary now to mention. The city of Roxbury has set a noble example, in the establishment, in its corporate capacity, of the beautiful Forest Hills Cemetery.

The place of burial should be selected in a somewhat secluded, and not in the most conspicuous part of the town, and should be combined with such natural scenery as will tend to inspire those feelings of solemnity and decorum which properly belong to the "city of the dead." It should not be where it would ever be liable to be encroached upon for buildings, roads, or any other purpose; but where the tenants may remain forever undisturbed in their quiet resting-place. And it should be large enough to meet the wants of the probable future growth of the town which it is designed to accommodate. Parts of such a cemetery might be assigned to a particular religious denomination, and, if desired, specially consecrated for its use. It should *never be within a populous city or village*. Such a site is now generally regarded as dangerous to the health of the living; though in this State we have not as yet experienced, to a extent, the evils which have existed in London and other cities in England, as the following statements will show:<sup>98</sup>

"When the living body is exposed to putrid emanations in a highly concentrated state, the effects are immediate and deadly; when more diluted they still taint the system, inducing a morbid condition, which renders it more prone to disease in general, but especially to all the forms of epidemic disease, and which further predisposes it to pass into a state not actually that of putrefaction. The most recent examination of the grave-yards of the metropolis appears to us to show that they contain putrefying matter enough to communicate putrefying process to those who are exposed to it. It is stated by Sir James Macgregor, that on one occasion in Spain, soon after 20,000 men had been put into the ground within the two or three months, the troops that remained exposed to the emanations of the soil, and that drank the water from the wells sunk in the neighborhood of the spot, were attacked fevers and by dysentery; and that the fevers put on the dysenteric character. In the metropolis, on spaces of ground not exceeding in all 218 acres, by the abodes of the living, crowded together in upwards of 50,000 dead bodies are buried every year. In Bethnal Green burial-ground alone, consisting of an two acres and a half, there have been interred, since its opening in the year 1746, upwards of 56,000 dead bodies. In Bunhill Fields burial-ground, City Road, consisting of an area of less than four acres, there have been interred, from April, 1713 to August, 1832, according to the registry, which, however, in the earlier years was very imperfectly kept, 107,416 dead bodies. But in St. Pancras church-yard, one-half of which has been used as a burial-place for at least six centuries, there have been deposited the remains of more than twenty generations; and in this space of

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<sup>98</sup> Chadwick's Report on Extramural Sepulture, pp. 9, 5, 50; - Dr. Simon's Report, p.24; Dr. Duncan's Communication in the Official Circular of the General Board of Health, No. 7, pp. 101, 1-, 103.

ground, which does not even now exceed four acres, and a large portion of which was considered excess twenty years ago, there have been interred since that period upwards of 26,000 bodies. Estimating the duration of a generation at 30 years, there must have been interred in the small space of 218 acres, in the last generation, a million and a half of dead bodies; and within the next 30 years, more than another million and a half of the dead,- that is, a large proportion of those who now people the metropolis,-will have to be crowded into those same church-yards, unless other and better provision for interment be made.”

“ The placing of the dead body in a grave, and covering it with a few feet of earth, does not prevent the gases generated by decomposition, together with the putrescent matters which from permeating the surrounding soil, and escaping into the air above and the water beneath. Under the pressure of only three-fourths of an inch of water, gas, - common coal-gas, instance,- rapidly makes its way to the through a stratum of sand or gravel several feet in the soil appearing to oppose scarcely any resistance to its passage. The evolution of the gases of decomposition place with so much force, that they often expand and occasionally burst the leaden coffin in which the body is confined and when, as in a common grave, they pass gradually and without restraint into the surrounding earth, they are only in part absorbed by the soil, and some of them are scarcely absorbed at all, but are diffused in every direction, though it . Such, indeed, is the tendency of these gases to reach the surface that it does not appear to be possible to prevent the occurrence. ‘If,’ says Mr. Leigh, a chemist at Manchester who appears to have paid particular attention to this subject, ‘bodies were interred eight or ten feet deep, in sandy or gravelly soil, I am convinced little would be gained by it ; the gases would find a ready exit from almost any practicable depth;’ while it is obvious that their occasional escape would be still more easy through the fissures which are so common in clayey soils. ‘I have examined,’ says Dr. Lyon Playfair, ‘ various burial-grounds, for the purpose of ascer training whether the layer of earth above the bodies is sufficient to absorb the putrid gases evolved. The slightest inspection shows that they are not thoroughly absorbed by the soil lying over the bodies. I know several church-yards from most foetid smells are evolved ; and gases with similar odor are emitted from the sides of sewers passing in the church-yards, although they may be more than thirty feet from them. If these gases are thus evolved laterally, equally emitted in an upward direction.’ Some of these gases, as has been stated, are either not absorbed at all, or sparingly ,-carbonic acid gas, for example ; yet so abundant is its evolution, that, in old church-yards or near ‘grave-pits’, the ground is absolutely saturated with it, so that, when a deep grave is dug, such an amount of it is rapidly collected, workmen cannot descend without danger. Dr. Reid the result of his own observation, that on sinking a pit in the earth, near which a number of bodies were interred, the pit in a few hours became filled with such an amount of carbonic acid gas, arising from the decomposition of the neighboring bodies, that the workmen could not reenter it without danger; that lives have been lost by the incautious pit, only a few hours after it has been opened; that carbonic acid gas is thus formed, into which a constant stream of the same gas continues perpetually to filter from the adjacent earth; and that, in fact, the earth around loaded with carbonic acid gas, as other places are with water. Dr. Playfair estimates

that the amount of the gases evolved annually from the decomposition of 1,117 corpses per acre, which is very far short of the number actually interred in the metropolitan graveyards, is not less than 55,261 but as 52,000 interments take place annually in the metropolis, according to this ratio the amount of gases emitted 2,572,580 cubic feet, the whole of which, beyond what is absorbed by the soil, must pass into the water below or the atmosphere above."

" Whatever portion of these gases is not earth,-earth already surcharged with the accumulations of centuries,-and whatever part does not mix with and contaminate the water, must be emitted into the atmosphere, bearing with them, as we know, putrescent matters perceptible to sense. That these emanations do act injuriously on the health of the people resident in the immediate neighborhood of the places from which they issue, appears to us, by the evidence that has been adduced, to be indubitably established. From the law of the diffusion of gases, they must be rapidly spread through the whole of the atmosphere that surrounds the metropolis; and though they thereby become diluted, and are thus rendered proportionally innocuous, yet that they do materially contribute to the contamination of the air breathed by two millions of the people, cannot, we think, admit of any reasonable doubt."

Dr. Simon says-" Intramural burial is an evil, no doubt, that varies in its intensity according to the numbers interred,- becoming appreciable in its effects on health only when several interments occur annually, or when ground is disturbed wherein much animal matter had previously been left to decay; but be the evil large or little in any particular case, evil undoubtedly it is in all, and an unmitigated evil. "

"The atmosphere in which epidemic diseases most readily diffuse their poison and multiply their victims, is one in which organic matters are undergoing decomposition. Whence these may be derived signifies little. Whether the matter passing into decay be an accumulation of soaking straw and cabbage leaves in some miserable cellar, or the garbage of a slaughter-house, or an overflowing cess-pool, or dead dogs floated at high matter into the mouth of a sewer, or stinking fish, or the remnants of human corpses undergoing their last chemical changes earth, the previous history of the decomposed material is of no moment whatever. The pathologist knows no difference of operation between one decaying substance and another; so soon as he recognizes organic matter undergoing decomposition, so soon he recognizes the most fertile soil for the increase of epidemic diseases; and I may state with certainty, that there are many church-yards in the city of London where every spade full of soil turned up in burial sensibly adds to the amount of animal decomposition, which advances too often inevitably around us. I have therefore no hesitation in counting intramural interments as one of the influences prevailing against health, in the city of London; and I have no doubt that it contributes considerably to swell our list of fever and the allied disorders."

Dr. Duncan says :- "There are 39 ; borough of Liverpool. The interments take place in graves, vaults, or pits. In 23 burial-grounds, graves only are used; in 7, graves and vaults only; in 4, graves and pits ; graves, vaults, and pits; and in 1, pits only.

“The aggregate annual number of interments within the borough is, in ordinary years, from 10,000 to 11,000. Of this number, as nearly as can be estimated, about two-thirds take place in pits, and one-third in graves; the interments in vaults probably not exceeding 20 annually.

“The pits vary in depth from 18 to 30 feet, being from 7 to 12 feet long, and  $3\frac{1}{2}$  to 9 feet wide. The number of bodies deposited in each pit varies from 30 to 120. In St. James’s Cemetery, about six inches of earth are placed after each day’s interments ; in the others, the coffins are covered with  $2\frac{1}{2}$  feet of soil, which is removed previous to the next interments; but with this exception the pits remain open, or only covered with a frame-work of boards, until filled with coffins, -a period varying from ten days in the case of the smaller, to ten weeks in the case of the larger pits. Although the evils connected with the practice of intramural interment have been less severely felt in Liverpool than in the metropolis, where many of the grave-yards situated in densely peopled neighborhoods have been in use for centuries, there can be no doubt that, under any circumstances, the practice of burying within the precincts of towns, unless guarded by the strictest regulations, must be productive of injury to the health of the inhabitants .

“ It has been estimated that an acre of ground is capable of affording decent interment to not more than 136 bodies yearly; but in the thirty-seven burial-grounds of Liverpool, taking one with another, the number of burials to an acre is fully double of that just stated. Were the calculation confined to the burial grounds in most frequent use, the proportion would be greatly augmented.

“In some of these places it is almost impossible to dig a new grave without disturbing bodies previously buried; and in some, the soil, when opened up it , appears to consist chiefly of human remains in a state of decomposition. It cannot be doubted that grave-yards thus impregnated with decaying animal matter must contaminate the atmosphere in such a way as to injure the health, not so much by the production of sudden which may be directly traced to its cause, as by a process of deterioration, leading to the development of in a more slow but equally certain manner. It was the observation of the injury to health arising from the practice of intramural interment, which caused the legislature of France, as well as of the other warmer continental countries, upwards eighty years ago, to declare " illegal" all interments in towns, and subsequently to deprive even the priests of the privilege which they had enjoyed of interment within their churches.

“But the *grand* evil in the case of Liverpool, and that which calls most urgently for interference, is the practice of burying large numbers of bodies in open pits. It must be unnecessary to say anything as to the injurious nature of this practice, if it be considered that in the hot weather of summer more than bodies are collected together in an open pit, in all stages of some of them having lain there for upwards of two months! Only two feet of space are left between the pits, saturated with the decomposed matter of adjoining pit, not unfrequently percolates through the intervening rock or soil into one which is newly made. In no case does the soil covering the pit; when filled, exceed the legal of  $2\frac{1}{2}$  feet."

2. There are two *modes of interment* practiced in this State ; one in graves, and the other in tombs. We much prefer the former. Dangerous gases often escape from tombs, when insecurely closed , or when often opened for

new deposits. Besides these evils, there is no security that deposits in tombs will ever "return to the earth as they were," undisturbed. They are there exposed to removal and desecration, which sometimes take place. In Mount Auburn, very properly, tombs are not now allowed. Graves alone are used. It is desirable, too, that in no grave should more than one body be placed.

The following statement gives the burial accommodations in Boston, and the number of interments in 1849. Deposits can be made only in tombs in the city proper; graves have not been allowed for many years :-

	Places of Interment	Tombs	Intement in 1849
BOSTON PROPER	Copp'S Hill and Hull Street,	222	395
	Chapel Burial-Ground, Under Chapel Church,	79	62
	Granary Burial-Ground, Under Park Street Church,	21	92
		203	24
		38	160
	Central Burial- Ground, Under St,. Paul's Church,	149	23
	Under Christ Church,	64	39
	Under Trinity Church,	34	21
	South Burial-Ground,	55	663
	Total in City proper,	248	
	Total in City Proper	1113	1479
SOUTH BOSTON	Hawes Place Burying-Ground,	7	131
	Union Burial-Place, Under st. Matthew's Church,	4	9
		60	66
	Roman Catholic Burial-Ground,	2	190
	House of Industry,	6	295
	House of Correction,	3	20
EAST BOSTON	East Boston Burial-Ground,	8	324
	jews' Burial-Ground,		12
	Deer Island,		214
	Total interred in the City,	1203	2740

This includes 98 who died elsewhere, and were brought into the city for interment. The following interments of persons who died in the city took place elsewhere :-

Roman Catholic Burial-Ground at	1562
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Cambridge	
Roman Catholic Burial-Ground at Charlestown	305
Roman Catholic Burial-Ground at Roxbury	80
Mount Auburn Cemetery, at Cambridge	212
Forest Hills Cemetery, at Roxbury	14
Various other places in Massachusetts	364
Removed to other states	143
Total removed from the city	2680
Total interments in 1849	5420

## INTERMENTS IN MASSACHUSETTS

Deaths in Boston during the year	5079
Still-born during the same time	250
<u>Brought into the city for interment</u>	<u>91</u>
	5420

The city poor were interred in the tombs in the South Burial-Ground until August 27, 1849 ; since then, at East Boston.

The common charges for a burial in Boston are as follows,-varying, however, according to the age and other circumstances in each case :-Rights in a public tomb, \$6 00; pine coffin, \$7 00; City Registrar's and the undertaker's fees, \$6 00 ; total, \$19 00. This is exclusive of carriages for mourners, or any extra expenses. Many, of course, incur a much heavier expenditure. A family lot at Mount Auburn, of 300 square feet, costs \$100, besides laying out, grading, and ornaments; and the expense of a private burial there is about \$15, besides carriages. The expenses in other cities, and in country towns, vary according to location and other circumstances.

3. "Wakes," which are sometime's held over the bodies' of the dead, by the foreign population, should be prohibited as improper, and dangerous to the public health and to good morals. In cities and populous villages, public reception-houses should be provided, and placed under proper regulations, to which dead bodies might be removed, from families living in a single room, or from a public boarding or lodging house, or from other places, where it would be inconvenient or dangerous to the public health to permit them to remain. We extract from Mr. Chadwick's recent work (p. 102) the following passage, to show the effect of retaining bodies in such localities :-

"Of the condition in which the surviving members of a family are placed, who have only one living and sleeping room, when the calamity of death occurs, and of the deplorable consequences that often ensue, some conception may be formed from the following statements :-

" 'There are some houses in my district,' says Mr. Leonard, the medical officer of the parish of St. Martin's-in-the-fields, 'that have from 45 to 69 persons, of all ages, under one roof ; and in the event of death, the body often occupies the only bed, till they raise money to pay for a coffin, which is often several days. The body is retained in the room beside the living, from five to twelve days. In one instance the corpse been retained twelve days; I could not remain in the room two minutes, from the horrible stench. The

coffin stood foot of the bed, within eight inches of it; this was room, not above ten feet by twelve feet square, a fire being always in it; it was, as in most cases of a like kind, the room for sleeping, living, and cooking in. In another instance, a mother and her infant were brought ill with fever, to her father's room, which was ten feet square, with a small of four panes; the infant soon died ; taken ill, and in a few days she also died; the corpse of grandmother lay beside her husband in the same bed; in next place the husband was seized with fever, attended violent delirium, and died ; and subsequently two of his children, one within a week, and the other within ten days, victims to the disease; in short, five out of the six inmates of this room died. Found in another similar room a young person who had died of fever; the were just taken ill of the same disease; the foot of the coffin was within ten inches of the father's head as he lay pillow, himself in a fever; in a few days another child seized with the same disease. Cites these cases as merely examples of the fatal consequences of the long retention body in these small and crowded rooms; they could be multiplied indefinitely; believes that the retention of the corpse in the room with the living is fraught with greater danger even that produced by emanations from crowded grave yards because when a body is retained in a small, heated and ill-ventilated room, decomposition proceeds rapidly; the noxious gases evolved cannot escape; they accumulate, and become concentrated; and they often prove rapidly and fatal to the living inmates.

"Other witnesses state that the death of parents, leaving children orphans and destitute, is a frequent occurrence under those circumstances; and that they have sometimes seen families swept away."

4. Local Boards of Health should appoint intelligent and competent health officers, undertakers, and others, who should be required to ascertain the sanitary condition of every family in which a death has occurred; to give advice and assistance with reference to the funeral and other matters, as occasion require; to direct and superintend the removal of the dead from single rooms, occupied as dwelling and as sleeping by one or more families; to see that this removal is effected in a respectful manner, with all due attention to the wishes and feelings of the friends; to give the necessary instructions to the survivors for their own safety; to obviate, as may be practicable, the danger to be apprehended from presence of the corpse, until it can be removed ; to examine into the existence of any local causes calculated to promote the extension of disease, more especially if the death has been by any form of epidemic, endemic, or contagious disease, and without delay to take such measures as may be necessary or for the removal of the evil ; to verify the cause as well as the fact of the death, where there has been no medical attendant; to ascertain the cause of death from the medical attendant, where there has been one ; to grant, when required, a certificate of the fact of death, whenever apprehension is entertained of premature interment ; to see that due care is taken of the bodies in the houses of reception ; to make arrangements with the friends of the deceased, and with the officers of the cemeteries, as to the time and the mode of the removal of the dead, for of regularity, quiet, and order ; and to superintend into effect any other regulations of the Board of Health.

5. Boards of Health should make an exact survey and plan each burial-ground in their respective towns, on which –should be drawn and numbered

separately, each family or personal lot, each tomb, and each grave; and these numbers be entered in a record-book, and against each the name of the individual or individuals interred therein. These records should, as far as practicable, contain the names and of the tenants already there, as well as new ones. Undertakers should return the number of the lot, tomb, or grave, to be entered under "place of interment," in the records of deaths. All these records should be carefully preserved, so that any person may be able to identify the exact spot where a friend or connection was deposited. The precise quantity of land, in acres or parts of acres, in each ground, should be entered on the plan.

XXXIV. WE RECOMMEND *that measures be taken to preserve the lives and the health of passengers at sea, and of seamen engaged in the merchant service.*

Vessels at sea are the floating habitations of living beings; and in these, as in dwellings on the land, the air may be corrupted by over-crowding, filth, and other causes, and thus become a fruitful source of disease. "Of all known poisons," says Dr. Combe, "that produced by the concentrated effluvia from a crowd of human beings, confined within a small space, and neglectful of cleanliness, is one of the worst; and in ships where ventilation is not enforced,--especially if the passengers are dirty in their habits, and much kept below by bad weather, it frequently operates with an intensity which no constitution can long resist." "The occurrence of a single case of fever on board a merchant-vessel, and much more the spreading of disease among a ship's crew or its passengers, is, *prima facie*, evidence of neglect,-neglect of removable causes of disease; causes which might be certainly obviated by simple and inexpensive means, and for the prevention of which, therefore, the well-being of large classes requires that securities should be provided. That such securities should be provided for the crews and passengers of ships, their peculiar situation when overtaken by sickness appears to render peculiarly necessary. They are restricted to a narrow space; they cannot shift their locality; they cannot alter, in any way, the sanitary condition of the vessel; and they are out of the direct reach of civil authority,-all which peculiarities seem to be special reasons, calling for general sanitary regulations."

"A foul ship is not only a centre of disease to those on board, but a source of disease to her neighborhood. From a variety of evidence it appears indisputable that, while the foul state of a ship's hold is the frequent cause of malignant fever to her crew, the air issuing from such a hold, and the cargo taken from it, are capable of producing disease in the neighborhood of the wharf where the unloading takes place, and of affecting persons who come on board from the shore. observations of this kind have led to the apprehension and belief that epidemic diseases may be introduced from one country into another in this manner; and, were this possible, the actual condition of ships in general would afford the most perfect nidus for the incubation and development of pestilential virus that human ingenuity could devise. That a foul ship should produce disease in those who go on board of

her, or near her, is no more surprising than that a foul chamber should do so." <sup>99</sup>

Without attempting in this place to recommend a specific system of sanitary regulations for ships, we urge, in general terms, upon merchants, sea-faring men, and others interested, the great importance of the subject. Dryness, ventilation, and cleanliness, should be enforced in every department of the ship; foul and putrid cargoes should be avoided; and every means used, by proper diet and regimen, to preserve the health of the seamen and passengers. Sanitary improvement was early introduced on board ships, as we shall presently show; and a great number of human lives have consequently been saved. In no department of social economy can preventive measures have a greater influence. Boards of Health might do a good service to humanity, by issuing a simple and judicious code of sanitary regulations for ships.<sup>100</sup>

**XXXV. WE RECOMMEND that the authority to make regulations for the quarantine of vessels be intrusted to the local Boards of Health.**

The seventeenth section of the proposed act contains all necessary authority for making quarantine regulations. Boards of Health in sea-port towns will be able to obtain all information regarding their duties, by consulting the preferred to in the appendix, and making such regulations as are adapted to their own peculiar circumstances. The extremely valuable Report of the General Board of Health of England on Quarantine, published

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<sup>99</sup> Report of the General Board of Health on Quarantine, p. 108, 110.

<sup>100</sup> The Introduction to the Statistical Reports on the Health of the Navy, already referred to, (p.37.) and the Reports to the General Board of Health of England on Quarantine, contain many very valuable suggestions on this subject, to which we refer those interested. We extract from the latter work (pp. 115-118) an account of one regulation, which has had great influence:- "It is stated that when the system of transportation was first adopted, in some of the earlier voyages full one-half of those who embarked, later, on the passage to New South Wales, as in the Hillsborough, out of 306 who embarked, 100 were lost " and in another ship, the Atlas, out of 175 embarked , 61 were lost. Yet there were no omissions palpable to common observation, or which could be distinctly proved as matter of crimination, to which responsibility might be attached. The shippers were no doubt honorable men, chargeable with no conscious designs against the lives of the human beings committed to their care, and with no unusual omissions; but their thoughts were directed by their interests exclusively to profits: they got as much freight as they could, and they saw no reason why convicts or emigrants should not put up with temporary inconveniences to make room for cargo. "By a simple change, (based on the principle of self interest, the most uniform, general, and, when properly directed, really beneficent of all principles of action ,) by the short alteration of the terms of the contract, so as to apply the motive where alone there was the effectual means of prevention, by engaging to pay only for those landed alive, instead of paying for all those embarked,-these extreme horrors were arrested, the generation of extensively mortal epidemics was in a short time prevented, and clean bills of health might have been given to all the ships which before would have been entitled to none. From the Report of the Select Committee on Transportation, in the year 1812, it appears that in one subsequent period,-namely, from 1795 to 1801 , - out of 3,833 convicts embarked, 385 died, being nearly one in ten. But since 1801, after the principle of responsibility began to be applied , out of 2398 embarked, only to one and a half percent ., or even lower than the average mortality of such a class living shore. The shippers themselves, without any legislative provisions, or any official supervision or regulations thereto, appointed medical officers, or surgeons, and put the whole of the convicts under their charge; the shippers attested their own sense of the propriety, sound policy, and efficiency of the principle, by voluntarily adopting it, and applying it to each ship-surgeon in charge, whose remuneration was made dependent on the number of passengers landed alive. "The alteration, stimulated by the self-interest of the ship-surgeons or officers engaged in that service, led to highly important practical results as to the means of securing health and preventing disease. In the course of the sanitary inquiries which have served as the basis of legislation, a surgeon who had the charge of transport ships described the toils of his service during long voyages, his sleeplessness on stormy nights, his getting out of his hammock to see that the wearied sailors, whom he would not trust to themselves, took off their wet clothes and put on a proper change before they turned in; and he narrates how he was complimented on his sentiments of active benevolence, when he frankly owned that he was really only entitled to praise for vigilance to his own interests. Some benevolent and intelligent ship-owner had taken care that the sailors as well as the passengers should be included in his contract for remuneration. He acknowledged it was that which kept his thoughts intent on the means of preserving their health, as well as saving his own trouble in merely treating illness when it occurred, which alone, in consequence of a vicious short-sightedness, is ordinarily considered the surgeon's sole duty, and not that of a giving general advice or directions for the preservation of health. "In cases of contracts on these terms for the transport of where the officers in command had forgotten to provide surgeons for their care, the pecuniarily responsible shippers had not failed to provide them. " There is strong reason to believe, from recent experience, that the general adoption of this principle in its full extent would do more to meet the formidable difficulties of these emigration ships, than the best devised system of inspection in the absence of this principle."

last year, is particularly commended. Public opinion on this subject seems to have undergone a change within a few years past.

XXXVI. WE RECOMMEND *that measures be adopted venting or mitigating the sanitary evils arising emigration.*

This recommendation involves one of the most momentous, profound, and difficult social problems ever presented to us for solution. When carefully examined with its attendant circumstance the view presented is startling and sickening. Every man in whose veins courses any puritan blood, as he looks the events of the past, or forward to the hopes of future, is appalled and astounded. Public attention has been frequently called to this most important matter. We desire again to present the subject, with a special view to its sanitary relations. And we earnestly hope that the few facts which we shall now give, even if they come in the shape of figures and statistics, will arrest notice and careful consideration. In making an application of these facts and statements, it should be recollected that they are made concerning classes. There are individuals who are highly worthy, and are not obnoxious to the general character of the whole class.

The Report on the Census and Statistics of Boston, for 1845, first gave the birth-place of the inhabitants, and stated that the foreigners and their children were then 37,289, or 32.61 per cent. of the whole population ; and that there arrived in Boston, during the nine years previous, 50,000 alien passengers,- 33,436 by water, and the remainder by land, increasing annually from 1,262, in 1838, to 8,550, in 1845.

From the facts we have since collected, it appears that 15,504 arrived by water, in 1846; 24,245, in 1847 ; 25,042, in 1848 ; and 34,873, in 1849, making 99,658 ; and that others arrived by land sufficient to make the whole number equal to 125,000 within the last four years.<sup>101</sup>

We estimate the increase of the population of Boston, this period, at about 23,000 ; and that the whole of crease was of foreigners. The American residents are to be no more numerous now than in 1845.<sup>102</sup>

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<sup>101</sup> "I have boarded," in 1849, says Mr. Monroe, Superintendent of Alien Passengers, " ten hundred and seventeen vessels, in which were brought the following numbers:

Number of those who had been in the State before - 3,912

Number for which bonds have been taken, -2,598

Number for which head money has been received, ---11,548

Number for which no security or tax has been received, as per decision of Supreme Court - 16,815

Total ---34 873

" The foregoing passengers were from the following ports, in such vessels as is here unto annexed, viz. :

In 32 English vessels from Liverpool, 4,007

In 41 English vessels from Ireland, -4,341

In 665 English vessels from the Provinces- 5,191

13,569

In 68 American vessels from Liverpool, -13,350

In 9 American vessels from Ireland, -1,510

In 69 American vessels from the Provinces, 4,662

In 133 American vessels from all other ports, 1,782

"The principle part of those arrived are Irish laborers, say three fourths, and the balance from all nations, of all professions and occupations. "The condition of the passengers, so far as relates to their health, (notwithstanding the cholera has been among them to some extent,) has been better than the the two preceding, years, but their poverty is full up to the usual standard. Not only have large families of children been sent for by their parents, who have managed to get money sufficient to pay their passage to this country, but many orphan children and paupers, of the most unfortunate kind, assisted (by their landlord) to this country, and will very soon become inmates of our public institutions,-in fact, many are already there."

<sup>102</sup> While this sheet is passing through the press, the State census of the City has been published; and it appears that the population is now 138,788,-of whom 63,320, or 45.62 percent., are foreigners. This proves the correctness of the above estimate, and shows a decrease of 1,879 Americans, and an all increase of 26,031, or 13 percent., of foreigners.

Of 1,133 intentions of marriage entered by the City Registrar, in Boston, from July 12th, when the record commenced to December 31, 1849, the foreigners were 621, or 55 per cent.; and the Americans only 45 per cent. ! The actual marriages show a still greater proportion of foreigners.

Of 5,031 children born in Boston, in 1849, and were returned to the Registrar's office, 3,149, or 62 per cent., were the of foreigners, and 38 per cent. only, of Americans.

Boston has paid on the average, for the last four years, about \$1,100,000 taxes; of this sum, \$350,000 per annum is for the benefit of the public schools ; and *half of that sum*, or \$175,000, for the education of children of foreign parents, most of whom contribute little or nothing to the public expenses, in taxation or otherwise. And in many cases the admission of great numbers of these children excludes children of American parents.

The City Marshal of Boston estimated, in January 1849, that there were 1,500 truant and vagabond children in the city, between the ages of 6 and 16 years, who, from neglect and bad habits, were unfit to enter the public schools; and of 1,066 whom he actually enumerated, 963, or 90.3 per cent percent were foreigners, and 103, or 9.7 per cent., only, were Americans!

The Boston Society for the Prevention of Pauperism, in their office for providing employment for females, have received, during the last five. years, applications for 15,697 females, of whom 14,044, or 90 percent., were foreigners and 10 per cent. only were Americans. And at the male employment office, of 8,602 applicants, 5,034, or 58 per cent., were foreigners.

The whole number of persons relieved as paupers in the county of Suffolk, for the year 1849, was 7, 728,-of whom , 4,549 or 58 percent were foreigners; and their proportion of whole expense of \$103,716, was over \$60,000. The numbe of paupers in the whole State was 24,892,-of whom 10,253, or 41 per cent., were foreigners, and their proportion of whole expense of \$441,675, was \$182,311.

The number of foreign paupers was 7,413, in 1848, and only 2,765 in 1838 ; showing an increase in 10 years of 268 per cent. In the last 11 years, 42,928 foreigners have been assisted, at an expense, beside all money which has been receive them, of \$737,564.

The city of Boston is this year building a large house at Deer Island, for paupers, at an expense of \$150,000; and an extensive jail, at an expense of 5 or \$600,000 ; both of which the native population! The existing public would have been sufficient but for the great increase of foreigners. Of 1,170 dramshops in Boston, in June, 1849, over 800, or 70 per cent. were kept by foreigners.

More than *three fourths* of all the arrests by the night watch and police in Boston, and nearly three fourths of all the commitments to the county jail, and of the cases before the police and municipal courts, were those of foreigners.

There have been committed to the house of correction in Boston, during the last five years, 3,737 persons, -of whom or 63 per cent., were foreigners, and 37 per cent. Americans; and, in the last year, the proportion of foreigners was very much larger. And in the whole State, during last year, 3,035,-of which 1, 770, or 58 per cent., were of foreigners. The increase of crime has been very great during the last eight years, but it has been almost

entirely the foreign population. Notwithstanding the increase of the native inhabitants, the number of commitments among *them* has not increased.

About one third of all the inmates of the State prison, for the last twenty years, have been foreigners. And the State has appropriated \$100,000, this year, for the erection of an additional building for the reception of prisoners, which would have been unnecessary were it not for the great increase of foreign criminals.

In the Boston Lunatic Hospital, 327 inmates from the time it was opened, in 1839, to 1845, of whom 160, or 48.93 per cent., were foreigners. For the nine years, 1837-1845, inclusive, the Boston Dispensary had under its care 21,908 cases; of these, 15,522, 70.56 per cent., were those of foreigners and children of 1,876 only of Bostonians. And during the year September 30, 1849, it had 3,950 cases, -of which 3,487, or 88 per cent., were those of foreigners, and 463, or 12 percent., only were those of Americans.

At the Boston almshouse establishment, on Deer Island, 4,816 persons were admitted, from the time it was opened, in 1847, to January 1, 1850, of whom 4,661, or 97 percent., were foreigners; and 155, or 3 per cent. only, were Americans. The number who were sick when admitted were 4,069, whom 759 have died; 402 remained January 1, 1850, of whom 369 were foreigners, and 33 Americans.

In 1849 there died of cholera, in Boston, 707 whom 572, or 81 per cent., were foreigners; and 135, or 19 per cent. were Americans; 42 only were Bostonians.

5,079 persons died in Boston in 1849, of whom 2,982, or 59 per cent., were foreigners.

Similar facts might be multiplied; but if these command attention, it would be a work of supererogation to go farther.

As long ago as 1834, the commissioners for revising the poor laws of England, among other measures, "recommend that the vestries of each parish be empowered to order out the payment, out of the rates raised for the relief of the poor, of the expenses of the emigration of any persons having within their parish." <sup>103</sup> This recommendation was embodied in the 62d section of the Poor Law amendment act, <sup>104</sup> and there is no doubt, that, in very many instances, it has been carried into practical operation. Some poor-houses have been emptied, and their inmates have been transported to America, -to Massachusetts! The stream of emigration has continued to and seems to gain a new accession of strength in passing year. Massachusetts seems to have resolved itself into a vast charitable association. Into her institutions are admitted the emigrant pregnant woman at her lying-in; the child to be nursed and educated ; the pauper to be supported; the criminal to be punished and reformed; the insane to be restrained and cared for; the sick to be nursed and cured; the dead to be buried; the widow to be comforted ; the orphan to be provided with a substitute for parental care; and here ten thousand offices of social and personal kindness recognized by the public laws of the State, thousands upon thousands of dollars, are bestowed. The doors of these great institutions have been thrown wide ; the managers of the pauper-houses of the old world, and mercenary ship-owners

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<sup>103</sup> *Report of Commissioners on Poor Laws, 1834, p. 357.*

<sup>104</sup> *First Report of Poor Law Commissioners, p. 90.*

who ply their craft across the and pour their freight freely in, each smile at the but lax system of generosity which governs us, and rejoice at an opportunity to get rid of a burden, or and a yet greater calamity attends this Our own native inhabitants, who mingle bounty, often become themselves with diseases, and sicken and die; and the the living is depreciated: and the social and moral character we once enjoyed is liable be forever lost. Pauperism, crime, disease and death, stare us in the face.

We will not attempt to suggest a remedy for this most regnant anomaly. It requires to be more carefully studied, and thoroughly surveyed than the present occasion allows. That State should pass suitable laws on the sub;ect, and the and local Boards of Health should carefully observe evils in all their sanitary bearings and relations. We however, suggest,-

1. That emigration, especially of paupers, invalids, and criminals, should, by all proper means, be discouraged ; that misrepresentation and falsehood, to induce embark in passenger-ships, should be discountenanced and counteracted.
2. That ship-owners and others should be held to strict accountability for all expenses of pauper emigrants: existing bonds for their support should be strictly enforced.
3. That a system be devised by which all those who introduce them, by water or by land, should required to pay a sufficient sum to create a general sinking fund for the support of all who may require aid in the State, at within five years after their arrival.
4. That such a description of each emigrant be registrated as will afford the means of identification of anyone, at and in any place, within five or more years after arrival.
5. That encouragement be given to emigrate from this State, where there is little demand for labor, to places; and that associations be formed among for settling on the public lands of the United States.
6. That efforts be made, by all proper means, sanitary and social condition of foreigners, and to among them habits of cleanliness and better modes of living.
7. That our system of social and personal should be revised and remodeled, and that a general devised which shall bring all the charities of the and state, under one control, and thus prevent giving and imposition.
8. That an establishment for paupers, including a workshops, be formed in each county in the State paupers might be sent, and where they quired to labor, as far as practicable, for their support.

## *II. SOCIAL AND PERSONAL MEASURES RECOMMENDED*

Most of these recommendations may be carried into effect without any special legislative authority, State or municipal.

**XXXVII.** WE RECOMMEND *that a sanitary association be formed in every city and town in the State, for the purpose of collecting and diffusing information relating to public and health.*

The subject of sanitary improvement is comparatively new. Few minds, in this country at least, have as yet been led to examine it, to see its bearing upon the welfare and progress of humanity. Those, however, who have

looked at it with any considerable degree of care, have been convinced of its importance; and it only requires to be generally understood to be universally regarded as *the* great subject of the age. Public opinion needs to be educated, and in no way can it be more effectually done than by associated effort. If a Metropolitan Sanitary Association existed in Boston, as a central agency, and a Branch Sanitary Association in every city and town in the State, they might do much to effect this object, by collecting and diffusing useful information; and, by their cooperation with the public authorities, render the discharge of their duties comparatively more easy. Inestimable benefits might thus be secured to the cause and to the people. To aid those who may wish to form such associations, we suggest the subjoined form of a constitution :<sup>105</sup>

**XXXVIII. WE RECOMMEND *that tenements for the better accommodation of the poor, be erected in cities and villages.***

The condition of dwelling-houses has a most important relation to the health of the inmates; and no doubt that the diseases of the laboring classe, poor, are often produced and accelerated to fatal defects in these respects, which are removable.

In 1846, a meeting of the citizens of Boston was a valuable "Report of the committee on the providing Better Tenements for the Poor;" was adopted and published. After stating many interesting particulars relating to the subject, the committee came to the conclusion :

"1st. That property invested in well-constructed and well-situated houses, to be leased to the poorer classes of by apartments and by the week, is as safe as estate excepting the best, and far more so than the average.

"2d. That it yields as much as as any real estate which equally is safe.

"3d. That, by putting a portion of his funds into such buildings, the capitalist may confer an immense benefits on his fellow-citizens, which must soon react upon children.

" 4th. That he would thereby incur no risk of collateral injury, such as, in many forms of charity, goes so far to offset the most obvious benefits."

And they recommend to accomplish such an object:

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<sup>105</sup> I. *This association shall be called the-(here insert the name of the place) Sanitary Association*

II. *The object of the association shall be-1. To institute and promote local and personal sanitary inquiries and improvements. 2. To correct misconception and misrepresentations of the nature and design of sanitary measures. 3. To promote the passage of useful laws, ordinances and regulations, relating to public health. 4. To aid the public authorities, by cooperation and assistance, in carrying them into effect. And 5. To collect and diffuse, by personal intercourse, public lectures, printed works, or otherwise, information, especially as to the sanitary condition of this town and its inhabitants, and generally as to the sanitary condition of this State and other places, and their inhabitants; to the end that among all persons the laws of health and life may be better understood, the causes of disease known and avoided, the term of life extendd, the vital force and productive power increased, and the greatest possible amount of physical and sanitary happiness enjoyed.*

III. *Any subscriber paying - annually shall be a member for one year; and any subsciber paying - at any one time shall be a member for life.*

IV. *The officers of the association shall be, a president, vice president, secretary, treasurer, and auditor, who shall be chosen at the stated meeting in January, or at any other time when a vacancy shall have occurred; and who together shall constitute the Board of Directors.*

V. *Committees may be appointed to investigate and report upon local or general subjects embraced in the objects of the association.*

VI. *The association shall meet stately on the second Thursday of each month, and at such other times as the Board of Directors shall appoint. At the meeting in January a report shall be made of the proceedings during the next preceding year.*

VII. *By-laws for the more particular government of the association may be made by the Board of Directors.*

VIII. *No alteration of this constitution shall be made, except at a stated meeting, on recommendation of the Board of Directors, and by vote of two thirds of the members present.*

"1st. To form a company to hire buildings and let rooms to poor tenants under direction of a paid agent; and

"2d. To take such steps as may seem to them best, by the establishment of chartered or private companies, to procure the construction of large, well fitted buildings, especially designed for the use of such tenants. "

Wishing to learn what had been done, and how far the experiment had succeeded, we addressed inquiries to Stephen H. Perkins, Esq., of Brookline, the author of the Report above referred to, and obtained from him the communication which appears in the appendix. We have also given, immediately following that communication, extracts from the able Report of Dr. Simon, "On the sanitary condition of the London," presented November 6, 1849. These documents, afford much interesting information on the present state of this question, and we particularly commend them to public and general attention. We recommend the subject as worthy the patronage of the wealthy and philanthropic, as a means of raising the public sanitary condition of cities. Those who " cast their bread on the waters" in this way give to receive again.

XXXIX. WE RECOMMEND *that public bathing-houses and wash-houses be established in all cities and villages.*

Within the last few years, a new movement for the general and sanitary benefit of the poor has been made, in the establishment of public bathing-houses and wash-houses. Liverpool has the honor of originating the idea, and of erecting the first institution, which was opened the 28th of May, 1842. A second was erected there. in 1847. The statistics of these two establishments show that the public patronage has been annually increasing from their commencement, and that, during the year August 31, 1849, the number of baths taken was 104,691; the number of dozen clothes washed, 120,875; the £1,230 4s. 11d., and the expenses £1,392 17s. Dr. Duncan, the Medical Officer of Health of Liverpool, to whose kind attention we are much indebted, wrote us on the 4<sup>th</sup> December last ;-"You will observe that the income but not quite, equals the expenditure; but so well satisfied are the town council of the benefits conferred on the working classes by these establishments, that they have recently decided to erect six additional baths and wash-houses in different districts of the borough, at a cost of £25,000. The land for four of these buildings is purchased, and one of them is now in course of erection. This will contain two plunge baths, one 42 by 27 feet, and the other 39 by 27 feet; 49 dressing boxes, 87 washing halls, 8 infected washing halls, 10 first class baths, and 33 second and third class."

The example of Liverpool has been followed in many other places in Great Britain. Dr. John Robertson, of Manchester, furnished us with the following facts concerning a portion only of these institutions in that city. In three years, ending September, 1849, there had been given 79,408 baths, of which 30,242,-27,626 for men, 2,616 for women, were of the first class; and 49,166,-43,377 for men, and 578 for women,-were of the second class. There had been 16,907 washers and 594,294 dozen articles washed. The receipts £1,227, and the expenses £1,194, leaving a balance in favor, for the three years, of £33.

Dr. Simon, of London, says, in his report, already referred to, that "the committee for promoting the establishment of baths and wash-houses,

having Sir H. Dukinfield for its chairman and including in its number, with other influential persons, several members of this corporation, founded, at great pains and expense, a model institution at Goulston Square, Whitechapel. In spite of many circumstances conspiring to render this first and experimental establishment particularly expensive, it has more than supported itself by the small payments of the poor; and its arrangements are sufficiently extensive for it to have given on one day as many as 932 baths. This fact having occurred in the first year of its establishment, shows the poor must have appreciated the additional comfort within their reach; and I may add, that, from the first opening of the building, the annual receipts have been progressively on the increase. Somewhat earlier, and under the influence of the same parent committee, though specially directed by a branch committee, a similar establishment was founded in George St. Euston Square. During the year 1848, the number of payments made here for bathing was 111,788; the payments for washing in the laundries, 246,760. This establishment has not only proved self-supporting, but has enabled to accumulate a large surplus, which is now being applied to enlarge and improve the building. At Glasshouse Yard, near the entrance to the London Docks, there has been founded, on the same model, a small establishment of free baths and wash-houses for the destitute poor. It was opened in May, 1845. In its first year, the baths given amounted to 27,662; the usings of the laundry, to 35,840 ; and its total working expenses were covered by £378.

" No language, however eloquent, no comment, however instructive, could equal the significance of the figures which I have cited, as illustrating the great utility of these institution; and, as regards their pecuniary success, it is impossible to furnish you with better testimony than is comprised in the fact, that the guardians of the poor in a great metropolitan parish out of the poor-rates, founded an institution of this nature. They have become witnesses to the financial economy of that sanitary and social boon. In their establishment, which is not only self-supporting but amply remunerative, the poor are enabled to have baths at an expense of a penny for a cold and two pence for a warm bath; and the women are enabled to do their washing, ironing, and drying, with an unlimited water supply, and with other arrangements of the most admirable completeness, at an expense of only two pence for the first two hours during which they occupy the separate chambers allotted to them. A very considerable proportion of the expense is covered by the receipts for baths given at the higher price of six pence, and with some additional luxuries, to persons of a higher grade in society than those who use the ordinary baths; the former, though used by a different class of persons, being sought with almost as much avidity as latter.

"In the sanitary point of view, I probably need not insist on the advantages which these establishments have conferred. You will hardly doubt how good and wholesome a thing it has been for so many thousands to have had the means their bodies and their clothing, who, in the absence such facilities, must often have carried about their persons a long and offensive accumulation of dirt and sweat."

A movement was made by the city of New York to establish these institutions, and a valuable report on the subject, submitted to the Board of Aldermep, May 29, 1849, has been published. An act of incorporation was

obtained from the legislature; but how far their proposed measures have been are not informed.

In Boston there are twelve or more bathing establishments, own by individuals, who charge twenty-five cents for admission. At the Eolian Baths in Washington Street, fitted up in excellent style, those on Cragie's Bridge, and those on Warren Bridge, twelve and a half cents is charged. These establishments are much frequented, and, on a single Saturday night, 200 bathers are known to have been admitted to one of them. The sanitary advantages which would result to all, and especially to the poorer classes, by a more extended practice of bathing, have often been subjects of discussion. On the 7<sup>th</sup> of January, 1850, Dr. Samuel Cabot, Jr., read before the "Society in Aid of Social Improvement," a report on the subject, which was published. The Boston Bathing and Wash-house Company was incorporated, March 11, 1850, for the establishing bath and wash-houses in different parts of the city; and this organization, it is believed, if properly conducted, will serve all the purposes designed by such establishments.

**XL. WE RECOMMEND *that, whenever practicable, and sewage of cities and towns be collected, and applied to the purposes of agriculture.***

The refuse and sewage of cities and villages are of great value as manure; and plans have been devised abroad to collect and apply them for agricultural purposes. Companies have been formed, estimates made, and experiments tried, to test their value and to devise the best means by which they might be to their great value all agree ; but the different plans of collecting and distributing them, seem not as yet so fully tested as to warrant a recommendation of any particular one in preference to others. We insert some extracts from different works, and recommend the subject to the careful examination of those interested. Public urinals and public privies should in every populous city and village, and placed under public authority, for the purpose of convenience, economy, and health.

"The value of manures as promoters of vegetation is known to result from their possession of the essential element, nitrogen, in the form of ammonia, with the subordinate properties of alkalies, phosphates, and sulphates. Now the experiments of Boussingault and Liebig have furnished us with the means of estimating the quantity of nitrogen contained in the excrements of a man, during one year, at 16.41 lbs., upon probable data, and also that this quantity is sufficient for the 800 lbs. of wheat, rye, or oats, or of 900 lbs. of barley. 'This is much more,' says Liebig, 'than it is necessary to add to an of land, in order to obtain, with the assistance of the nitrogen absorbed from the atmosphere, the richest crops every year. By adopting a system of rotation of crops, every town farm might thus supply itself with the manure, which, be containing the most nitrogen, contains also the most phosphates. By using, at the same time, bones and the lixiviated ashes of wood, animal excrements might be completely dispensed with on many kinds of soil. When human excrements are treated in a proper manner, so as to remove this moisture without permitting the escape of ammonia, they may put into such a form as will allow them to be transported even to great distances.' Making reasonable allowance for the reduced quantity produced by children, we shall be safe in assuming the nitrogen thus resulting from any amount of population to be equal to the

supply required for affording 2 lbs. of bread per diem for every one of its members! Or assuming an average of 600 lbs. of wheat to be manured by each individual population of London, and taking this at two millions for a rough calculation, the manure thus produced is sufficient to supply the growth of wheat of a total weight of 1200 million or 535,714 tons. The total manuring matters, solid and liquid, produced in a town, allowing for those which produced in manufactories and sewage water, are probably equal in weight to one ton annually for each member of the population, or two millions of tons produced in the metropolis. That this vast quantity of manure should be made available for agricultural production, is a principle which cannot be denied and which is properly limitable only by the consideration of expense as weighed against the value of the results. The expense will be made up mainly of three items, viz. : of the *collection*, of the *raising*, and of the *distribution* of the refuse matters."

"A very reduced estimate of the value, for manure, of the human beings, (reduced avowedly for the sake of public belief,) represents it at 5s. for each person, annually. The value of the produce of the population of London would thus be £500,000 per annum. Admitting one-half of this to be now made available, we shall have the other half, amounting to £250,000, gained by the proposed mode of collection ; and adding this to the £ 134,000 estimated savings, we have a total of £384,000 annually available for the expenses of construction and repair of apparatus, and current cost of collecting, raising and treating the sewage of the metropolis. This sum will endow thirty-eight stations with an annual income each exceeding £ 10,000, for the interest of capital in first construction and current expenses of working and treating. And this number of stations appears fully adequate to economy of power which can be attained by providing for several levels in each district of the metropolis <sup>106</sup>.

Mr. Charles F. Ellerman, in his treatise on "Sanitary Reform and Agricultural Improvement," urges two points on this subject:-

"1. Any plan is unhealthy, uncleanly, and enormously wasteful, which consigns the excreta of the population to rivers or water-courses.

"2. Any plan whereby the refuse of towns is employed to fertilize the country, is seriously defective, unless due provision is made that the nuisance and injury to public health shall not arise; that substances pernicious to vegetation shall not be mixed with those which are beneficial to vegetation; that the smallest possible quantity of the latter shall be suffered to escape; and that it shall be saved in such a form as may admit of its being rendered available in any place, and in such a state of dilution or concentration as varying soils, seasons, or other circumstances, may require.

"Of the immense economic value of the preservation of human excreta, when we are sending whole fleets in search of those of birds, (guano,) which consist of precisely the same material in a less advantageous form, no thoughtful man can entertain a reasonable doubt. Mr. Smith, a well-known agriculturist, rates the average annual value of the excreta of each individual at £1; so that, taking the whole population of Great Britain at twenty-eight millions, we are positively *throwing away*, every year, that which is equivalent to *twenty-eight millions sterling!* The actual saleable

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<sup>106</sup> Dempsey's *Drainage and Sewage of Towns and Buildings*, pp. 4, 5, and 20.

value in Belgium of the is 37 shillings for each individual.' There may be extravagance in this estimate but, according to Dr. Playfair, a pound of urine is capable of increasing the production of grain by an equal weight; so that, even allowing for some exaggerated human urine at present wasted in this country would to produce more than all the grain required for the consumption of the entire population."

"It is a law of nature that the vegetable and animal king- should be, as it were, supplementary the one to the other. Animals, by breathing air, load it with carbonic acid, and render it noxious to themselves; while vegetables absorb the acid gas, its stead, and thus supply the animal with kingdom with vital air. Then again, whatever elements an animals takes from the soil as food, it returns again to the earth in a different form, noxious to itself, but nevertheless furnishing vegetable kingdom abundant and wholesome nourishment. It is thus that the organic elements complete their circuit in living beings. Nothing is lost, it is only reproduced in another form. These principles lie at the root of the whole science of agriculture, while they constitute the basis of all economic sanitary arrangements.

" The principle has been long admitted, and to a certain extent acted upon, that the refuse of a town, when applied to agricultural purposes, has some money value; but there seems, with few exceptions, to have been no approximation even to an adequate estimate of that value. It is stated in Dr. Playfair report, made in 1844, that the amount obtained by the sale of the town manure of Manchester was £800 per annum ; and in Liverpool it produced £ 1, 150 ; while at Rochdale it was worth £ 18 10s. In some of the Scotch towns these things are managed better. The cost of cleansing Edinburgh is £12.1000 pounds a year, and the manure, which is public property - *as it ought to be in all towns*, -sells for £ 10,000 per annum. At Perth and Aberdeen the manure pays the whole cost of cleansing, and returns, in addition, an annual of £430 to the former town, and £600 to the latter. The whole of the rich and beautiful country extending Gravelines to Ostend, originally consisted of a barren, sandy waste, which has, in the course of ages, been converted into garden by the continued application of manure brought from a distance.

"The instances given above show, in all probability, most that has been made of solid town manure. It is expensive to collect and remove, as well as to distribute land, and a good deal of the weight and bulk of it is unproductive ; while in all towns where cesspools exist, the best part of the manure sinks into the subsoil or evaporates into atmosphere, so as not only to be a loss to the public, but a serious cause of disease. Common sense, therefore, as well as economy, would point out the necessity of having a perfect of sewers for every house, court, and street, so as to convey away all the manure in a liquid form, diluted with water. It should never be mixed with coal-ash and cinders, which ought to be removed separately. Now this liquid manure, SEWER WATER, which is at present poured into our dock-basins, as a nuisance to be got rid of, might be made a source of great wealth to the town. If by any means it could be brought, in contact with the barren soils in the neighborhood, it would cover them with the most luxuriant vegetation. Fortunately this is not a matter of mere speculation. It has been in operation for many years, and we are much mistaken if the practice does come universal, so far, at least, as circumstances will permit.

The sewer water of several of the towns in Devonshire is employed for the purposes of irrigation, particularly at where it has been so applied for above forty years. The meadows are deep drained, to prevent any stagnation, and the sewer water is thus allowed to pass off as soon as it has nutritious principles to the grass. Land which is not under this irrigation yields a coarse herbage, with rushes; but after the application of the liquid manure it grows the finer and nutritious grasses in abundance, and there is a crop for ewes and lambs fully a month earlier than in other situations not similarly circumstanced. The value of *unimproved* from 30s. to 40s. an acre, but *after irrigation* it is worth from £8 to £ 12 per acre. We have here, at all events, a very strong proof of the value of the manure.

“The whole of the sewer water of Milan, a city containing 150,000 inhabitants, is distributed by channels over a large extent of meadow land, which it fertilizes to a prodigious degree. During the summer months the irrigation takes place for a few hours once a week, and during the winter it is nearly permanent. The meadows are mown in November, January, March, feeding; and in June, July, and August, three crops of hay for winter; while in September they furnish abundant pasture for cattle till the beginning of the winter irrigation. These lands, after paying land-tax and all other expenses, yield a net annual rent of eight guineas an acre.

“The most remarkable example, however, of the value of of irrigation is afforded by certain meadows in the meadows in the neighborhood of Edinburgh. A portion of the sewer water of the Old Town is received into ponds, and allowed to deposit a considerable quantity of solid matter. From these ponds it is allowed to flow equally over plots of land, so as to cover them, and after passing through the soil it is carried off by thorough drainage. Three kinds of soil have been treated in this way: 1<sup>st</sup>, a strong loam on a clay subsoil; 2<sup>nd</sup>, a lighter soil nearer the sea; and 3<sup>rd</sup>, *a pure sea sand, without any appreciable mixture of earthy matter*; going down to high-water mark. About 300 acres have been irrigated at various times, some for upwards of 30 years. The productiveness of these meadows is extraordinary. In the year 1835, some of the richest land was let for £38 an acre; and in 1826, which was a scarce year, as much as £57 per acre was obtained for the same meadows. Mr. Smith, of Deanston, who is the highest authority on such subjects, concludes his report of this most satisfactory experiment as follows;-

“ The practical result of this application of sewer water is, that land, which let formerly at from 40s. to £6 per Scotch acre, is now let annually at from £30 to £40; and that poor, sandy land on the sea-shore, which might be worth 2s. 6d. per acre, lets at an annual rent of from £ 15 to £20. \* \* The average value of the land, irrespective of the sewer water application, may be taken at £3 per imperial acre, and the average rent of the irrigated land at £30, making a difference £27; but £2 may be deducted as the cost of management, leaving £25 per acre of clear annual income due to the sewer water.” <sup>107</sup>

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<sup>107</sup> *Liverpool Health of Towns Advocate*, pp. 60-62.

XLI. WE RECOMMEND *that measures be taken to prevent as far as practicable, the smoke nuisance.*

The smoke of furnaces, manufactories, and other establishments, is often a great nuisance to a neighborhood, and is supposed to be deleterious to health. It corrupts the air, and often renders it unfit for respiration; and all proper and practicable measures should be adopted to prevent the evils which result from it. Experiments have been made in the manufacturing towns in England, to construct furnaces and fireplaces so as to *burn up the smoke*, as fast as produced, and thus prevent its escaping, to become an inconvenience, injury to the inhabitants. These experiments have shown that the arrangement is an economical and practical as well as a sanitary improvement. Less fuel is required when the smoke is burned than when it is permitted to escape unburned. We desire to call the attention to all interested to the subject, as worth of careful investigation. Several important facts and illustrations relating to this subject may be found in recent English sanitary publications

108

XLII. WE RECOMMEND *that the sanitary effects of patent medicines and other nostrums, and secret remedies, be observed; that physicians in their prescriptions and names of medicines, and apothecaries in their compounds, use great caution and care; and that medical compounds advertised for sale be avoided, unless the material of which they are composed be known, or unless manufactured and sold by a person of known honesty and integrity.*

The sanitary effects of patent medicines and other nostrums, advertised for sale, is one of the greatest evils of the present day. If the people were aware of the immense amount of such sales, and of the impaired health, the ruined constitutions, and the premature deaths, which they occasion, they would be astounded. An insatiable desire to make money, frequently without regard to the justice or morality of the means, on the part of the manufacturers and venders, and an inclination to do something for the relief of real or imaginary suffering, and an unenlightened belief, on the part of purchasers, that what is advertised as true must be true, are the prominent causes of this monstrous evil. This matter has attracted much public attention, but not so much as its importance demands; and no plan for a sanitary survey of the State would be perfect in which it was omitted. There is much good sense in the Transactions of the Medical Society of the State of New York. On the 7<sup>th</sup> of February, 1849, a report from which we make the following extracts :- "So far as the pecuniary interests of our profession is concerned, the vending of secret nostrums is advantageous, since it unquestionably greatly increases the amount of disease whenever such nostrums are used. We, therefore, invite no legislation in this matter for the protection of ourselves, yet, as a humane profession, we do not feel at liberty to withhold our advice, as all experience has shown that the most effectual mode of

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<sup>108</sup> *"The smoke nuisance is, perhaps, one of the most gratuitous injuries inflicted on the public, for, in the first place, it is altogether unnecessary, and, secondly, it costs the perpetrators of it good round sum every year to keep it going. The loss to the public, from excess of washing, &c., which a smoky atmosphere renders necessary, is more than at first might appear. Dr. Lyon Playfair has shown, that in this one item Manchester has been expending £60,000 a year, and that, if the expense of additional painting and whitewashing be added, the actual money loss would be double the amount of the poor rates every year. The Rev. Mr. Clay states, that in Preston only two furnaces consume their smoke, and even that imperfectly; but were all the factories in town to do as much, the public would save £10,450 a year in extra washing."* - *Liverpool Health of Towns Adv.*

correcting imposition is to divest it of mystery, and thus enable an intelligent community to judge of its truth or falsity; and because we think, in a humane science, designed for the relief of physical suffering, it is a great wrong the world of any knowledge which one may possess of the means of saving life or alleviating suffering. Therefore we recommend, that all articles designed for medical use, put up for sale as merchandise, shall be by law required to be accompanied with the names of the constituents, written or printed in plain and legible English.”

On the same day another resolution was passed :

“*Resolved*, that a prize of *twenty dollars* be offered by this society for a tract, of not less than four nor more than sixteen pages, which shall most clearly expose the pernicious influence of the nostrums and secret remedies, upon the health and morals of the community.” <sup>109</sup>

“The time will come when that system of legislation which allows unprincipled men, for their private benefit, to send forth patent medicines under the great seal of the nation, will be seen to be no other than a licensed imposition on the public. Health and life are too valuable to be thus sacrificed. Any man who really believes that he has discovered the means of mitigating human suffering, is bound, by every principle of morality and benevolence, to punish it to the world. The power to do good implies and involves an obligation to do it, and the fact of an attempt to conceal from men that which is represented to be of paramount importance for them to know, is presumptive evidence of want of integrity. The triumph of ignorance over science is the precursor of the downfall of our republic.” <sup>110</sup>

**XLIII. WE RECOMMEND** *that local Boards of other's interested, endeavor to prevent the sale wholesome, spurious, and adulterated articles, the public health, designed for food, drink, or medicine.*

The evil suggested in this recommendation is nearly allied to that preceding. It is one of immense magnitude portance, and exists to an extent greater than has ally supposed, Prodigious quantities of spurious articles, of food, drink, and medicine, which are highly daily palmed upon the public by mercenary and manufacturers and dealers. And it is generally conceded that a great amount of disease and numerous premature deaths are thereby produced.

*Food* is adulterated in various ways, A recent writer eunermates the following purposes of these adulterations :

(1) To make the substance more saleable by improving its appearance, by the addition of some body innocuous or otherwise,

(2) To depreciate its quality, by adding to it some substance which will diminish its real, without altering its apparent strength or general appearance. This is generally a very deadly fraud.

(3) To depreciate its quality by the addition of some simple substance, as water, or, if it be a solid body, as plaster of paris, sand, & c.”

Bread is often adulterated with alum, carbonate of ammonia, carbonate of magnesia, sulphate of copper and zinc, &c., to improve its appearance, when made of flour of inferior quality. Butter and cheese are often poisoned

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<sup>109</sup> Appendix to Transactions New York Medical Society, Vol. VII, pp. 96,98.

<sup>110</sup> Dr. Alden. American Quarterly Register, Vol. XII, p. 263.

with coloring matter. Milk is watered, sugar sanded, and various other intentional frauds are practiced. Unintentional adulterations may also sometimes take place by means of keeping or cooking different kinds of food.

*Drink* is also very extensively adulterated. It is said that very little of what is sold as champagne wine is made from the juice of the grape, but is a deleterious compound of other substances. Few of other kinds of spirituous liquors go to the consumer in a pure state. It is the opinion of eminent temperance reformers that one of the principal causes of the sad sanitary effects of intemperance arises from the poisonous substances compounded with the pure spirit and taken in the intoxicating cup. Other kinds of more ordinary drink, not intoxicating, and even water itself, may be adulterated and rendered unfit for use.

*Drugs and medicines* have been adulterated by the foreign producer, manufacturer and dealer, expressly for the American market, and vast quantities of such articles have been imported and sold in this country. Some of our own producers, manufacturers and dealers, also, have been guilty of a similar fraud. By careful study the properties and mode of operation of the various articles used as medicine have been ascertained, and the intelligent, conscientious, curative physician, can estimate their effect with some degree of accuracy. It is necessary, however, to enable him to do this successfully, that they should be of known purity and strength. If spurious, of inferior quality, or adulterated with other substances, not contained in the genuine article, disappointment follows, and the patient suffers and perhaps dies. This result may happen under the advice of the best curative medical skill, and life may be, and has actually been lost, from some defect existing alone in the medical remedies used. A mere statement of this fact will render obvious the importance of this recommendation.

In some of the governments of Europe no one is allowed to deal in drugs and medicines unless properly educated and licensed for the purpose ; and a constant governmental supervision is exercised over all apothecaries, to keep them within the line of their specific duties, and to prevent them from selling articles which may be injurious to health. The system of free trade, and the entire absence of all such supervision in this country, has led many incompetent and fraudulent manufacturers and dealers to enter largely into this kind of business, and a system of imposition and positive evil has been carried on, which, if fully known, would fill the people with astonishment.

The subject was brought to the attention of Congress, and, on the 26th of June, 1848, "an act to prevent the importation of adulterated and spurious drugs and medicines," was passed. Under this act special examiners are appointed to reside in various ports of entry, to carry the law into execution. Dr. W. J. Bailey, the examiner at New York, has reported that during ten months ending April, 1849, about 90,000 pounds of various kinds of drugs have been rejected and refused admittance at the custom-house in that city alone! Among these were 16,989 pounds of rhubarb; 3,253 pounds of opium; 34,570 pounds of spurious yellow bark; 12,483 pounds of jalap; 5,058 ounces of iodine, and large quantities of various other articles. It has been said that "more than half of many of the most important chemical and medicinal preparations, together with large quantities of crude drugs,

come to us so much adulterated, or otherwise deteriorated, as to render them not only worthless as a medicine, but often dangerous. “

We extract from a report on this subject, by Hon. T. O. Edwards, M. D., the following passage :- “That adulterations of medicines, to a very considerable extent, will be carried on in this country, none can deny. Bad Congress the power to prevent it, by a general law, it might be avoided. The general government has done all in its power, and it is incumbent on the several states, by special statute, to render penal the conduct that endangers the lives and health of the citizens. No one can believe that adulterations here would be carried to the extent practised by foreigners. It is scarcely presumable that all the druggists will be engaged in a traffic so nefarious. The rivalry of business, the pride of the profession, and the higher and nobler motives of humanity, will be equal to the ingenuity and invention of the dishonest, and will effect its exposure. If this law be faithfully complied with, the house that sells an adulterated and spurious medicine must needs have made it, the watchfulness of the profession, together with the numerous medical journals, jealous of the interests and informed of the rights of the medical profession, will proclaim the fraud. Law and public opinion will point to the remedy. The law requiring all medicinal agents imported to be pure, and of an acknowledged standard, will give an impetus to the employment of talents and capital in our own country. Having the advantage of the protection afforded by the duty, and a further guard against frauds by this law, American enterprise will soon rival older and more experienced chemists in the manufacture of necessary "articles."

The Revised Statutes of Massachusetts contain the following provisions of law on the subject :-

" SECT. 1. If any person shall knowingly sell any kind of diseased, corrupted, or unwholesome provisions, whether for meat or drink, without making the same fully known to the buyer, he shall be punished by imprisonment in the county ;ail not more than six months, or by fine not exceeding two hundred dollars.

" SECT. 2. If any person shall fraudulently adulterate, for the purpose of sale, any substance intended for food, or any wine, spirits, malt liquor, or other liquor, intended for drinking, with any substance injurious to health, he shall be punished by imprisonment in the county ;ail not more than one year, or by fine not exceeding three hundred dollars, and the articles so adulterated shall be forfeited and destroyed.

" SECT. 3. If any person shall fraudulently adulterate, for the purpose of sale, any drug or medicine, in such a manner as to render the same injurious to health, he shall be punished by imprisonment in the county ;ail not more than one year, or by fine not exceeding four hundred dollars, and such adulterated drugs and medicines shall be forfeited and destroyed."

This act gives sufficient legal authority to prevent the evil. If it be carefully observed, and only those dealers who are properly qualified for their business, and are of known honesty and integrity, receive public patronage, and those of an opposite character are discountenanced, and instances of flagrant abuse prosecuted and punished, it may be reasonably supposed that the evil will greatly diminish.

XLIV. WE RECOMMEND *that institutions be formed to educate and qualify females to be nurses of the sick.*

It is hardly necessary to commend the importance of good nursing in the cure of disease. Let a physician be ever so skilful, and prescribe his remedies with ever so much care and sagacity, if the nurse does not follow his directions, or if she neglects her duty, or performs it unskillfully, or imperfectly, or with an improper disposition, the remedies will be unsuccessful, and the patient will suffer; and perhaps life is lost as the consequence. On the other hand, let a physician of moderate capacity prescribe with ordinary skill, if his orders are carried into execution by a nurse, who understands, loves, and conscientiously discharges her duty, the patient is relieved, and life is preserved as the consequence. It is thus that bad nursing often defeats the intentions of the best medical advice, and good nursing, often supplies the defects of bad advice. Nursing often does more to cure disease than that the physicians himself; and, in the prevention of disease and in the promotion of health, it is of equal and even of greater importance. Many and many a life, which might have been saved, has been lost in the hands of quack nurses, as well as in those of quack doctors.

In consequence of the great ignorance which generally prevails in regard to the laws of health, and the causes and cure of disease, there are few females or others who are really capable of acting as intelligent nurses. Many, it is true, announce themselves as professional nurses, and many in more private life suppose themselves capable; but how few really understand the duties of a nurse, or the domestic management of the sickroom, and how many lives are sacrificed in the hands of the ignorant! We have long desired that some remedy should be devised from this imperfection of our social life.

In 1836, there was founded at Kaiserswerth, a city on the Rhine, in Prussia, an "Institution of Protestant Deaconesses and Nursing Sisters." Its original object was the care of the sick and poor in the neighborhood of its location. A hospital was erected, into which the sick were admitted, and also such females of proper age as wished to devote themselves to the nursing and care of the sick. Here these females remained for a sufficient period of time to receive a thorough education in the knowledge and practice of the nursing and care of the sick ;and they were afterwards sent forth on their mission of mercy, to diffuse the blessings of their superior education wherever their services might be wanted. Some have been employed in the care of the sick in their own homes, others at the expense of private charitable institutions, and others in public hospitals. Its original object has been extended, and it has become an immense central institution, having the highest object of benevolence, and promising the greatest benefits to humanity.

To the Rev. Thomas Fliedner, pastor of a Protestant church in Kaiserswerth, belongs the honor of founding this noble institution. He paid a visit to the United States in 1849, and one of this commission had the pleasure of making his acquaintance. From a notice of the institution, which he furnished, we make the following extracts :-

"The success which the establishment at Kaiserswerth has met with has been very great. For, according to the twelfth printed report for 1849, above 115 deaconesses are now at work in different parts of Germany and England. Sixty-six are occupied in twenty-five hospitals and orphan-houses

at Berlin, Dresden, Frankfort, Worms, Cologne, Elberfeld, London, etc. Sometimes, in a large congregation, which has no hospital, several of these nurses go about as mothers of the poor and sick, supporting and nursing them in their dwellings, and reporting their wants to their pastors and the overseers.

“The hospital at Kaiserswerth has received in these thirteen years about 3,500 patients, of both sexes, and of all religious persuasions, afflicted with divers diseases; many of them were admitted gratuitously.

“Some deaconesses have also been educated at Kaiserswerth for hospitals in Switzerland, France, and Holland ; and the calls from many parts of the continent, for deaconesses from Kaiserswerth, are so numerous, that this establishment cannot satisfy them all. It results from the testimonies of the administration and the medical officers of those public institutions, and it is a fact of general notoriety, that these deaconesses have been intrusted with the care of a hospital, a visible change for the better takes place in all departments, and the satisfaction, the gratitude, and the blessings of the patients follow these self-devoted nurses everywhere.

“On the fifth of July, 1849, the Rev. Mr. Fliedner brought over, from the parent institution, four of these deaconesses, to the United States, to take charge of an infirmary established in Pittsburgh, Pa., by the Rev. Wm. Passavant. It is proposed in this institution, likewise, to qualify other Christian females as deaconesses, to nurse the sick and poor in other American hospitals, congregations, and families. In this way, we trust, the new infirmary at Pittsburgh will become, under God’s blessing, a centre of light, love, and mercy.

“To the Christian reader it will be interesting the provision for the care of the sick and poor is blessing which the parent establishment diffuses lands. It contains also three branch institutions, for other purposes : -*First*, a seminary, to train young day, and industrial schools, which has :than 370 such teachers for different parts of instrumentality of whom many thousands of have been rescued from ignorance and misery, and heavenly Friend. *Secondly*, an orphan asylum, the mother-house, where twenty-five to thirty orphans of clergymen, missionaries, schoolmasters, &c., are educated by the sisters, in a Christian manner, as nurses, school-mistresses, &c. And *third*, a branch institution, designed to educate deaconesses for the nursing and moral improvement of female prisoners. This branch is therefore connected with an asylum for released female prisoners, which Pastor Fliedner founded sixteen years which has received since then more than one hundred eighty poor, deeply-fallen individuals, many of whom have by Christian instruction, to become good servants, respectable members of society .”

The eminent success which attended these establishments to the formation of similar ones in other places on the continent of Europe, and in England. From an interesting notice which appears in the Edinburgh Review , we extract the following statement, to illustrate their good results :-

" An epidemic nervous fever was raging in the two communes of the circle of Duisburg, Gartrop, and Gahlen. Its first and most virulent outbreak took place at Gartrop, a small, poor, secluded village, of scarcely 130 souls, without a doctor, without an apothecary in the neigh borhood, while the clergyman was upon the point of leaving for another parish, and his

successor had not yet been appointed. Four deaconesses, including the superior Pastor Fliedner's wife, and a maid, hastened to this scene of wretchedness, and found from twenty to twenty-five fever patients in the most alarming condition ; a mother and children in one hovel, four other patients in another, and so on; all lying on foul straw, or on bedclothes that had not washed for weeks, almost without food, utterly without help. Many had died already ; the healthy had fled ; the parish doctor lived four German leagues off, and could not come everyday. The first care of the sisters, who could have found no lodging but for the vacancy of the parsonage, was to introduce cleanliness and ventilation into the narrow cabins of the peasants; they washed and cooked for the sick, they watched every night by turns at their bedside, and tended them with such success, that only four persons died after their arrival, and the rest were left convalescent after four weeks' stay. The same epidemic having broken out in the neighboring commune of Gahlen, in two families, of whom eight members lay ill at once, a single deaconess had the happiness, in three weeks, of leaving every patient restored to health, and of having prevented the further spread of the disease. What would not Dr. Southwood Smith or Mr. Chadwick give for a few dozen of such hard-working, zealous, intelligent ministers, in sanitary reform ?” <sup>111</sup>

We commend this matter earnestly to public attention. In what way it could be best carried into effect, we will not attempt to specify. We would, however, suggest that arrangements be made in the Massachusetts General Hospital, and in other similar institutions, to admit females of a proper character to be educated for these special objects.

Preliminary proceedings have taken place for erecting a new hospital in Boston, for the accommodation of the laboring classes and the poor. If such an institution should be established, this should be one of its purposes. It might be made a kind of normal school, of the highest character and usefulness, at which females and males might be educated and prepared to be intelligent nurses in and out of the city; and thus confer the double benefit of relieving its own patients and contributing to the relief of others. There are many females among us who wish for employment and support; and we know of no way better than this in which they might obtain their desires, and at the same time make themselves honored and useful to others.<sup>112</sup>

**XLV. WE RECOMMEND** *that persons be especially educated in sanitary science, as preventive advisers as well as curative advisers.*

The great object of sanitary science is to teach people the causes of disease, -how to remove or avoid these causes, -to prevent disease, -how to live without being sick, - how to increase the vital force, -how to avoid premature decay. And one of the most useful reforms which could be introduced into the present constitution of society would be, that the advice of the physician should be sought for and paid for while in health to keep the patient well; and not, as now, while in sickness, to cure disease, which might in most cases have been or prevented. And this practice, we understand,

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<sup>111</sup> *Edinburgh Review, Vol LXXXVII, for 1848, p. 442.*

<sup>112</sup> *For further information, see article "Deaconesses of Protestant Sisterhoods," Edinburgh Review, Vol. LXXXVII, for 1848, pp. 430-451, and the works there reviewed.*

exists to some extent in some civilized countries. Three existing reasons, however, now occur to us; which we fear will prevent or obstruct, at least for a considerable period, the introduction into our country of this useful reform. One reason is, that persons who are well generally think that they have no need of a physician; - another, that if advice is sought for or given at such times, it is not generally considered worth paying for ; -and a third, that there are few persons educated in sanitary science, and capable of giving good sanitary advice. These are fatal errors, and should be corrected, for they have cost thousands of lives. Sanitary professorships should be established in all our colleges and medical schools, and filled by competent teachers. The science of preserving health and preventing disease should be taught as one of the most important sciences. It would be useful to all, and to the student in curative medicine as well as to others. To the young man who is educating himself for the great purposes of life, whatever profession he may select, it cannot be inferior, in interest and importance, to any other branch of education. An illustration of our ideas on this matter is contained in the following extract from the Weekly Summary of the Public Health in London, issued by the Registrar-General, Sept. 19, 1849 ;-

"No city, perhaps, ever possessed such an efficient body of medical men as are now practising in London. During this epidemic they have performed services which in any other field must have won the highest honors; combating the disease night and day in the most pestilential quarters, and that on much more settled principles than the public might be led to suspect from certain discussions at the medical societies. And their office has been discharged with so much kindness as to deserve the gratitude of the poor, instead of drawing down on their heads the charges with which the physicians of other countries have often been assailed by the populace. Nearly all the sick have been seen by these practitioners, yet 14,500 persons have already died of cholera in London. How is this? The medical force will be found to have been employed at an immense disadvantage. It is called into action at the wrong end of the malady. Inquiries prove, that while medical advice is generally sought in the characteristic stage, it is seldom obtained in the premonitory stage, when the power of medicine is decisive; and to that earlier and still more important period preceding the premonitory stage, which is prevented as easily as cured, medical practice has had little or nothing to say. Cholera here, also, only shows in high relief what exists in ordinary circumstances. Medical men rarely if ever treat the beginnings of diseases, and are scarcely ever consulted professionally on the preservation of the health of cities or families. The art of preserving health is taught in no regular course of lectures at any of the great schools of medicine in the United Kingdom. Yet the classical sanitary works of Pringle, Lind, Blane, Jackson, Johnson, and Martin, have been framed from observation in the British navy and army. In the science of health there are more exact, demonstrable truths than in the science of disease; and the advantage of 'prevention' over 'cure' requires no proof. In the Cyropredia of Xenophon, physicians who only treat the sick are compared to 'members of torn clothes,' while the preservation of health is declared a noble art, worthy of Cyrus himself. Vegetius speaks in similar, Jackson in stronger terms, but perhaps unjustly: for if it godlike to save many from suffering, and to carry

them in healthy life up to the natural term of existence, it is a worthy occupation to rescue a few from the arms of death or incurable infirmity.

“But the preservation and restoration of health are parts of one science; and if, as has been done by London and Liverpool, health officers be appointed in all the districts of the kingdom, the art of preserving health will be studied by a high order of men, well paid by the public; and ultimately, with an increase of their remuneration,-the diminution of sickness, the disappearance of epidemics, immense advantage to the public,-the whole medical profession may devote themselves to the preservation and development of the vigor of the human faculties, instead of being tied down to the treatment of the sick and dying. ‘And this,’ Lord Bacon says, after his great survey of learning, ‘we hope might redound to a general good, if physicians would but exert themselves, and raise their minds above the sordid considerations of cure; not deriving their honor from the necessities of mankind, but becoming ministers of the divine power and goodness, both in prolonging and restoring the life of man ; especially as this may be effected by safe, commodious, and not illiberal means, though hitherto unattempted. And certainly it would be an earnest of divine favor if, whilst we are journeying to the land of promise, our garments, those frail bodies of ours, were not greatly to wear out in the wilderness of this world.’ ”

In connection with these sentiments, in which we fully concur, there is another matter deserving investigation, which has as great if not greater influence on the sanitary condition of the people. We allude to the numerous incompetent, uneducated medical advisers, who are employed as curative physicians. We boast of living in an enlightened era of the world, and perhaps, when compared with many others, our boasting may be well founded. This age is indeed remarkable in many respects, and unlike any that have preceded it. The elements of progress that exist in its very constitution, hold out, for the future destinies of society and for the, elevation of man, higher hopes than have ever before been entertained. Notwithstanding this general characteristic, there was never a period when ignorant pretension was more bold, or seemed to have greater patronage. We have, besides physicians educated according to the roles of some state medical organization, or some medical school, the homeopathic, the hydropathic, the analytical, the Thomsonian, the botanical, the eclectic and electrical, the mesmeric, the pathetistic, the electro-biologic, the chrono-thermal, the Indian, and very many other denominations of physicians, each putting forth their own system as the only sure one for the cure of all diseases. Looking superficially at all these classes, it would seem that at no period has medical practice been more unsettled. There are men of integrity and skill in these different denominations; but there undoubtedly exists in most, if not all of them, a vast amount of practice which is injurious, or does violence to health and life.

“An immense extent of suffering, of abridgment of human life, is regularly bought and paid for, among us. A market of imposition is opened to supply the demands of ignorance ; and this must continue to be so, until the people are more enlightened. Did the pretenders to medical science, who infest the country in such formidable numbers, confine themselves to the barbarians' practice of charms and incantations, the mischief wrought by

their art would be far less deplorable; but accustomed as they are to more potent prescriptions, they commit wider havoc of human health and life, than the medicine-men of the savages themselves."<sup>113</sup>

It is not our intention here to discuss the causes which produce this characteristic of society, but to call public attention to it, that it may be examined, and its effects made known among all classes of the people. If the fatal consequences which result from the practice of those who deal in the human constitution and its diseases, and in the confidence of its possessors, as a trade merely, were truly exhibited, the disclosure would be startling. Men to whom human life and human health are intrusted, should know something of the natural constitution of the body, the operation of disease upon it, and the nature and effect of remedies; and they should possess common sense and experience sufficient to apply this knowledge skillfully to the almost infinite variety of forms and circumstances under which disease appears. Neither a blacksmith from his anvil, an hostler from his stable. A barber from his shop, or a woman from her wash-tub, can be supposed, without previous education or experience, even "acquired from the Indians," to possess this knowledge, or to be qualified to act as a curative physician.

**XLVI. WE RECOMMEND** *that physicians keep records of cases professionally attended.*

The science of medicine, like most other sciences, is founded upon facts. Many of these facts are stated in the in the recorded observation and experience of the profession, handed down to us in the accumulated medical literature of the age. In anatomy and physiology, ( and in surgery, too, to some extent,) branches of this science, truth and demonstration may be found; but in the practice of medicine more uncertainty exists. The great variety of diseases, and the infinite and ever varying forms in which they appear in living individuals, render it very difficult to ascertain, always, what their exact natures are, or what appropriate remedies should be applied for their removal. And in looking over the history of medical practice, as exhibited in the books, it is curious to observe how many successive theories have been set up by one man or set of men, and have been overturned and demolished by another, or abandoned by the authors themselves. The cause of this great variety and change of opinion is to be found, either in an honest desire for the truth, and a belief that it has been discovered, or in a desire to introduce some new theory, that may attract notoriety and promise wealth to its advocates. This has given rise to the numerous medical systems and denominations which have existed and continue to exist. The great error has been in forming theories upon observations or statements, without duly inquiring whether they have been sufficiently numerous, and have been carefully and truthfully made, upon a uniform and comprehensive plan, or whether they are otherwise imperfect. Any theory, however plausible, resting upon a basis in which imperfection exists, is liable to be overthrown.

One great desideratum seems to be a *register of cases*, for private professional practice, constructed on a plan so simple in its requirements, so convenient in its form, at so low a cost, and so comprehensive in its design, that it shall commend itself to universal favor, and be universally used. If

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<sup>113</sup> Mann's Sixth Report or the Board or Education, p. 74.

such a desirable end could be attained, means would be provided, which have not hitherto existed, to illustrate the causes, nature, effects, and treatment of disease. The abstracts of a large number of authentic registers, if properly presented to the public, would, it is believed, overthrow and destroy much of the medical theory and practice of the age, and introduce a more natural, rational, and successful system.

"The private register of the medical practitioner," says Mr. Farr, "would, at the end of a few years, be of incalculable benefit to him; he might refer back to it for important information, transmit it to his sons or successors in practice, analyze the results of his experience, and, in conjunction with his brethren all over the country, would ultimately accumulate a large mass of materials, which could not fail to advance medical science. Too much need not be attempted at first; all cases should be noticed; but those facts should be chiefly recorded which are of an unquestionable nature, and that admit of precise statement and comparison, in respect to number, time, weight, and measure."

How shall this register be constructed? We have examined a large number of different plans, but none of them exactly meet our views. After consulting with several different physicians, whose opinions and approval are entitled to all respect, we propose one for adoption, a double page of which is presented and explained in the appendix. It may at a low price ; and its form is such that it may be conveniently carried about by the practitioner, thus allowing him to have at hand the means of entering his observations *in the place* and *at the time* they are made.

Such a register would enable the physician to give the certificate of the cause of death, required under the registry laws, and also to give the amount of sickness suffered in any family he visits, as proposed to be obtained in our XXVth recommendation.

**XLVII. WE RECOMMEND** *that clergymen of all religious denominations make public health the subject of one or more discourses annually, before their congregations.*

The American Quarterly Register, Vol. XII, for February 1840, contains a plan for an Ecclesiastical Register, in which several forms for keeping records are suggested; and among others, one for the record of deaths which take place among the members of the church and congregation. The introduction into Massachusetts of a system of public registration renders some of the particulars there proposed to be recorded, unnecessary; yet it would be useful to any clergyman to know some facts concerning the history of every person in his congregation, and especially those who become or cease to be members of his church; and he should keep records for his purpose. The name, sex, date of and age at admission, date of dismissal, of removal, or of death ; cause of and age at death,-are important to be recorded. It would enable him to give a history of human life, localized so as to include acquaintances and fellow-worshippers. The influence of sickness and death upon the congregation; the number who have died during the year; the increase and decrease of epidemic and other fatal diseases; the state of the public health of the town, of the State, and of the world; the laws by which physical life and health are improved; the wonderful plan of human organization; the incomings and outgoings of human existence;

man's mortality, and its connection with immortality; the nature, design, and importance of sanitary measures, and their intimate relation to moral and spiritual life ; and the various collateral subjects connected with these matters, are themes of absorbing interest, and cannot fail of suggesting the most useful and important lessons,-physical, social, moral, and religious ; - and as such, they very appropriately come within the sphere of a clergyman's duty.

**XLVIII. WE RECOMMEND that each family keep such records as will show the physical and sanitary condition of its members.**

Between the sanitary condition of families and of the State an intimate relation exists. What affects the former must of course affect the latter. And reform, if begun at all, must first commence in these primary communities. It is here that those great principles of sanitary improvement, which promise such favorable results, must first be adopted and developed. A system of simple but exact observations, concerning the physical condition and progress of the different members of the family, would greatly aid an concerned in the adoption of such a plan of management as would promote their highest welfare and improvement.

In 1841, a "System of Family Registration" was published, which contained, among other matters, blanks, for entering, in a simple and concise manner, some of the personal and physical facts concerning the members of the family. Among the blanks was one designed to exhibit some of the main facts concerning each child; another, the sickness suffered; another, the progressive development in weight and height; and another, the average physical and social condition, the increase, and the longevity of the members of the families bearing one's own name, from whom descended, and with whom connected. Six classes of facts were suggested, which might come under notice in the records, to be observed or omitted, as circumstances or convenience might dictate. "1. Facts; 2. Intellectual Facts; 3. Moral and Religious Facts; 4. Professional Facts; 5. Miscellaneous Facts; and 6. General Results." The design of these suggestions was, to obtain the physical and sanitary facts relating to genealogy .<sup>114</sup>

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<sup>114</sup> We select the following inquires relating to the first class of facts:-

"I. Physical facts.-1. The height and weight of children at birth, and at the end of each three months, during the first year of life; also, the height, weight, and strength of several members of the family to be taken and recorded on each birthday or new-year's day. 2. At what age and date began to walk alone and to talk; at what age attained the greatest height, weight, and strength; and at what age began to decline. 3. Causes which promote or retard the growth of the body. 4. The color of the hair, the eyes, the complexion of the skin, the tone of the voice, or any other peculiar formation or expression, and whether they have been uniform through life. 5. The prenological characteristics and developments of the different individuals, and of the same individuals at different ages. 6. In what respects the children, either in person or temperament, resemble the father, mother, or any other more distant ancestor or relative; and the peculiar temperament or propensity of individuals. 7. Effect of marriages between blood relations, and of other marriage connections; and of peculiar propensities of fathers or mothers of offspring. 8. Effect of peculiar diet, food, clothing, exercise, exposure, amusements, and occupation' of sedentary, active, and other habits of life; of climate, seasons, place of residence, and other external circumstances of influences on physical developments, health, disease, and life. 9. Accidents which affect the body, the mind, and general health' what they are, and the date and place of their occurrence. 10. When vaccinated, or had measles, hopping cough, or other epidemic diseases; the name, characteristics, and various forms of all diseases, the date of their commencement and termination, and their effect on the constitution; the length of time disabled by sickness, name of failure. 12. The cause, place, and particulars of death." As a further illustration of this subject, we have compiled from M. Quetelet's valuable work, "Sur L'Homme," the following table, representing the weight and height of males and females, in Belgium, at different periods of life:- The report on "The Physical and Moral Condition of the Children and Young Persons employed in Mines and Maufactories," contrasts the height and size of children employed in mines and on farms. From this report, it appears that 10 collier boys, between 12 and 14 years of age, measured, in the aggregate, 44 feet 6 inches in height, and 274½ inches round the breast; while 10 farm boys measured 47 feet in height and 272 inches round the breast. And 10 collier girls, between the ages of 14 and 17, measured in the aggregate 46 feet 4 inches in height, and 293½ inches round the breast; while 10 farm girls measured 50 feet 5 inches in height,

No. Child	Christian Name	Date of Birth	Place of Birth	Sex	If married, to whom?	Back of Book	Age at marriage years/months/days	Date of Death	Place of Death	Disease or cause of death Age at death years/months/days	Place of interment	Remarks

"Chart showing the progressive development in weight and height":--

Name of person	Period of observation	Age	Pounds weight	Inches high	Remarks

"Chart showing the sickness suffered in the family"

Name	Age	Disease	Causes	Date of commencement	Date of termination	Days sick	Name of physician	Result	Remarks

The following facts are selected, as illustrations, from the entries concerning five families in Massachusetts, -A, B, C, D, and E, -in the table entitled "The Physical and Social Condition, the Increase and Longevity :"-

*The following are the headings of some of these blank forms. One of them covers two opposite pages, for makin, on the left, a record concerning the father, and, on the right, concerning the mother; and, under them, the following particulars concerning the children:-and 297 inches round the breast. Other similar facts might be extracted from that report. They show that employment and external circumstances have an important influence upon human growth and development. Such facts, when derived from and extensive series of observations are extremely interesting. Records have been kept by some of the physicians, as they should be by all in Massachusetts, of the height and weight of children at birth. From an exceedingly valuable paper "On Statistics of Midwifery," by Dr, John G, Metcalf, of Mendon, published in the American Journal of Medical Sciences, Vol. XIV, for 1847, p. 295, we learn that of 836 children born in Mendon and vicinity the average weight of 429 males was 8 lbs. 10 oz. each, and of 407 females was 8 lbs. each; and of 407 females was 8 lbs. each' and the average height of 242 was 19¼ inches. This shows a larger infant development than in Belgium, as indicated in the table.*

Subjects of Inquiry	A.	B.	C.	D.	E.	Total
Children in the families	60	34	19	32	25	170
Male children	31	19	11	16	13	90
Female children	29	15	8	16	12	80
Males who were married	29	13	11	16	10	79
Their average age at marriage	24	25	25	28	27	25.5
Females who were married	25	11	6	13	9	64
Their average age at marriage	24	27	24	24.5	23	24.5
Average births to each marriage	7	7	5	7	9	7
Males whose ages at death were known	23	15	9	10	6	63
Their age at death	65.5	58.5	76	66	68	65
Females whose ages at death were known	6	11	6	7	2	32
Their age at death	65	57	46	55	58	55

Ages	Males feet high	Males pounds weight	Females feet high	Females pounds weight	Ages	Males feet high	Males pounds weight	Females feet high	Females pounds weight
Birth	1.64	7.06	1.61	6.42	14	4.90	85.48	4.77	80.94
1yr	2.29	20.84	2.26	19.39	15	5.07	96.40	4.92	89.04
2	2.60	25.01	2.56	23.53	16	5.23	109.55	5.04	96.09
3	2.83	27.50	2.79	26.00	17	5.36	116.56	5.10	104.34
4	3.04	31.38	3.00	28.67	18	5.41	127.59	5.13	112.55
5	3.24	34.78	3.20	31.67	20	5.49	132.46	5.16	115.30
6	3.44	38.80	3.38	35.29	25	5.51	138.79	5.17	117.51
7	3.63	42.98	3.56	38.68	30	5.52	140.38	5.18	119.82
8	3.81	45.78	3.74	42.68	40	5.52	140.42	5.18	121.81
9	4.00	49.95	3.92	47.10	50	5.49	139.96	5.04	123.86
10	4.18	54.08	4.09	51.87	60	5.38	136.07	4.97	119.76
11	4.36	59.77	4.26	56.57	70	5.32	131.27	4.97	113.60
12	4.54	65.77	4.44	65.77	80	5.29	127.54	4.94	108.88
13	4.72	75.80	4.60	72.65	90	5.29	127.56	4.93	108.81

This table shows, in the last column, that in the total of the five families named, containing 170 persons, 90 were males, and 80 were females; that 79 males were married at the average age of 25½ years, and 64 females at the average age of 24½ years; that each marriage produced 7 children; and that the average age at death, of the males, was 65 years, and of females, 55 years.

Another statement, compiled from a larger number of families and inserted in the same blank form, exhibits the following facts :-In 306 families, containing 2,267 children, -1,197 males, and 1,070 females, -1,680, or 74 per cent., were married, and 587, or 26 per cent., were not married. Each marriage produced 7,3 children.

If similar observations, more or less extended, abstracted, concerning a large number of families, the results might show, in a striking manner the philosophical and statistical uses of genealogy, and could not fail to operate favorably upon the sanitary welfare of all concerned.

**XLIX.** WE RECOMMEND *that parents, and others to whom the care of those in infancy and childhood are intrusted, endeavor to understand and discharge their duties so that a good foundation may be laid for vigorous manhood and old age.*

The management of infancy and childhood has an immense influence upon the health, vigor, and continuance of life; and the concurrent testimony of all intelligent men, who have examined the subject, is, that a great proportion of debility, disease, premature deaths, and sanitary suffering, which are constantly occurring around us, is attributable to ignorance of the physical laws, and inattention to the physical laws, and early years, -the formative periods of life. Debility, scrofula, consumption and premature decay, as well as various epidemic disease, are brought on and accelerated to their fatal termination, by neglect of a proper system of management from the very commencement of infant existence. If the history of the growth and development of the human body, of its parental management, and of the dangers to which it has been exposed at its early periods, could be truthfully made and spread before us, what a lesson would it give of the imperfection of human knowledge, and of the disobedience of those wise laws which the Creator has given for our guidance! From one-third to one-half of all the deaths in populous cities. and villages, and about one quarter in all places, are those of children under five years of age. If the laws of health and life had been known and obeyed, this great sanitary evil might have been materially lessened, and thousands of lives might have been preserved, which have been lost.

This is a great, an all-important matter, and deserves to be thoroughly examined and carefully studied in all its bearings, by fathers and mothers, and those who expect to be fathers and mothers, as well as by nurses, governesses, teachers, and all others interested in the care of the young. The subject is too great, however, for discussion in this connection. Our purpose is merely to call public attention to it, as one of the sanitary measures in which there is great room for reform, and in which real reform would be immensely beneficial. There are many valuable works already published, which afford useful instruction on the sub;ect. These works, the lessons of experience which the more aged and the wise might impart, and each one's own careful examination and reflection, might suggest systems adapted to different circumstances; the vital force of incoming generations might thus be greatly increased, and the life of many and many a useful citizen prolonged.<sup>115</sup>

**L.** WE RECOMMEND *that individuals make frequent sanitary examinations of themselves, and endeavor to promote personal health, and prevent personal disease.*

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<sup>115</sup> *The Physiological and Moral Management of Infancy,*" by Dr. Andrew Combe, is one of the best popular works on the sub;ect with which we are acquainted.

If there is a fault in the printed discussions of sanitary reformers, it is in attaching too much importance to public and too little to personal measures, for the promotion of health. The causes of disease may be diffused in the atmosphere, or may exist in a locality, or may be connected with the individual himself. If the person be well fortified and well guarded, little need be feared from an unseasonable invasion of the enemy from without; but if otherwise, its onset will be easy and its victory certain. This is a matter in which uncertainty should, as far as possible, be excluded. We should not guess at the value of life, or the mode of preserving it. Every person should *know*, by his own observation and experience; his own capabilities and his own liabilities; and make matter of preserving his health and continuing the same care and prudent forethought, and apply to it the same intelligence and sagacity, that he uses in any or all of his ordinary affairs.

Every person should make frequent sanitary investigations relating to himself. The history and condition of his constitution should be studied. The hereditary organization and tendency, and the character of the blood that courses in his veins, should be ascertained. The alterations of the original constitution, produced by disease, habits of life, or any other means, and the causes of these alterations, and the remedies that have been used to counteract and prevent their effects, be carefully studied and noted. The influence of various habits and actions upon the organs and functions of our bodies, whether relating to their protection, nourishment, or preservation, should be carefully observed; and such as are found to be favorable should be repeated, and such as are known to be unfavorable should be discontinued. Everything which may excite or develop an unhealthy tendency, hereditary or acquired, should, as far as possible, be avoided; and everything of an opposite tendency should be done to check such development.

Our persons should be *protected*, and kept in uniform temperature, by clothing of the right kind, properly made, and worn at such times, in such a manner, and in such quantities, as are best adapted to promote health. Disease should not be allowed to invade the system by means of too little or too much clothing, or through any other defect or imperfection; but each person should wear just such clothing, at all times, as will involve the least risk, and produce the greatest vigor and physical enjoyment.

Our persons should be *nourished* by food of the right kind, and in such quantities, as will promote the greatest vigor. We should "eat that we may live, not live that we may eat;" take food to nourish us, not to satiate a depraved appetite; and adapt our food and our regimen, at all times, to the present physical and sanitary condition of the body. When debilitated and fatigued, we cannot take with impunity the same kind or quantity of food as when in a different condition.

Our persons should be *preserved* and *strengthened* by wise and uniform care and training. We should cleanse our persons by daily ablutions, properly applied, at suitable times, and of the right kind and temperature; *strengthen* our persons, physically and intellectually, by regular and progressive, not transient and excessive, exercise and labor, at such times, to such and in such places, as will be most invigorating; and should *refresh*

our persons by rest and sleep, at proper times, in right places, by suitable means, and in sufficient quantities.

What is right and suitable and proper, in each of these cases, must be determined by each one's own intelligence, observation, experience, feelings, and condition, ascertained by himself. If careful personal sanitary examinations were frequently made in this way, and personal health was guarded and improved by these means, we should hear less of the ravages of cholera; typhus, and other epidemics, and of isolated sporadic diseases.

#### IV. REASONS FOR APPROVING THE PLAN RECOMMENDED

We have presented, in the preceding pages, some of the principal measures that have occurred to us as worthy of being embraced in a plan for a sanitary survey of the State, which we recommend for adoption. We might have included other collateral subjects, and might have given a more full explanation and illustration of those already presented, but the occasion did not seem to require it or make it necessary. Our design will have been accomplished if our recommendations have been explained sufficiently to be generally understood and capable of being reduced to practical operation. We claim for the whole plan, and for each part of it in connection with the other parts, a careful consideration before judgment is passed upon it, and when so considered we have great confidence that shall have the approval of all candid minds. We have already given, in the illustrations of the several recommendations, many reasons for their approval; and they are sufficient, it is supposed, to incline most intelligent minds in their favor; we might safely leave the subject here without further discussion. There are, however, some general considerations in favor of the plan which we deem it proper to present.

I. *It should be approved because it is a practical measure.* The great outline of the plan is the Establishment of a Central General Board of Health for the whole State, and a Local Board of Health for each city and town in the State; each to be composed of competent men, who are to have general superintendence of all matters relating to the public health within their respective jurisdictions. These Boards, having the assistance and cooperation of the people in all parts of the Commonwealth, would be able to bring to bear, by practical, systematic, uniform, and efficient plan, a vast number of minds and a great amount of intelligence upon the subject of health, and upon the causes and prevention of disease; and it is impossible to foretell the immense advantages which might result from the facts they might collect, and from the they might make, relating to the number of lives saved, the prolongation of the periods of human existence, and the diminution of human suffering.

In the preparation of the plan, we have desired, on the one hand, to avoid too much, and on the other too little complication and detail. The proposed act, which is the main legal foundation of the plan, is designed to occupy the middle ground between these two extremes. It contains no provisions which seem to us unessential, and it is designed to contain all such as are necessary. So important a matter cannot be provided for by a few general sections. It must be made clear and simple; and considerable detail is required for this purpose, otherwise it cannot be understood, and

easily introduced into all the towns in the State. It is believed that if the act were passed and put into operation by such Boards of Health as might and ought to be appointed under its provisions, nothing would be required but ordinary intelligence and attention to make it successful, and this every measure must have or it will be useless. If this act should become a law, several of the recommendations must be carried into effect; others may or may not be, as circumstances may render it necessary or expedient. The XIIth, XIIIth, XVIIth, XXXIst, XXXIIInd, and XXXVIth, would require additional legislation to carry them into operation. The recommendations relating to social and personal matters are designed for the general good, and come in aid of the others without special legislation. They may or may not be adopted, according to inclination of those interested.

And what is the design, what are the purposes of this measure? What will it probably accomplish, if carried into execution?

*It would save life.* It has been well said :- " In England alone, the average annual number of deaths from disease is, in round numbers, 300,000, while that of deaths from the mere decay and exhaustion of the human frame by the progress of time, is only 35,000. In the difference between these two numbers we see the vast and vital field in which the sanitary reformer proposes to work. That disease shall ever be entirely exterminated, is of course beyond the belief or hope of the most sanguine. But every disease has somewhere its specific and efficient cause,-and that these causes can be removed or much weakened in their action, in very many instances, is not only within the bounds of hope, but has been satisfactorily proved. When sanitary legislation gives us its successful results, they will be represented by the reduction of the number of those who die of disease in their early days, or in the prime of life-and in the increased number of those who have completed their allotted course in health, and been peacefully gathered to their fathers. Accordingly, sanitary improvements have not directly in view the extension of the natural period of human life, but only the removal of influences which artificially curtail it." <sup>116</sup>

Similar illustrations may be derived from observations among us. In Massachusetts, during the seven years covered by Registration Reports, 64,510 deaths, in all the counties except Suffolk, were recorded and returned to the office of the Secretary of State; and of these, 4,414, or 6.84 per cent. only, recorded as having died of old age, and 93.16 percent from diseases and other causes.

In Boston, during thirty-nine years, 1811 to 1849 inclusive, 62,431 deaths took place, of which 2,079, or 3.33 percent only, were from old age, and 96.67 percent from diseases and other causes; and for the year 1849 it appears still more unfavorable, being 5,079 from all causes, and 95, or 1.87 per cent only from old age, and 98.13 per cent. from other causes. It not a practical measure to prevent some of this great amount of disease, and assist some of these lives that they may old, and die only because they are old ?

We have constructed and given a very important showing the law of mortality for Boston, at three periods, and also for a district of the average health of the country towns in the State. By this table it appears that

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<sup>116</sup> *Edinburgh Review*, Vol. XCI, for Jan. 1850, p. 210

percent., or 1 in 67 of the population, is about the rate of mortality for the interior healthy towns in New England. In some towns it rises above and in others falls below that rate; but that may be assumed as a healthy standard. This is nearly the rate of the healthy districts in England. It also appears that in Boston, during the last nine years, the portion of death's were, on the average, 2.53 percent., or 1 in 39. And by the report of the City Registrar they were, in at the rate of 3.84 percent., or 1 in 26 of the of 132,000. If Boston had suffered an annual loss by death of 1½ percent., equal to the average healthy country towns, instead of 2.53 per cent., there would have been on the average for the last nine years, 1,715 deaths annually, instead of 2,903; showing an excess of 1,188 unnecessary. And by applying the same rule to the year 1849, it will give 1,980 deaths only, which should have taken place, instead of 5,079, showing an excess, for that year alone, of 3,099 unnecessary deaths! and this is on the supposition that the rate may remain at 1½ per cent., when it is believed to be possible to raise the public health to a state even better than that. What Boston suffers, in so great a degree, is suffered, to a greater or less extent, in all places, city and country. Very many country towns suffer great unnecessary mortality; and is it not a practical measure to prevent as much of this excess of deaths as possible?

*It would prevent sickness.* We have stated that the estimated rate which sickness is supposed to bear to the population is double the rate per cent. of the annual deaths. This rule, if applied to our population, would indicate, in the opinion of some, too much, and of others too little sickness. But assuming it to be nearly the average, until we get more perfect returns, let us make the application. The average number sick during the whole year, in a healthy country town, is (1½ X 2) 3 per cent. of the population; and in Boston for the last 9 years (2.53X2) 5.06 per cent., and for the year 1849 (3.84X2) 7.68 per cent. According to this rule, if Boston had suffered no more than a healthy country town, she would have had but 3,960 persons constantly sick, or suffered that number of years' sickness in the aggregate, instead of 9,837 ; showing an excess of unnecessary sickness, for that year only, of 5,871 years!

Applying the same rule to the country towns, it will show an immense though not so great a proportion of unnecessary sickness. Estimating the population of the State at 800,000, and assuming it to enjoy a healthy standard, there would be 12,000 deaths annually, and 24,000 persons constantly sick. But the deaths returned in the counties other than Suffolk, were 11,346 for the year ending May 1, 1848, and very many were not returned at all. An abstract of the returns of deaths for 1849, has not yet been made, but when it is made we have no doubt that it will show an annual mortality as high as 21 per cent., or an excess in the whole State of 6,000 unnecessary deaths, and of 12,000 years of unnecessary sickness !

*It would increase the vital force.* We have presented the loss of life and the amount of sickness as two of the great which the people suffer. Another is found in the -of impaired health and physical debility which exist those not actually disabled by sickness. Many, very many, move feebly about, discharging imperfectly the great life, and have not the capacity to perform the labor which perfect health allows.

"The aggregation of all the physical powers, the original organization, the united energies of the nutritive, respiratory, cutaneous, locomotive, and

nervous actions, and the predominance of the vital over the chemical affinities, cooperate in the production of *vital force*; and these together make up what commonly called the *constitution* of man, -that is, his power for labor or endurance, -his power of accomplishing his purposes: or resisting the causes of injury.

" This constitution, or this quantum of vital force, may considered as the *capital of life*, with which man operates, does all his work, enjoys all his pleasures, and sustains in his present being.

" Some few persons have only vital force sufficient to sustain life. They can digest their food, and perform functions necessary for the replenishment of the exhausted powers, and no more. They can only keep their vital chimes in operation. But most persons have more than this. After supplying their natural wants, and raising the power of the machine to its highest healthy point, then deducting vital force necessary for these from the whole constitutional force, there is in them a surplus of energy left to be disposed of otherwise; and this may be expended, at their own actions of the muscles or of the brain, for profit or for pleasure.

"If the constitutional power is considered as the capital of life, this surplus energy may be considered as the *income of life*. This may be expended daily, and yet leave unimpaired. But this expenditure must be limited, in each day, to the quantity of vital force that is generated by day's nutrition, and each night's sleep.

"This constitution, or quantity of vital force, must differ in different persons, and in some it differs very widely. There are differences in the primordial elements, in the original organization, in the distribution of strength through the several organs, in the tenacity of the vital principle, and in the early development of the powers.

"There are also differences in the subsequent management of the system, and in the appropriation of the surplus energies. The animal organization is first determined by the Creator ; the constitution is next developed by those who have the care of childhood and youth, and then it is entrusted to the hands of man himself, for preservation and for use. The Creator does not retain absolute control over the organs, nor has He endowed them with a certain and irresistible force, by which they shall supply their own wants, perform their functions, and regulate their actions in the manner which is best for the whole. All of these admit of various degrees; and, in this broad latitude, each one must seek out for himself that degree which is best, and determine what degree shall be allowed." <sup>117</sup>

Here then is the immense field to which our measure applies. Its purpose is to reduce this great number of deaths, to prevent this vast amount of sickness, and to raise the general standard of health as high and even higher than that of the most healthy districts; and this it proposes to accomplish by giving to the legislature an exact knowledge of the condition of the people; by the passage of useful laws for the promotion of their welfare; by giving to the physician a better knowledge of the causes and prevalence of diseases, that he may better adapt his remedies to their prevention and cure; and by diffusing among all classes of the people facts

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<sup>117</sup> Dr. Jarvis's Address, Communications Mass. Med. Soc., p. 4.

concerning life and health, and the general principles of sanitary science, and by leading them to make progress in sanitary improvement.

We do not suppose, if our measure should be adopted, that these great improvements will immediately take place, neither do we suppose that the time will ever come, let our sanitary regulations be ever so well matured, when no human being will die of any other cause than old age,-the wearing out of the human machine. But what we anticipate is, a gradual sanitary improvement, a gradual removal and avoidance of the causes of disease, a gradual diminution of human suffering and a gradual reduction of the number of premature and unnecessary deaths. And there can be no objection to aiming at abstract perfection, and to continuing our efforts at reformation until it is attained.

That our measure *will accomplish what it proposes*, if put in operation, there is abundant evidence in history of sanitary experience. The recorded facts concerning the causes of disease, and concerning disease itself, in all ages and in all countries, prove it.

Sanitary improvements in England first began in the navy. It is observed in a Sanitary Report, that "so dreadful was once the condition of the Royal Navy, that in the year 1726, when Admiral Hosier sailed with seven ships of the line, to the West Indies, he buried his ships' companies twice, and died himself of a broken heart. Amongst the pictures then presented, as in 'Anson's Voyages, 1740-44,' were those of deaths to the amount of eight or ten a day in a moderate ship's company; bodies sown up in hammocks and washing about the decks, for want of strength and spirit on the part of the miserable survivors to cast them overboard. Dr. Johnson, in the year 1778, thus describes a sea life:-"As to the sailor, when you look down from the quarter-deck to the space below, you see the utmost extent of human misery; such crowding, such filth, such stench! A ship is a prison, with a chance of being drowned-it is worse, worse in every respect-worse air, worse food, worse company.' "

In 1779 the proportion of deaths in the Royal Navy was 1 in 8 of the employed; in 1811 the proportion was 1 in 32 of the employed; and from 1830 to 1836, the average number of deaths annually was 1 in 72 of the employed. An in this calculation the deaths from all sources are included, from wounds, drowning, and all other external causes, as well as from disease. From the latter source the deaths were in proportion of 1 in 85 of the number employed annually. "These figures are eloquent beyond any words that can be employed. They excite as they are fitted to excite, especially at first sight, our wonder. They ought, however, to occasion more of gratitude than astonishment, because the causes of the difference are not difficult to determine, and because almost all that appears in favor of recent times is due to the superior intelligence and humanity infused into the administration of the navy."

Equally good effects have followed the sanitary reforms in the British army. The mortality among the British troops at Hong Kong, in 1842, was at the rate of 19 per cent., or 190 in 1000 ; in 1843, it was 22 per cent., or 220 in 1000 ; and in 1844, it was 13 ½ per cent., or 135 in 1000. But during these years, the garrison was very badly accommodated; in 1845 their accommodation was greatly improved, and the mortality diminished to 8½ per cent., or 85 in 1000; and since that time, the troops having been lodged

in what may be termed from their excellence, "model" barracks, their mortality at once dropped down to 2½ per cent., or 25 in 1000; a rate not much exceeding that of stations esteemed healthy. Since the adoption of the measure proposed by Dr. R. Jackson, of removing the troops stationed in the West Indies to cantonments on the mountain ranges, the diminution in the rate of sickness and mortality has been such as to justify the assertion, that if this measure had been carried into effect at the time it was first urged by him, the lives of from 8,000 to 12,000 men would have been saved,-a sufficient lesson, one would think, to our authorities, not to delay the introduction of improvements which experienced medical officers concur in urgently recommending.

The subjoined facts relate to the comparative mortality of cities and other places, under different sanitary arrangements:-

"The following table displays the relative mortality in the different parts of the Bolton Union, calculated from an average of five years; showing also the annual excess of deaths above the standard rate of 2 per cent., or 1 in 50, to which, as we have formerly shown, it is next to certain that the mortality even of large towns might be reduced by proper sanitary regulations.

<i>Townships</i>	<i>Pop. In 1845</i>	<i>Deaths per an</i>	<i>Mortality %</i>	<i>Or one in</i>	<i>Excess</i>
<i>over 2 %</i>					
Great Bolton	35,914	1,313	3.65	27.39	595
Little Bolton	17,251	485	2.81	35.38	140
Out Townships	51,043	1,119	2.19	45.66	86

"Thus the mortality of Great Bolton is greater than that Sheffield, which hitherto enjoyed a bad eminence inspect; and out of a population of about 36,000, nearly *six hundred*, or 1 in 60, die unnecessarily every year. What should we think of an annual sacrifice of one out sixty of our population, to satisfy the cravings of monster like the Minotaur of old ? Should we not forth every effort, and be ready to sacrifice all our worldly possessions, to avert it ? And yet this sacrifice is in effect up every year in Great Bolton to the Ogre filth. The fact is too plain to be gainsaid." <sup>118</sup>

We extract from an article on "Cholera and Sanitary Reform," in the work from which the last paragraph is taken, Vol. IV, for Jan.1, 1850 the following passage:- "Let us endeavor to realize this astonishing fact. A disease has lately crossed over these countries, which, in our metropolis alone, has swept away 15,000 souls. We have lost in all Britain more lives than we have lost in battle since the days of Marlborough. And, looking at the matter in a mere wordly sense, who can know incalculable value of many of these lives ? Every man instinctively pictures to himself how much misery and lasting grief and sorrow this great mortality symbolizes. It requires no stretch of imagination to realize a great national calamity, of which the actual deaths are but the smaller items. Behind each death we

<sup>118</sup> *British and Foreign Medico-Chirurgical Review, Vol. II, for October, 1848, pp. 509, 510.*

can trace easily the anguish of the living; the distress of those left fatherless, husbandless, childless; the hopes blighted; the ties broken; the companionship and sympathy forever destroyed. A thousand mental pangs, and among the poor, a thousand bodily hardships, are the legacies and sad memorials of every death. Callous and cold-hearted indeed must he be, who can turn aside from such a record, without seeking probe this national wound, and to demand whether there is no healing force whereby its bleeding surface may be staunched. In the midst of the general distress, a set of men come forward to say, that they have found a plan for preventing the recurrence of this frightful slaughter. These men are no enthusiasts, but are the persons who, of all others, by education and experience, are best able to know the truth of their assertions. The whole medical profession announce, that they can prevent, if means are given them, the recurrence of this mortality and suffering. Are these men worthy of credit or are they not? If they are, then where is the government, where is the nation, that can disregard this assertion, -that can blindly shut its ears to those groans of anguish, the echo of which has not yet died from our affrighted air, -and, careless of the future, can see with indifference the inevitable recurrence of that fearful drama which, in a few short years, must be again repeated?"

Authentic facts and well founded opinions like these, abound in the various English works on sanitary improvement. Similar opinions, founded upon well established facts, also exist in our own community. There can be no doubt, in any unprejudiced mind, of the practicability of the measure.

In 1842, the Hon. Horace Ivlann, as Secretary of the Board of Education, proposed to several physicians, the following question:-"How great a proportion of disease, of suffering, of diminution of physical capacity, of usefulness, and of abridgment of life, comes from sheer ignorance, and which, therefore, we might hope to see averted, if the community had that degree of knowledge which is easily attainable by all?" To this question Dr. James Jackson, of Boston, replies, -" I feel assured that the answer should be *more than one half*. When it is brought to mind that the ignorance of parents is included in the terms of the inquiry, the justice of the answer will probably be admitted by all who are conversant with the subject."

Dr. S. B. Woodward, late superintendent of the State Lunatic Hospital, says, " I have no doubt that *half* of the evils of life, and *half* the deaths that occur among mankind, arise from ignorance of the laws of health and life; and that a thorough knowledge of these laws would diminish the sufferings incident to our present state of being in very nearly the same proportion."

Dr. Edward Jarvis replies, -"From an observation of, thirteen years, I have been led to believe that *three fourths*, perhaps more, of the ailments of men come from a want of sufficient knowledge of their frame, or a disregard for it."

Dr. Marshall S. Perry, from a special record, estimated *more than half* of a given number of cases of sickness, have been avoided, by knowledge, attention and care.<sup>119</sup>

The opinions of a large number of professional men whom we have had personal intercourse, fully coincide those here recorded; and we are led to the startling conclusion that *half of all the diseases and half of the deaths*

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<sup>119</sup> Mann's Sixth Annual Report, pp. 84, 85, 88, 89, 97.

that place might have been avoided! It is unnecessary to bring further proof of a truth so well established. There is scarcely any person who, in a retrospect of his own life, number instances of sanitary suffering in himself, which he have avoided had he understood and observed the laws of and lire. Our measure then is not a visionary, but a simple, everyday practical reality, comprehensible, and applicable to all persons, in every place, and at all times.

*II. It should be approved because it is a useful measure.*

If the important practical results which have would follow the adoption of our plan, it is necessary that anything further be said to show that it is a useful To save life, to prevent sickness, and to invigorate the human frame, are its objects; and none can be of greater utility.

*It would give the State a knowledge of its inhabitants.* Hasty legislation, based upon imperfect knowledge, is one of the evils of this republic. It prevails, to a greater or less extent, in all the legislatures, national, state and municipal. It is the practice of some governments, when measures deemed worthy of legislation are proposed, to appoint a commission or committee to make a thorough investigation of the whole subject, and to report the facts and the evidence. A bill is then carefully drawn, based upon the facts thus disclosed, and adapted to the exigencies of the case. This is enlightened, effective, useful and economical legislation. England is much indebted for her greatness and power to this practice; and her example, in this respect, is worthy of imitation. The very reverse of this, however, too often happens in the United States. We too often legislate first, and obtain the facts, if we obtain them at all, afterwards. An exact knowledge of the circumstances of the people, is the surest basis for correct and useful legislation.

*It would aid the physician.* This would be done in various ways. The information obtained would be of immense consequence in giving him exact knowledge of the causes and prevalence of different diseases. This knowledge would greatly aid him in applying his remedies for prevention and cure. Instead of partial facts, obtained for a partial purpose, upon which to ground his theories, he would have a vast collection of impartial facts, truthfully gathered, for no other purpose than the promotion of truth. On such a basis he might construct a much better theory in medicine, and devise a more rational, philosophical system of remedies.

But there is another purpose which they would secure in this relation. One of the most trying circumstances in the life of a conscientious physician, is believed to be the capricious and unfounded judgment which the people often pass upon his skill and professional services. This opinion is frequently the result of accident or prejudice, combined with imperfect knowledge or entire ignorance, and would be changed if the people were better educated in sanitary science. This is an interesting consideration, and might be abundantly illustrated in the experience of every physician ; but the mere suggestion is deemed sufficient for our purpose, to show that this is a useful measure to the medical profession.

*It would benefit the people.* We have already alluded to the murderous imposition which is practised upon a credulous people, by pretenders to medical skill, in curing disease, and by mercenary dealers in in;urious nostrums and drugs. This matter may be again alluded to for a more general purpose. Though health is a matter in which every person is directly

interested, yet there is scarcely any subject on which so much ignorance generally prevails. When well enough to do without medical advice, we are too apt to neglect to inform ourselves as to the means of avoiding the contingency of sickness. But when attacked with real or imaginary sanitary ills, no people are more liable to err, or can be more easily imposed upon. The body is subjected to experiments, by new advisers and new remedies, come from whatever quarter they may; and faith is put in certificates, which perhaps have been forged. Many, very many, are thus drugged to death, either by the blind guides of their own uninformed minds, or the unfounded pretensions of others. The object of this measure is to diffuse, among all classes of people, more enlightened views of life, health and disease. In this way it is believed numerous lives might be saved, a great amount of sickness prevented, and a corresponding amount of suffering avoided. Is not this a useful purpose?

III. *It should be approved because it is an economical measure.*

The expense of preventive sanitary measures is the most common argument brought against their adoption. Epidemics are considered by the ignorant as evils which it is useless to attempt to prevent; and among the better informed, a false idea of economy, which has sometimes led to the most fatal results, has been the ground of resistance to measures which were necessary to save life. It should, however, be known that public expenditures cannot be avoided during the prevalence of an epidemic disease. Money must be spent, either in saving life, or in the maintenance of pauperism, widowhood, and orphanage. In this case economy is on the side of humanity, and the most expensive of all things is-to do nothing.

Debility, sickness, and premature deaths, are expensive matters. They are inseparably connected with pauperism; and whenever they occur they must, directly or indirectly, be paid for. The city or town must pay for the sick man's support for his food and clothing, for medical attendance on him during life, and for the support of his widow and children (if he leave any) after his death. A town in which life is precarious pays more taxes than its neighbors of a different sanitary character. An individual who is unable to perform a large amount of labor or no labor at all, is a less profitable member of society than one who can do whatever vigorous health allows.

"It is for the interest of the public at large, no less than for the happiness of the few immediately interested in each human being, that the life once breathed should, if possible, be preserved, until it is released by the natural wearing away of its earthly tabernacle. We all know that, in the common sense of the term, a short-lived population is generally a surplus population,-not only because those who are reckless of preserving life, will be careless of all its obligations, and will be poor and vicious, but because the tendency of early deaths is chiefly to shorten the existence of those who produce more than they consume, and to increase the number of those who must be dependent on the charity of others. 'A cholera widow' is a significant expression occasionally used by the Board of Health, to indicate one who has been thrown on the parish by the death of that husband who, if he had not been prematurely cut off, might have supported her for years, and left his children old enough to earn bread for themselves. Many communities are now thus paying, in alarmingly swollen poor-rates, for the short-sighted

selfishness which made them grudge the cost of precautionary arrangements."<sup>120</sup>

As an illustration, the proportion of deaths by cholera, in two parishes in England-Hampstead and Rotherhithe-have been stated. In the latter, 225 persons died of the disease in every 10,000 inhabitants, while in the former 8 only died. At Rotherhithe, out of 225 persons, 217 died of preventable causes. " There were in that place, 28 times the proportional number of deaths that there were at Hampstead, 28 times the cases of sickness, 28 times the number and cost of funerals, 28 times the doctors' bills, and 28 times the proportional number of widows and helpless children to be supported by somebody."<sup>121</sup>

As a further illustration we present the following extract from a speech delivered by Lord Ashley, at a meeting held Feb. 5th, 1850, to take into consideration the sanitary condition of the metropolis:

"At least one third of the pauperism of the country arose from the defective sanitary condition of large multitudes of the people; and he had no hesitation in saying, upon the authority of experienced persons, that if the population of their great towns were placed under proper sanitary regulations, in less than ten years the poor rates would be reduced 2,000,000 annually. What had been the effect produced upon the parish of Lambeth by the ravages of the cholera, a large which might have been prevented by suitable sanitary .He had the official return of the number of becoming chargeable to the parish in consequence of from cholera between the 16th of June and the 16<sup>th</sup> of October, 1849. There were-orphans 310, widows 74 ; total 384 persons. There was a village in Wiltshire with a population of 510; in this village four widows and 16 orphans, making a total of 20 persons, had become permanently chargeable. A still more remarkable instance occurred in another village containing 54 inhabitants. Of these, 19 had been carried off by cholera, and their families had become chargeable upon the rates. Let it be observed, that if the attack of cholera in London had been in proportion to the attack in that village, 500,000 persons would have been carried off ; but he quoted these instances of the ravages of the epidemic to show that what cholera did rapidly and by fits and starts, typhus and other fatal diseases were doing slowly day by day. If the cholera had sent 1,000 orphans and widows to the poor-house in a few weeks, typhus was permanently sending hundreds and thousands there, to become chargeable upon the rates payable by those parties who, if they had been wise and humane in time, might have obviated all fatal consequences and been the means of preserving the existence of many worthy citizens. Of all the agencies which predisposed the human body to disease, none were so fatal as over-crowding in small dwellings. There had been remarkable instances wherein localities, ill drained, badly ventilated, and exposed to noxious influences had continued without a visitation from cholera, whilst a building where the inmates were well fed, well clothed, and had every appliance to keep them in health, with the single exception of over-crowding, presented a mortality greater in proportion than the awful mortality among the pauper children at Tooting. Under such circumstances it was impossible

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<sup>120</sup> *Edinburgh Review*, Vol. XCI, January, 1800, p. 212.

<sup>121</sup> *Do. for April, 1850, p. 389.*

any particular class could insure immunity from disease. The deaths from cholera in London amounted to 16,696. Of these 72 per cent. occurred among the poorer classes, 16 per cent. among the middle, and 3 per cent. among the upper classes ; but be reminded the middle and the upper classes that the expenses inflicted upon the community in the metropolis, during the late epidemic, amounted to no less than £ 1,060,096, including the cost of funerals, medical attendance, and the loss of reproductive labor. It might be asked, was this instructing the people? He did not say it was; but what they were doing in bringing such facts before the public was an indispensable preliminary to their moral and spiritual welfare.”

The expenses and losses entailed by a neglect of sanitary measures may be classed under the following heads: -1. Expenses imposed upon the poor, by loss of work or of situations, for medical attendance and medicine, for nursing, for funerals, for the support of widows and orphans, and for other purposes. 2. Expenses imposed upon the tax-payers, for the support of those who are unable to support themselves, besides their own increased expenses arising from a bad sanitary condition. 3. Burdens imposed upon the charitable, for the support of hospitals, dispensaries, and for other more general or special charities. 4. A loss sustained by the state, in consequence of the diminished physical power and general liability to disease. 5. Expenses imposed upon the community, by the crimes arising from the unfavorable physical circumstances by which the laboring poor are surrounded, and which lead with certainty to their moral degradation. Various estimates have been made of these expenses, some of which, as stated by Lord Morpeth, we have already noticed, (p. 44.)<sup>122</sup>

<sup>122</sup> We extract from the Report on the Condition of Large Towns, the following illustrative passage from the testimony of Dr. Taylor, an intelligent surgeon of London:—"Amongst others was the family of a policeman whom I attended. When he applied for relief, the observation which occurred was, 'You have, as a policeman, 20s. a week regular wages, and other advantages; you are never out of work, and cannot be considered a proper object of relief from the funds of a dispensary intended for the poorest class?' His reply was, that he paid for his miserable one room, divided into two, 5s. a week; that he had 1s. 8d. weekly to pay for keeping up his clothes, which reduced the money he had for his family of four children and his wife to 13s. 4d.; that he had had all his children ill, and lost two; that he had during three years paid six doctors' bills, principally for medicine, at the rate of 2s.6d a bottle, amounting to between £:30 and £40; that two of the children had died, the funerals of which, performed in the cheapest manner he could get it done, had cost him £7 : the wife and his four children were now ill. They were so depressed and debilitated, as to render them very great objects for the dispensary and the Samaritan Fund. All his misery was traceable to preventable causes. Take another case in the list before me. A porter, in regular employment, at wages producing £1 a week: he paid 3s. 6d. for a most miserable and unwholesome room, in which himself and six other people, four children and three adults, slept; the children were shoeless, extremely filthy, and badly clad; the wife ill in bed of a diseased knee, for while I attended her; two children had been still-born, and he had lost three others; the sickness of one of these children, which had died at fourteen of consumption, had cost him in doctors' bills 16 guineas; the sickness of the one which died eleven months old, of water on the brain, had cost him £6; the third had died fourteen days old. The expenses in the three cases had so impoverished him, that he was compelled to apply to the parish for aid for their burial. I will submit a third case—that of a cook, in receipt of 25s. per week regular wages. He was living with his wife and three children in a small, close, ill-conditioned room, for which he paid 5s. per week rent. He complained that the water was always 'thick,' and very disagreeable to the taste, and the smells from the sewers and the drains in the house were very bad: he had five children, of whom two had died; that he had paid doctors' bills for his wife's confinements £5 each; and for one child which died of scarlet fever, at four years of age, the doctor's bill was £4 18s.; the one which died of debility at the age of ten weeks, cost him £1, 10s.; the funeral of the eldest child cost him £3; and the one at the age of ten weeks, £1, 10s. He showed that the expenses of confinements, the doctors' bills, and the undertakers' bills, and the illness of his wife, arising from five miscarriages, had so impoverished him, that having now two children ill with scrofula, he was obliged, though reluctantly, to apply to the dispensary for relief. The last case I will submit to the commissioners is that of a shoemaker, a good workman, who earns 20s. a week: he pays 5s. a week for one small, miserable room, in a narrow court; he has had seven children, of whom he has lost five, for which he has paid in doctors' bills between £2 and £3 each; his wife's age was thirty two, his own age thirty-seven, and at this age of thirty-seven he continually suffered from nervous depression; and having one of his two other children with a lingering disease—a scrofulous affection of the hip—he was compelled to come to the dispensary; he complained that the water of his house was never clear and never sweet. A man in receipt of 30s. per week's wages, considering his amount of rent which was 5s.6d. for one room, for himself, wife, and three children; having had four deaths after lingering consumptions, and a wife and children never well, I felt that he also was a proper object of the charity. At the time I visited these 100 families, no less than 212 of the members were suffering under disease manifest in various stages. They had already had no less than 251 deaths and funerals, and a corresponding

Attempts have been made to show the pecuniary which would result to Massachusetts by the adoption efficient sanitary system. The subjoined is given as mate, which we believe would fall far below the reality. number of unnecessary deaths the past year, has (p. 245) at 6,000, and of cases of unnecessary 12,000. This is a direct pecuniary loss to the State. of these 6,000 persons had been saved, and had lived which may be taken as the average length of the of life; or if the whole 18,000 persons who died in could have lived, on the average, six years longer did, ( and who will say that they might not more than that period?) then we have 108,000 years of lost labor on count, which may fairly be estimated at \$50 each per The cost of 12,000 years of unnecessary sickness may be estimated at \$50 each, and the lost labor of the sick at \$100 each. Then there are the public paupers, widows and orphans, made so by the premature deaths of relatives, which cannot be estimated at less than 6,000, at \$1 per week. According to this calculation we have

Loss of 108,000 years of labor, at \$50 per annum,	\$5,400,000
Cost of 12,000 years of sickness, at \$50 " "	600,000
Lost labor of the sick, at \$100 " "	1,200,000
Cost of supporting 6,000 widows and orphans, at \$52 per annum	<u>312,000</u>
Total annual loss	\$7,512,000

There are other expenses and losses which might be avoided. The General Board of Health, by their superior sources of information, would be able to suggest to the local Boards of Health, and to others interested, the best arrangements and regulations for different objects of sanitary improvement; and many expenses now incurred for want of such information would be avoided. Many works, public and private, have been constructed at great expense, which are nearly worthless in a sanitary view, and might have been dispensed with if a better plan had been known. It has been well said "that it costs more money to create disease than to prevent it; and that there is not a single stuctural arrangement chargeable with the production of disease that is not in itself an extravagance."

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*amount of sickness. It was only in a late stage of my investigations that I began to see the very serious amount of miscarriages they have had, and which in many instances exceed the deaths. Three hundred and fifty of the members of these 100 families were dependent children, whos average age was little more that ten years." Henry Austin, Esq., in his Report on the Sanitary Condition of Worcester, (p. 40.) says the attacks of fever appear to commit the greatest ravages among those in the vigor of life; and to one fatal case there is at least 10 attacks. "An insurance charge for the mitigation of the effects of sickness and premature mortality for an average family, is more than three times the annual cost of the outlay for the whole of the intended works at Worcester," sufficient to place the city in a good sanitary condition*

And what *would be the expense of the measure?* If the act we propose should become a law, the expenses of the General Board of Health must be provided for by the State; and they would be nearly as follows, annually ;-

For the salary of the. Secretary of the Board, say -	
\$2,000	
For contingent expenses, including the expenses of the Board,	
1,000	
printing, stationery, &c. -	
Total	\$3,000

The services of the clerks in making abstracts of a census of the inhabitants and of the returns under the registration system, and for other services, would cost no more, if prepared under the direction of the Board, than they now cost in the office of the Secretary of State. This then would be the expense to the State ; and in the cities and towns which now have a Board of Health, and do anything for the sanitary fare of the inhabitants, no more expense would be the same service than is now paid.

*This would be a wise expenditure of money.* According the estimate above presented, the State suffers, from its imperfect sanitary condition, an unnecessary annual loss of than 7 ½ millions of dollars! and this arises, partly at least, from the non-adoption of a measure which will cost but \$3,000. If saved, it would add that amount to the wealth of the State, besides the indefinite amount of increased which would accompany it. Should anyone consider this an extravagant estimate, let him reduce it to 3 millions, more one half, and then the relation of expenditures to the savings, or to the income, will be as *one dollar to one thousand dollars!* And even if nine tenths of this latter sum be deducted, it be like paying out *one* dollar, and receiving back again *ten* as the return profit! What more wise expenditure of money can be desired?

Look at the able report of the State Auditor for 185, and compare it with any expenditure of the State, or compare it with any measure that has been introduced for consideration, and few, if any, can be found of greater expediency, propriety and usefulness, or that will contribute more to the prosperity and welfare of the people of the Commonwealth. Massachusetts "has required annual returns of information to be made and published, concerning pauperism and crime, banks insurance companies, agriculture and other matters. She has indirectly offered premiums for the best farms, and the best productions; the best implements for manufactures, and the best articles produced ; and has paid to agricultural societies, for these objects, since 1830, the sum of \$123,319 18. She has instituted scientific surveys-astronomical, trigonometrical, geological, botanical, and zoological-has ascertained the ornithology, the ichthyology, and the entomology of State; and has expended, for these surveys, since 1830, sum of \$103,414 84. She contributes, annually, to common schools, over \$750,000. In all these, and in many other acts, she has done well. We would not oppose these objects of State inquiry and State expenditure ; nor decry the value of facts thus obtained. All useful information should be spread before the people.

But while we approve of these matters, we are also of the opinion that there are other objects of equal and even of greater importance for investigation.

" It may be useful to know the extent, the expense, and the circumstances of poverty and crime<sup>7</sup> in the State ; but is it not more useful to know the causes of this poverty and crime, and how much of it arises from diseases and deaths, which might be prevented? Facts and figures may be useful to show us the sanitary condition of banks and insurance companies ; but are not facts and figures more useful which show us the sanitary condition of man, who directs and controls them all, who participates in all their benefits, and whose agency ceases on the invasion of disease and death? The money of the State maybe usefully expended in premiums for the best farms, the best crops, the best horses, cattle, sheep: swine, the best application of labor, and the best productions of mechanical skill ; but might not something as properly be expended in teaching us how and where the best specimens of human life may be produced? what are the causes which most favorably affect its commencement, its childhood, its maturity, its decrepitude, and its extinction? in teaching the people in what places, at what seasons, and under what circumstances it is most invigorated and longest preserved? and how we can best avoid those causes and diseases, which are most likely to occur to debilitate and destroy it? it may be useful to layout large sums of money to obtain a knowledge of the topography, the mineralogy, the botany, and the zoology , -to have described to us the character and habits of all the wild animals existing in the State; but is it not more important to have described to us the different specimens of human life, as they are modified, formed, and exist, under the various circumstances which surround them in different localities, and how those circumstances affect them for good or evil? Are beasts, birds, fish, insects, of more importance than man, who was ordained 'to have dominion over all these creatures ?' The contributions of the State for public schools may properly be swelled to a sum exceeding \$750,000 per annum, and thus secure the general education of the mind; but is it not more important to expend a tithe of this sum in educating the body, and in preparing healthy and vigorous abodes for the mind, that we may, as a people, become physically, as well as intellectually great? Compare it with any measure that has engaged the attention of people of this Commonwealth, or the Legislature, and few if any can be found, which have risen so high, or have equalled it in utility and importance. "

*All necessary expenses for this object may be easily provided for.* If the different items of State expenditure, as given by the State Auditor, were examined, several may be found that seem to us unnecessary, or might be reduced so as to meet all the cost of this most important measure. It would be easy to specify such items. The Legislature cost about \$1,000 per day while in session. By shortening the session three days only, enough might be saved to pay the annual expenses. As much is paid to the Bank Commissioners as would be required for the Board of Health; and it is supposed that all the advantages which result from that commission might be obtained in some other way without any expense. Other items might be specified with equal propriety, and many may be found of doubtful expediency as compared with this. Any candid mind can make his own selection. But suppose we let them all stand as they now do, the adoption of

our measure would be reduce the cost of supporting state paupers, now incurred on account of unnecessary sickness and deaths, more than sufficient to pay all expenses several times over. And if a direct tax were laid upon the people for its support, though unnecessary it would be, on the average, less than three mills to each person! Who would not consider this a very insignificant expenditure for so noble a purpose ?

IV. *It should be approved because it is eminently a philanthropic and charitable measure.*

We have recently witnessed three of the greatest nations of the earth lending their aid to discover and save a single adventurous navigator, who sailed for the northern regions of this continent to make discoveries, which, if made, would probably have conferred no substantial benefit on mankind. And one of the sons of Massachusetts, with characteristic liberality, has offered, at his own expense, to equip a fleet to continue the search, if the government will provide officers and men. In a beautiful allusion to this matter, Hon. Horace Mann said: "Thus the three most powerful governments in Christendom express their regret and proffer their assistance for the recovery of a single man,-Sir John Franklin. And yet you cannot pass through one of the great streets of this or any other of the cities of this country, you cannot go through the most secluded town or village in all this broad land, without meeting some juvenile Sir John Franklin, some great man in embryo, more valuable, and of more consequence to futurity, than the one who, we fear, now lies buried beneath the icebergs of the Arctic Ocean. All these Sir John Franklins, aye, and Dr. Franklins too, and other names of potential and prospective greatness, who have within them the latent powers which, in their full development, might bless and regenerate the world, are scattered all over this country; but none of the three great nations of Christendom offers its sympathy or succor, or extends an arm for their deliverance from a fate which is as much worse than to be buried beneath the snows of the Arctic, as moral perdition is more terrible than physical."

Yes; and we say if the money that has been thus expended,-if the lives that have been lost in trying to save one life,- had been applied to the discovery of the physical circumstances of the great mass of the people, in the application of useful remedies for their improvement, in saving their lives and in elevating their social and sanitary condition, then, instead of one life saved, the number would have been thousands.

There is another class of philanthropists who are opposed to capital punishment under any circumstances. They look with horror upon the taking of the life of a human being, which has been forfeited to law and justice, even for the crime of wilful murder, though it seems necessary for the safety and protection of other lives. A great amount of labor and money is spent in the propagation of these sentiments. But of such persons apparently turn aside to notice the of lives that are unnecessarily sacrificed,-the social murders and suicides that are daily occurring around us, on account of existing evils which might be removed! If the same zeal, labor and money were expended in diffusing correct sanitary information among the people, in removing the causes of disease which prey upon them, in propagating sound sentiments relating to life and health, and in elevating the physical, social and moral condition of man, how many more lives might

be saved! In the one case, if capital punishment should be abolished, an occasional wicked life might be saved from the gallows, though the removal of the terror of instrument might lead to the loss of many more good lives by the hand of the murderer. In the other case, the philanthropist might count up the lives of thousands saved, and witness social elevation, an increase of sound morals among all classes, and a diminution of the number of murderers and other criminal offenders.

Several noble public institutions, for the removal, cure or relief of the imperfections of human organization, natural or acquired, have been established and patronized by the state. The State Lunatic Hospital has received from the State, during the nineteen years of its existence, \$217,140 91, and in 1849 alone, \$11,606 34. The Asylum for the Deaf and Dumb at Hartford, since 1830, has received \$87,847 25, and in 1849 alone, \$8,155 08. The Asylum for the Blind has received \$150,773 91, and during last year, \$11,500, including \$2,500 for the School for Idiots. The Eye and Ear Infirmary, during the thirteen years of its existence, has received \$44,000; and for the last three years, \$7 ,000 per annum. The State Reform School, during the three years of its existence, has received \$115,648 94. And the private contributions and annual payments to these institutions have probably been as great or greater than those derived from the public treasury. We would not lisp a word against these great charities, no wish they had been smaller. They are honorable to the State, and useful to their beneficiaries. It may, however, be stated that the number of recipients of these charities is comparatively few and limited. They comprehend a very small part only of the great masses of the people. And there is no doubt that the same amount of money, and even the per centage of it, which our measure might require, if applied to the careful ascertainment of the causes of insanity , -the causes of deafness and dumbness, -the causes of blindness, -the causes of juvenile depravity, and to a vigorous prosecution of the means for the mitigation and removal of these causes, as great and even greater good might be effected, -a much greater number of beneficiaries might be assisted. The diseases which these institutions are established to relieve, would. be diminished) and humanity would be more largely blessed.

A Humane Society has existed in Massachusetts since 1786," for the purpose," says an early historian, "of restoring suspended animation, preserving human life, and alleviating its miseries." "Discreet and concise directions for the recovery of persons apparently dead, from drowning, strangling, suffocation, electricity, or the use of poisons; ;udicious rewards to such as have ;eoparded their lives for the preservation of others, and furnishing convenient shelters, on our sea coast, for ship-wrecked mariners, have extensively diffused the benefits of this benevolent institution." Up to 1830, over \$20,000 had been expended in promoting its objects. Medals and gratuities have been awarded to meritorious services in saving life. Similar rewards have been generously granted by the government of Great Britain for the aid afforded by American seamen to foreign seamen in distress. A very large number of other voluntary associations exist in this State; and the hand of private charity is widely opened for the cure of diseases, for relief in sickness, for the support of widows and orphans, and for various other similar objects of benevolence and charity. Too much cannot be said in praise of these noble institutions, from which flow so many streams of " oil

and wine," to comfort and bless humanity; but it may be well to inquire whether there is not another and still more noble object of philanthropy.

The evils which it is the object of these institutions to relieve may be called the *diseases* of society. By them all our cities and towns suffer. The remedies lie deeper and farther back. All along we have endeavored to prove that "prevention is better than cure;" and the distinction we have made between the curative and the preventive physician, might with great propriety be applied to these institutions as the curative measures, and to others which might be adopted as the preventive measures. *These are the removal of the causes which produce the misery which these streams of benevolence are applied to alleviate.* On this deep and broad foundation lie the measures we recommend; and they should be approved as the first, the greatest, and most important objects of philanthropy and charity. If we would relieve sickness we must remove the causes of sickness, and prevent it; if we would relieve insanity, and deafness, and blindness, we must remove the causes of insanity, and deafness and blindness; if we would prevent premature deaths, and premature old age, we must remove their causes; if we would provide against widowhood and orphanage, we must remove the causes of widowhood and orphanage; and so of every other evil which it is the object of these charities to alleviate.<sup>123</sup>

V. *It should be approved because it is a moral measure.* "There is a most fatal and certain connection," says the Edinburgh Review, (Vol. XCI, for April, 1850, pp. 384, "between physical uncleanliness and moral pollution. The condition of a population becomes invariably assimilated to that of their habitations. There can be no sight more painful than that of a healthy, rosy, active countrywoman brought to one of these dwellings. For a time there is a desperate exertion to keep the place clean; several times in the forenoon is the pavement in the front of the house washed, but as often does the oozing filth creep along the stones, and she feels, at length, that her labor is in vain. The noxious exhalations infuse their poison into her system, and her energies droop. Then she becomes sick. Cleanliness becoming impossible, she gets accustomed to its absence, and gradually sinks into the ways of her neighbors. The art of concealing dirt is substituted for the habit of cleanliness; she becomes a dirty, debilitated slattern, followed by sickly, scrofulous, feverish children; and she falls through successive stages of degradation, till, physical wretchedness having done its worst, she reaches the lowest of all, that in which she has ceased to complain. The fate of the

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<sup>123</sup> *After the above was written, and while this sheet was passing through the press, the able notice of Edwin Chadwick, Esq., the distinguished sanitary reformer, in the North British Review, for May, 1850, arrested our attention. We extract from page 26, (Am. Ed.) the following passage, coinciding with the views we have expressed:—"The principle, though apparently so simple that no one could miss it, is in reality a discovery. It may be stated thus:—In every case of social wrong that it is desired to remedy, get at the antecedents, and apply the legislative or administrative interference at that point or at those points, in the chain of antecedents, where such interference may be either most easy or most radical and effective. These phases, Get at the antecedents, Mount to the sources, appear to be stereotyped maxims in the mind of Chadwick—secrets in his mode of dealing with all questions of social disease whatever. Whether it is into the means of preventing crime that he inquires, or into the means of preventing pauperism, or lastly, as he has more than once proposed, into the means of preventing insanity, his method is still the same; namely, by a rigorous examination of numerous individual cases, to ascertain the most common antecedents of the evil under notice, and out of these antecedents to select that one or those few, on which rap of legislative enactment or an administrative precaution may most easily and surely come down. Even in cases of what seems inevitable and hopeless evil, at which society must just gaze with pity and shake its head, he has commonly found that a little inquiry will reveal at least one antecedent that may be destroyed, one source that may be dried up. Thus as regards lunacy, it is his firm belief, announced more than once in his more recent communications with the public, that were all the cases of lunacy in the country to be undertaken by the state in such a manner that the antecedents in each case should be rigorously traced out, causes of that fearful malady would be expiscated perfectly within the range of general regulation and statute"*

children is, if possible, more heart-breaking. All idea of sobriety, all notion of self-respect, all sense of modesty, all instinct of decency, is nipped in the bud ; they congregate in masses, and mix with the worst vagrants. At last some dreadful fever forces on the notice of the public the existence of their squalid dens of misery ; such as those in the Saffron Hill district,-where twenty-five people were found living in a room sixteen feet square,-where a man and his wife and four children, occupying one room, took in seven lodgers,-and where one house contained a hundred and twenty-six people, and only six or seven beds. These people save nothing, but invariably spend all they earn in drink ; and with that precocious depravity too surely evinced by human beings when herded together like beasts, the young of both sexes live together from the ages of twelve and thirteen years."

"The indirect effects of sickness are far more hurtful, though less observable, than the direct effects of mortal disease. Those who merely suffer from fever are about twelve times as many as those who perish. The poison arising from animal or vegetable decomposition acts as a sedative; it lowers the tone, unstrings the nerves, and brings on physical languor and mental apathy. Persons affected by it become unfit for, and have a hatred of, labor. There is no expedient they will not seek in order to escape from toil. Under this depression, and as a relief from a peculiar inward *sinking* feeling, they have a craving for the stimulus of ardent spirits to an extent inconceivable by persons in happier circumstances; it amounts to a passion, and these debilitated beings are sometimes almost unable to control it. The same poison, by deranging and weakening the digestive organs, produces complaints of a scrofulous and consumptive character, generally accompanied by a feverish and nervous irritability, constantly urging them to the unrestrained gratification of their appetites; and so the process of degradation goes forward. The effort to struggle against the surrounding mass of filth and wretchedness, is given up in sheer hopelessness, and the man's best energies are sapped by the irresistible poison, even while he is endeavoring to resist its influence. The laborer comes home tired, and is glad to escape from the dirt and discomfort,-the poisonous atmosphere of his home,-to a pothouse. In the morning there is no refreshing meal for his support,-again he is driven to the beershop; overpowered by the internal craving and external temptations, he becomes a drunkard, and, in time, unequal to hard work. Soon the comforts of life are gone; then its decencies are neglected; the moral feelings, one after the other, are broken down before the most sordid appetites, alike ungovernable and insatiable: he is crushed by drunkenness, profligacy, and poverty, and sinks from one stage of vice and misery to another, till the intellectual faculties become dimmed, all moral and religious feeling expires, the domestic affections are destroyed, all regard for law or property is lost, and hope is quenched in desperate "wretchedness : so that at last, owing to these withering causes, families have been found, even in London, huddling together like animals, the very instincts of humanity obliterated, and, like the brutes, relieving every want, and gratifying every passion in the full view of the community. These are the reasons why the districts of filth are not only the districts of fever, scrofula, consumption, and cholera, but also of crime. Habits are early formed of idleness and dishonesty ,-of brutality, inexpressible profligacy, and sensual indulgence; and here are educated the irreclaimable malefactors.

"These are no fancied sketches, but awful realities. Such pictures of the sad moral effects of living in badly located, over-crowded, and filthy habitations, are to be seen in most of the populous cities, and, to some extent, in the country. We have had frequent occasion to enter these abodes of wretchedness. "The offensive refuse which even animals will bury out of sight, is brought into perpetual contact with human beings. It stagnates in the courts and alleys, flows into the cellars, and is sucked up into the walls. Men, women and children eat, drink and sleep, surrounded by its disgusting effluvia. The pig in its sty is not more familiar with its own odor, than is the wretched immortal in the dwelling which ignorant carelessness has built for him, and municipal and legislative indifference has suffered him to inhabit."

In some of these houses, one, two, or more families are found in one and the same room, -cooking, eating, drinking, washing, dressing, undressing, sleeping, and doing many other acts namable and nameless. Fathers and mothers, men and women, boys and girls, may be seen living and sleeping in promiscuous confusion. In some instances, too, persons may be found in the immediate presence, or in the same bed, with a dead body, struck down with typhus, cholera, or some other zymotic disease; or by the slow wasting of consumption; and in others, a child is born, or an adult dies, -one immortal spirit makes its entrance into, and another makes its exit from, this world, at nearly the same time, in the same wretched abode, and surrounded by similar appalling circumstances. Can moral principle be inculcated in such an atmosphere, and surrounded by such influences? Must not degradation, vice, crime, be their natural, inevitable tendency? If they are not, in individual instances, they must be taken as rare exceptions. "You can not degrade the physical man by a life-long familiarity with scenes of filth and indecency, without debasing his whole moral nature."<sup>124</sup>

The object of the measures we recommend is to remove filth and prevent disease, to introduce those accommodations which allow, and reform those habits which prevent, the , the physical man, the social nature and moral condition of fellow-beings. They are the best handmaids we' can , prosperity, to morality, and to religion.

Dr. Simon, whom we have often quoted, gives us picture. II Among the influences pre;udicial to reckoned the social condition of the lower classes; and I refer to this the more especially, because, often in sanitary sub;ects, the filthy, or slovenly, or improvident, destructive, or intemperate, or dishonest habits of these are cited as an explanation of the inefficiency of signed for their advantage. It has been urged that to improved domestic arrangements within the reach of such persons is a waste and a folly; that if you give them a coal scuttle, a washing-basin, and a water-closet, each of these several utensils will be applied to the purpose of another, or purposes of all; and that meanwhile the object of solicitude will remain in the same unredeemed lowness and misery as before. Now it is unquestionable, and I admit it, that in houses combining all the sanitary evils which I have enumerated, there do dwell whole hordes of persons who so little in self-defence against that which surrounds that they may be considered almost indifferent to its existence or almost acclimated to endure its continuance. It is too true that among these classes there are swarms of men and women

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<sup>124</sup> . Mr. Chadwick, in his report, says of such scenes in England, "The corpse is never absent from the sight of the survivors ; eating, drinking or sleeping, it is there." (See Sanitary Movement, p. 13.

who have yet to learn that human beings should dwell differently from cattle; swarms to whom personal cleanliness is utterly unknown; swarms by whom delicacy and decency, in their social relations, are quite unconceived. Men and women, boys and girls, in scores of each, using jointly one common privy; grown persons of both sexes sleeping in common with their married parents; a woman suffering travail in the midst of the males and females of three several fellow-lodgers in a single room; an adult son sharing his mother's bed during her confinement; such are instances recently within my knowledge of the degree and of the manner in which people may relapse into the habits of savage life, when their domestic condition is neglected, and when they are suffered to habituate themselves to the uttermost depths of physical obscenity and degradation. Contemplating such cases, I feel the deepest conviction that no sanitary system can be adequate to the requirements of the time, or can cure those radical evils which infect the under-framework of society) unless the importance be distinctly recognized, and the duty manfully undertaken, of improving the social condition of the poor. Those who suffer under the calamitous sanitary conditions which I have disclosed, have been led, perhaps, to consider them as inseparable from poverty, and after their long habituation to such influences, who can wonder if personal and moral degradation confirm them more and more to the physical debasement of their abode? In the midst of inevitable domestic filth, who can wonder that personal cleanliness should be neglected? In an atmosphere which forbids the breath to be drawn freely, which maintains habitual ill health, which depresses all the natural spring and buoyancy of life, who can wonder that frequent recourse should be had to stimulants, which, however pernicious in themselves, still for a moment dispel the incessant languor of the place, give temporary vigor to the brain, and cheer the flagging pulses of a poisoned circulation? Who can wonder that habits of improvidence and recklessness should arise in a population, who not only has much ignorance and prejudice amongst it, but which likewise is unaccustomed to consideration and kindness? Who can wonder that the laws of society should at times be forgotten by those whom the eye of society habitually overlooks, and whom the heart of society often appears to discard? I believe that now there is a very growing feeling abroad that the poor and degraded of a Christian country can no longer, in their own ignorance and helplessness, be suffered to encounter all the chances which accompany destitution, and which is allied, often indissolubly, to recklessness, profligacy, and perdition. The task of interfering in behalf of these classes, however insensible they may be of their own danger and frequent degradation, begins at length to be recognized as an obligation of society."

It is right that these things should be known, -it is well that they should be considered. We have one pestilence after another to warn us that the destroying angel is at hand. In the mean time, thousands of citizens are hurried through a miserable existence to an untimely end. While we write, they are dropping into their graves. We fill our jails with felons, and we have city missions, and put our trust in education; but the influences of filth and disease are stronger than the police-man, the missionary, and the schoolmaster. To the abodes which we have described," the Sabbath never comes. In vain its morning eye peeps kindly in at the gloomy windows, for it

meeteth no recognition there! In vain its meridian beams, struggling through the murkiness and filth, above, around, and beneath, seek to shine into the doorways of those den-like homes,- for they are quickly quenched by the deep darkness that abideth there! There the Sabbath's decencies are never cultivated,- the Sabbath's peace never enjoyed,-the Sabbath's festival is never kept,-the Sabbath's blessing is never known !"

VI. *It should be approved because the progress of the age demands it.*

The half century just now drawing to a close, is a wonderful period in the world's history. Inquiry and discovery have been abroad in the earth. New facts and new truths been ascertained -new sciences have been developed, and boundaries of old ones have been greatly enlarged. These discoveries have produced revolution after revolution, - have multiplied the means of convenience, comfort, luxury , -until our social and practical life is a thing from the social and practical life that existed ago. And were it not that we have grown up with they would appear almost beyond the limits sibility.

How are these wonders produced ? Mainly by giving to the human mind a knowledge of new facts, and knowledge to the discovery of the laws of combination and practical application. The steam engine, besides giving us a new and mechanical power, has revolutionized habits of locomotion, by sea and by land. A journey from Boston to New York, which formerly required days for its performance, is now accomplished within a few hours. A voyage to England, once always of uncertain duration, and frequently requiring months for its performance, is now made in ten days. One month only, instead of six, is consumed in a voyage to the Pacific coast. Events which have taken place in the East Indies have been known here within a month afterwards! These great facilities of intercourse increase, immensely, the number of travellers, and bring the inhabitants of the whole civilized world in contact, and make them acquainted with each other. What is known by one person, in one place may be known by all in every place. "Many run to and fro, and knowledge *is increased.*" These are the discoveries,-the characteristics of the age,-and they have an incalculable influence on human development and progress.

A process by which the laws of electricity and magnetism may be applied to the purposes of intercommunication between different minds in different places, is a recent discovery, also exciting the adniration and astonishment of mankind. Who would have imagined, a few years since, that a commercial order could be sent from Boston to New York, that order executed, and the answer received in Boston, and the whole occupying but ten minutes! And yet this wonder has been accomplished. Thought, the moment it is uttered, may be transmitted with the speed of lightning to distant regions, and leave its foot-prints, at pleasure, at any place along its course. And copies of these foot-prints can be multiplied by the power of steam at the rate of ten or more thousands per hour, and by the same power scattered in all directions. It is thus that nearly every important event is now known throughout this vast country almost as soon as it occurs.

The discoveries, too, in geology, in chemistry, and in other natural and physical sciences, are no less wonderful. In almost every department of knowledge, and in almost all the features of practical and mechanical life, there prevails an astonishing activity. New discoveries are constantly made,

and each gives new impetus to further developments. Man accomplishes more in a few months now than formerly in many years. He seems to live faster and longer in the same time. All is energy and progress. If these distinguishing characteristics of the age are wisely directed, by wise men, -if the progress shall good and not towards evil, -it is impossible to tell what future glories are yet reserved for the triumph of the human We are among those who believe that the age of yet in its infancy; and that, great as are the human intellect, others still more wonderful are yet store for us.

Do not these characteristics of the age demand that thing should be done for Sanitary Reform? Shall preserving our lives, and of invigorating our health, be the only art that shall remain in the same stationary position which it has long existed; or that shall be permitted sometimes to make a retrograde movement? Shall ignorance, presumption and apathy brood over this most vitally matter, while intelligence, attentive application, and activity press forward other objects in their rapid career of advancement towards perfection? We have described the field of inquiry, -we have shown that there is encouragement to labor; and we believe that in no science or art, -in no department of knowledge or discovery, can more important or more useful achievements be made. Vaccination, etherization, other preventive agencies, are great discoveries, but not greater than other and similar ones which are destined hereafter to be known.

Observation and discovery in the cure and expulsion of disease after its invasion we would not exclude, but would advocate and elicit in every available and useful form; and we believe there is much in this department of knowledge yet to notwithstanding the great progress which medical made within the past few years. One of our most and eminent physicians was lately asked-"Do you that the medical edge which shall admit the belief that further useful discoveries cannot be made in the modes of treating disease?" "Certainly not," said he ; "*we are as yet only on the borders ignorance!*" This may be true in many respects. Notwithstanding the brilliant discoveries that have been made in physiology and in the various departments of medical science and medical practice, -notwithstanding the more thorough education and the more eminent medical skill that characterizes many physicians of the present day , -there are few of them who have not sometimes discovered the imperfection of human attainments, and the uncertainty that may yet attend a practice guided by the highest medical skill. The measure we recommend is designed to pile up fact upon fact, in relation to life, disease, and mortality, until their nature and laws are ascertained and demonstrated ; and thus aid, in various ways: in increasing knowledge, in leading to important discoveries, and in removing those uncertainties which attend the practice and success of the profession. And in this way we shall attempt to meet the demands of the age.

But the Sanitary Reform we advocate lies chiefly in another field of observation and discovery, which has as yet been very imperfectly explored. This may be called the *Province of Prevention* -prevention of disease -prevention of suffering-prevention of sanitary evils of every kind; and the efforts of those who enter this hopeful province should be directed to the discovery and the means of removal of the causes of these evils. Every effect must have a cause-every disease has its cause. And the effort should be to ascertain the exact relation which one bears to the other-what known, exact

and positive causes, will produce a known, exact and positive disease, or a sanitary evil of any specific kind, and none other. And is not this as far within the limits of possibility and certainty as is the treatment and eradication of disease? Cannot the exact nature of an atmospheric, local or personal cause of disease, and the exact personal condition with which it most easily assimilates, and which it most easily affects, be definitely and accurately ascertained? If such a desirable discovery could be made, what manifold blessings on humanity would it confer! We know that a human body, unaltered from its original organization or functions, coming in contact with the virus of small-pox, either inhaled while floating in the atmosphere, or imbibed by outward contact or inoculation, will produce a specific effect,-a specific disease. Here is cause and effect of a known and exact relation to each other. We know, too, that vaccination, properly performed, will alter the original organization or functions, so that the same virus will not in either way take effect. Here is another exact cause and effect whose relations are equally known. This is a discovery which has, "within the last fifty years, saved thousands and thousands of lives, and might have saved thousands more, had it been universally applied. Now it is but fulfilling the demands of the age to press inquiries vigorously, and to endeavor to discover the causes of every disease which may attack the human body. If the same exact and definite information could be obtained, as to the causes of cholera, dysentery, scarlatina, typhus, consumption, and the other grave diseases, to which we are subject, and as to the particular condition of the individual which they most easily affect, how much might be done for the avoidance of those diseases by the removal of their causes! How many lives might be saved, how much suffering might be prevented! Does not the spirit of the age then demand the approval of a measure which promises to do this great,-most important work?<sup>125</sup>

VII. *It should be approved because it involves an important duty.*

If a measure is practical, useful, economical, philanthropic, moral, and demanded by the spirit of the age, it needs no argument to show that it is our duty to approve it. And if such is our obligation, nothing further need be said. For, in our judgment, whoever violates a *known duty* is guilty of crime, and justly makes himself liable to its penalties. If an individual swallows poison, and death immediately follows; or if, by improper eating, drinking, or course of life, he gradually debilitates his constitution, and death is the ultimate consequence, he violates a known law, neglects his duty, and justly suffers the physical penalties of his guilt. If we, as social beings, make no effort to elevate the sanitary condition of those around us by removing the causes of disease, we violate a known duty, and make ourselves ;ustly guilty and liable to punishment; and we shall inevitably be punished, either by suffering sickness, or by death, or in some other way. If a municipal or state authority neglects to make and execute those sanitary laws and regulations on which the health and life of the people depend, they violate a known duty, and are ;ustly chargeable with guilt and its consequences; and

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<sup>125</sup> "Of all the great undertakings by which the era is signalized, there is perhaps none which so clearly stamps a character of real and essential progress as the Sanitary Movement; for the result of this, mediate and immediate, is a positive, a cumulative good; a social, moral, and intellectual amelioration of a most beneficial nature,-one which we believe destined to effect great results in the material advancement of a people. Its ultimate effect whether so intended or not, lies beyond the pecuniary advantage-the dollars and cents ; it recognizes the existence of claims and sympathies-intimate relations between all phases and grades of society."-Chambers' Papers for tile People, No. 9,p. I.

they will certainly be punished, either by means of less capacity for labor, of increased expenditures, of diminished wealth, of more abject poverty and atrocious crime, or of more extended sickness and a greater number of deaths; or in some other form. These are the physical and social consequences of a neglect of sanitary duty. But there are others; and we would mention them with all that regard which is their due.

It has already been said that the first sanitary laws were the direct revelation of the Divine Lawgiver; and that they have been further developed in the successive ages of the world. These laws are now, to some extent, well understood. And may we not conclude that we shall be brought to an account for the manner in which we have observed and obeyed them? May we not reasonably believe that we shall hereafter see the wisdom of that providence which produces the earlier and later deaths, the physical sufferings, and the innumerable sanitary evils which surround and afflict us in this world,-that they were the just and inevitable result of violations of those sanitary laws which were given us for our guidance and happiness,-and that these evils might have been avoided if these laws had been understood and obeyed? May it not then appear that many a law-maker, many a public administrator, and many a private individual, has been guilty of robbing others, and of robbing himself, of health and of life,-all that is dear on earth ;-guilty of murders and of suicides ;-and none the less fearfully real and punishable because they were unintended? The possibility of such a result may well arrest universal attention. " In regard to the whole range of the laws of health and life, Providence seems to treat mere ignorance as an offense, and to punish it accordingly." There is a great social personal responsibility resting upon everyone in this matter ; and it is well that it should be felt in all its force and that all the duties which it requires should at all and in all places, be wisely discharged.

VIII. *It should not be disapproved because objections may be brought against it.*

In the previous pages we have anticipated answers to some of the objections that may be brought against this measure. There are some others, however, which require to be noticed.

1. *It may be said,-*"Your plan is too complicated ; require too much ; it will not and cannot be carried into operation."

Before characterizing any measure, a candid mind least examine, and endeavor to understand it. There are some persons, however, who, even without previous study or knowledge, and by a more casual glance, deem to give an intelligent opinion whether a measure demerit. Sometimes a plan may appear examination, but simple afterwards. It has been the fate of new measures, generally, to be thus hastily judged. It was so in the first stages of the sanitary movement in England; and it is not supposed that our recommendations will be exceptions to the general rule. Various reasons and motives operate upon the minds of men to lead them to different conclusions. Ignorance, prejudice, interest, or some other cause, may do it. We well recollect the remark of an intelligent and distinguished member of the Legislature, now deceased, when the application for an act of incorporation for building a railroad between Boston and Worcester was under consideration, and his influence was solicited in its favor: - "I have no objection," said he, "to the passage of the act, for the road will never be

build,- it is impracticable. And if it could be built, it would be perfect folly to do it,-it could not be supported." He did not live twenty years afterwards to see \$5,000,000 expended on the road, and 57 trains pass over it daily; a single passenger train sometimes carrying 2,700 persons, and a freight train carrying 400 tons of merchandise! The plan for taking the census of Boston, in 1845, was opposed by some, at its first introduction, because it was alleged to be impracticable and useless. The result, however, proved it otherwise in both respects; and the same plan, substantially, has since been approved and followed in other cities, and has this year been adopted for taking the seventh census of the United States. It was said that the laws for the registration of births, marriages and deaths could not be carried into operation; and no special attempt was made to do it in Boston until 1849, when, by a simple ordinance, it was successfully done. Similar illustrations might be furnished in the history of the incipient stages of nearly all new measures and enterprises ; but after they have been put into operation, they have been found so practical and so useful that it has been thought strange that they were opposed, and that the same thing had not been thought of before! And in this light, we have no doubt, this measure will soon be viewed.

2. *It may be said,-* "The measure is not applicable to this State; it may be well enough in some other places and countries, but we do not suffer evils which require such remedies for their removal ; no people are more healthy than we; we are well enough as we are. "We most cheerfully and most gratefully admit that in some of our towns, and among some classes of our people, sanitary evils do not exist to so great an extent as in some other places. But while we admit this, we affirm, from the most authentic evidence, that in many places and among many classes of our population,-in many families and among many persons,-there is scarcely to be found, anywhere, more ignorance of the laws of health, more disregard to proper sanitary regulations, and more suffering for their neglect. Our towns, our cities, and our dwelling-houses, it is true, are not so old, nor do many of them have so forbidding an exterior, as many in Europe ; but it does not take ages to convert a new house,-a palace,-into a den of filth and disease. Conditions may exist, and do actually exist, on open fields, on hill sides, in the interior of the country , as well as in cities, favorable to the production of disease. A whitened sepulchre may be full of dead men's bones ( or causes that will produce them) and all uncleanness. Those who say that, in this State, the measure is inapplicable, have yet learn the condition of the people and furnish themselves argument for its necessity.

How stand the facts? The average number of persons to a dwelling-house in London, in 1841, was 7.5; in Liverpool, 6.9; in Manchester, 5.7; in Edinburgh, 6; and in the whole of England, 5.4. And it has been said that, in some of the districts in the city of London, sixty persons are to be found in one house. The number of persons a dwelling-house in Boston, in 1845, was 10.75; and, section of the city containing 3,131 inhabitants, the number to each house was 37 ; and the space for each inhabitant, in the whole district, including streets, was equal only to seven yards! This is equal to some of the worst districts in Liverpool. One of this commission predicted, years ago, that if the cholera or any other epidemic should appear in Boston, first take up its abode in such places. We refer to from the valuable report of the City Physician, in the for evidence of the fulfilment of this prediction. And it must

be recollected that, in these places, typhus, scarlatina, dysentery, and other epidemic diseases, are doing daily what cholera does only occasionally. In these abodes "infancy is made stunted, ugly, and full of pains,-maturity made old,-and old age imbecile; and pauperism made hopeless every day."

Much has been said of the sanitary evils of London,<sup>126</sup> where 32 per cent. Of the deaths are those of persons under 5 years of age, where the average age of all, at death, is 26½ years, and where the annual rate of mortality for the whole population is 1 in 40. In Boston, from 1840 to 1845, 46.62 per cent. of all the deaths were those of persons under 5 years of age, and in some classes of the population more than 62 per cent. were under that age; the average age of all that died in the same period was 21.43 years, and of the catholic burials, 13.43 years only. And the rate of mortality for the whole population, for the last 9 years, was 1 in 39, and for the last year, 1 in 26. And yet Boston is a "health place!" London, with its imperfect supply of water<sup>127</sup>-its narrow, crowded streets,-its foul cesspools,-its hopeless pauperism;-its crowded grave-yards,- and its other monstrous sanitary evils, is as healthy a city as Boston, and in some respects more so. If sanitary reform is needed in one, it is needed in the other also. And many of the country towns suffer a mortality nearly as appalling,-and yet " this measure is not applicable to us! "

There is another consideration shewing the applicability of this measure. Under no government is human life more valuable than with us; and under none is it more important that it should be preserved and invigorated. If it is for the well being of society in Europe that human life should be preserved,-if it is considered a high social and moral duty to elevate it from a low to a high standard of health, where the poor houses are crowded with inmates,-where labor is cheap, and where its products add so little to general or to individual wealth, how much more is it for the well being of society in this country to preserve human life, where labor is in so great demand, and where each laborer, so long as he continues in health, not only contributes to the general wealth, but provides for his own individual independence! If sanitary reform is a duty there, where the life of man is, in a pecuniary view, of so little value,how much more is it duty here where it is of so great! And in a social and moral view the contrast makes the obligation still more binding.

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<sup>126</sup> *The opponents of the sanitary movement in England, in its incipient stages, represented London as the most healthy city in the world; and yet its condition has justified the following statement: - "About two millions of inhabitants are contained in the metropolis, or about the Kingdom. Of this number, according to the Registrar-General's statement for 1844, 50,423 die annually, or 1 in 39. But if the rate of mortality were 1 in 50, in place of 1 in 39, as it is in several large towns of England, and in the healthier parts of the metropolis itself, there would be an annual savings of 10,278 lives. In the metropolis, there are about 266 deaths every week, nearly 38 deaths a day, or considerably more than one every hour, over and above what ought to happen in the common course of nature. Now, it has been calculated that, for every death which takes place, there are 28 cases of sickness which do not end fatally. We have, therefore, 387,296 cases of sickness occurring in the metropolis every year, which are unnecessary and preventable. 13,832 lives could be saved, - more than a third of a million of cases of sickness could be prevented. One-fifth of the total waste of health and life which takes place in the United Kingdom occurs in the metropolis. Of the 49,089 persons who died in London in the year 1846, 22,275 died before they reached the 15th year of their age, and only 2,241 of old age, which the illustrious Boerhaave stated to be the only disease natural to man."-Journal of Public Health, vol.ii.p.225.*

<sup>127</sup> *The following description of the water used by the citizens of London, is from the Edinburgh Review, (April, 1850, p.381): "The refuse and dirt from two millions of individuals, and offal of slaughter-houses, - the outpourings from gas-works, dye-works, breweries, distilleries, glue-works, bone-works, tanneries, chemical and other works, - and a thousand wards and forwards by the tide, and, having been thoroughly stirred up and finely comminuted by the unceasing splash of 298 steamboats, is then pumped for the use of the wealthiest city in the world!" And yet a city which depends upon such water for its domestic use is as healthy as Boston!*

Another view of the subject may be presented in this connection. Whatever may have been the sanitary the people of Europe, some of the have emigrated to this country, bringing with them and imitating the customs in which they were educated in the land of their nativity. By these means many of the evils which have there called so loudly for reform have introduced among us. Such evils cannot be this State. It is in vain for us to suppose that they can be fined to the persons alone whom they immediately affect. We cannot wall up the pestilence, or shield ourselves from its influence. It will diffuse itself through the whole until all classes, to a greater or less extent, feel its power, - until all persons and all interests, in all parts of the State, are affected. We have shown that the public health is deteriorating, - that human life, on the average, has been gradually growing shorter; and it may perhaps be partly owing to this cause. And if we would arrest the downward tendency, we must adopt, and carry forward an efficient plan of sanitary reform. All the arguments in its favor apply with tenfold more force here than in foreign countries. Can anyone say with truth, in this view of the subject, that the measure is not applicable to us? We need such a measure to elevate the sanitary and social condition every part of the population.

We have said that great ignorance of the laws of a reckless disregard for their requirements, prevail large portion of our native population. And this is emphatically true; although as a people we may be generally educated, - possess great application and industry, - great energy perseverance, yet at the same time we are sometimes led recklessly on by desires for wealth, for for self-gratification, in total ignorance of correct sanitary laws, or in total disregard of the of preserving our own lives and the lives of others. These dangerous sanitary habits should be discarded, and more safe and correct ones substituted in their places. And in no class of our people, among few or no individuals, does there exist a state of health so high that no higher can be attained. By a clearer knowledge of the physical laws, and a closer application of those laws to habits, regimen and training, to local and atmospheric influences, a much higher vigor, a greater power of endurance, and a more full enjoyment of life may be attained by every class of the people. And will not this measure greatly aid in the accomplishment of this most desirable reform? Is it not applicable to us, - *to any people?*

3. *It may be said,* - " I don't think much of your statistics ; you can prove anything by figures. "

This is an oft-repeated remark, but in our judgment may be easily answered. *Statistics* may be defined the *science or art of applying facts to the elucidation and de1nonstration of truth*. It is the basis of social and political economy, and the only sure ground on which the truth or falsehood of theories can be brought to the test. Mere columns of figures mayor may not be statistics. They form, in any case, a small part only of the illustration. Combination and deduction are required to give them full effect. We belong to that class of statistis ,who have no particular fondness for figures, though we have a great fondness for facts. We use figures as the representatives of facts, not fiction, -of truth, not falsehood, -and find them very convenient for that purpose. We find it very difficult to prove or disprove many propositions without them. We are aware that some persons have a great antipathy to facts and statistics ; but in this " matter-of-fact-age," they are required ; and they are far more useful and important than the fiction and theory, the

assumption and assertion, that have occupied so much of public attention. We would follow, in estimating human life and human health, in all their various departments, bearings and relations, the same course that judicious men pursue in other matters.

The state and condition, the statistics of a country, can be known only by gathering together the facts as to its movements and progress ; and the statesman looks at the figures which represent these facts, and combines and deduces the truths they contain, for his guidance.

It is a fact that at an election Mr. A. received a certain number of votes, and Mr. B. a certain other number, in each several towns. These facts, or statistics, being gathered together and represented by columns of figures, prove A. received more votes than Mr. B., and is therefore elected. Suppose you attempt to prove by these figures that Mr. A. was elected, what process would you adopt?

It is not often that the judicious merchant or other man guesses, estimates, or theorises on this or that kind of business,-on this or that man's account,-on his own profit and loss,-or on his own pecuniary sanitary condition ; but he goes to the statistics of his business,-the records of his progress-his books ; and he values and is guided by the definite facts thus disclosed. So we prefer a definite fact, even if it appear as a statistical truth, and represented by figures, to uncertain theory or vague speculation and assumption.

It would be easy to illustrate, almost indefinitely, these general remarks, and to show the advantage and absolute necessity of this mode of presenting truth, but we deem it necessary.

4. *It may be said-* " This measure will interfere private matters. If a child is born, if a marriage takes place, or if a person dies, in my house, it is my own affair ; what business is it to the public ? If the person die at one age or another,-if he die of one disease or of another, contagious or not contagious, it's my business, not another's, - these are private matters."

Men who object and reason in this manner have very conceptions of the obligations they owe to themselves or to others. No family ,-no person liveth to himself alone. Every person has a direct or indirect interest in person. We are social beings-bound together by indissoluble ties. Every birth, every marriage, and every death which, takes place, has an influence somewhere; it may not be upon you or me now ; but it has upon some others, and may hereafter have upon us. In the revolutions of human life it is impossible to foretell which shall prosper, this or that,-whether I shall be a pauper or have to contribute to support my neighbor. as a pauper,-whether I shall inherit his property or he inherit mine; and every person should be willing, and even desirous, to place within the reach of every other person, the fact that he has existed, and the means of identification. This is the common right which the public should claim of everyone, and the common privilege which everyone should have in all others.

"A well-organized system of civil registration," says the Edinburgh Review, (Vol. XOil, for July, 1850, p. 43,) "is one of the first wants of an enlightened people. No man in such a people is above or beneath the obligation of authenticating his existence, his claims on the protection of his country, and his fulfilment of the duties of a citizen,-or of contributing his individual quota of information, in what personally concerns himself or his

family, in reply to any system of queries which the government in its wisdom may see fit to institute respecting them. Such information may be regarded as a polltax, which, in this form, a government is fairly entitled to impose, which is at once the justest and least onerous of taxes ; or rather it may be looked on as a mode of self-representation, by which each individual takes a part in directing the views of the legislature in objects of universal concern. Nothing, therefore, can be more unreasonable than to exclaim against it, or to endeavor to thwart the views of government in establishing such a system,-nor anything more just than to guarantee its fidelity by penalties imposed on false returns or wilful omissions."

Erroneous ideas on this subject have, to some extent, existed in the minds of many persons. It has been thought that it was indelicate and impertinent to be thus inquisitive ; but happily these views are fast passing away. It is becoming more and more apparent that such information is useful to the public, to protect public rights and public health, and may be very important to the individual, to protect personal rights and personal health. And a little candid thought must convince every unprejudiced mind, that immense benefit would result to the whole community and to each member of it, by the adoption of this measure, and by the information which it would elicit. A knowledge of these matters, alleged to be private, may be an incalculable public benefit. Without it, any attempt to estimate the sanitary condition of a place or a people, and the prevalence of different diseases, will be nearly worthless results will be uncertain, and not reliable as a correct basis on which to found remedies for improvement and progress.

5. *It may be said, -* " This measure will interfere with private rights. If I own an estate hav'n't I a right to do as I please ? to build upon it any kind of house, or to occupy it in any way, without the public interference ? Hav'n't to create or continue a nuisance-to allow disease of any on my own premises, without accountability to others?"

Different men reason differently, in justification of selves, on this matter. One man owns real estate in an healthy locality; and if its condition were known, it might affect its value. Another has a dwelling house unfit residence of human beings; and he will oppose any improve it because it will cost money, and he can in its present condition. Another does business in a place where, and at a time when, an epidemic prevails; and occupation may tend to increase it; and, if these facts were known, it might affect his profits. These and similar may lead different minds to oppose this measure. How extensively such opinions prevail we will not attempt to state. Some twelve years since one of this commission introduced , into the city council of Boston, an order of inquiry relating to a certain locality supposed to be unhealthy; but it was strongly opposed, because, as was stated, it would the real estate in the neighborhood! There may be individuals who place dollars and cents, even in small amounts, by the side of human health and human life, in their estimate of value, and strike a balance in favor of the former; But it is to be hoped that the number of such persons is not large.

We subjoin extracts from three different authorities, which contain correct views on this subject :-

" Every man who chooses to hold property in a town must learn that there are certain duties connected with that property by the very nature of it, which must be fulfilled. He cannot use it as he would. He must, on the

contrary, submit to those wise legislative measures which in all ages have been found necessary to protect the common weal. The attempt to obtain exorbitant profit, either from the sale of land or the rent of houses, must be curbed by a proper public spirit, and by the legislature declaring what kind of streets and houses it will allow to be built, and how many upon a given space. We must revert to the ancient laws, and permit nothing to be done, come what may, which shall injure the health or comfort of the inhabitants. But those who possess property must not imagine that in doing this we shall interfere with their real interests ; for in the moral arrangements of the universe there are certain checks which infallibly prevent our doing as we would in these matters. We may build double the number of houses, and quadruple the population on ant given space, but sickness and death, and moral as well as physical degradation, will step in and prevent our reaping the fruits we anticipate."<sup>128</sup>

" One of the primary prejudices,-one of those least spoken of but most felt,-which sanitary reform has to encounter, is a vague apprehension of undue interference. All regulations for securing cleanliness and removing filth, are apt to be considered as invasions of the privacy of the domestic hearth and the person, and amounting to an impertinent intermeddling, in matters concerning which it is insulting even to be inquisitive. But in reality the object of sanitary reform is to free the citizen from the vile fetters with which the acts of others have actually bound him, and to leave him free to pursue the natural tendency towards civilization and refinement, rather than to assume any arbitrary control over his actions. We believe it to be quite true that it always in;ures the individual to do for him W hat he ought, and is able, t9 do for himself. But the operative workman must live in the city, or starve ; and if selfish wealth has made the city such that he cannot find a cell in it which is not a living tomb, saturated with corruption,-then he is not left to the freedom of his own actions, but is sub;ect to an abominable bondage caused by the conduct of others. The strength and skill of Hercules could not enable the city artisan of Glasgow to live in purity; and if legislation cleanses the Augean stable, it is not doing for him what he should have been left to do for himself, but only saving him from by the selfishness of third parties beyond his reach." <sup>1291</sup>

"In the restrictions which prevent every man from his own profit or gratification that which inflicts on neighbor a deadly injury, there is no hardship;-it is simple justice. Our law requires that the railway company, the master of steamboat, and the manufacturer of gunpowder, should respectively conduct their operations so as not to endanger the of the community; and there can be no reason why the same responsibility should not be attached to those whose profitable occupation is building or spinning. Such intervention behalf of the public is not to be confounded with the old sumptuary laws,-for it interferes with things, not with persons; nor can it be compared to attempts to regulate labor and wages, or to restraints on trade,-for it is not done to procure, artificial adjustment of something which men can best for themselves, some speculative advantage, but, on the principle of *salus populi suprema lex*, to protect one set of human beings from being the

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<sup>128</sup> *Liverpool Health of Towns Advocate*, p. 87.

<sup>129</sup> *Edinburgh Review*, January, 1850, p.213.

victims of disease and death though the selfish cupidity of others. The owner of the soil is the person who mainly profits by the accumulation of a city - his, at all events, are advantages for which he nor spins; and many of the princely fortunes of our been created by the rapid rise,-often so far as the owner himself may know, of city populations. It does not seem then to be a very hard rule either of morality or law, that a proprietor who accumulates wealth by means, shall be compelled to submit to regulations should they even in some degree reduce the gains, may be a security, against the lives of those who necessities of their position are enriching him, from being sacrificed to his avarice or his recklessness. While he derives a profit by letting out his square yards of the earth's surely is not unfair that he should become bound not to it to the occupant perforated throughout with pit-falls in which health and life may be lost."<sup>1302</sup>

"It is the common right of the neighborhood," says Dr. Simon, "to breathe an uncontaminated atmosphere; and with this common right nuisances must be considered to clash. It might be all infraction of personal liberty to interfere with a proprietor's right to make offensive smells within the limits of his own tenement, and for his own separate inhalation; but surely it is a still greater infraction of personal liberty, when the proprietor, entitled as he is to but a joint use of an atmosphere which is the common property of his neighborhood, assumes what is equivalent to a sole possession of it, and claims the right of diffusing through it some evanescent effuvium which others, equally with himself, are thus obliged to inhale."

Such are the opinions of some of the most eminent authorities in England on this matter; and they are sanctioned by the highest judicial tribunal in our own State. There have been few decisions in our courts, in cases for violations of the sanitary laws of the Commonwealth; but such as have been made are in opposition to the principle of this objection, and in accordance with the views here presented.<sup>1131</sup>

6. *It may be said* ,-"Your measure will create an unnecessary expense; the State already spends too much money; we cannot afford it."

Everyone should reflect that this is not an expense, but an investment,- a saving,-a " stitch in time," which is designed to add to the wealth and not to the poverty of the Commonwealth; and such we have proved will be the result. Expenditures for celebrations, and for various temporary or other purposes, and of doubtful expediency, more than sufficient for this purpose, are often made within this State, without opposition and without counting the cost; and why should the trifling outlay for this most' useful measure be urged to defeat it ? we have already demonstrated the economy of the measure (especially in pages 250 to 260,) and we deem it useless to reply further to such as may still persist in this making.

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<sup>130</sup> *Ibid.* 214, 215.

<sup>131</sup> See *Pickering's Reports*, Vol. VII; p. 76; and Vol. XII, p. 184. We extract one of these decisions. "It is not only the right but the duty of the city government of Boston, so as they may be able, to remove every nuisance which may endanger the health of the citizens. And they have necessarily the power of deciding in what manner this shall be done, and their decision is conclusive, unless they transfer the powers conferred on them by the city charter. Police regulations to direct the use of private property so as to prevent its being pernicious to the citizens allarge, are not void, although they may in some measure interfere with private rights without providing for compensation. The property of a private individual may be appropriated to public uses in connection with measures of municipal regulations, and in such case compensation must be provided for, or the appropriation will be unconstitutional and void"

7. *It may be said, -"If you diffuse information on matters generally among the people, will you not make person his own physician ? will you not increase, and press quackery; and thus magnify and not diminish the sanitary evils which it is your purpose to prevent ?"*

It seems to us that this measure will have an effect opposite to the one here supposed. It is not intended, in the least degree, to usurp or to interfere with the duties of the physician, in the cure of disease, but to aid him in his efforts, and to dignify the importance of those efforts. It is, however, intended to teach the people so much of their physical organization, and so much of the influences that act upon them, that they may know, and be led to avoid, the disease, and thus escape the infirmities, the consequences of sickness. This measure will teach to obtain proper medical advice when they are sick, and tamper with themselves or with their diseases, by dangerous remedies, nostrums or ignorant of their applicability to their own particular cases. It will lead them to understand when or in what stage of the disease, it is best to obtain professional advice; from whom to obtain it ; discriminate between the good and the bad. Ignorance permits a cause of disease to operate unchecked until the itself actually invades the system; and the same permits the disease to make such advances before obtained, that it is often impossible to arrest it. on the other hand, understands and avoids the causes disease; or if disease should happen to have made its attack, the same intelligence will require medical advice of the kind at the commencement of the disease, when advice is most useful, and when the power of medical remedies is most decisive. And this intelligence will preside over all the management of the sick room; and thus second all of the medical adviser, and give all possible effect to the remedies used for the expulsion of the disease. Ignorance and assumption constitute the essence of quackery; intelligence and a desire to do right, condemn it; and this measure is designed to prevent the former, and promote the latter.

8. *It may be said, -" If you say so much about health and disease you will excite the alarm of the people, and create more disease than you prevent. It is better to let a place that is unhealthy remain so, unimproved, than to alarm the people about it."*

If a place is unhealthy, and on that account an improper place of residence, does not a feeling of common humanity require that it should be known? If people are on the brink of a dangerous precipice, shall they not be told of their danger?-shall they be permitted to pursue their course to destruction, for fear of exciting their alarm ? Is not a knowledge of their condition their only safety ? The objection, in our judgment, instead of being a reason for the rejection of this measure, is a powerful one for its approval. "To be forewarned is to be forearmed." It is only those who know their capabilities and. their liabilities,-who know their dangers and means of removal or escape, that are confident and unalarmed. The ignorant, unconscious of the means of mitigation, are more likely to be timid, alarmed, and to be overpowered with groundless fears, on the approach of danger.

Suppose that it should be ascertained, after careful and particular investigation, that a certain locality in the State is unhealthy ,-that in that place certain influences exist, and certain diseases prevail, that destroy, unnecessarily, a great amount of life, and produce a great amount of physical debility, and incapacity for labor. What is duty in such a case? to

permit the evil to remain unexposed, and the destruction of life and happiness to continue unchecked? or to make known to the people the exact circumstances in which they are placed, the causes of the sanitary evils which they suffer, and the means of removal? Would not this knowledge lead them to adopt those precautionary means which would reduce the amount of the evil, as their only safety? or, if this were impossible, induce them to seek some other place of abode? and under such circumstances would not such a removal be a duty? Self-preservation on their part, and philanthropy on ours, say so; and so in our judgment this objection is removed and rendered powerless.

9. *It may be said*, -" It will interfere with Divine Providence." -" It was to be so." -" It was so ordered." -" If we are to die of cholera, typhus, consumption, or any other disease, it must be so, -it is useless and improper for us to interfere."

This is an old sentiment. It has formed a part of religious belief in different nations, from remote antiquity to the present time. Death, whether it come in the shape of a plague, mowing down its thousands, or as a solitary messenger, slowly wasting or suddenly destroying the individual, has been considered by many as the special Providence of God, with which we ought not and cannot interfere. As late as 1720, when inoculation for the small-pox, as a protection against the disease in the natural way, "was introduced into Boston, it was strongly opposed; and one reason given was, that it would interfere with this Providence. And even in our day some consider it a disobedience to a Divine command, -" in sorrow thou shalt bring forth," -to inhale ether or any other agent to mitigate pain, or to alter the character of labor!

We shall not attempt a discussion of any theological or philosophical question, relating to the providential agency manifested by the Supreme Governor of all things, in presiding over and governing the universe which he has made; but we would view this great matter of life and health in the same light that "we view all other matters with which they are connected, and over which this providential agency is extended. We see clearly the operation of cause and effect, we should see wise laws wisely administered in every event that takes place in the universe. The husbandman does not sit down by the side of his field, and wait until the time of the harvest; and if he does not receive a crop, when he did not sow his seed; or if he did sow, when he neglects the proper care of the growing plant to protect it from injury, -from weeds, noxious agents, or "filth" of any kind, -say "it was to be so." His agency, his care, his labor, is necessary to success. So in almost every event of practical life, we act in direct opposition to the very sentiment of this objection. If "it was to be so" is to be written upon every effect, why do we send for a physician when we are sick? Why do we take food to preserve life, or use means to cure disease? Why do we not let causes take care of themselves? Everyone, in applying the objection to practical life, must see its fallacy. We believe that "God helps those who help themselves," and none others. It was a maxim of Dr. Chalmers, that "man should trust in God as if God did all, and labor themselves as if man did all."

Pain, suffering, and the various physical evils to which are exposed, may not seem to be a necessary part of the scheme of nature, but only as incidental to it. They result from the violations of her laws; and are

permitted for wise purposes, perhaps for the discipline and development of our physical and moral powers. In the operation of epidemic diseases some innocent may suffer ; but they are individual exceptions to the general rule ; and they come like drought or blight upon the labors of the honest husbandman. It is easy to perceive that the sources of many, even a vast majority of these evils, may be removed by those who suffer from them ; and that they do not lie so deep that human agency cannot discover and destroy them. Man has a power to wield over and to expel disease. It has been asserted, by high authority, that " it would be possible to banish nearly all disease from the earth, and to restore man to his pristine vigor. If such a belief be true, that afflicting contrast between. the sufferings of mankind, and the beauty and beneficent ordering of the universe, disappears. The source of the contrast is found to be within us,-the fountain of the evil is in: ourselves. We are our own tormentors, and are not; merely the prey and unresisting victims of powers higher than ourselves." <sup>132</sup>

10. *It may be said,* -" We acknowledge that all you say is reasonable and cannot well be gainsayed ; but we are a business-like, a money-making, and money-loving people. We are too much occupied to consider these matters. So many other things take up our attention that we haven't time to examine, much less to carry out your measure ; our people are not up to it yet."

We are fully aware of the prevailing tendencies of the public mind, and of the indifference and apathy with which subjects relating to health are generally regarded. It is times when epidemic diseases prevail, or when we are reminded of their effects by our own sufferings or losses, we are excited and interested. We are too much inclined to consider health as a matter " belonging to the doctors and not to us," and to depend upon them for a supply ; that money is best obtained and time is best employed, when the dollar is sought, and desire is gratified, without regard to the sanitary consequences of any particular mode of doing it. Some strange anomalies and inconsistencies are found in society as at present constituted.

*"Money-loving!"* And is this the only object of life Are there none that overlie it ? And even if it be uppermost, are we pursuing the best means to obtain it ? It is true that most of us, when selecting an occupation, a place of

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<sup>132</sup> *"So indispensable an element is health in all forms of human welfare, that whoever, invigorates hi health has already obtained one of the great guaranties of mental superiority of usefulness, and of virtue. Health, strength, and longevity, depend upon immutable laws. Ther is no chance about them. There is no arbitrary unteference of higher powers with them. Primarily our paren, and secondarily ourselves, are responsible for them. The providence of God is no more responsible, because the virulence of disease rises above the power of all therapeutics, or because one quarter part of the human race die before completing the age of one year,-die before completing one seventieth part of the term of existence allotted to them by the Psalmist :-I say the providence of God is no more responsible for these things, than it is for picking pockets or stealing horses."*

*" Health is earned,-as literally so as any commodity in the market. Health can be accumulated, invested, made to yield its interest and its compound interest, and thus be doubled and redoubled. The eapital of health, illdeed, may all be furf-ited by olle physica! misdemeauor, as a rich man may sillk all his property in one bad speculation; but it is as eapable of being illcreased as any other kind or eapital ; and it ean be safely illsureed on paymellt of the reasonable premium of temperance and forethought. This, too, is a species of wealth, which is not only capable of a life-long enjoyment by its possessor, but it may be transmitted to children by a will and testament that no human judicature can set aside."*

*" Let the young man, then, remember, that, for every offence which he commits against the laws of health, nature will bring him into judgment. However graciously God may deal with the heart, all our experience proves that He never pardons stomach, muscles, legs, or brain. These must expiate their offences un-vicariouly. Nay, there are nume. IIS and obvious „as„s of violated physical law", where Nature, with all her diligence and severity, seems uuable to scourge the offender enough during his life-time, and so she goes on plying her scourge upon hill children aud his childreu's children after him, even to the third and fourth generation. The puni.hment is entailed on posterity; uor human law, nor human device, can break the elltailment. And ill these hereditary illtlictions, nature abhors alike the primogeniture laws of England and the Salic laws of France. All the sons and all the daughter" are made inherilors ; Dol in aliquot parIs; hut, by a ki,ld of malignall mulliplication in lthe distemper, each inherits the whole."-Mann's Thoughts for a Young man, pp. 14, 23, 19.*

business, a place of residence, do not inquire into its sanitary influences, as we should do if we acted wisely : if it promises money we enter into it generally with characteristic zeal, regardless of the consequences. But how often do we have to learn that we committed an error! Instead of gradually accumulating capital, while preserving and invigorating our health: in a way which would give us a more prosperous, a happier and longer life, we make a hazardous speculation and lose the whole. This is the result of ;guorance. It is worse than that. It is folly and crime thus to rush recklessly into a sea of uncertainty, when safety and competence are certainly attainable otherwise. Our thoughts receive a significant illustration in an extract of a recent letter from California. Our party ," says this writer, " four months ago, consiste'd of six persons, of whom two only are now alive. Two died of a disease occasioned by over-exertion and improper exposure at the diggings, on the El Dorado; one of a violent fever, occurring after a scene of frolic Iring and dissipation in the village; and another was murdered and robbed in his lodgings, of the few thousands of gold dust, which he had gathered by hard labor, and was about to carry back to his native New England. We, who are alive, are doing tolerably well, but work at great risk of property, health and life." If these six persons had known exactly their sanitary capabiliiy and liability, and "w hat to do and how to do it, they might have preserved their lives. They might have wrought and acted so as to have avoided the causes of disease; or, if this had been impossible, they might have had discretion enough to abandon their suicidal residence or employment. We would not discourage, but encourage, energy and perseverance in every calling, but only in subordination to higher obligations, and in strict regard to the higher duties of self-preservation and self-invigoration.

"*We hav'n't time!*" Indeed! but we have time for other things,-for labor, for leisure, for dissipation, for almost anything we desire to pursue. And to what purpose more useful than the preservation of our lives and health can we devote a portion of our time ? If time is not taken by us, and used by us, for this ob;ect, it will be taken by another agent; and we shall be prematurely deprived of an opportunity of using it ourselves for any purpose whatever. A shortened life and a debilitated frame, .will be the consequence of ignorance inattention; a lengthened life and an ! of knowledge and application. In plain English, 'Ice have time means we have no DISPOSITION. If we have to examine and carry out this measure we shall find time and ability to do it, and still have enollgh for other purposes. " Where there is a will there is a way ;" wherethere position there is a time,-" a time for all things."

The younger portion of society may be taught the lessons of experience which the elder portions have learned during a long life,-the physical calamities to which they have been exposed, the mistakes they have made, and the remedies reparation they have used. They may be told the best course to pursue to invigorate and prolong their own existence. But how few apply this instruction as a guide to their own in physical improvement! How great a proportion say, 'IT will do well enough for old people to talk so, but we are enough as we are, we live in another age ;" and they neglect and refuse to apply the useful instruction of others and wait until taught by their own sad experience. They are then often too old to profit by it They did not learn how to live, until their life-time had nearly expired.

Our people spend an indefinite amount of money in the purchase, and of time in the perusal, of the miscellaneous literature of the age; but a book, written with ever so much talent and authenticity, which contains facts relating to the in-comings and out-goings of human existence, and to the rise and fall in the tide of human welfare,-matters which concern and affect every member of society ,-is too dry and statistical ; it will not interest; "we hav'n't time to examine it !" An individual cau announce that he sells a patent medicine, which is alleged to be a cure for all diseases, and even those supposed to be incurable; and, by a systematic puffing, he will command the public ear and amass a fortune by drafts upon public credulity; but the man who announces, in plain and simple terms, a wise and truthful plan for avoiding disease, for living without sickness and without medicines, will be regarded with indifference, and informed that II the people are not up to it yet." A lecturer can announce a new system of medicine, " electro-biological" or otherwise, and attract crowds of attentive listeners, night after night; but if an earnest, thoughtful, honest man, presents the simple, everyday, unvarnished principles, by which disease may be avoided and the causes of disease removed, and the facts by which these principles are demonstrated, he will find few listeners, and even those whom he is fortunate enough to obtain, may pronounce him unworthy of confidence,-a visionary dreamer.

The upsetting of a pleasure-boat, drowning several persons ; a shipwreck, consigning human life to a watery grave; the bursting of a steam-boiler, scalding and scattering those within. its reach; a collision on a railroad, mangling or destroying the passengers; a fire, murder, suicide, or other sudden and sad calamity, will sometimes occur and produce a general public excitement. All the facts are gathered together and minutely detailed in the newspapers; people collect in the streets, and in public and private coteries, to talk the matter over; a strong sympathy is manifested for the sufferers; judgment is immediately pronounced upon the guilty; and a loud call is made for such a punishment as shall be a warning against a repetition of the offence. But the dark stream of disease and death, is every day and every hour crowded with victims, carried down upon its ever flowing current beyond the limits of time, and all are unmoved and without emotion or excitement. The people " haven't time to consider it ;" and make no attempt to arrest or lessen the amount of disease and death that constantly float, in their onward course, on these dark waters. They never ask the question, Can this mortal current be stayed, the number of these victims lessened, the amount of this human wretchedness and human woe mitigated or prevented ? And even when informed, in a demonstration as clear as meridiali light, that it may be dolte, they make no effort to do it, and reply, " We are not up to it yet; you are before your time; you were born in an age too soon !"

Here we might rest our labors; but we cannot close our report without a few words of appeal which our subject suggests.

1. It appeals to *Physicians*. "The members of our profession," says an eminent medical authority, 'who have already embarked in this most righteous crusade against physical corruption, cannot but feel themselves encouraged by the sympathy and cooperation of the clergy; and who have

not yet taken any part in furtherance of the cause, may perhaps find a motive to exertion in the interest with which it is regarded by the members of other professions, and by society at large. But a sense of duty, far more than the mere force of example, ought to enlist the medical man in this holy warfare. No member of society is so cognizant as he is of the facts of the case, or better prepared to interpret and enforce them; no one is less open to the suspicion of mean or unworthy motives; and no one has such frequent opportunities of converse with men of every degree. If he, who knows so much should appear indifferent or, what is worse, from the bad habit of looking at the practice of his profession as the only honorable occupation of a medical man, and the work of palliation as his only duty, should speak slightly of this higher work of prevention, and carp at the efforts of others on the pretence that they are given to exaggeration; society would soon catch his tone of thought and feeling; and a cause which, on reflection and careful examination, he would be constrained to support, must suffer irreparable injury. If, on the other hand he could be induced to exert himself heartily, but discreetly in favor of sanitary measures, and to bring his influence to bear on those with whom his professional avocations place him in communication, it is impossible to over-estimate the good he may be the means of effecting." <sup>133</sup>

2. It appeals to *Clergymen*. Their official duties lead to visit the sick and the dying; and they should be forcibly impressed with the truth that the architect and the scavenger, - that sanitary reforms in their various modes of operation, ; are their best colleagues. They should see and feel, that removing physical suffering and raising the social and personal condition of the sufferer, is the surest way of gaining access to the heart, and of making their warnings, their instructions, and their consolations effectual ; that the easiest and most permanent impressions are those made before the body and the mind become degraded in filth, stupefied by disease, or hardened and seared in guilt. In their personal intercourse and in their preaching, they should diffuse sanitary information, and urge the importance of sanitary measures. A weighty responsibility rests upon such men, and it becomes them to feel it, and to make themselves perfect masters of the subject, that they may use the information wisely and usefully in helping forward one of the greatest reforms of the age.

3. It appeals to *Educated men of all classes*. As a matter of intense interest, as a matter requiring profound investigation, as a matter of useful science, few subjects can be presented to an intelligent mind which promises more satisfactory results than the sanitary movement. For these objects alone it is worthy of being studied. But when it is viewed, in its personal and social relations to man and mind, it, in many respects, transcends all other matters. To those, who, by education, are qualified for the labor, few objects present a greater or more extended field of usefulness. Educated men and educated women too, who make themselves masters of sanitary science, may, by their pens, by their oratory, and by their personal influence, do an amount of good of which few or any of us have as yet an adequate conception. Such labors, judiciously conducted, would exert a mighty influence of the race and its unborn millions. On such persons also rests a

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<sup>133</sup> *British and Foreign Medico-Chirurgical Review*, Vol. I, for 1848, p32.

great responsibility. "I would beg you to consider," says Dr. Simon, II the incalculable good which may be conferred on the poorer classes of society by the direct educational influence of those in better and more enlightened circumstances. When I say that the social sanitary errors, to which I have particularly referred, would gradually but swiftly vanish under the influence of education, I do not mean that the cure would be in learning to read and to write, though these attainments, of course, would largely increase the present usefulness and market value of their possessor. The education to which I refer, as an all-important influence for sanitary progress, is that which would consist in exhibiting to the lowest classes of society frequent practical evidences of the attainability and of the advantages of higher civilization; an education which, by models and examples, would lead them to know cleanliness from dirt, decency from grossness, human propriety from brutish self-abandonment; an education which, by sensible experience, would teach them to feel the comfort and the profit of sanitary observances, and would apply their instinct of self preservation to the deliberate avoidance of disease." Lord Morpeth uttered this noble language in an address to his constituents, while the bill for promoting the public health was pending in parliament :-" Let my countrymen condemn me as they may, only do not let them hold me; do not hold the new parliament; do not let them hold themselves absolved, if they do not, either in their places as members of parliament, or as constituents keeping their representatives of their duty, insist upon early and efficient legislation on subject."-" No one's conscience, be they ministers of state be they members of parliament, be they members of corporations, or be they citizens of any class, ought to hold themselves harmless, if in time coming they offer any obstruction, or suffer any obstruction to be offered, to the immediate adoption of sanitary reform." <sup>134</sup>

4. It appeals to the *Wealthy and Philanthropic*. The munificent charities of the people of Massachusetts are well known. Many a one has given living or testamentary evidence that there runs through our society a strong current social sympathy, and a willingness and even a desire to dispose of portions of the wealth, which has been bestowed upon us, for the relief and elevation of suffering humanity. Among the different objects which present themselves for these noble sympathies, we solicit for the sanitary movement a careful examination. In our judgment no object is of more paramount interest and importance. Money used in collecting and diffusing sanitary information; in the establishment and maintenance of institutions designed to prevent sanitary evils; and in the various modes of operation which may be devised and carried forward by energetic and wise men, would prevent an amount of evil, and would accomplish an amount of good, promised by few or no other means.

5. It appeals to the *People*. This measure is, unlike many others, limited in its design and local or partial in its application. It reaches, and is intended to reach, every person in every part of the State. If adopted and properly carried into operation it will be universally felt, -by the professional man, the artizan and the laborer, by the rich and the poor ; and the general salutary effects will be gradual but perceptible and great, upon the collective interests of the whole State, and upon the social and personal interests of each

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<sup>134</sup> *Journal of Public Health, Vol. I, p. 23.*

individual. Every man in every station has a direct interest in its success ; and every one should do all in his power to establish and make it successful. Everyone should, as far as possible, endeavor to understand the character and design of the measure, and should commend its principles to others ; he should unite in forming local sanitary associations ; and in obtaining the passage of wise sanitary laws and regulations, and he should assist the public authorities in carrying them into operation. Every person should endeavor to reform whatever sanitary evils may exist in his own person and habits, and those of his family and neighborhood. And by these means the sanitary movement will be accelerated, and sooner accomplish the high and noble purposes for which it is destined.

The sanitary reform we advocate is not like some of the popular reforms of the age. It rests upon no visionary theories, conceived alone in the closet, or by some impracticable enthusiast. It aims at the establishment of no abstract principle, with no definite, practical bearing or application. It is not radical in its character or tendency ; does not seek to overturn nor upturn any social, political or religious sentiment or institution ; nor abrogate any constitutional or statute law. It interferes with no man's rights,-pecuniary, social, political or religious. But it takes things as they are ; looks upon man as it finds him ; allows him to enjoy the institutions with which he is favored ; and gives him the means of living longer , and of enjoying more while he does live. There is in this no transcendentalism, or other ism or ology, to which any reasonable objection can be made; though it transcends, in its simplicity, in its practical utility, and its substantial, everyday, universal benefits, all other reforms. Every person, in every situation can do something to promote this reform ; and every such effort wisely directed, will increase the amount of his own , individual enjoyment, and add to the aggregate enjoyment of the people of the whole Commonwealth.

6. It appeals to the *Periodical Press*. In this country almost every adult reads. Indulgence in the luxury of a newspaper is a universal characteristic of our people; and by the power of steam the press is able to furnish this luxury in an unprecedented manner and in any desirable quantity. We have watched with admiration, but not without fear, the growth and influence of the mighty power of the free periodical press. It educates, sways, shapes, and carries backward or forward, many an individual, and often the public, too, in a career of infamy or in a career of glory. It assumes an immense responsibility; and every press should feel' , and wield its influence for good and not for evil.

We have stated ( p. 46) that the periodical press generally in England, has been in favor of sanitary reform. The " Times," the " Morning Chronicle," the " Daily news the leading papers of Great Britain, and the exponents and guides of public opinion in their respective spheres, and the other less prominent publications of the daily press, as well as periodicals of a different class, have advocated the cause with a talent, discretion and perseverance, which reflect upon them the highest honor. The combined influence of the excellence of the cause, and of the force of public opinion, has silenced all opposition; and sanitary reform has now taken its place among the most prominent subjects of interest among all classes of people throughout the kingdom.

The subject appeals to the periodical press in this country to imitate so noble an example. It is a subject bounded by no sectional interests and no party lines, but is of universal concern and of unbounded application; and one in which press, of any character, may safely and properly embark. Every one that aids in its promotion advocates a measure which certainly can do no harm, and may, -judging from all past experience,-do immeasurable good ; and everyone that opposes it, or throws obstacles in the way of its advancement, lends its aid, not only to defeat a harmless measure, but one designed to promote the progress and elevation of society and the best interests and well being of the human race. It will be an earnest of success if the periodical press shall zealously engage in this enterprise, as it will certainly find it for its interest to do, and support and defend the sanitary movement with the same talent and energy that is devoted to matters considered of the highest importance. Editors will there have discharged some what of the responsibility , which devolves upon them as guides of public opinion and well wishers to humanity.

7. It appeals to *Towns and Cities*. On the municipal authorities of towns and cities, depends the immediate execution of all sanitary laws and regulations. They are required to perform an important duty. Thorough knowledge of the condition of the people, and wise adaptation and administration of sanitary measures, will benefit and bless them. But blundering ignorance, or inconsiderate measures, or unwise administration, will not do it. Life, health, physical happiness, and even the moral condition of a town, may depend, in some degree, upon the adoption or rejection of proper sanitary regulations. An immense responsibility then rests upon these local authorities. And this impression should abide upon them, and they should be led to act accordingly. If they do not it will be known. Cholera in one district slays its thousands or its tens of thousands, and yet in another cannot find a single victim ; and the cause of this difference is attributable to certain sanitary conditions present in one case,-absent in the other. Cholera, typhus, consumption, and other diseases, are " health inspectors, that speak in language which none can misunderstand ; they visit persons on polluted rivers, the neglected lunatic in his cell, the crowded workshop, the establishments for pauper children, the sides of stagnant sewers, the undrained city, the uncleaned street, the cellar and the attic, as well as the fair open quarters which strangers frequent and admire. The oversights, the errors, the crimes of persons ,who in responsible offices have charge of the health and life of men, are proclaimed aloud by their inexorable voices." <sup>135</sup>

8. It appeals to the *State*. Under our constitution and laws "each individual in society has a right to be protected in the enjoyment of his life." This may be considered in a sanitary as well as a murderous sense. And it is the duty of the states to extend over the people its guardian care, that those who cannot or will not protect themselves, may nevertheless be protected ; and that those who can and desire to do so the means of doing it more easily. This right and authority should be exercised by wise laws, wisely administered ; and when this is neglected the State should be held

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<sup>135</sup> *Niles's Register*, Vol. XXXVIII, for July 31, 1830, p. 399. *American Almanac*, Vol I, p. 187 ; Vol. II, p. 112.

answerable for the consequences of this neglect. If legislators and public officers knew the number of lives unnecessarily destroyed, and the suffering unnecessarily occasioned by a wrong movement, or by no movement at all, this great matter would be more carefully studied, and errors would not be so frequently committed.

Massachusetts has always been eminent among the American states. Her metropolis has ever been the metropolis of New England. Her example has been imitated and has been felt, wherever the sons of New England are found or the name of New England is known. Her deeds are such as to justify even her own sons for an allusion to them.

Her puritan forefathers established the first system of self government, combining law and order with liberty and equality and based upon pure morality, universal education and freedom in religious opinion, as the only foundation which can insure its permanency and prosperity. And in her cradle was rocked the first child that drew its first breath under its benign influence.

She has her Concord, her Lexington, and her BUNKER hill, all marked ; as the first battle-fields in that great struggle which severed the children from their soil was poured the blood of the most worthy and the most noble patriots the world has ever known; and " the bones of her sons, falling in the great struggle for independence, now lie mingled with the soil of every state from New England to Georgia, and there they will lie forever."

The thirteen united colonies furnished for the regular service of the revolutionary army, besides militia, 231,779 men, -an average of 17,830 each. Of these, Massachusetts furnished 67,907, or 29 per cent. of the whole, 35,968 more than any other state, and 50,077 men more than, or nearly four times, her equal proportion.<sup>1</sup> And she poured out her treasure for the outfit and support of her sons in the regular or militia service, and for the support of their families, whom they left behind, and for other public purposes, in nearly the same proportion<sup>1</sup>, and with the same liberal hand, as she did her physical force and her blood.

She established, more than two hundred years ago, and near the beginning of her existence, free schools, open alike to all; and they have been cherished and supported, from that time to the present, by money drawn from the treasuries of towns, replenished by taxes on the inhabitants. She expended in this way, last year, for these free schools, \$830,577 33,-a sum equal to \$3 87 for every child in the State between the ages of four and sixteen. The whole State has been dotted over with schoolhouses like " sparkling diamonds in the heavens," giving intellectual light to all that come within their sphere.

She established in the United States the first system for the public registration of births, marriages and deaths, by which the personal history and identity, and the sanitary condition of the inhabitants, may be ascertained. She founded the first Blind Asylum; the first State Reform School; and aided in founding the first Deaf and Dumb Asylum; and her money, public and private, has flowed freely in the support of all the noble charities and religious enterprises of the age.

One of her sons first introduced into the United States the remedy of vaccination for the prevention of small-pox, which has deprived that terrific disease of its power, whenever used, and rendered its approach generally

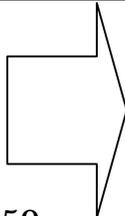
harmless. Another of her sons has the honor of making the great discovery of etherization, by means of whose wonderful capabilities the surgeon's instrument is deprived of its sting, and labor of its sorrow; the operator is permitted to pursue his work undisturbed, while the patient remains passive, unconscious, and unmoved by the horrors which, without it, might be inflicted. The blessings of this great prevention of human suffering are knowledged and felt the world over.

For these and very many other useful and honorable deeds which might be specified, she has been named, by distinguished men of other states and countries, " the forefathers land" " the moral state," " the enlightened state," " the state," " the philanthropic state," " the leading state," "the pattern state," " the noble state," " the glorious old Bay state." And many an ejaculation has gone up in all sincerity, 'God bless her ;' " God save the Commonwealth of Massachusetts!"

There she stands ;" a bright morning star in the system of the Union. On the pages of her history are recorded the noble deeds which have given her a good glorious. But her people demand at her hands a more full enjoyment of life, and a more abundant diffusion of its blessings ; and no more noble and honorable and glorious page can anywhere be found, than that which shall record the adoption of some simple but efficient and comprehensive plan of Sanitary Reform; by which the greatest possible amount of physical power may be produced, of physical suffering may be prevented, and the greatest possible amount of physical, social and moral employment, may be attained. " This is the true glory which outlives all other; and shines with undying lustre, from generation to imparting to its works something of its own immortality."

All which is respectfully submitted.

LEMUEL SHATTUCK,  
N. P. BANKS, Jr.,  
JEHIEL ABBOTT ,



COMMISSIONERS

BOSTON, April 25, 1850.

BILL DRAWN BY THE COMMISSION, AND RECOMMENDED TO THE  
LEGISLATURE FOR ENACTMENT.

[See this. Report, pp. 48-55, 109-119, 138, 242, and 284.]

An Act for the Promotion of Public and Personal Health.

*BE it enacted by the Senate and House of Representatives, in General Court assembled, and by the authority of the same, as follows :*

SECT. 1. His Excellency the Governor, with the advice and consent of the Council, shall appoint seven persons, who, together with the Governor, and the Secretary of the Board of Education, *ex officiis*, shall constitute and be denominated the General Board of Health ; and the persons so appointed shall hold their offices for the term of seven years: *provided*, that the person first named in said Board shall go out of office at the end of one year, the

person next named shall go out of office at the end of two years, and so of the remaining members, one retiring each year, and in the order in which they are named, until the whole Board be changed. And the Governor, with the advice and consent of the council as aforesaid, shall fill all vacancies in said Board, which may occur from death, resignation or otherwise. Any member who resigns, or whose term of office has expired, may, if duly qualified, be reappointed.

SECT. 2. The said Board shall meet in January, April, July, and October, in each year, and at such other times as they may deem necessary or expedient.

SECT. 3. They shall appoint a competent person to be the Secretary of the Board, and shall also appoint such other persons, or employ such temporary assistance, as may be necessary to carry into execution the sanitary laws of the State, under their superintendence; and every such person so appointed or employed shall hold his office-during the pleasure of the Board. The Board shall fix the compensation of all persons so appointed or employed: provided, that the members of said Board shall receive no compensation for their own services. The salary of the Secretary shall be hundred dollars per annum, which, together with his incidental expenses and those of the Board, while in the discharge of their official duties, shall be paid by the State, on certificates signed by the chairman and Secretary.

SECT. 4. The said Board shall perform the following duties :-

1. They shall have the general superintendence of the execution of the sanitary laws of the State.
2. They shall direct the Secretary of the Board in the discharge of his duties.
3. They shall consider and decide upon sanitary questions, submitted to them by the State, by cities, by towns, and by the Local Boards of Health.
4. They shall advise the State as to the location and erection of public buildings, and as to the sanitary regulations of public institutions.
5. They shall, at least once in each year, visit and ascertain the sanitary condition of the several public charitable institutions of the State.
6. They shall prepare and furnish, at the expense of the State, to the several Local Boards of Health, all necessary blanks for the purposes of this act.
7. They shall, from time to time, issue instructions to the several Local Boards, as to their powers and duties, and shall suggest and recommend local sanitary rules and regulations.
8. They shall superintend each enumeration of the inhabitants of the State, and the preparation of the abstracts of the same, authorized by the constitution and laws.
9. They shall lay before the Legislature, annually, in a printed form, a report, containing an abstract of their proceedings, and of their receipts and expenditures, together with the Report of the Secretary of said Board; and shall accompany the same with such remarks, as their observation, experience, and reflection may suggest, as to the sanitary condition of the State, its institutions, and its inhabitants; and recommend the adoption of such useful sanitary measures, as in their judgment may lead to improvement.

SECT. 5. They may expend fifty dollars, annually, in the purchase of books and works, relating to public health and to the causes and prevention

of disease ; which books and works, together with such other books, works, and documents, as may be obtained in exchange or by donation, shall be kept in the office of the Secretary of the Board, and be the property of the State.

SECT. 6. The Secretary, under the general direction of the Board, shall perform the following duties :-

1. He shall keep full and accurate accounts of the receipts and expenditures of the Board.
2. He shall, when directed by the Board, make a sanitary survey of a particular town, or part of the State; and collect information as to its sanitary condition.
3. He shall have all the authority by law given to, and perform all the duties imposed upon, the Secretary of State, relating to the registration and return of births, marriages, and deaths.
4. He shall superintend each enumeration of the inhabitants of the State, and the preparation of the abstracts of the same, authorized by the constitution and laws.
5. He shall arrange the official written and printed reports and documents, obtained from Local Boards of Health and other public associations, and from private individuals; and cause them to be bound and indexed for convenient reference. And he is authorized to exchange the printed documents of the. Board for other sanitary works, printed in this and in foreign countries.
6. He shall perform such other duties appertaining to his office, as may be required by the Board.
7. He shall prepare and lay before the Board, annually, in a printed form, a report containing an abstract of the information obtained.
8. He shall diffuse, as far as practicable, the Commonwealth, information relating to the sanitary condition of the State and its inhabitants; to the end that the laws of health and life may be better understood, the causes of disease ascertained and removed, the length of human life extended, the vital force and productive power increased, and the greatest amount of physical improvement and happiness attained and enjoyed.

SECT .7. The said Secretary is authorized and may, with the approval of the Board, employ such assistance as shall be necessary to enable him to discharge the duties of his office.

SECT. 8. The mayor and aldermen of each city, and the selectmen of each town, shall appoint three :five, or seven persons, resident citizens thereof, who shall constitute and be denominated the Board of Health of the Town, or the Local Board of Health. The mayor of the city, the chairman of the selectmen of the town, and the registrar of births, marriages and deaths, or the town clerk where no such registrar exists, shall be, ex officiis, members of said Board. And the persons so appointed shall take an oath faithfully to perform the duties of their office; and they shall hold their said offices for three years, if the said Board is fixed at and consists of three members, as aforesaid; or for five years, if it is fixed at and consists of five members; or for seven years, if it is fixed at and consists of seven members: provided, that the person first named in said Board shall go out of office at the end of one year, the person next named shall go out of office at the end of two years, and so of the remaining members, one retiring each year and in

the order in which they are named, until the whole Board be changed. And the mayor and aldermen, or the selectmen as aforesaid, shall fill all vacancies in said Board, which may occur from death, resignation or otherwise. Any member who resigns, or whose term of office has expired, may, if duly qualified, be reappointed.

SECT. 9. The said Local Boards shall carry into execution, within their respective jurisdictions, the sanitary laws of the State, and the orders of the General Board of Health; and may, if need be, in the discharge of their duty, examine persons under oath, which oath they are authorized to administer. They shall endeavor, as far as practicable, to prevent disease and save life, by removing the causes of disease and mortality; and promote health and prolong life, by adopting and carrying into execution useful sanitary measures, rules and regulations.

SECT. 10. The said Local Boards shall meet in January, April, July; and October, in each year, and at such other times as they may deem necessary or expedient.

SECT. 11. The Board of Health of any town of more than ten thousand inhabitants, may expend forty dollars annually, and of any town of less than ten thousand inhabitants, twenty dollars, annually, in the purchase of books or works relating to public health, and to the causes and prevention of disease; which books and works, together with such other books, works, and documents as may be obtained in exchange or by donation, shall be kept in the office of the Secretary of the Board, and be the property of the town ; provided, that in estimating the number of inhabitants for the purposes of this act, the last census, national or state, shall be the basis of computation.

SECT. 12. The said Board shall, from time to time, appoint one of their number to be Secretary; and also shall, if need be, appoint another competent member to be Medical Health Officer; and another to be Surveyor. And they shall appoint such other officers, not of the Board, and employ such other persons as may be necessary to carry into execution the sanitary laws of the State, and the sanitary ordinances and regulations of the town. They shall fix the compensation of each person so appointed and employed, subject to the approval of the mayor and aldermen of the city, or the selectmen of the town: provided, that said compensation shall not exceed the amount usually paid for similar services in the town. And every such officer and person so appointed and employed shall hold his office during the pleasure of the Board.

SECT. 13. It shall be the duty of the Secretary to keep a record of the proceedings of the Board, and an accurate account of their receipts and expenditures, and to perform such other services as usually pertain to the office; and to preserve and transmit to his successor in office, all records, written and printed documents, papers and books, belonging to the office or to the Board.

SECT. 14. It shall be the duty of the Medical Health Officer to ascertain the existence and prevalence of sickness and diseases of different kinds, and particularly of zymotic, or epidemic, endemic and contagious diseases; to observe their prevalence and mortality in each year, and each season of the year, as compared with other years and seasons; in each district of the town, as compared with other districts or with other places; and in each class of persons, as compared with other classes; and to endeavor to

ascertain any atmospheric, local, or personal causes of the temporary increase or decrease of disease and mortality. He shall point out local nuisances or personal causes likely to produce disease, or otherwise to injure the health of the inhabitants; suggest remedies ; perform such other services, of a like nature, as the Board may require; and make reports on all these matters to the said Board.

SECT. 15. It shall be the duty of the Surveyor to prepare, under the direction and for the use of the Board, and for public inspection, a map of the town, or any section of the town, on which shall be marked, as far as practicable, the location, level, and grade, of roads, streets, lanes, and courts; plans for drainage and sewerage; the natural and artificial mill and other ponds; and any localities in which unfavorable sanitary influences are known to exist ; and perform such other services of a similar nature, as may be required by the Board; and he shall report to the said Board on all these matters.

SECT. 16. The said Local Boards of Health are authorized to make, and whenever in their judgment the public health and safety or the public good will be promoted thereby, they shall make rules and regulations, not inconsistent with the constitution and laws of the State, for either or any of the following purposes :

1. For ascertaining the cause or causes of the death of every person who dies in the town.
2. For ascertaining, from time to time, the prevailing diseases of the town ; and their atmospheric, local, and personal causes.
3. For ascertaining the prevalence and amount of sickness, among persons of different classes and occupations, and among scholar's attending the public schools.
4. For preventing or mitigating diseases, especially zymotic, or epidemic, endemic, and contagious diseases.
5. For affording medical relief to persons afflicted or threatened with disease, and especially with epidemic, endemic or contagious diseases.
6. For the periodical or special vaccination of the inhabitants.
7. For removing, destroying, and preventing nuisances, dangerous to the public health.
8. For restraining and removing persons and articles, infected with the small-pox or other contagious disease.
9. For the establishment, location, and management of hospitals, for the accommodation of persons sick with contagious or malignant diseases.
10. For the construction and management of sinks, ash-pits, privies, cesspools, drains, and common sewers ; and for the removal of house-dirt, offal, night soil, street dirt, and other filth.
11. For cleansing and purifying any vessel, building, lot, or other place; or any article in a condition endangering the public health.
12. For the location, and for preventing the location, of pigsties, slaughter-houses, chemical works, and any trade or employment, offensive to the inhabitant or dangerous to the public health.
13. For the warming and ventilation of schoolhouses and other public buildings; and for preventing the sanitary evils which arise from overcrowded boarding or lodging-houses, and from cellar -dwellings.

14. For preventing the sale of any article of food or drink, unwholesome or dangerous to the public health.
15. For preventing or mitigating the sanitary evils, arising from the sale of intoxicating liquors; and from haunts of dissipation.
16. For preventing the sale of adulterated medicines, drugs and liquors, dangerous to the public health.
17. For the sanitary management of cemeteries, and other burial-places ; and for the interment of the dead.
18. For the public registration of births, marriages and deaths in the town, required by the laws of the State.
19. For executing any sanitary order of the General Board of Health relating to the town or its inhabitants.

SEC. 17. The Board of Health of any seaport town may establish the quarantine to be performed by any vessel arriving within the harbor of the town ; and may make such quarantine regulations, relating to any vessel, and to the passengers or articles on board of the same, as they shall judge necessary for the health and safety of the inhabitants ;-or two or more towns may, at their joint expense, and for the common benefit, make and establish such regulations. And any Board of Health may examine, under oath, the master or any seaman or person on board any vessel, suspected of coming from a sickly port, or of having sickness on board during the voyage, or of having goods or articles on board which may occasion sickness. And all expenses incurred on account of any person, vessel, or goods, under any quarantine regulations, shall be paid by such person, or the owner of such vessel or goods, respectively.

SECT. 18. When any householder shall know that any person within his family and when any physician shall know that any person whom he visits. is sick with the small-pox, or any other contagious or malignant disease, dangerous to the public health, such householder and such physician shall immediately give notice thereof to the Board of Health of the town, in such manner as they shall prescribe.

SECT. 19. Notice shall be given by the Local Boards of Health of all regulations made by them, by publishing the same in some newspaper of the town, or where there is no such newspaper, by posting them up in some public place or places of the town; and such notice of such regulations shall be deemed legal notice to all persons.

SECT. 20. It shall be the duty of every magistrate and other civil officer, and of every inhabitant of the State, to observe and assist in carrying into execution the orders, rules and regulations of the General and Local Boards of Health, and to aid the said Boards and their authorized agents, in the performance of their respective duties.

SECT. 21. The said Boards. of Health, if it shall appear to them necessary or expedient, are authorized to require the sheriff of the county or his deputy, the marshal of the city, or any constable of the town, to perform any of the following duties:

1. To remove or destroy any article, decayed, putrid, or otherwise dangerous to the public health; or any other nuisance or cause of disease.
2. To remove any person or article infected with contagious or malignant disease, from one place to another.

3. To break open and enter in the day time any house, shop, or other building, or place, containing a person or article infected with small-pox or other contagious disease; or containing any nuisance dangerous to the public health.

4. To impress and take up convenient houses, lodging, nurses, attendants and other necessities for the accommodation, safety, and relief of the sick.

SECT. 22. The charges for removing and cleansing any articles, and of securing the same, and of cleansing any house or other place, shall be paid by the owners thereof, at such rates and prices as shall be fixed by the Board of Health, under whose direction the same was done.

SECT. 23. Whenever the sheriff of the county or his deputy, the marshal of the city, any constable of the town, or other officer, shall impress any men, or shall use any house, store or other place, or any property, for the accommodation or benefit of the sick, or for the storage of infected articles, as provided for in this act, the several parties interested shall be entitled to a just compensation therefore, to be paid by the town for which such persons have been employed, or for which such property has been used.

SECT. 24. All necessary expenditures incurred by any Local Board of Health, in the discharge of their official duties, shall be paid by their town or city, after being audited by the Secretary of the Board, and certified to be correct by a majority of the other members: provided, that in making any such expenditure of more than fifty dollars, in towns of less than two thousand inhabitants.; and of more than one hundred dollars, in towns of more than two thousand and less than five thousand inhabitants; and of more than five hundred dollars, in towns of more than five thousand inhabitants, the said Board shall first obtain the approval of the selectmen of the town, or the mayor and aldermen of the city.

SECT. 25. Whenever any malignant or contagious disease shall prevail as an epidemic in any town, the Local Board of Health shall notify the General Board of Health of the same; and the said General Board of Health shall adopt, recommend, or carry into execution, such measures of prevention or mitigation, as they shall deem necessary or expedient.

SECT. 26. Any person who shall violate any order or regulation, prescribed in the sixteenth and eighteenth sections of this act, or who shall obstruct any member of any Local Board of Health, or any person acting under their authority, in the discharge of his duty, shall be liable to a penalty not exceeding one hundred dollars for each offence; and any person, who shall violate any of the provisions of the seventeenth and twenty-first sections, shall be liable to a penalty not exceeding five hundred dollars for each offence.

SECT. 27. Each of the said Local Boards of Health shall, in the month of January, annually, prepare and submit to the town, or to the city council, at the next meeting thereafter, a written report, containing an abstract of the proceedings and of the receipts and expenditures of the Board, during the next preceding year ending December thirty-first ; and shall accompany the same with a statement of such facts and observations, as will exhibit the sanitary condition of the town and its inhabitants ; and shall recommend such measures of improvement, as they may deem necessary or expedient; and they shall transmit a copy of their report, in written or printed form, to

the General Board of Health. And all reports printed by order of towns shall be in octavo form, on paper and page of uniform size, similar to the ,public documents of the State, and convenient for binding ; and all written reports shall be on letter paper of common size and convenient for binding.

SECT. 28. Any town, which shall neglect to appoint a Board of Health annually, as required by this act, shall be liable to a penalty not exceeding one hundred dollars for each neglect; and the Board of Health of any town which shall neglect to make and transmit the report required by the twenty-seventh section hereof, shall be liable to a like penalty.

SECT. 29. All petitions and complaints concerning sanitary matters, shall be made and presented, in a written or printed font, to the Local Board of Health, or their authorized agent; and the object of all such petitions shall be immediately considered and acted upon; and it shall be the duty of every person who knows of the existence of any cause of disease, or of any matter which may properly come under the cognizance of the Board, to make it known.

SECT. 30. Whenever any nuisance, filth, or cause of disease shall be found on Private property, the Board of Health shall order the owner, or occupant thereof, to remove the same at his own expense, within twenty-four hours, or such other time as they shall deem reasonable, after notice served, as provided in the succeeding section ; and if the owner or occupant shall neglect so to do, he shall forfeit a sum not exceeding twenty dollars, for every day during which he shall knowingly permit such nuisance or cause of disease to remain after the time prescribed, as aforesaid, for the removal thereof.

SECT. 31. The order mentioned in the preceding section shall be communicated by a written notice, served personally upon the owner or occupant, or his or her authorized agent, by any person competent to serve a notice in a civil suit; or such notice may be left at the owner's, occupant's, or agent's last and usual place of abode, if the same be known, and is within the State ;and if the owner's, or agent's residence is unknown, or without the State, the premises being unoccupied, then such notice may be served by posting up the same on the premises, or by publishing the same in such manner, and for such length of time, as the Local Board of Health shall deem expedient.

SECT. 32. If the owner or occupant shall not comply with the order above mentioned, the Board of Health may cause ,the said nuisance, filth, or cause of disease, to be removed or destroyed, and all expenses incurred thereby shall be paid, by the said owner or occupant, or by such other person as shall have caused or permitted the same, if such owner or occupant, or such other person shall have had actual notice from the Board of Health, of the existence of said nuisance, filth, or cause of disease.

SECT. 33. All expenses incurred by any town or city in the removal of nuisances, or for the preservation of the public health, and which are recoverable of any private person or corporation, by virtue of any provisions of law, may be sued for and recovered in an action of debt, before any court having jurisdiction.

SECT. 34. Any fines and forfeitures recovered under the twenty-eighth section of this act, shall ensure to the use of the State; and all other fines and forfeitures incurred under the general laws, or the special laws

applicable to any town or city, or the ordinances, by-laws, and regulations of any town, or of the Board of Health of any town, relating to health, shall ensure to the use of such town; and all such fines may be recovered by complaint in the name of the treasurer, before any justice of the peace of the county, or police court of the town or city, in which the offence may have been committed.

SECT. 35. Any action on the case, for person injured, either in his comfort or the employment of his estate, by any nuisance, may have an the damage sustained thereby; in which action the defendant may plead the general issue and give any special matter in evidence.

SECT. 36. The court of common pleas, or anyone of the justices thereof, in term time or vacation, may, in all cases, either before or pending a prosecution, for a common nuisance, affecting the public health, issue an injunction to stay or prevent the same, until the matter shall be decided by a jury or otherwise; and may issue all such other writs and processes, and make all such orders and decrees according to the course of proceedings in chancery, as may be necessary or proper to enforce such injunction; and may dissolve the same when the court or anyone of the said justices shall think it proper.

SECT. 37. Persons may be complained of, and indicted by the grand jury having jurisdiction, for a common nuisance, injurious to the public health; and when any persons shall be convicted on such indictment to be removed, or destroyed, at destroyed the expense of the defendant, under the direction of the Board of Health of the town where the nuisance is found; and the form of the warrant to the sheriff, or other officer, may be varied accordingly.

SECT. 38. The Local Boards of Health shall have all the authority, and may perform all the duties imposed by law upon justices of the peace, by " an act in addition to an act to provide for the confinement of idiots and insane persons," passed April sixth, eighteen hundred and thirty-eight.

SECT. 39. The word " town," in this act, may be construed to include all cities except in cases in which such construction would be repugnant to any provision herein contained.

SECT. 40. All acts and parts of acts inconsistent with the provisions of this act, are hereby repealed.