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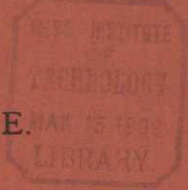
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Sanitary Science in the Home

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SANITARY SCIENCE IN THE HOME.

— BY —

MRS. R. H. RICHARDS.

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PHILADELPHIA:



1888.

SANITARY SCIENCE IN THE HOME.

BY MRS. R. H. RICHARDS, Instructor in the Massachusetts Institute of Technology, Boston.

The Lecturer was introduced by Dr. FRAZER, Professor of Chemistry in the INSTITUTE, and spoke as follows :

It has been said that "the sanitary engineer sprang into existence on the passing of the Public Health Act in England in 1848, from which date sanitary knowledge began to spread and develop itself until twenty years later it was recognized as a science and special branch of study."*

Since just twenty years more have passed, we may consider sanitary science as now emerging from childhood into maturity, and while it has the freshness and piquancy of youth with some of the vagaries of childhood, not yet sobered by the trials of life, still we may reasonably expect it to begin to bear fruit in deeds worthy of the child of the age of philanthropy, the age in which all are to be benefited by the knowledge of the wisest.

* Association of Municipal and Sanitary Surveyors. Address of President Gordon. Leicester, England, July 18, 1887.

America was not far behind England, for in 1850 Mr. Lemuel Shattuck presented to the Legislature of Massachusetts a report, from a sanitary commission, which was as intelligent and as sound in its conclusions as Edwin Chadwick's writings in England.*

In 1869, the first State Board of Health was organized, that of Massachusetts; to its early reports I shall have occasion to refer more than once. In 1876 there were twelve, and to-day there are thirty-three States which have a State Board of Health.

So far sanitary science has been an ambitious youth, dealing with large problems, such as the draining of vast marshes, the building of asylums and hospitals, the water supply and drainage of cities, all works on a large scale, and needing an expenditure of money which no other branch of science has demanded. But we must acknowledge that even the vast outlay has had its reward. For Sir Douglas Galton has recently shown, that the average number of lives saved in each of the five years from 1880 to 1885, by sanitary improvements, in England alone, was 102,240. "A record, noble almost beyond compare, to the credit of the engineer as the benefactor of his species."

And yet while we claim sanitary science as a new science, its motto to day is that expressive hygienic formula given more than 2,000 years ago by Hippocrates, "Pure air, pure water and a pure soil;" and all its efforts have been directed toward supplying the people with these necessities. But of what use is it to lay pipes carrying water to a community which still drinks at the well in the stable yard? or what use to build model tenement houses on clean soil, when in a year or two the occupants will have soaked it through and through with refuse which it is too much trouble to carry away? "Some years ago a wealthy and philanthropic land owner in one of our principal cities, conceived the idea of erecting a number of healthy houses, which should be built on scientific principles. Ventilation was especially sought, and the best talent at command was engaged to provide the necessary appliances; but when the houses were finished the owner found himself unable to retain his tenants except upon the condition that he would seal all his ventilators."†

* *Hygiene in America*. Bowditch, Boston, 1877.

† *House Drainage*. James C. Bayles, p. 15.

The public in general are becoming familiar with and tolerant of works of public benefaction. Legislatures vote money for the support of State Boards of Health without much grudging. Common Councilmen appropriate hundreds of thousands of dollars for a water supply, and sometimes for the consequent drainage; even small communities consider it advisable to tax themselves for the general health. One hundred and three towns, beside twenty-three cities, in Massachusetts alone, have a public water supply.

Most of these large works, which after completion remain under the charge of competent engineers, and are maintained year after year, have been very successful. Other works of public sanitation, the care of the sick and wounded in great hospitals, the control and suppression of contagious diseases, in short all sanitary measures which are under the immediate and entire care of skilled men, in positions not interfered with by politics or personal interest, are duly appreciated and sustained. But when the question concerns the houses the people live in, and the food they eat, the wheel of progress has neither rolled so smoothly nor so far.

To be sure in house construction great talk is made about the sanitary authorities consulted, although the builders go on in the old way. It rarely falls to the lot of the thorough sanitary engineer to have his plans carried out when it comes to dwellings. All such schemes as need the personal co-operation of the individual are very likely to miscarry.

Dr. Boardman in his paper, "Value of Health to the State," in the Sixth Report State Board of Health of Massachusetts, 1875, well expresses this. "Sanitary science comes into constant contact with personal convenience, avarice, mistaken economy, long-established customs and habits, and an erroneous judgment of the future by the favorable condition of the present and past."

To the owner, a house is a sort of outer garment, and it is as much of an insult to tell him that his house is not right as to tell him that his boots need blacking. To the dweller in flats or an apartment house, the house he lives in is no more a part of him than the car in which he rides to town, or the public hall in which he suffocates. He depends entirely on the owner, takes it all on faith, as he does his dinner at the restaurant.

The relative positions of public institutions and of homes has entirely changed since the infancy of sanitary science. Then the

condition of asylums, hospitals, and public institutions was in glaring contrast to that of the clean, airy and roomy houses of the well-to-do people of the middle class, and even to that of the dwellings of the poor peasant and tenant. To-day the hospital and public institution receives the best that sanitation can give. Whereas a century ago it was almost certain death to be taken to a public hospital with a broken leg or a dangerous disease, now I would rather take my chance in any large hospital than in nine-tenths of the well-to-do homes of our land, simply because the essential principles of health are not at all understood by the people at large, and alas! not by all our physicians, who as a rule have been educated to cure disease, not to prevent it. Too many of them have been taught to fight Nature's laws, not to stand by patiently as her adjutant.

This has been called the urban age, the age of cities, and it often seems as if most of the ills which sanitary science is called upon to cure arise from the close contact of human beings in the crowded life of the modern city. From statistics carefully collected by Dr. Farr, in England, the following estimates are made. A population of 16,600 souls scattered over 100 square miles of territory are liable to lose by death 282 of their number annually. The same number of people drawn closely together so that they occupy fourteen square miles may lose 415 annually. The same number crowded into the space of a quarter of a square mile are pretty sure to lose annually by death 647, or one-twenty-fifth of the whole number.

Another way of expressing the same idea is, that the nearer people live to each other the shorter their lives. From the same statistics it is seen that a distance of 147 yards between habitations gives to the occupants an expectation of living to the age of fifty-one years. When the distance is lessened to ninety-seven yards, forty years only may be counted upon. Double the number of habitations, so that the distance shall be forty-six yards, and the mean of life will be only thirty-five years. Crowd the houses still closer and leave only seven yards between them and the occupants cannot count on more than twenty years of life, or only half that which they may reasonably expect if the houses are 147 yards apart. Why, then, do people gravitate so surely, like the

moth to the candle, to the maelstrom which will certainly shorten their term of life?

It is this very crowding of many people into a small space which makes possible the necessities of to-day, the electric light, the supply of gas and steam for cooking and heating. The delights of music and art, are they not unattainable except in the midst of large populations whose numerical and financial support can alone sustain them? Scatter our population over the surrounding country and you would put back the civilization of the time at least fifty years. We rightly boast of the height to which we have reached, but we do not stop to count the cost, to note the number of those who have fallen by the way. Those who climb highest are the few survivors of the fittest.

If the question were put to us now and here, "Would you rather live to three-score and ten, but live half a mile from any neighbor, and twenty miles from any city, or would you rather take the chance of losing one-third of the time, and live in the midst of the dust and confusion which necessarily attends the passage of the rapidly-rolling wheels of modern progress?" Who of us would not say, "Let me live while I do live." In one of his recent stories, George W. Cable expresses this feeling in the words, "They had done that dreadful thing that everybody deprecates and everybody likes to do—left the country and came to live in the city." But, we hasten to ask, is there no remedy? Must the enjoyment of all that is rich and delightful be paid for with such a price? There is no doubt that a city of *Hygeia** could be built in which the death rate, and especially the sick rate, could be lessened far below that in any country town at present known. This city would not have more than twenty-five persons lodged on an acre of ground. It would be clean and so carefully supervised that disease could not find a foothold. But, if such a city should rise in a night and be offered to us to-morrow, who would go to live in it? Who would bear all the restraint of such a clean place? Americans claim the right to be the victims of their own ignorance and carelessness. They will not brook bridges across tracks and gates on the cars. The true American wishes to take the risk he incurs in jumping on or off a moving train;

* *Hygeia*. B. W. Richardson.

and he also claims the privilege of living as he pleases. The picture of the city of Hygeia will be fascinating only when a large number of people are educated in the belief that health is the greatest of all blessings. The valuable little health primer, "Our Homes," written by Dr. Hartshorne, of Philadelphia, has before its title page these lines of Goldsmith :

"A time there was
When every rood of ground maintained its man :
For him, light labor spread her useful store—
Just gave what life required, but gave no more.
His best companions, innocence and health."

Most great undertakings, from the building of the Pyramids to the Panama Canal, have been carried out at an enormous expense of human life, and it seems as if the development of all modern inventions, and the possibility of modern luxuries were to be attained only by a like offering of one generation to the next, but it certainly behooves us to be sure that there be no unnecessary sacrifice.

To live safely in the city costs far more than to live safely in the country. Shall we save money or lives? At present we are economical of expenditures and lavish of lives, as the examination of the vital statistics show. It is expensive to keep well in the midst of danger. The state has here to step in and assert its claim on the value of every man, woman and child to it, and to demand that it shall not be defrauded.

It has been said "that civilization, when it lifts man out of the savage state, adds to health and life and to length of days. But when it gives to civilized man more privileges than he deserves or requires, then civilization itself lapses back into practical barbarism, and nature, maintaining her unswerving and wise course, pursues her way even with death on her wings."*

As is natural to youth, sanitary science boasts of what it has done, rather than delights in calling attention to what remains to be accomplished. It is evident that the principles of water supply, clean building ground and all public improvements are well grounded, so that we may suppose that they will continue to gain in popularity. All great enterprises undertaken by sanitary engi-

* *Health and Life.* Dr. Richardson.

neering in its broad sense are a part of state medicine with which we do not now concern ourselves, but pure air and good food come under the personal control of the housekeeper. We have nothing new or startling to proclaim. We aim only to bring home to the householder his responsibility. *It remains for sanitary science to educate the people one and all.* It has to apply the knowledge it has gathered to that unit of the community, the home, for upon the welfare of the homes depends the welfare of the Commonwealth. It is therefore evident that upon this potent factor in public life should be lavished whatever of knowledge and of science the century has to give. At the birth of sanitary science this fact was recognized. It cannot be better expressed than it was in 1868 by Dr. George Derby, one of the apostles of state or preventive medicine, the first Secretary of the first State Board of Health in this country.

“The prevention of disease may be considered, first as regards the individual, or family, or household; and second as regards the community at large. What power have we to ward off disease from our homes? There are certain dangers to which we are exposed which a prudent head of a family may constantly bear in mind.

“One of these and by far the most important, is from insufficient ventilation. Every man, woman and child is entitled to their full ratio of fresh air, to that amount which will both dilute and quickly remove all which has been spoiled by respiration and combustion.

“Fresh air is the great natural disinfectant, antiseptic and purifier, and not to be compared for a moment with any of artificial contrivance. There is plenty of it in the world, yet, disguise the fact as we may, there is no getting over the unwelcome truth that to provide it in abundance in our climate is expensive, since during seven months in the year it must be artificially warmed.

“All reforms are practicable whenever public opinion recognizes their expediency, and gives the necessary authority for their execution.

“Public health has so wide a field that help is needed from all. From the chemist, the engineer, the naturalist and from the humblest citizen as well as the highest statesman.”

How, then, shall the home be reached in the most effective manner? How shall the moral responsibility of each individual be

awakened so that he will see to his own household first and then be a help and not a hindrance in carrying out measures for public benefit? How shall the people be instructed in the best ways of *obtaining* and of *maintaining* the three prime necessities of good health, namely, pure air, pure water and a pure soil? It is evident that a healthy community can be made up only by an aggregation of healthy individuals, and that upon the health of the individual must rest the health of the Commonwealth, as upon his wealth depends its prosperity, and upon his vote its political status.

Only one nation ever had this personal hygienic instruction, and only one national code of laws entered into the details of personal daily life with its sanitary requirements. The nation was that of the Jews, and the laws were those given by Moses. The nation had its reward, as will any nation to-day, which will take up in earnest the work of personal and home or family hygiene.

In this land of personal liberty, minute laws relating to daily life are not tolerated, but the truths upon which sanitary science is founded must be deeply impressed upon the public mind before we can look for great and important results. This popular education can be accomplished only gradually and by the patient and intelligent teachings of unselfish specialists, through the medium of newspapers, books, pamphlets and tracts. In all the avenues by which the masses of the people are reached, and in the opinion of many by that great artery of influence, the common school.

“The state, upon the legitimate ground of public economy and self-preservation, takes care of the primary education of the people; it, therefore, determines what secular knowledge shall be taught in the common schools. It may, and properly should, add the simple and ascertained laws of health and public hygiene to reading, writing, grammar, geography, arithmetic and the history of the country. It is a disgrace to our higher institutions of learning that they are still neglecting sanitary science.”*

Dr. Wight also quotes Lord Derby as follows: “No sanitary improvement worth the name will be effective, unless you can create an intelligent interest in the matter among the people at large. You cannot make a population cleanly or healthy against their will or without their intelligent co-operation. This is why,

* *Maxims of Public Health*, p. 156. Dr. Wight.

of the two, sanitary instruction is even more important than sanitary legislation." Dr. Wight also makes a statement which, I believe, to be under rather than over the truth: "The unsanitary conditions of school buildings slacken the speed of educational progress more than one-third."

Grant, as we must, that some kind of instruction shall be given, in what must it consist? First, in what Edwin Chadwick called the sanitary idea; that is to say, "the idea that man could, by getting at first principles, and by arriving at causes which affect health, mould life altogether into its natural cast, and beat what has been hitherto accepted as fate, by getting behind fate herself and suppressing the forces which led up to it at their prime source." *

A sense of personal responsibility for the lives we have and the health we might have must be cultivated. We were not meant to drag out a miserable existence. We have not yet awakened to the fact that at least two-thirds of the illnesses under which we suffer are preventable, and that we are more and more to blame each day for allowing ourselves to lie under the unnecessary infliction. We are still in the middle ages in many things and in none more than in regarding disease as a special visitation of Providence, as something entirely beyond our control. Indifference to bodily health is a legacy handed down from the mediæval cloister. The ancients seem to have known better.

"Theoretically, we respect the physical foundations, but practically we say: 'We will build first our structure of domestic duties and social pleasures, of intellectual achievement, of philanthropic and church work, and then, if we find the physical underpinning a little shaky, we will prop it up with a tonic or a vacation.' But the physical life is no more to be established on this confused and chaotic system than the intellectual or the moral life. Health can be secured only by effort as continuous, as carefully adapted and as systematic as the processes of physical life themselves.

"If, for instance, we could save all our breathing for the year and condense it into the brief period after the spring cleaning, spasmodic effort would do very well. But, until the human body

* *The Health of Nations.* Dr. Richardson.

can content itself with an annual breathing spell, the daily, hourly, momentarily need of pure, fresh air should be respected." *

When the sanitarian attempts to press home individual responsibility, his hearers answer: "Is life worth living if we have to take such care of ourselves?" They cannot realize that if the habit was once formed, it would not be care, only second nature.

In blaming people for this indifference, we forget that a body of men obeys the same law as a body of matter, *i. e.*, a body in motion will continue in motion, and a body at rest will remain at rest, unless acted upon by some external force. It sometimes seems as if the inertia of the human race was intensified inertia. This is expressed by intense conservatism on the one hand, when it is called upon to exert itself, or when the impetus or the exertion must come from within, and on the other hand its extreme readiness to adopt any new idea or fashion provided the impulse comes from without, and especially if some great saving of trouble or of exertion is promised. For instance, when coal was first used it was in the cities where the price of land drives the householder to store coal, as well as in a measure to live, down cellar. When the country dweller ordered his coal he had it also put down cellar, whence with much toil it must be brought up again for use, and nearly every house, to this day, no matter how abundant the land about it, has all the coal put down cellar. Again, the furnace is usually in the main cellar, whence the dust rises through all the rooms of the house whenever the furnace is shaken and the ash-pit emptied, instead of being enclosed so that the ashes and dust have no communication with the air ways of the house.

Some unusually indolent individual once upon a time hit upon the plan of introducing water into every room in his house. Immediately other people followed suit, with never a thought where the waste water went to, nor with what the pipes were connected. In many cases the pipes went nowhere beyond the house walls, and if they did connect with the city sewer the chances were that these same pipes ventilated the sewers into the houses. It is highly probable that this one fashion alone has caused more death and misery than war, and yet people demand it and architects supply the fatal demand.

* *Home Sanitation*, p. 73, Annie E. Allen.

A certain amount of conservatism may be pardoned since the most enthusiastic sanitarian must admit that there have been many sanitary cranks who have been a source of much discomfort to their friends, and who have brought discredit on the whole cause. In many cases it has happened that what was intended as a benefit has proved far otherwise. In many houses the sewer has been a source of fatal disease instead of a preventive. Indeed, in some directions, so far has the zeal of sanitary science outrun its discretion, that it is in danger of losing the ground it has gained. It has provided the mass of people with appliances for which they have no use, and it is a peculiarity of sanitary appliances that they are made for use, not ornament, although many a so-called sanitary plumber fits up a house on the reverse principle. The architect who does sometimes know what is right, builds a house which is very nice while it is new, and all the joints tight, all the pipes clean and free—large enough and not too crooked for what he imagines they should carry; but he does not consider that a few months' use will make a great difference; that joints will open and traps become unsealed; that a miscellaneous collection of match ends, coils of hair, dish cloths, and coffee grounds, to say nothing of a score or two pounds of grease, will stop up his pipes, and that the ventilators will remain closed because it is too much trouble to open them.

The criminal carelessness and neglect which so frequently rouses us to indignation against builders, really comes from the apathy of the public. A man does not buy a cotton mill, or a machine shop, without seeing for himself that everything is in order, that all the machinery works, and that there is power enough to run it successfully; but that same man will, in nine cases out of ten, buy or build a house for his family to occupy without seeing a single inch of pipe, without considering whether there is any outlet for the products of combustion of the numerous gas jets, without looking at the children's rooms to see if they can have fresh air without a draught. All is taken on blind faith, and that man will mourn the heavy dispensation of Providence when his child dies of diphtheria and his wife of typhoid fever.

It has been said that the highest modern civilization is shown, not so much by costly monuments and works of art, as by the perfection of house conveniences. But alas! security does not always

come with refinement, and the true conveniences of the house are those only which add to the health and comfort of its occupants.

We boast loudly of our modern houses, and proudly show their increasing luxury and artistic furnishings (we certainly have good reason for boasting), but how about the people who live in them? What is life bringing them? Are they merely lounging in the lap of luxury, becoming daily more averse to activity, more self-indulgent, caring mostly for themselves? What are the pictures most commonly given to us in the current literature of the day, of the home life of our people? The husband and father is engaged in eager struggle for wealth, that his family may take a high place in society, or he is engaged in many large schemes for public benefit, and has no time to go about his house and examine its condition. He hires many servants, who ought to know their business. He never thinks of looking at the furnace, even if he is the proprietor of a machine shop, and understands how to make every pound of coal do its utmost there.

The wife and mother has her social duties and her charities to look after. Her children's clothes must be just right, and they must have their music and their French at the hours appointed; if they are late to breakfast and eat a hurried dinner, no matter, "it is safe to let children alone, they will get enough to eat."

The parlor maid is duly instructed in her duties, and everything is quite right in the dining-room, but what an expression of amazement would come over many a housewife's face did you ask her what was the condition of her cellar, or if 300 cubic feet of air a minute passed through every room. The children hurry off to school, hurry home, snatch a bite and run off to music, or to some appointment with a school-fellow; all is in a froth and a tumult; no time is given to the homely duties of the house. I sometimes think there can be no home without loving hands busied in the preparation of the daily tasks. The home must have the individual flavor about it. The ready-made house and ready-made outfit, servants trained by someone else to conventional duties, all this is to blame for the lamented decay of home life. Individual and family responsibility must be more fully recognized in school and in society before we can have the perfectly healthful home.

The child poring over his book in the evening, with his head close to a student lamp, complains of a headache. "Those lessons,"

says the mother, not stopping to think that it is the close air and the heat from the lamp, no matter how many laws of chemistry she has studied. She might remember that hot air being lighter rises to the ceiling and strives to get out at the top of the room; only an open fire or mechanical ventilation will pull it down and take it out of the bottom of a room. There is no connection between knowledge and daily life in the minds of most people.

One thing most urgently needed is co-operation of all those concerned both in building and living in houses. The architect must first of all understand his limitations. He must remember that the ancient civilization, whence he has his ideas of architecture, was developed in a warm climate, where the charcoal brazier, or the fire of a few sticks against the wall, gave all the heat needed. Civilization has gone so far toward the North Pole, that the open windows of the Greeks and Romans can no longer serve as fresh-air passages all the year round. One authority has said, "it is a fact which, unfortunately, does not admit of intelligent contradiction, that in the architectural practice of the time, very little attention is paid to the laws of health." The same author gives the *reason* on another page: "The architect in general practice cannot insist upon a due observance of hygienic laws in house construction, and compete successfully with those in the profession who are less conscientious in such matters. If his clients neither know nor care whether a house is well or badly drained, why should he drive away business by demanding that we shall pay for good plumbing work?"

Here again the public follows blindly the example of past ages, and shows its inertia in blaming the new fashions for its troubles. One writer has said, "there is probably more gratuitous abuse of one kind and another lavished upon plumbers than upon all other mechanics, directly or indirectly connected with the building trades. When the plumber, whom we call in to mend the pipe in some inaccessible place, has to tear up our floor or break down our walls, we never think of blaming the architect or builder."

To be a healthy home, the modern house, in a modern city, needs to have all the physics and chemistry of air and fire and water, as well as the mechanical points of construction, fully understood and carried out, both by the builder and the occupants. All must be of one accord, and the owner must expect to pay for the

good work without grumbling. We must frankly acknowledge that it costs money to be healthy and yet to enjoy the conveniences of modern life.

I must now speak some plain words to the housekeepers of my audience. I hope they will forgive me. I know no man will dare say it in so many words, and, therefore, it is the more incumbent upon me to do so. I am sure if the much-abused architects and builders were to speak their minds, they would say that it was the women who hindered them from carrying out the plans which they know to be best. How can a builder survive the scorn which greets him when he proposes to leave all the drain pipes exposed? How can he put hoods over the gas burners when the artistic sense of the woman who is to occupy the room is offended? How can he convince the women of the family that they should wear thicker clothing in the house in the winter and not expect to have a whole house made so comfortable that they can wear thin slippers and silk dresses in weather approaching that of the Arctic regions? Does it avail for him to argue with them? Must he not cater to their tastes? And as they are the ones who live nine-tenths of the time in the house, the man of the family lets them have their own way. There is a wide field for the sanitarian in girls' schools; the chemistry and physics which are now taught in them should have practical application to daily living, and not be given as disconnected subjects with no bearing whatever upon the home life. Women have been very averse to hearing such unpleasant topics spoken of, and all subjects relating to health have been tabooed. There is a change noticeable, however, and women themselves are awakening to the opportunities opening out before them. Mrs. Plunkett, in her "Women, Plumbers and Doctors," led the attack. College graduates form sanitary science clubs. The Boston Society to Encourage Studies at Home offers a course in sanitary science. A woman, writing for women, has said: "In this age of scientific enlightenment and invention and wide-spread information, ignorance of the primary conditions of health and vigor is unpardonable. A knowledge of sanitary principles should be regarded as an essential part of every woman's education, and obedience to sanitary laws should be ranked, as it was in the Mosaic code, as a religious duty." *

* *Home Sanitation*, p. 73, Annie E. Allen.

As this is supposed to be an age of money worship, one of the outside forces to be brought to bear is that of benefit to the purse. The individual must be convinced, as most states have already been convinced, that health is true economy. It has been estimated that on a broad average each individual loses from fourteen to twenty days a year by sickness. In a family of six persons, this would be one-third of a year, with probably as much outlay for physician, nurses, medicine, delicacies, extra fuel and travel in search of health, as all the other expenses of the family. In the case of the workingman this often means debt and despair. If it does cost much to give every member of the family his inherent right, pure air to breathe, it is economy in the end.

There is one point upon which I cannot forbear to touch. It is a subject which requires the most delicate handling, as it is impossible to treat it without disturbing some one. No subject has had so many theories concerning it, all of which have failed when put in practice. On no topic are people so sensitive. Even the best sanitarians have touched it lightly. Physicians avoid it. No one knows just how to approach it.

If I wished to make you smile, I could not do so more surely than by announcing to you that I was now about to consider the question of hygienic food. Yet I must in all soberness, ask your indulgence while I discuss the bearing of food upon health, promising that I shall consider it only from the hygienic standpoint, and that if anything sounds impracticable from a social standpoint, that I leave to be reconciled by those who have to balance their accounts between *society* and *health*.

The sanitarian says that an exaggerated importance is attached to both eating and drinking, and in the next breath he says that not half enough attention is paid to the providing of proper food. These apparently contradictory statements can be reconciled only by tracing certain customs back to their sources, and noting the causes which have produced certain effects in our daily life.

Eating and drinking was the principal *enjoyment*, as well as *employment* of the mediæval age. It was a step forward, indeed, to be able to *enjoy*, since the earliest races were probably able only to obtain a bare subsistence.

Baronial castles resounded with the revels of feasting, and since the feasters were likely to be killed in the morrow's foray, it was,

perhaps, as well, since intellectual advancement was not possible in such war-like times.

The life of the cloister was a protest against brute feasting, and we owe much stored learning to the ascetics who went to the other extreme, and only ate under protest, because it was necessary to keep body and soul together.

We seem to have combined the evils of both the castle and the cloister. We disregard every law of dietetics; we pay no attention to the real needs of the power-producing machines which we call our bodies. We give no heed to the high and noble possibilities, which only a perfect physique can ensure. Our tables are loaded with mixed and incongruous materials, far less digestible than the baron's roast ox. At dinner parties we eat, night after night, what is set before us, and give never a thought to the years each dinner is taking from our lives. Witness the slaughter of our public men! Can we not have the æsthetic side without sacrificing the hygienic? That we have become so careless is partly through ignorance and partly through thoughtlessness. It has been very unfashionable to consider the physiological side of the food question, and if one takes it up on the economical side, he is considered a traitor to American principles.

The advance in physiological chemistry has in the past few years shown us that non-hygienic diet has to answer for at least one-half the illnesses of civilized man. What priceless hours do we needlessly waste because of a little thoughtless indulgence, or even simply because it is the fashion to eat certain things. This is a state of things unworthy an intelligent people.

"We have not the least idea of the mischief that indigestion does us from the beginning of our lives. We say a person only suffers from indigestion, but if you cannot digest your food what do you expect to do?"*

It is stated, on good authority, that insane asylums are filled with the victims of indigestion and not with the victims of brain work.

Ask any physician what is the greatest drawback which he meets with in having his instructions carried out in the homes of his patients, and he will tell you that it is in the preparation of food.

* *Health.* W. H. Corfield.

When a typhoid fever patient has a relapse, probably, in nine cases out of ten, it is because some loving and devoted member of his family or some careless nurse, has neglected a very small precaution. It is a terrible thought, and yet we must face some terrible truths in order to remedy the trouble.

To my mind there is but one efficient remedy for this gross ignorance and misapprehension of the office of food, and that is to have the science of food (not the technique of cooking) taught in all our public schools. The advocates of temperance would accomplish far more for their cause if they would advocate this fundamental teaching rather than teaching a special topic upon which we are rather more ignorant than upon any other physiological question.

Make the simple, fundamental, well-known principles of diet a part of the natural science training in the school, add interest and point to the teaching by classes in cooking, not for the sale of the dishes prepared, although they should be well done, but for the sake of the illustrations they give of the principles taught. The brains of most of us are reached quickest through the fingers. The element of time taken enters into the permanence of the brain impression.

While we know enough to make a beginning in this line, there is great need for further investigation. We very much need another Count Rumford to awaken an interest in the scientific side of food for the people. Matthieu Williams, an eminent metallurgist in England, and Prof. Atwater, the chemist, and Edward Atkinson, the political economist in this country, are calling attention to these problems, but they must be supported by public opinion.

"This work of the purveyor and the cook—the selection and preparation of our food—requires more intelligence of its purposes and means of accomplishing them, more consideration, careful judgment and discipline than any process submitted to human supervision. Much disease and disability, much distress and great loss of working power, both in body and in mind, and even premature death, are brought upon us in consequence of the misadaptations by the provider and unfitting preparations of the cook. These, the provider and the cook, are our life makers. We are in their hands, to make us what they can or will—strong or weak, buoyant or depressed, active or sleepy, clear, bright, quick-

witted, or dull and torpid. No office has such control over human power and effectiveness as that of the housekeeper and the cook. An office that yields so much power can be filled only by persons of high intelligence, appropriate culture and thorough discipline. No office offers so wide and rich a field for the exercise of talent and scientific acquirement.

"The eater's ideal of good food generally corresponds with the caterer's. There is also a very common sort of heroism or physiological stoicism in regard to eating. People often say, with self-complacency, that they can always eat what is set before them. Our domestic animals are more favored than their owners in respect to nutrition.

"The price, in money, in the general market, or the financial value of any service, is a good indication of the world's estimate of its importance. The wages of a cook are much lower than those of the maker of our garments. The groom who feeds the horses is paid twice as much as the one who feeds the family. According to the natural law, the character of the supply rises and falls in accordance with the estimate that is put upon it and the reward which is paid for it, in this as in other occupations. The talent which can rise high avoids the food laboratory, where it is meagrely paid, and goes to the clothes laboratory, where it is paid generously." *

Though this was written fourteen years ago, is not the same thing true to-day, and is it not a reproach to the mass of educated women that it is so? I have said elsewhere, "The time has come when the same kind of care must be given to the food of the family as the stock-raiser gives to his animals. The modern stock farm has given us most of the scientific knowledge we possess on the question of foods, and this is so because it pays to know the composition of their food. Shall the human animal be considered of less consequence?" †

It would seem appropriate to celebrate the coming of age of our youngest science in some manner which shall prove of great advantage to all mankind.

* *Fifth Annual Report of the State Board of Health of Massachusetts*, 1874. p. 376. Dr. Edward Jarvis.

† *Food Materials and their Adulteration*.

It is a pertinent question to ask, what is most required in the way of sanitary effort? We have fairly good sanitary laws; we have Boards of Health and inspectors; we have the sanitary engineer proper, who attends to the construction of water works and to the draining of marshes; we have the inventor of safety appliances—alas! we have a surfeit of him; we have builders who can construct houses very perfect while they are unused. What more do we need? We need missionaries to go about among the people and show them the dense darkness in which they are living. There is knowledge enough available but “little of either fame or profit can be expected to result from this preliminary work in the field of sanitary reform.”*

Hence there is required the true missionary enthusiasm, the philanthropic spirit, and most of all a faith in the responsiveness of men and women when they are once shown “how to do it.”

We need those who are capable of showing people how to make the best of the homes they have, and of awakening a desire for better conditions. For this work there is needed a new profession, a home sanitarian, a home adviser, one who knows how to examine a house, not while it is empty, but while it is throbbing with the family life, one who can go the daily rounds with the house mother, and suggest many little points which make or mar the healthfulness of the home.

This is an office which the busy physician can never perform and which, until the physician's training is different, he is not, as a rule, competent to perform. The sanitary engineer, as at present trained, does not fully meet the requirements. Why should there not be the trained doctor of the home, as well as doctors of medicine? There are training schools for nurses; why should there not be training schools for home sanitarians, or better yet, since, beside a general knowledge of the laws of health, there is needed for this work a practical knowledge of the laws of chemistry and physics, so far as they relate to combustion, and to the movements of air and water, and especially a knowledge of the chemistry of food and nutrition, why should there not be a course in sanitation in the technical schools and the colleges? I believe that the University of Edinburgh does confer the degree of bachelor of

* *House Drainage.* Bayles.

science in the department of Public Health, and why should there not be a department of Home Health in American universities?

In this plan the family physician must co-operate, and since preventive medicine is slowly but surely making its way, in the not very distant future the two offices will be united and every family will have its physician paid by the year to keep its members in good health in so far as they will take proper care of themselves. From the eagerness with which mothers seize on anything which they feel will help them in their homes, I am led to believe that if some of the college-bred women would take up the profession of home sanitation or of sanitary adviser to the community in which they live, the result would be of the greatest benefit to the country.

That this is not beyond a woman's powers has been abundantly proven, and while this new profession ought not to be limited to women, yet in many of the points indicated improvements can only come through the better education of the housekeeper, and this requires teachers who are familiar with the difficulties with which the housekeeper has to contend.

Let the scores of young women who are looking to medicine as a wide field of usefulness go a step farther and add to their medical course a thorough training in preventive medicine and home sanitation. When this is done we shall soon see a reform in daily living worthy to usher in the twentieth century.

