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By NATHAN ALLEN, M. D., LL. D.

[Reprinted from The Popular Science Monthly, August, 1883.]

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IN the history of a nation or a people there are sometimes important changes taking place, so gradually and quietly that they are scarcely perceptible at the time. It may require a series of years or several generations to work out the problems involved, but they may be followed with results of great magnitude.

Some changes of this character have been taking place in our New England population, which we purpose here briefly to notice. In the earlier history of New England there were few changes in the residence of her people. As agricultural pursuits constituted their principal occupation, the same farms and lands continued to a great extent in the same families from generation to generation. Prior to the Revolutionary War very little emigration took place out of New England. In the early part of the present century many persons removed to New York and some to Ohio. From 1810 to 1830 this emigration continued steadily to increase, not only to those States but to the States and Territories farther west. To such an extent had this emigration been carried on that, in 1840, the United States census reported nearly half a million of persons born in New England who were living in other States.

Whenever new lands were thrown into market by the Government, or by means of railroads, or some new mining interests, then a "Western fever" started up, and great numbers might be seen "going West." While we have no means of ascertaining the exact number removing from New England, during any one year or period of time, the United States census gives, every ten years, the *birthplace* of all people residing in every State at the time the count was made. The census of 1880 reports that the whole number born in New England

but living in other States and the Territories was 566,848. This number is made up by emigration from the different States as follows: From Massachusetts, 175,349; from Vermont, 117,590; from Connecticut, 108,797; from Maine, 93,256; from New Hampshire, 49,397; and from Rhode Island, 22,459.

From another point of view it will be seen how these natives of New England are distributed. New York has 133,272; Illinois, 53,128; California, 46,908; Iowa, 38,170; Michigan, 37,865; Wisconsin, 37,615; Minnesota, 34,636; Ohio, 32,819; Pennsylvania, 26,787; Kansas, 19,338; New Jersey, 18,148; and other States under 10,000 and much less. Vermont has sent away the largest number for its population, and New Hampshire the least. Maine and Massachusetts have sent the largest delegations to California, being three fourths of all the emigrants in that State from New England. It appears by the census that the States bordering on New York—Vermont, Massachusetts, and Connecticut—have sent over 100,000 persons to that State, while the other New England States have sent only some 20,000. The representation from New England (178,207) in the Middle States is much larger than is generally supposed. This emigration has now been going on for three fourths of a century, and it would constitute a fact of great interest if we could ascertain the number of persons born in New England who have ever removed from her borders to the Middle and Western States as well as to the Territories.

The census of 1850 shows that at that time there were 454,626; in 1860 there were 562,997; in 1870 there were 615,747, and in 1880, 566,848. It will be seen by these figures that for twenty years the number has been very stationary, the new emigrants making not quite good the number who had deceased.

It is full two generations since this emigration commenced. As nearly all those persons emigrating were between the ages of twenty and forty, great numbers must have died at various periods. The exact amount of this mortality it is impossible to ascertain, and the data for forming anything like a correct estimate are altogether too uncertain. It may have been a quarter of a million, and possibly a half million. What has been the effect of this steady and large drain of people on New England opens a question of much interest.

Without entering upon the discussion of the subject, we make two or three suggestions. It will be admitted, we presume, that those young men and women, leaving their homes, possessed, as a general thing, more physical energy and mental stamina than those remaining behind. Such a loss of physical vigor and character must have had a decided effect upon business interests as well as the present state of society. But, from another point of view, the loss may have had a more decided and lasting influence, that is, in its permanent effect upon physical and mental development. The better the principles of physiology are understood the more we discover what a pow-

erful influence physical organization has upon the character of a people. The permanent prosperity of any community depends far more upon the laws of inheritance than is generally supposed.

Let the most enterprising and promising among the young people emigrate from a place, and it must, in the course of time, have its influence. Whether the vital interests of New England have not suffered in this respect, from so many persons emigrating in the prime of life presents a question worthy of careful consideration.

Interchange of Population.—There is another change going on in these States quite different from the one described. This consists in frequent removals from one State to another.

The census of 1880 shows that Massachusetts had at that time 68,226 residents born in Maine; 54,088 born in New Hampshire; 26,869 in Vermont; 20,514 in Connecticut; and 17,067 in Rhode Island, making 186,764 persons who have removed there from other States. At the same time these five other States had 85,478 persons living in their bounds born in Massachusetts. Deduct these 85,478 from the 186,764, and Massachusetts gains over 100,000, mostly from Maine, New Hampshire, and Vermont.

There is very little migration from the other New England States to Connecticut or Rhode Island, and scarcely any from the latter to the former. Massachusetts, Connecticut, and Rhode Island, make very nearly equal exchanges, neither gaining nor losing much. These removals from one State to another are prompted from a great variety of interests, personal and local. The States most benefited by them are those employed largely in manufacturing business. These changes are carried on chiefly between villages and cities, and seldom take place in the rural or country districts. It may be said that the foreign element is largely concerned in these removals.

Country Life exchanged for the City.—This change is not governed at all by State lines. It commenced forty or fifty years ago, from country districts to places where trade or business demanded help. The introduction of manufactures and mechanical pursuits of various kinds, as well as the opening of railroads, created a great demand for laborers. By means of those changes and other agencies, trade and commerce became very much enlarged, and furnished employment for increased numbers.

Here and there new centers of business were formed; new villages sprang up, and large towns were converted into cities. In some parts of New England these removals have taken place to such an extent as to change the face of the country and the state of society. It commenced first in the small farming towns, and has prevailed most in places remote from markets and railroad accommodations.

The effect of such removals is especially marked in Massachusetts, as she possesses a larger number of cities, more railroad facilities, and a greater diversity of pursuits. The census shows the following facts:

That of 345 towns in Massachusetts, from 1845 to 1855, there was a decrease of population in 86 towns ; that from 1855 to 1865 there was a loss in 166 towns ; from 1865 to 1875 there was a loss in 142 towns, and the census of 1880 reports a loss in 143 towns.

It will be seen that the number of towns losing population varies at each census, but undoubtedly the same towns are reported as decreasing in numbers each decade. It should be stated that, in about one quarter of those towns, the loss was occasioned by a division of the town or annexing a part of it to some other place. It should also be stated that the removals from the country districts to villages and cities do not account for all these losses of population ; emigration to the West, and to other distant places, does a part of the work, and so also does death.

There is another item in the account : the birth-rate has so much declined in rural districts, that scarcely any addition, if any, comes from *natural increase*. But, as the death-rate in many places exceeded the birth-rate, the thinning out of the people is not confined to Massachusetts.

In Maine, New Hampshire, and Vermont, the hill towns and many of the agricultural districts are losing more or less population—not alone by death or emigration of young people, but by the removal of whole families to more populous places. In Rhode Island and Connecticut there is not the same extent of territory, and population is more equally distributed ; but still the census of Connecticut reports a decrease of population in some sixty towns in the western part of the State. Statistics show that this removal of people from the country to the city has been increasing every year ; and when it will cease, or what is to be the result, time only can tell.

Agriculture as related to other Pursuits.—Connected with this decrease of population in country districts, there is one very important consideration, that it involves a change of occupation. Farming is given up for work in the store, the shop, and the mill. Within half a century the business of New England has passed through great changes.

By the censuses of 1860, 1870, and 1880, we find, instead of an increased number engaged in agriculture with the increase of population, that the number has been actually diminishing. The census divides all kinds of business or occupation into four classes : 1. Agriculture ; 2. Professional and personal service ; 3. Trades and transportation ; and, 4. Manufactures and mechanics. An examination of the tables representing these four classes in the reports of 1870 and 1880 shows that the last three classes have increased relatively far more than the first class.

The number engaged in agriculture has fallen off in every State. Vermont and Massachusetts stand in respect to agriculture at extreme points ; the former has more people engaged in farming than in all

other pursuits, while the latter has only about one tenth as many employed on the farm as are engaged in other pursuits.

Maine has the largest number of any State engaged in agriculture —about one third of her whole population—and she at the same time possesses the greatest amount of territory to cultivate. New Hampshire has half as many engaged in agriculture as in all other occupations ; Connecticut has one fourth, and Rhode Island only one tenth. The whole number in New England engaged in agriculture was 301,765, and in other pursuits, 1,268,116—more than four times as many. In 1870 the proportion was one to three.

A comparison of this table (1880) with that in the census of 1870 shows a far greater increase in the class of professional persons than in that of any other occupation or pursuit. The census of 1870 reports only 145,324, while the census of 1880 reports 349,984 persons. This increase is found in every State, though in some States greater than in others. Whether this great increase of professional persons in ten years is an indication of an improved state of society or not, is a question upon which there might be differences of opinion.

It is well understood that, fifty years ago, farming constituted the principal occupation of New England ; but, instead of maintaining its position, with a greatly increased population, it has fallen far behind other pursuits. The great additions made to her people have been absorbed in trade, in manufactures, and mechanical business. In considering this exchange of agriculture for other pursuits, a question of great interest arises : What is to be its effect upon physical organization and the permanent prosperity of a people ?

No fact is more firmly established than that agricultural pursuits are the most healthy of all, and that those engaged in them transmit *physical development* in its best estate. All experience proves that an exclusive city population tends gradually to degenerate physically, and that the stock can not be kept good from generation to generation.

It is well understood that the only conservative power that can prevent this degeneracy in cities is that their population shall be constantly replenished by recruits from the country. But it should be borne in mind that the places in the country made vacant by those removals are soon occupied by a different race of people, and that this foreign element is pretty likely to increase more and more in the farming districts of New England.

Supposing this change should generally take place in the country districts, how is the purely American stock to improve or be kept good ? It can be done only by an intermingling of the races, which is even questionable.

Change in Birth-Rate.—There is no one agency so closely connected with the vital interests of a people as the matter of the birth-rate. In the history of nations this has always been considered a

question of the utmost importance. To a certain extent it operates as a thermometer to show the rise and fall of national prosperity. The process of its operations may seem slow, but certain results are sure to follow.

In respect to this agency, a most surprising change has gradually been taking place in New England. Near the close of the last century, Malthus, after making a survey of all the nations on the earth, selected the United States (virtually New England, which was the most populous part) upon which to base his theory of population. Seeing that the inhabitants of these States doubled in twenty-five years by natural increase, he considered that it afforded most favorable indications of prosperity. At that time the birth-rate was high, families were large, and few were found without children.

From the first settlement at Plymouth in 1620, this prosperous state of increase continued without much change for two hundred years, but early in the present century some decline in the birth-rate commenced. It is impossible to trace the exact changes which have taken place for the last two or three generations.

In some parts of New England the precincts and towns were accustomed to keep very correct records of all births, but they were not generally printed, so no comparison of them can be made. But for thirty years or more several of the New England States have published registration reports of births in their cities and towns, so that very correct comparisons can be instituted. Without going into a detailed sketch by statistics, figures, etc., of the changes in birth-rate, we present some general statements on this subject. Forty or fifty years ago large families, numbering six, eight, ten, and twelve, were quite common ; now they are rare—in fact, a large number of such families can not at the present time be found in any one neighborhood or even in a single country town. Formerly, in the rural districts of New England, there were few families having only one, two, or three children, and in case there were none it was so rare as to attract particular attention, and was considered by many a great calamity. But what a contrast is found in the present state of society ! In the great majority of our American families only one, two, or three children are now found, and in very many families not *one*. And such a state of society is approved by the fashions and prevailing sentiment of the day !

As registration reports generally return the births of the foreign population in the same tables with the American, and as the term *native* is applied to all infants whose parents were born in this country, though of foreign descent, it will be at once seen how difficult it is to obtain the exact birth-rate separate of each class. Two facts are pretty well established : 1. That the birth-rate of the foreign class is more than twice as large as the strictly American ; and, 2. That, in the country districts of New England settled mainly by the Americans,

it is questionable whether the birth-rate exceeds the death-rate—that is, there is no addition to the population by *natural* increase.

Should this birth-rate continue to decrease as it has for the last twenty or thirty years, the effect will become more and more manifest than it has in the past. The Board of Health for New Hampshire, having charge of the registry of births and deaths in the State, in their report just published, state an important fact bearing on this point. After carefully analyzing the births and deaths in 1880 to draw the line between the foreign and the American, the board make out that the deaths among the Americans exceed the births by eight hundred.

That is, New Hampshire lost population from this source. If this same test of birth and death rate as reported in New Hampshire should be found to apply to all the other New England States, the record would not be very creditable for the past nor encouraging for the future. In making comparison between the birth and death rate the latter must always be carefully taken into account. If the death-rate is unusually large, it affects at once the gain by natural increase. In New England the death-rate generally is not high, which is more favorable for the rate of increase. The same is true in Great Britain, but the birth-rate is much higher there than here. Thus large additions are made there to population by natural increase, far more than in New England. In France for several years the death-rate has been rather high, so that allowance must be made. As a matter of fact, the comparison with foreign nations is decidedly unfavorable to the New-Englander.

According to the latest and most authentic reports, the birth-rate of the New England States is less than that of any large European nation except France. And this birth-rate of New England is based upon both the foreign and American classes: could the latter be eliminated from the former, it would make the birth-rate of the strictly American even much lower than that of France.

It is well understood that population is steadily decreasing in certain portions of France, and that this decrease is every year extending. This decline in numbers is attracting more and more the thoughtful attention of the French *savants*, and the inquiry is made for the causes and the remedies. It may be found to resemble certain diseases, the causes of which can readily be discovered, but the remedies can not easily be applied.

Foreign Population in New England.—Of all the changes in New England, the introduction of the foreign element is the most important. The facts respecting the history of this immigration and the extent to which it has reached can be obtained, but no human sagacity can fully foresee its results. There are, however, certain features in these changes which should be carefully studied, and the developments or tendencies growing out of them should be better understood. More facts—more knowledge—are needed on this subject. What,

then, is the history of this movement? Fifty years ago, the foreign element in New England was very small. In Massachusetts the census reports that in 1830 it was only 9,620, and increased as follows: In 1840 it was 34,818; 1850, 164,448; 1860, 260,114; 1870, 357,319; and 1880, 443,402.

It should be borne in mind that these figures represent only the "foreign-born," and not their children or descendants, which would greatly increase the number. In the other New England States the whole foreign element combined is not so large as that in Massachusetts, and has not increased so fast. In Maine, in 1850, it numbered 31,450, and in 1880 it was 58,883; in New Hampshire in 1850, 13,571, and in 1880, 46,294; in Vermont, 1850, 32,931, and 1880, 40,959; in Rhode Island, 1850, 23,111, and in 1880, 73,993; and in Connecticut, 1850, 37,473, and in 1880, 129,992. The whole number of foreign-born in New England, reported by the census of 1880, was 793,122, and 360,649 of these emigrated from Ireland.

The census reports the whole population of New England, born in the United States, as 3,234,317, but large numbers reported here as *natives* are of foreign descent. It is impossible here to draw the line, but, from the best evidences before us, we should say there must be about half as many in this class as that of the foreign-born, which would increase the foreign element to 1,200,000 in New England. It may be larger. The "Catholic Directory" six years ago stated that there were at that time 890,000 souls in New England connected with that church, and the number must have since considerably increased. Then, of the 793,122 reported by the census "foreign-born," there must be a large number of Protestants—being over 100,000 emigrants from England and Scotland. The same organ also six years ago stated that "nearly 25 per cent of the population of New England is composed of Roman Catholics." The census reports the whole population of New England as 4,027,439 in 1880. At the present time (1883) the foreign element must number over 1,200,000 persons in New England.

But it is quite unequally distributed. In Massachusetts, Connecticut, and Rhode Island, it numbers more than a third of the population; but in Maine, New Hampshire, and Vermont, it is not one quarter. As the birth-rate of this class is more than twice as large as the American, the foreign element will constantly gain in numbers upon the American.

Connected with this large addition to our population composed of a different people in race, type, and character, there are several points that deserve careful consideration. A few years ago it was thought that emigration from Ireland would very much diminish, if not cease, but of late it has taken a new start, and may again flourish. Emigration from England and Scotland is sure to continue; so also from the British Provinces and Canada. But this foreign element is destined to increase hereafter more by births than by immigration.

The marriage-rate is much higher in this class than with the American. It is possible that, in the process of time, changes in the style of living, and by adopting modern fashions, the birth-rate of this class may be somewhat reduced, but certainly not at present.

Religious influences have a powerful hold upon this class of people, so that they will be restrained from violating the laws of the physical system. In process of time, there may be such a change in the organization of this people as to reduce the birth-rate. The "Catholic World" stated six years ago that "nearly 70 per cent of the births in New England were those in Catholic families." This estimate we thought at the time was too large, but with the increase of births since belonging to this class, and the addition of the births of large numbers of the foreign-born and foreign descent who are not Catholic, it will increase this percentage.

In most of the cities more than half of the births for years have been connected with the foreign element, but it was not expected that the same proportion could be found to exist in rural districts and country towns.

It does not seem possible that three fourths of all the births in New England at the present time can be classed under a foreign head, but the indications are pretty certain that such will be the case before many years, and then we shall be compelled to believe the fact. The inquiry is frequently made if the two classes do not intermarry, and what is the prospect in this direction? There are occasional intermarriages between the American, the English, the Scotch, and the emigrants from the Provinces, but not often between the Americans and the Irish. Still, cases of this kind do occur occasionally between the laboring classes, and we think they are increasing. The registration reports divide certain married parties into two classes—the foreign-born father and native mother, and *vice versa*.

The term *native* here might apply to the strictly American, but a careful examination shows that each party called native was of foreign element, so that there was no mixing of the two races. This class of marriages has been constantly increasing. In Massachusetts, according to the registration report of 1881, there were 7,386 births of this class, nearly one eighth of the whole number.

Change in Physical Organization.—The most serious evil resulting from the introduction of this foreign element is in causing a *change in the physical organization of New-Englanders*. In the case of men—that part of farming requiring hard work—those kinds of the mechanical pursuits demanding physical strength, and, in fact, nearly all manual labor out-of-doors, have already passed mainly into the hands of foreign help. This change, commencing thirty or forty years ago, has everywhere been taking place, but more rapidly of late years.

This exchange of regular physical exercise for lighter employment

and in-door work is calculated to develop nerve-tissue rather than the muscles, to impair the power of digestion, and reduce the vital forces of the system. That a course of physical degeneracy to some extent has thus been going on with New England men must now, upon thorough examination, be generally admitted.

But a change more marked and serious in its character has been taking place in female organization. Formerly all kinds of house-work and domestic duties were performed by New England women. Before foreign help could be obtained, our young women were generally employed as domestics in families. It was customary for the more wealthy and many families of the middling class, where there were no daughters, to employ one or more domestics.

In many families all the house-work was done by the daughters and mother, without any imported help. It was considered becoming and praiseworthy for all females, of whatever age or family connections, to engage on hire in domestic service.

All such employment was then considered respectable. Skill, fidelity, and success in domestic duties, were the best recommendations that any young woman could possess. Practice and public sentiment in these respects have entirely changed. Very few Yankee girls can now be persuaded at any price to engage in domestic labor. Such service is generally considered by them menial, and every kind of employment or business away from the kitchen and domestic hearth is preferred. In families where there are daughters, the hardest portion of the house-work is now performed by the mother or hired help. What are some of the effects of this change in domestic life? No kind of exercise in the world is so well calculated to develop all parts of the body in the female, and promote good health, as house-work. No study or employment whatever can fit the young girl so well for housekeeping as practical training in such duties.

In this way home and the family are pretty sure to secure a strong attachment. By these means all parts of the body are harmoniously developed; a sound constitution, good health, and long life, are secured. Instead of educating the girl in accordance with the *laws* of *her physical system*, and training her for the great practical duties of the family, from the age of ten to eighteen she is kept at school nearly all the time, so that the brain and nerves are developed at the expense of other organs. This partial and one-sided development of the body is increased and intensified in the female, by being thrown out of her natural sphere in domestic labor and family relation. Hence great multitudes of young women from fifteen to twenty-five have nothing to do, are everywhere seeking employment, and are constantly exposed to an excited or morbid state of feeling.

The ill-health of New England women is proverbial. It is less than half a century since it attracted public attention. A careful examination will show that its history and extent run almost parallel

with the high pressure in education and the neglect of house-work. The nerves and the brain have been cultivated at the expense of the muscles and physical stamina.

In this artificial state of society wants multiply and fashion has a powerful influence. A high and extravagant standard of living is set up, and young people are unwilling to commence life as their fathers or grandfathers did before them. For twenty or thirty years there has been a steady decline in the marriage-rate. There are powerful influences, starting partly from internal sources and partly from external agencies, which threaten the permanency and best interests of the family. If the laws of the human system can be so changed or violated as to defeat its primary objects, this institution must suffer and decay. There is a normal and healthy organization of the body as well as of the brain, which favors married life and the family relations.

On the other hand, there is such a thing as an abnormal development of the body and a morbid condition of the nervous system, which is decidedly unfavorable to the domestic relations; especially is this the case with females.

The law of maternity is already violated to such an extent that it is questionable whether half our New England women can properly nurse their offspring. There is a general law in nature that "*supply and demand*" go together and are co-equal, and if one fails the other is endangered. There are also decided evidences that the maternal instinct, "love of offspring," one of the strongest and holiest instincts of our nature, is fading away.

It should be borne in mind that when the harmony or balance of organization in the body is materially changed—that is, certain parts obtain an extreme development, while the functions of others become very much weakened—a similar change and derangement of action apply to the brain. The fact is well established that certain portions of the brain perform distinct and separate functions. Let that portion of the brain whose functions pertain to the family relation, and to domestic life, fail in proper development and healthy action, and supreme attention be given to the culture of the intellect and moral sentiment, and, in process of time, its effects on character will become very manifest. If this change in mental development applied only to an individual here and there, its effects on society would not be so marked or injurious; but, when the great majority of persons are affected by it, the results become far more extensive and serious in their character.

Again: the family constitutes the foundation or groundwork of all society, and, when properly established, is the most powerful agency in the world for human improvement. This institution must have its bases and supplies in the social and domestic affections, guided by the intellect and controlled by the moral sentiments. Without such a foundation it can not be made permanent, happy, and prosperous. The intellectual faculties will never alone cement and perpetuate this

institution. Some singular developments on this subject have recently been brought to public notice—that is, in matters connected with the subject of divorce.

Among no other civilized people is there such a breaking up of the family. Why should it occur here, among a people so highly educated and moral? Some attribute it to changes in legislation, but the primary causes of the evil existed before, and will continue, in spite of any changes in legislation. Its outward developments may by this means be checked, but the evil is not cured. The primary causes of these anomalous developments have, we believe, a broad and deep foundation in *physical organization*. We do not see how all the facts connected with this alarming evil can be accounted for in any other way.

There is one consideration connected with this whole subject, of vast importance, which can here only be mentioned—that is, *heredity*. The changes in organization are directly and most intimately connected with hereditary influences. The effects of such changes through the laws of inheritance are so great and far-reaching that they can not be described or measured. Judging from a physiological stand-point, the introduction of this foreign element into New England, instead of proving a blessing, may result in one of the greatest misfortunes that ever befell any race or people.

EXPLANATION AND DEFENCE

OF THE

PRECEDING PAPER.

WHEN the preceding paper first appeared in the August number of the Popular Science Monthly, it elicited some comments and criticisms from different journals. It is intended here to notice briefly two or three objections brought against certain statements made in this paper. In discussing the increase of the foreign population, the writer is charged with not making allowance for the increased mortality of this class. The same charge has been brought before, and reference has been made to Dr. Edward Jarvis, as "eminent authority in such matters," but whose opinions, it was stated, differed materially from the writer. What, then, are the facts? From some tables in the Registration Report of Boston for 1861–'2, it appeared that the increased death-rate of the Irish over that of the American was nearly equal to their increased birth-rate over the latter. This statement was at once seized upon by many persons, and the impression became quite general that there could not be much increase, if any, of foreign children over the American. But how happens it, then, that for twenty years the children of the foreign class have increased so much faster than the American, when the former composed a far less number of families? So great has been this increase that a majority of the pupils in the public schools of many cities is composed at the present time of this class.

The following quotation gives Dr. Jarvis' testimony more exact and complete, we believe, than can be found anywhere else in his writings. In the Report of the Massachusetts Board of Health for 1873, page 215, Dr. Jarvis says: "In Boston, during ten years, 1862 to 1871, there were born 20,867 children of American, and 42,852 of foreign fathers. In the same time the deaths were 3438 under one year and 5428 under five years of the first class, and 7719 under one year and 13,943 under five years of the second class. Of those that were born in American families, 16.47 per cent. died under one year and 26 per cent. under five years. Of those born in foreign families 18.13 per cent. died under one year and 32.79 per cent. under five years. The mortality of the foreigners' children was then 10 per cent. greater under one year and 26 per cent. greater under five years than that of children of natives."

These are Dr. Jarvis' figures and statements as deduced from the official Reports of Boston. Instead of contradicting or clashing in the least with any statements we have ever made, they *confirm their correctness.* The census makes the whole population of Boston in 1865 as 208,212, of which it reports 68,966 as foreign-born. By referring to the above figures it will be seen that there were twice as many children born in the foreign class as in the American, with a little more than one-third of the population.

By comparing the birth-rates and death-rates of the two classes as reported above, it will be seen that a large margin is left, exclusive of the deaths, for the increase of the foreign over the American. It should be stated that the mortality in Boston between 1860 and 1870 was very large, especially among the Irish, living, as many of them did, in very unhealthy quarters. Since that time they have scattered more into the suburbs of the city, and with better sewerage and supply of water too, their death-rate has decreased. Some time since, we made a careful comparison of the death-rate of the two classes in Lowell, and we found that the foreign exceeded the American by about one-third. The distinction in the birth-rate and death-rate between the two classes has been more carefully noted for twenty-five years in the Registration Reports of Providence than in any other city. There, the death-rate has been tested in three different ways: 1st, by a general rate of mortality according to population; 2d, by the average age of death of each class; and 3d, the age at death caused by different diseases. The want of space will not allow us here to make quotations or resort to figures, but the following summary statement can, we believe, be abundantly verified in these Reports, viz.: The birth-rate of the foreign class has been more than twice as large as the American, while the death-rate of the former has exceeded the latter from one-fifth to one-third.

In rural districts and country towns settled by both classes, the difference in the death-rate is not so great as in the cities. An examination of the Registration Reports of the State of Vermont shows this fact clearly. Let the foreign class have the same means, the same intelligence and the same care as the American, or, in other words, as favorable conditions, and their mortality might not be much larger.

Dr. J. Curtis has also been referred to, as presenting some statistics or views in his "Report upon the Sanitary Condition of Boston in 1855," which do not agree with those of the writer. But from a careful examination of this Report no such evidence can be found. On the other hand, the figures and comments presented in this Report upon the comparative birth-rate and death-rate of the two classes, go to corroborate the correctness of those in this paper.

In the changes of population noticed in the preceding pages,

one inquiry was the effect they might have upon *physical organization*. While there might be great improvements in society, in general intelligence, in education, in the comforts of life, etc., etc., the question was raised whether there were not certain physiological changes taking place which might prove unfavorable to the permanent prosperity of a people. In considering physical change or degeneracy, the question depends upon the *standard* set before us. In the present instance, it is the physical organization of our ancestors, or the early settlers of New England. This degeneracy consists in loss of muscular power, in a lack of physical stamina, in the predominance of nerve tissue, and an undue development of brain at the expense of other parts of the body. The effects of these changes are not visible at once, neither do they apply alike to all individuals. In producing such changes, the laws of *heredity* have a powerful influence. No one but a well informed physiologist can fully appreciate the effect of such changes on life and character or judge correctly of their tendencies.

There is a higher, or rather a *normal standard* of physiology, by which all changes in physical organization can be tested, whether it is improving or degenerating. This is based upon the perfect structure of every organ, and the legitimate performance of all their functions in a normal, healthy manner. The nearer human organization approaches this standard, the greater is its power or ability to secure the highest objects of life. The great excellency of this standard is its balance of power between the body and mind, its harmony of functions as developed by all the organs of the body as well as every part of the brain.

Now an extreme development of any class of organs from this standard, while other organs become defective in structure and weakened in function, constitutes a species of degeneracy. It is in this direction where certain evils, we apprehend, threaten the highest interest and permanent welfare of the New England people, and this refers more especially to the female portion. We can here merely allude to the subject, as it would require volumes to elucidate and apply it in all its bearings.

All experience proves that the exposures of existing evils, with reference to making some reform or improvement in the present state of society, are sure to encounter more or less opposition. If this discussion reflects at all upon the fashions of the day, or upon the habits and practices of any considerable number of people, or conflicts with preconceived opinions, the opposition is frequently bitter in its spirit, and both the writer and his views are publicly denounced. If the facts and arguments presented should happen to have in their outlook a result that crosses the pride or conflicts with the cherished notions of certain individuals, yielding to their first

impulses, they call the writer hard names, as being an "alarmist" or "false prophet," and insist that his statements are all "guess-work" or "assumption."

It is almost twenty years since the writer first published some statistics showing how much larger was the birth-rate of the foreign-born over the American, indicating how rapidly this class were increasing. Some of the leading journals in Boston at once pronounced these statistics false, and that the writer was wild and visionary in his statements. But it was not long before these same journals discovered some truth in those figures and statements, and they have more recently found that this foreign element has increased to such an extent that its power is felt in changes taking place in the municipal government which are not altogether pleasant to some Bostonians. Twenty or thirty years may teach certain critics of the preceding pages that the figures and suggestions here presented possess more truth than they care now to recognize. The development of great principles is the work of time. It is always pleasant for a writer to select popular themes for consideration and to discuss them in a manner that would be pleasing to the public generally. In this way he is sure to be greeted with applause and in time to find that his own interest has been best subserved. But may not conscience and a sense of duty constrain one sometimes to treat a subject which is not popular, but in which the highest welfare of a people is involved and perhaps imperilled? Shall he shrink from such discussion?

The last section in the preceding paper, viz.: "*change in physical organization*," involves a great principle which lies at the foundation of human society, whether applied to the individual, or to the family, or to the race. The more the science of physiology is studied in its relations to social life, to mental development and religious interests, the more important it will appear that its laws should be better and more thoroughly understood. If the principle enunciated above in the effects of "change of organization," implying that there is a great general law of propagation, is true, it will be found in value and influence not inferior to the law of gravitation or electricity. Every new principle having its foundation in nature, and involving the highest interests of humanity, when fairly stated, can never die, but will be found to flourish more and more. Whatever criticism may be passed upon the work or character of the writer, such is his faith in the progress of these principles that he can afford to wait for the verdict of time. He is satisfied that history will do him full justice.

NATHAN ALLEN.

Lowell, Nov. 1, 1883.