

RELATION OF PUBLIC HEALTH TO RACE DEGENERACY.

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The service which has been rendered the human race by the public health movement of the last half century is the noblest example afforded by human history of successful, philanthropic, human activity. Within the last fifty years the average length of life in this country has been increased about seven years. In Europe, the increase has been considerably greater. It is safe to say that public sanitation has within recent years added to the lives of the present inhabitants of the civilized portion of the globe not less than four billion years of human life. Using Finkelberg's estimates and others we may conclude that human life is at the present time being increased at the rate of sixteen or seventeen years per century and that the rate of increase is increasing, having gradually moved up from four in the seventeenth and eighteenth centuries to nine in the first part of the nineteenth and nearly double this rate in the last half of the century.

This marvelous beneficence, the proportions of which far exceed those of any other boon conferred by science upon humanity, has resulted from a prolonged succession of triumphs achieved by man in recent times, in his age-long battle against the enemies of life and health. What these battles were and how they were won it is quite unnecessary to recount in the presence of an audience so familiar as is this with all the details of modern sanitary progress. The chief purpose of this paper is to call attention to the remarkable fact that, notwithstanding the enormous saving of human life which has occurred in modern times and the doubling of the average length of life within two centuries, there has been going on at the same time a remarkable depreciation in racial vitality and stamina.

That the human race, or at least the civilized portion of it, is degenerating at a rapid rate, has been strongly suspected for a long period of time. Numerous writers within the last fifty years have called attention to the evidence of race deterioration and a few years ago the British government appointed a commission, known as the British Interdepartmental Committee on Physical Deterioration in Great Britain, which was charged with the study of investigating this question in the British Isles. The committee conducted a careful inquiry extending through several years, in the course of which testimony was taken from all classes of persons likely to be able to throw any light upon the subject, particularly physicians, sociologists, magistrates, scientists, clergymen and military officers.

The voluminous report published by the committee presents a large number of facts of great significance, many of which indicate that race degeneration is actually taking place in Great Britain. It is stated, for example, on page 177 of the Report, that in Manchester and other manufacturing districts, evidences of degeneration are very marked. There is a distinct depreciation of stature. In Manchester and Salford it has been found necessary to import men from the country to act as policemen, as a sufficient number of men large enough to serve in this capacity cannot be found in the districts named.

An army recruiting officer testified that 60 per cent. of the young men offering themselves for military duty were rejected on account of physical unfitness, and this notwithstanding the fact that the standard for admission to the army has been reduced within the last sixty years from five feet six inches to five feet. In the examinations for admission to the army, it was found that out of every thousand applicants, nearly six hundred fell below the old standard, and more than half had a chest measurement of less than thirty-four inches, the minimum standard of forty years ago. It was found also that, notwithstanding the great reduction in the height standard, the proportion of persons rejected because they were too short was not decreased.

Statistics gathered by the British Association for the Advancement of Science show a decrease of one inch in the height of adult men in the last quarter of the last century. Many persons who testified before the Interdepartmental Committee presented evidence of physical deterioration among the English people in various directions.

Professor Rubner, in an address before the late International Congress on Hygiene held at Washington, D. C., intimated his belief that the human race is deteriorating, and suggested that a given number of people, five or ten thousand for example, would be found to weigh less in the aggregate at the present time than the same number of people weighed a generation ago.

Within a few months, Doctor Tredgold, an English authority of high repute, medical expert of the Royal Committee on the Feeble-Minded, and well known for his studies in eugenics, recently contributed an article to the *Quarterly Review* in which he presented most conclusive evidence of a distinct "decline in the vitality of the English people and growing sickness." Professor Tredgold calls attention to a fact which has apparently been generally ignored by sanitarians, viz., that average longevity is not a correct measure of race vigor. Says Tredgold: "It would be extremely fallacious to conclude that a diminished death-rate is any indication of an increased power of resistance to disease and an improvement in the inherent vitality of a race."

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For more than thirty-five years the writer has maintained the same proposition, insisting that a high degree of race vigor is indicated by the attainment of great age by a large proportion of the members of a community rather than by a high average longevity.

Statistics gathered by Tredgold from various friendly societies, aggregating a membership of nearly a million and a half, demonstrate that, notwithstanding the great advance in the prevention of disease through public sanitation and improvements in therapeutics, the average amount of sickness at all ages, has steadily increased during the last half century. The following table taken from the report of actuaries, appointed in connection with the National Insurance Act recently enacted by the British Government in 1911, shows the increase of sickness which has occurred during the last thirty years in several large friendly societies:

SICKNESS PER ANNUM PER MEMBER IN WEEKS

(Male lives)

Taken from the Report of the Actuaries Appointed in Connection With the National Insurance Act of 1911.

Ages.	Manchester Unity 1866-70.	Manchester Unity 1893-97.	Ancient Order of Foresters 1871-75.	Friendly Societies. 1876-80.
16-19.....	.54 (78%)	.92	1.04	.88
20-24.....	.75 (20%)	.90	.82	.85
25-29.....	.81 (17%)	.95	.85	.87
30-34.....	.93 (14%)	1.06	.97	1.02
35-39.....	1.06 (20%)	1.27	1.15	1.24
40-44.....	1.26 (25%)	1.58	1.37	1.47
45-49.....	1.64 (21%)	1.99	1.71	1.89
50-54.....	2.22 (24%)	2.75	2.27	2.39
55-59.....	3.05 (31%)	4.02	3.21	3.36
60-64.....	4.72 (34%)	6.31	4.58	5.17
65-69.....	7.24 (46%)	10.59	7.97	8.73

A study of this table shows a very marked increase of sickness at all ages of life, from sixteen to seventy years, ranging from 14 per cent. to 70 per cent. the greatest increase being at 16-19 years and the next greatest 55-69 years.

Tredgold also shows that the decline of the death-rate in England has been confined to ages under fifty. Rittenhouse, Fisk, and others who have made studies of this subject from the best statistics obtainable in this country, have shown that within the last thirty years there has been

a very pronounced decrease in the life expectancy of men over forty to forty-five years of age.

The report of the United States Census Bureau is a mine of most interesting and valuable information on this subject. A study of these reports brings out the important fact that the notable increase in the average longevity, which has occurred within the last two or three centuries, is solely the result of the suppression of acute maladies in infants and adults. This is clearly shown by the fact that right along with the decrease in acute maladies of various sorts, there has been a steady increase in the mortality rate of most chronic maladies.

It is apparent then that while public sanitation has accomplished work of inestimable value in certain directions, it has not as yet accomplished all that could be desired. It may be profitable to consider some of the things which public sanitation has failed to accomplish.

1. While lessening the mortality rate of acute diseases, almost without exception, public sanitation has utterly failed to lessen the mortality from chronic diseases. Chronic maladies and degenerations of all sorts are clearly shown by each annual report of the Census Bureau to be increasing and not at a slow and uncertain rate, but at a surprisingly rapid rate. For example, within the last ten years the mortality from heart disease has increased over 50 per cent.; the mortality from arteriosclerosis has increased from 6.1 per thousand in 1900, to 21 in 1911, an increase of nearly 250 per cent. According to the Census report, nearly four times as many people die from disease of the blood vessels today as a dozen years ago. Doubtless this showing of the Census Bureau is in some part the result of increased accuracy of diagnosis and increased attention given to blood pressure and the diseased conditions of blood vessels in recent times.

The mortality from Bright's disease in the United States has increased 151 per cent. within the last thirty years, as shown by Rittenhouse. The mortality rate from diabetes, in spite of great improvements in the treatment of this disease, has in the last dozen years increased 50 per cent. The mortality from appendicitis and acute maladies chiefly dependent upon chronic infection of the colon, in spite of the great number saved by surgical intervention, has increased more than 20 per cent. in a dozen years.

Mr. Rittenhouse, the able expert of the Equitable Life Insurance Company, has shown that the mortality from chronic disease in general has doubled within thirty years. When we consider the fact that chronic disease kills half the people who die, or about seven hundred and fifty thousand people annually, it is evident that public sanitation and the efforts of health boards, and federal, state and municipal health authorities and agencies connected with public health administration, have made no progress in controlling those causes of mortality which are respon-

sible for half the deaths which annually occur in this and other civilized countries.

The significance of this failure appears when we consider that half the deaths from chronic disease which occurred last year, for example, would not have occurred if the people of the United States were as healthy as they were thirty years ago. That is, that the causes of chronic disease, whatever they are, have increased or multiplied to such an extent within the last thirty years that we are losing not less than three hundred and seventy-five thousand persons in this country alone each year from causes which are certainly preventable since they either did not exist or were only half as active thirty years ago as at the present time.

Is it not the duty of state and national boards of health and of all health authorities to undertake to combat this rising tide of mortality from chronic disease and to save some of the four millions who, at the present rate, are certain to die unnecessarily from these causes within the next decade? Is it not just as much within the province of a board of health to endeavor to ascertain and to suppress the causes of Bright's disease, diabetes, arteriosclerosis, cancer, pernicious anemia, heart disease, hepatic sclerosis and other chronic maladies as to seek to control yellow fever, typhoid, small pox, diphtheria and other infectious maladies? The increasing death rate of cancer, diabetes, Bright's disease and other chronic maladies is most alarming evidence of a decline of race stamina and calls for a vigorous effort to stem this tide of degeneracy.

TABLE SHOWING INCREASES AND DECREASES IN LIFE EXPECTANCY BETWEEN 1880 AND 1910. (RITTENHOUSE)

Ages.	Death-rate, 1880.	Death-rate, 1910.	Decrease and increase in rate.	Per cent. of same.
All.....	17.63	15.80	-1.83	-10.38
Under 30.....	16.3	11.3	-5.0	-30.6
30-34.....	9.12	6.99	-2.13	-23.3
35-39.....	10.1	8.90	-1.20	-11.8
40-44.....	10.20	10.95	+ .75	+7.35 (5)
45-49.....	12.20	13.79	+1.59	+13.0
50-54.....	13.70	18.35	+4.65	+33.9
55-59.....	20.49	24.28	+3.79	+18.5
60-64.....	25.69	34.85	+9.16	+35.6
65-69.....	40.5	53.16	+12.66	+31.2
70-74.....	55.4	75.96	+20.56	+37.1
75 and over.....	123.68	143.66	+19.98	+16.1
Above 40.....	25.10	30.42	+5.32	+21.20
Above 50.....	35.24	44.07	+8.83	+25.06
Above 60.....	53.81	67.73	+13.92	+25.87

2. While the death-rate has been increasing, there has been a simultaneous decrease in the birth-rate. In several civilized countries, the birth-rate is decreasing more rapidly than the mortality rate. In France, the birth-rate has actually fallen below the death-rate, so that the native population is actually dying out. In England, within recent years, the birth-rate has decreased so rapidly that it has now almost reached the death-rate, so that the population of Great Britain will soon be stationary. The birth-rate is rapidly declining in almost every civilized country of the globe as shown by the following table:

DECREASE OF BIRTH-RATE BETWEEN 1880 AND 1902.

Countries Showing a Decreased Fertility Rate.

<i>Country.</i>	<i>Decrease per cent.</i>
New South Wales.....	30.6
South Australia.....	28.0
New Zealand.....	24.5
Victoria.....	24.2
Western Australia.....	23.9
Queensland.....	23.2
United States (estimated).....	20.0
Belgium.....	19.8
France.....	10.7
England and Wales.....	17.7
Scotland.....	12.7
Denmark.....	9.8
The Netherlands.....	9.5
German Empire.....	8.4
Sweden.....	8.2
Switzerland.....	6.4
Norway.....	3.7
Italy.....	2.5

The registrar-general of Great Britain states in his annual report for 1907, "At the last census period, the fertility of English wives was lower than recorded in any European country except France." A reference to the above table will show, however, that in the United States the birth-rate is diminishing more rapidly than in any other part of the world, with the exception of Australia and New Zealand. The fact appears that the fertility of American wives is decreasing at the rate of 10 per cent. a year. If this decline in the birth-rate is due to physiological incompetence it is a direct symptom of racial decay. If it is voluntary it is an indirect sign of racial decay to the extent at least that those fit for motherhood shirk its responsibilities and so fail to contribute their quota of vitality to the next generation. In my opinion the decline is chiefly due to the former cause.

An eminent member of the Royal College of Surgeons testified, before the English Committee on Physical Deterioration in Great Britain, that sterility was unquestionably increasing among the English and cited this as an evidence that race deterioration was taking place.

Closely akin to this growing loss of fertility in women is the rapidly increasing inability of women to nurse their infants. According to Holt, "In New York, at least three children out of every four born into the homes

of well-to-do classes must be fed at some other fount than the maternal breast." A professor of entomology, of the University of California, finds an analogy between the human race and bees, ants and some other insects. He insists that the increasing number of women who have lost both the instinct and the capacity for motherhood is evidence that there is developing in the human race a neuter type corresponding to the worker class among bees and ants. In certain parts of the United States the decay of the native population as shown by diminished fertility is far advanced. For example, among native-born New England wives the average number of children is only 2.7, while foreign-born wives living in the same communities have an average of 4.4 children.

In the decrease of the birth-rate and the increase of incompetent mothers, we are face to face with a race disease which must inevitably end in what Mr. Roosevelt termed "race suicide," and is unmistakable evidence of race degeneracy. What have national, state or municipal health authorities done toward investigating the causes of this unmistakable and growing evil which threatens disaster to the race?

3. State boards of charities and special commissions have, within the last forty years, so greatly improved the conditions under which the insane and other mental defectives are cared for that the death-rate of certain of these unfortunate classes has actually fallen below that of the general community. At the same time, nothing has been done to check the development of these defectives and so they are increasing in proportion to the sound part of the population. Mental defectives have increased within the last fifty years at the rate of 900 per cent. in a century. That is, at the present rate of increase, in one hundred years from the present time, 9 per cent. of the total population will be insane, idiotic or imbecile. According to Doctor Davenport, mental defectives now constitute 1 per cent. of the total population. The recognition of a new class of mental defectives, the moron, gives us the key to a large number of social problems and explains the rapid increase of a certain type of criminals and the growing army of ne'er-do-wells. Of all classes of mental defectives this class is by far the most dangerous because not easily recognized except by experts, and so left to reproduce and increase without restriction.

A careful study of the situation in New Jersey, conducted under the supervision of Dr. C. B. Davenport, a few years ago, suggests the estimate that the feeble-minded class has doubled in that state within a single generation. Mental defectives are increasing in some countries and certain parts of this country at a most alarming rate. For example, the population of England and Wales has nearly doubled since 1860, while the number of insane has increased from 36,000 to 130,000. In France, the insane population has increased more than ten times as rapidly as the sane. In Prussia, the population has increased in thirty years less than 50 per

cent., while insanity has increased from 20,000 to 98,000 or nearly 400 per cent.

An eminent English alienist recently made the assertion that the whole human race will in time become insane. The writer does not share this pessimistic view for, notwithstanding the fact that at the rate at which mental defectives are at present increasing, the whole race would become insane, idiotic or imbecile within less than three centuries, so sad a calamity is not likely to befall the human family, for long before the race reaches the state of universal incompetency, the impending danger will be appreciated, the cause sought for and eliminated, and, through eugenics and eugenics, the mental soundness of the race will be saved. Is it not high time, however, that every state board of health and every other health official became enlisted in an effort to erase and eradicate this blot upon the brain which is so rapidly over-shadowing the race?

4. One of the most remarkable achievements of public sanitation is the reduction of infant mortality, but a study of vital statistics shows that the reduction in death-rate of infants is chiefly due to the improvement of public milk supplies and a spread of knowledge of the care of infants. Tredgold shows from the returns of the registrar-general of England that the number of infants that die from "innate defects of constitution" in each 1,000 children born is quite as great as fifty years ago, and this notwithstanding the fact that the total death-rate of infants has been reduced one-third.

When we add to this the fact that a great number of feeble infants that formerly died soon after birth, lacking vitality to live under existing conditions, are now kept alive by scientific feeding and intelligent care, it becomes evident that the proportion of feeble infants and weakling adults must be steadily increasing. It is evident that there is a growing blight on the baby crop. If the same situation existed in relation to the corn crop or the pig crop, federal and state authorities would give themselves no rest until the cause was found and removed. A large number of these weaklings live to reproduce their kind.

Here is another indubitable evidence of race degeneration and a field open for thorough-going research and earnest work on the part of health authorities everywhere.

5. As a natural consequence of the increased number of defective babies, we have a growing army of defective children. Our schools are filled with defectives of various classes. According to Doctor Wood of Columbia College, New York, a nation-wide investigation of the children in the public schools of both city and rural districts shows that of the 20,000,000 children in the public schools at present:

1,000,000 have flat foot, spinal curvature, or other deformities sufficiently grave to interfere with health.

1,000,000 have defective hearing.

5,000,000 have defective vision.

6,000,000 suffer from malnutrition.

10,000,000 have defective teeth.

6,000,000 have adenoids, enlarged tonsils or cervical glands needing attention.

15,000,000 children, or three fourths of the whole school population, have physical defects sufficiently grave to require attention and to seriously threaten health, usefulness and even life in later years.

What would a farmer think of a flock of sheep in which three fourths of the lambs were defective, or a herd of cattle three fourths of which showed deformities, decayed teeth or other unsoundness?

We have improved our horses and cattle till they are the finest that the sun ever shone upon. We have improved our dairy cattle until their capacity for producing milk and butter is almost beyond belief. We have improved our hens and our hogs to an amazing extent. Man has improved every creature he has redeemed from the forest and the plain with the exception of himself. Himself he has neglected until race degeneracy has become a certainty, and race extinction a possibility.

Should those who are the official custodians of the health of the people sit quietly by and see this process of race destruction going steadily on? Should not the work of boards of health include the work of discovering and eradicating the causes which are blighting the vitality and vigor of the race in the early years of life?

While the average length of life has been increasing in all civilized countries within the last three centuries, the proportion of centenarians to the total population has been diminishing. At the present time the most highly civilized nations have the smallest number of centenarians, while the largest number is found among those people who still adhere most closely to the simple life. The Bulgarians, a people numbering only five million, boast of 3,000 centenarians, or one in 1,700. In Spain, the proportion is one to 40,000; in France, one to 190,000; in England, one to 200,000; in Germany, one in 700,000. We have in this country one centenarian to every 25,000 of the population, but the number is rapidly decreasing as the natural result of the increased death-rate after middle life, due to the increasing mortality from chronic disease.

Centenarianism is rapidly going out of fashion. The rapid decrease of the proportion of persons of advanced age in all civilized lands is a certain indication of racial decay. The human race may be likened to a tree which is dying at the top. Why should not boards and departments of health, state and national, make it a very essential part of their work to inquire into the nature and causes of the maladies which are destroying the capacity of men and women to live out the normal span of human life?

Public health work has not only failed to prevent race degeneracy, it has actually tended in some ways to accelerate the rate of decay. Acute maladies and adverse conditions of life are a natural means of weeding out weaklings and securing the survival of the fittest. Public health work, through quarantine, protection of water supplies, and improving the general environment of human life, has in a large measure set aside this great biological law. It is no longer the fittest alone that survives, but also the feeble individual who is afforded sufficient protection. The preservation of these weak and unfit individuals decreases the average death rate, but at the same time decreases the average stamina of the race. Through heredity, weak strains are established which must corrupt and depreciate the stronger ones more and more from one generation to another.

Public health work must then inevitably tend to race depreciation, unless it concerns itself with the improvement of the weaklings which it preserves, and with the prevention of the propagation of incurable defects.

As regards the question, what can boards of health and public health officials do to check these evil tendencies which threaten the existence of the race, I am not prepared to lay down a complete program. This would involve far more wisdom and experience than I possess, and perhaps more than the world possesses at the present time. I venture to offer a few suggestions of things that need to be done to check race degeneracy and to make for race betterment.

1. First of all, there ought to be set on foot a nation-wide movement to secure trained and cultivated men for every position involving the responsibility of health administration. The present situation is absolutely intolerable. The health of men and women in the United States receives far less attention and consideration than does the health of swine, poultry and other domestic animals. The men charged with the custody of the public health, especially in small towns and rural districts, are, in many instances, far less well qualified for their tasks than those who have supervision over live stock.

2. There should be such thorough-going coöperation between boards of health or health officials and boards of education that every school and every pupil attending every school may have the full benefit of the latest and the best knowledge with reference to health preservation.

3. A campaign of education should be pushed so vigorously that every man, woman and child in the whole United States may be in the shortest space of time made acquainted with the general principles of eugenics and right living by means of moving picture exhibitions, educational plays, and the methods and effects of food contamination and adulteration should be graphically displayed. Up-to-date methods of dairying, the care of foods in the market, the store and the home, wholesome methods in the preparation of foods and all that pertains to nutrition should be

made clear to the simplest mind by moving pictures and other means. The evil effects of alcohol, syphilis, opium and other drugs, the deforming effects of wrong habits in sitting, and other careless habits should be impressed upon the popular mind by popular demonstration and exhibitions, together with the effects of good habits, of the out-of-door life, of healthful sports, etc. Every community and every public school should be supplied with swimming pools, playgrounds, out-door gymnasiums, and other out-door study places, all of which should be under the supervision of trained directors.

The public will never supply these health advantages for children until made by education to appreciate the relation of a right environment and a natural life to vigor and efficiency. Through health conventions, health schools, parents' classes and various other means, this educational campaign may be carried on. The school nurse may not only inspect and care for children, but also visit the children's homes and thus become acquainted with their home conditions, improving the opportunity to give instruction to the parents.

We possess knowledge enough of eugenics and eugenics to create a new race within a century, if the known principles of healthful living and scientific breeding were put into actual practice.

We know that tuberculosis is a house disease. We are able to cure half of the cases of early lung tuberculosis by turning them out of doors. These facts have been known for many years, but still we continue to lose 150,000 lives annually from tuberculosis, and are developing a consumptive variety of man which already numbers several millions of narrow-chested, low-resistant individuals, destined to die early and through heredity, a constant menace to the welfare of the race. The white plague will never be controlled until we convince the average citizen of the necessity of breathing out-of-door air day and night, and of living in the open as much as possible and thus building his natural resistance to disease. Building laws should require provision in tenement houses and private residences of sleeping porches or other out-of-door sleeping arrangements. We are still troglodytes, and will degenerate and disappear like the cave dwellers of the remote past unless we return to the open air, our natural environment.

We know that alcohol is responsible for a very large proportion of the unfortunates who fill our asylums for the insane and the feeble-minded, and that its degenerative effects are hereditary. Should we not take an active interest in combating this well-recognized foe of the race in every legitimate way.

We are only too familiar with the appalling effects of syphilitic and gonorrhoeal infections upon the individual and upon the race; yet we leave the public in ignorance of the terrible facts which we possess, and have

made almost no effort to restrict infection by methods which have been found effective in controlling the spread of other infectious maladies. Our duty as custodians of the public health certainly requires that we should advise some means of registering and quarantining every discovered case of venereal disease and of preventing the extension of these vice diseases to the innocent through marriage and heredity.

Chittenden, Fisher, Folin, and others have shown the danger of an excess of protein and the advantages of a low protein diet. The farmers of Iowa and Minnesota and the agriculturists of Denmark have long made use of this principle in the feeding of swine and other domestic animals with most striking results. A few intelligent people have likewise profited by Professor Chittenden's discovery which, if generally put in practice, would unquestionably lessen the death rate 10 per cent. or more and would lessen the cost of living at least twice as much. The general public are still in bondage to exploded errors respecting human feeding, although the high and increasing cost of meat products promises to help along a much-needed diet reform.

Sherman, of Columbia, estimates that half of the people of the United States are suffering from lime starvation through the use of fine flour bread and an excess of meat and cane sugar, which contain practically no lime, while whole wheat contains four grains of lime to the pound, peas and beans 8 grains, and milk 16 grains. It is no wonder that three fourths of the school children have seriously defective teeth and other skeletal defects. The tooth brush will not stop the development of an edentulous race. Scientific feeding is the essential thing, and the people must be made acquainted with the fact.

Bunge and Hindhede have shown the evils of a meat and cereal diet through the preponderance of acids in these foods and have demonstrated the essential value of the alkaline salts found in fruits and green vegetables, and especially the potato—a food which, for other reasons pointed out by Rubner, is far better suited to be made a staple diet than is maize and most other cereals.

Combe and later investigators have shown the essential rôle played in nutrition by the vitamins of fresh foods which are largely or even wholly destroyed by cooking at high temperatures and hence the danger of feeding infants exclusively on sterilized milk, and adults on an exclusive diet of cooked foods. Our primitive ancestors were ignorant of the art of cookery. The necessity for food in the state in which nature provides it for our use still exists in the constitution of the race and it cannot be safely ignored. Conditions allied to scurvy are widely prevalent, and scurvy, itself, not infrequent, as the result of popular ignorance of this important biologic fact.

Cancer kills 75,000 persons in this country annually, one in twenty

of all who die, and tortures three hundred thousand victims all the time. One seventh of all women and one twelfth of all men over forty perish from this horrible malady. William has shown that cancer is confined to the civilized races of men and to domestic animals and especially high protein feeders. Cats and dogs are more subject to cancer than are human beings. Horses, sheep, bovines, and even swine are rarely affected.

Senn showed that appendicitis is unknown among the low protein feeders of Central Africa, and Lucas-Championier noted its rareness among the Arabs of Algiers and the inmates of asylums and prisons in France who have a low protein diet.

Huchard and other investigators have pointed out the influence of chronic poisoning due to errors in diet and drug habits in producing arteriosclerosis, a rapidly growing scourge in all civilized countries.

Metchnikoff of the Pasteur Institute, and Arburthnot Lane, an eminent London surgeon, have demonstrated the destructive role played by colon poisons as the leading cause of chronic disease. Metchnikoff finds the remedy in changing the intestinal flora by feeding friendly germs in buttermilk or otherwise; Lane removes the colon; but Tissier, a colleague of Metchnikoff in the Pasteur Institute, and the real originator of the friendly germ idea, suggests the more rational remedy, the adoption of a low protein diet, largely excluding animal proteins. That this may be safely done is now admitted by all physiologists.

Why should not the people be made acquainted with these and other facts which profoundly influence their physical life? Why should we wait for the slow diffusion of life-saving knowledge through desultory efforts and private initiative while more millions perish for lack of knowledge.

Why should we not have in every state, under scientific direction, experiment stations for the practical testing and demonstrating of the principles and methods of living evolved by scientific research or human experience instead of leaving the public to be misled by faddists or ignorant enthusiasts, or to invite and cultivate disease and degeneracy by habits born of the ignorance and superstition of the past?

Is not a legitimate and important part of the function of public health officials to collate the results of scientific research which bear upon personal as well as community health and to place these facts before the public in such ways as to command attention and to stimulate in every community the development of a sentiment of respect for the body as man's choicest possession and an ambition to preserve its integrity and to increase its powers not only for personal advantage in happiness and efficiency, but for the sake of generations to come and thus for the preservation and improvement of the race?

Acute diseases may be controlled by quarantine and public sanitation but chronic diseases are a home product. They are almost altogether

the result of vicious habits of living, departures from the normal conditions to which the human constitution is adapted, hence men and women everywhere must be instructed in the principles of eugenics and euthenics. Those who have had the good fortune to be well born should be instructed to live in such a way as to maintain intact their splendid heritage and pass it on to the next generation undeteriorated.

Movements of all sorts which seek to promote physical welfare should be encouraged and unified. Eugenics and euthenics should be magnified before the people until their paramount importance is appreciated and legislatures become willing to appropriate funds as liberally for these essential means of race betterment as they are now doing for the improvement of crops and farm animals through similar means.

Prizes should be offered for the finest families and the best health and endurance records.

Through state life insurance, the whole population should be brought under government medical supervision. By periodical examinations, the early beginnings of chronic diseases should be detected and thus arrested by timely instruction in regard to necessary changes in habits or occupations, and every such case should be made an object lesson by means of which relatives and friends should be influenced to adopt preventive measures in time to avoid the same maladies.

The new science of eugenics founded by Galton, supplemented by what has been called the science of euthenics, when they come to be comprehended and put into practical operation, will result in the creation of an aristocracy of health, in the development of a new race of men. Should not every board of health and official health agency be actively engaged in the battle against disease and degeneracy, in all its forms, chronic as well as acute? Why should this work be left to private initiative? Nothing could be more profitable to the state and nothing more prolific of satisfying results to those engaged in the effort than a thorough-going campaign for race betterment through sane living combined with scientific sanitation.

The establishment of a national department of health will provide a central bureau by which to unify the work and collate its results. Professor Fisher estimates that the application of present knowledge of hygiene ought to increase the average of human life at least fifteen years. Think what it would mean to the nations, to the world, if the average man lived 60 years instead of dying at 45. The addition to a single generation of one billion five hundred million years of life in this great and glorious country of ours is a goal well worth working for. It appears improbable, however, that such a desirable result can be reached by public sanitation alone. The increasing death-rate, after forty years, chiefly due to unphysiologic personal habits, will soon neutralize the effect of public sanitation, which has already nearly finished its greatest tasks, and can hardly

hope to exert in the future so marked an influence in life extension as in the recent past.

What is now necessary is that the individual man as well as the community and the domicile, shall be brought in harmony with the great biologic laws which govern human life.

What the world needs at the present time more than anything else is race improvement. If race degeneracy is to be arrested, it will only be accomplished by the development of a more resistant and better type of men—a tougher, more enduring man more capable of wrestling successfully with the problems of the twentieth century and the greater centuries to come. Boards of health and health officers have before them the opportunity to inaugurate and carry forward an education movement that will accomplish this.