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LICEAGA (E.)

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# ADDRESS

to the

MEMBERS OF THE

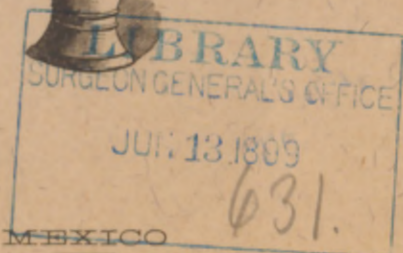
## AMERICAN ASSOCIATION OF PUBLIC HEALTH

— BY THE —

CHAIRMAN OF THE LOCAL COMMITTEE,

E. LICEAGA,

President of the Superior Board of Health,  
Professor of Operations in the National School of Medicine,  
Director of the Hospital of Maternity  
and Infancy, &c., &c., &c.



PRINTING OFFICE OF F. P. HOECK,  
1st. San Francisco Street No. 12.

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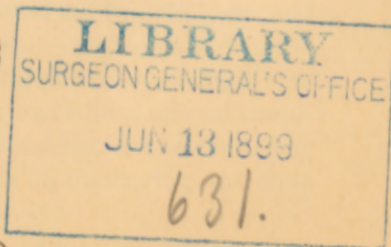
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MR. CHAIRMAN OF THE ASSOCIATION, MR. MAYOR,

LADIES AND GENTLEMEN:

THE Executive Committee of the American Association of Public Health having honored me with the appointment of President of the Local Committee of Arrangements, encharged by the Statutes with the preparations for its annual meeting in this Capital, my first and most agreeable duty is to give public expression to my gratitude for so unmerited a distinction.

Using the powers which the appointment carried with it, I organized a Local Committee of Arrangements consisting of the members of the Board of Health, and Drs. Ramón Icaza and Manuel Gutiérrez, both of whom were already members of the Association, and of other prominent gentlemen, such, for instance, as the Minister of Communications whose official standing and personal worth I judged, and judged, as the event has proven, rightly, would aid powerfully in furthering the ends of the Committee.

Each member was empowered to appoint as many assistants as he saw fit for the discharge of the duties allotted to him.

One of my first cares was to inform the President of the Republic and the Minister of the Interior of the decision of the

Association to hold its meeting this year in the City of Mexico and of the distinguished honor that had been conferred on me. It is most gratifying to me to state that the Chief Magistrate of the Republic entered enthusiastically into the plan, promising me his best assistance in the despatch of our preparatory labors. He was pleased, moreover, to apply to the Legislature for an appropriation to defray the expenses most urgently demanded, and to send a letter to Governors of States urging them to appoint delegates from among the members of the Local Boards of Health to attend the meetings of the Association. It is, therefore, another of my duties on this occasion to pay a public tribute of acknowledgement to the illustrious Chief of the Mexican Executive for his powerful aid to the Committee which I have the honor to represent.

It is also a duty to return my cordial thanks to the Minister of the Interior, who, both in his official and private capacities, has aided with his advice and personal resources in organizing some of the pleasure trips which we shall offer to our esteemed visitors.

My thanks are likewise due to the City Council, to the Drainage Commission and to the representatives of the contractors who have so kindly given the members of the Association an opportunity of inspecting this important Hygienic work, to the Jockey Club, to the Railway Companies for considerable reductions in fares, and to all the gentlemen who consented to act on the committees.

On inquiry of the Secretary of the Association as to whether the local Committee was entitled to send out invitations on its own account an affirmative decision was obtained, and, in consequence, invitations were addressed, through the Consuls of Mexico, to the Republics of Central and South America, to the Island of Cuba and the other West Indies, to the Governors of the States of the Mexican Union and to all the physicians and sanitary engineers in the Republic.

The Argentine Republic alone has forwarded, through our diplomatic representative there, a complete set of published

treatises on hygiene. Venezuela and Guatemala promised to send contributions, which, however, have not been received. The Governors of the States replied that their delegates would contribute essays, some of which have not as yet come to hand. Two hundred and fifty physicians of the capital city and the Interior and a few sanitary engineers signified their intention of being present at this meeting.







MR. MAYOR,

HONORABLE REPRESENTATIVES OF THE CITY OF MEXICO:

I have the honor of introducing to you the members of the American Association of Public Health, our distinguished colleagues of the United States and of the Dominion of Canada, as well as our own fellow citizens. All of them have left their business and their homes, bearing hither their store of wisdom and experience wherewith to further the great work which the Association has in view, and conferring on this city the distinction of being chosen as the scene of their annual labors.

In the name of the Superior Board of Health, which invited you to hold your meeting here and feels honored in your acceptance of that invitation, I extend a welcome to the Association of Public Health and express the hope, in which all my colleagues unite with me, that the brief stay of its members in our midst may be in every way agreeable.

Gentlemen, it is to me a source of the purest satisfaction to see you come from distant lands, animated by the noble resolve to shed on all sides the light of science and to help the nations of the earth to a better understanding of the blessings of hygiene. You come like apostles of the Gospel of Science

to preach on the time-honored Hippocratic text "*Mens Sana in Corpore Sano*," to show that to make men healthy is to put them on the right road to being good (1), to remind mankind that Nature furnishes us with light and air in lavish abundance (2), that pure water and good food preserve health and lengthen life (3), that the clothes which cover us must not incommode us, and that the dwellings in which we seek protection from the extremes of heat and cold must be so disposed, and the ground on which they are erected so drained, as not to become a source of harm to their inmates (4).

The inevitable refuse of men and animals is a source of many diseases when it is allowed to accumulate and putrify near us, and you show us how to dispose of it without injury either to ourselves or our neighbors (5).

The factories which cater to our wants, which are the life and soul of commerce, and constitute so important a factor of national wealth, discharge into rivers and drains, or scatter far and wide in the atmosphere, substances injurious to health or offensive to our senses. The health of factory operatives may be impaired by emanations from the material to be worked up, by the nature of the substance to be handled, by an insufficient supply of air, by excessive hours of toil. The nature of the labor may be such as to imperil life itself, as in underground mining or the handling of explosives.

It would seem hopeless to attempt to combat the numberless evils that beset the life of the operative—a class which constitutes the bulk of the population of every large city,—and yet Hygiene is always on the watch, marking every peril, and telling us through you how to obviate them and how to prevent capital from over-riding the claims of humanity.

But what is to be said of the diseases that from time to

(1) Dr. Formento—Dr. Septien.

(2) Dr. Geo Homan.

(3) Dr. Kedzie.

(4) Dr. Kedzie—Dr. Corlett.

(5) Dr. Chapin—Dr. Hoyt.

time afflict and decimate the human race? Is not history present to attest the small progress that has been made in combatting the worst of those diseases, when they appear in the epidemic form? Have we not before our eyes the sad picture of cholera killing half of those on whom it lays hold? True. But, on the other hand, we see Bacteriology patiently at work, discovering the germ which produces those diseases, the conditions under which it lives, thrives and propagates, as well as those which are antagonistic to it and of which we must avail ourselves in combatting it. No, gentlemen, we are not entirely impotent in the presence of disease, for some we can master, others mitigate, and yet others abridge. But, above all, it is given to us to ward them off, to prevent their development and propagation. For this the Natural History of Disease has been slowly built up by the labors of physicians in every age and every clime,—a goodly foundation which Science has bequeathed to us and on which the structure of modern progress has been reared. Observation is ever patiently at work, noting symptoms, watching the progress of diseases, marking their termination, the proportion in which they prove fatal, the climates and places most favorable to their development, the influence of seasons, of age, sex, condition and employment.

Look at the history of the great epidemics that have swept the earth, with death and mourning in their wake, that daunt the weak and paralyze the energies of the timid, and you will see, in the midst of the panic-stricken throng, the man of science, calm and self-possessed, studying the characters of the scourge, inquiring whence it came, how it spread, what strength it draws from air and soil, how Nations and Governments must act to protect themselves from future visitations.

This is what hygienists have always done: witness the measures laid down in the Mosiac Law at the dawn of ages.

History still preserves record of the stringent and efficacious laws which in the Middle Ages almost stamped out leprosy,—barbarous measures, it is true, but proving beyond all

manner of doubt that, though to cure diseases is hard, man has it in his power to avoid them.

It appals us even now to read of the measures taken against the Plague. Yet the Plague has been blotted out from the face of the earth. How terrible the means employed to accomplish that end! Isolation carried to the extent of sequestration, the loss of civil rights, enforced celibacy, the severance of family ties—in a word, the sacrifice of the individual to the good of the community!

Our milder customs, our ampler resources, enable us to carry onward the work of our forefathers in a different form and justify us in hoping that our descendants will acknowledge their indebtedness to us for their deliverance from cholera, from yellow fever, from diphtheria and from typhus.

The immortal Jenner taught us how to ward off the smallpox, a disease which, with the lapse of time and the growth of enlightenment, will die out from among mankind.

Pasteur, the glory of our times, has taught us, too, how to render innocuous the bites of mad animals.

Pasteur, pointing to the atmosphere as the habitat of pathogenic germs, and Lister, that benefactor of humanity, warding off those germs which poison and render fatal the wound where they find a lodgment, have taught our modern savans to look to science for the means of forecasting and baffling disease.

Bacteriology is the hope of hygiene both now and for the future (1). It will discover germs as yet unknown, will continue to study the Natural History of those that are known, and when it has found out their mode of generation, their habitat, their nourishment, the conditions under which they thrive, and, above all, those under which they die off, then it will be in a position to place more effective weapons in the hands of Hygiene.

When the day comes on which we shall know the conditions which render the life of each class of microbe difficult or

(1) Kellogg.

impossible, and the natural or chemical agents capable of destroying them, then all that Hygiene will have to do will be to produce those conditions or to apply those agents.

But, I shall be told, all this is a mere dream, an unattainable ideal. I answer, No. The territory we have won is an earnest of still wider conquests. Already much has been made clear as to the cholera bacillus. It is known to penetrate into the human organism through the alimentary canal, to live and propagate in the juices of the stomach and intestines, when they are in an unhealthy condition, but not when they are sound. It has been proved that the germ is contained in the discharges of patients, that those discharges contaminate water and soil, that water, in particular is a favorable medium for its cultivation and propagation, and that a damp soil is also propitious to its development. Hygiene avails itself of all these facts, as it has done of late to check the ravages of the epidemic in Europe. Clinical science teaches us that the germ of tuberculosis cannot thrive, except precariously, at considerable altitudes (1), that abundant air and light are the best preservatives against the Koch bacillus, and that darkness, insufficient air, bad food, and an undermined constitution, are the agents which give it potency. We have learnt from science that the microbe finds its way into the human body through the organs of respiration or the organs of digestion in milk and in food, through wounds or abrasures (2), which either maintain it locally or transmit it to the lymphatic glands. Equipped with this knowledge, Hygiene busies itself in curing the sick, in isolating patients, in erecting *sanatoria*, in taking measures to stop the spread of the disease. No; the feasibility of arresting disease is no longer an unrealizable ideal.

The comma bacillus, the Koch bacillus or bacillus of consumption, the bacillus of typhus, and the diphtherial poison,

(1) Le Plateau Central du Mexique (La Mesa Central de México) considéré comme station sanitaire pour les phthisiques. Mémoire lue par le Docteur E. Liceaga au Congrès International de Berlin, Août, 1890. Berlin.

(2) Dr. Corlett.

part with their virulence at temperatures exceeding  $75^{\circ}$  C. and, without doubt, are totally pasteurized when subjected to temperatures of  $100^{\circ}$  C.

The destructive action of acids on the germs of these diseases is a fact completely established by bacteriology and clinics.

The action of solutions of bichloride of mercury and sulphate of copper on the comma-shaped bacillus is also well ascertained, as is also that of phenic acid on the Eberth microbe and that of a concentrated solution of the same on the Klebs microbe.

By a careful application of these natural and chemical agents the destruction of germs is assured and the spread of bacterial diseases avoided.

If we are to form an accurate estimate of the province of antiseptics in the extinction of infectious diseases, we must survey their marvelous results in the department of surgery. By dint of sagacious and patient observation, Lister arrived at his theory of antiseptical surgery. In the paper read by him before the British Medical Association, at Dublin, on August 9th., 1867, he enunciates his theory as follows: "But inasmuch as the experiments of Pasteur have shown that the air does not derive its deleterious properties from oxygen or any other gaseous elements, but from certain inferior organisms which it holds in suspense, it occurs to me that it would be possible to prevent the putrefaction of wounds by excluding air from them and treating them with substances destructive to the particles which float about in the atmosphere."

Such was the beginning of antiseptical surgery, which, in the space of twenty-five years and in the hands of the most eminent surgeons of the civilized world, has succeeded in completely revolutionizing the whole practice of surgery and in diminishing the seriousness of wounds, and the number of deaths arising from them, to an extent that would appear incredible were it not for the testimony of statistical returns recognised as unimpeachable alike by foes and friends.

By excluding from wounds the pathogenic germs which once poisoned them, we are able to avoid suppuration, septi-cæmia, pyæmia, hospital gangrene, erysipelas etc. The antiseptic method as applied to obstetrics has put an end to the disastrous effects once wrought by disease germs in women during the period of labor and which at one time caused such ravages in maternity hospitals that the idea of closing those establishments was seriously entertained.

The aseptic and antiseptic methods are now complete masters of the field of surgery, but to accomplish this result what difficulties had they not to contend with! The opposition which every innovation arouses had to be overcome. Men ridiculed the rules laid down by the founder of the method requiring the use of the silk protective, the folding of the bandage saturated with phenic acid a given number of times, the application of mackintosh, the enveloping of the whole with cotton-wool, etc., without remembering the object underlying these minute precautions, viz, the exclusion of disease germs from the wound, without reflecting that the first steps were being taken in a new science, that the details were not identical with the method.

When the world had assimilated the idea, the skill of practised surgeons was applied to the simplification of the details, while the investigations of thousands of scientific men are ever carrying the method nearer and nearer to perfection.

The results have more than compensated the labor spent in obtaining them.

The task now to be accomplished is to apply the practice of antiseptics to other transmissible diseases. If the germs which produce those diseases are similar to those which poison wounds, they can be destroyed before they attack men or animals.

Let us apply the theory of Lister to disinfection. Cholera is a transmissible disease; the discharges of patients contain the comma-shaped bacillus; apparel tainted with those dis-

charges harbors it and may transmit it to our persons and thence to our food. But the domestic water supply is the great vehicle of infection, owing to its constant use for drinking and in cookery. The soil furnishes a congenial home to the germ. But, on the other hand, the only way by which it can penetrate into our organism is through the digestive organs. Let these be in good condition, let the juices of the stomach be in their normal state of acidity, and we are in possession of the real antiseptic agent furnished by Nature for our protection. But when the stomach or intestines are unsound, their secretions form a congenial element for the microbe. Then it is that it multiplies and produces the disease.

It thus appears that, in the healthy condition of the body, the gastro intestinal juices are the primary antiseptic agent furnished us. But we are enabled, too, to destroy the germs before they reach our organisms, just as Lister destroyed the germs capable of finding a lodgement in wounds. As soon as discharges are produced, we can treat them with the solution of sulphate of copper, of phenic acid or bichloride of mercury in suitable proportions. If the discharges have tainted the soil, we can counteract their ill effects with the disinfectants named already or with limewater or chloride of lime. If mattresses, bed-clothes, underwear, hangings, &c, have been soiled let us not neglect to subject them to the action of the steam disinfector where the combined heat and pressure will exterminate the bacteria. If our hands have been polluted, let us be sure to wash them with a solution of phenic acid, before carrying them to our lips. If there is any possibility of our water-supply having been contaminated, we must not fail to boil it, for ebullition deprives the bacillus of all its virus. The same precaution must be taken with milk and all other susceptible liquids.

As the soil, under favoring conditions of heat and moisture, is known to harbor the germ, we must take care, in times of epidemic, to avoid low-growing plants as well as fruits and everything else likely to have been in contact with the ground.



Such are the counsels contained in every publication on the subject, and, in reality, they are nothing more than principles of aseptics and antiseptics applied to the case of a bacterial disease. If the practice of antiseptics is of the highest value in protecting wounds from noxious germs, why should it not prove of equal efficacy against the organisms producing contagious diseases? Clinical operations have proved it in practice and bacteriology has demonstrated it scientifically in the laboratory. Our duty as hygienists is to proclaim the supreme utility of disinfection, to call into use against each microbe the antiseptic that will most surely destroy it, to inspire our colleagues with our own unshaken faith, and, above all, to preach the creed contained in the following words: *Just, as in practising laparotomy, in order to enjoy the security that septic peritonitis shall not supervene and snatch away our patient, it behooves us not only to know that aseptics and antiseptics are useful but to have undergone a long course of practice in their use and acquired an absolute mastery over all the details of the operation, so, in the case of disinfection, we must become familiar with our weapons and learn how to wield them with the same precision as in surgery has been attained by such men as Lister, Billroth, Volkmann, Bergmann, and their compeers, who are indebted to the system of disinfection for their most signal triumphs in the performance of difficult surgical operations.*

But there is one difference between surgery and hygiene, as considered in relation to disinfection, which must not be passed over, for in sanitary science—a science of pure application—it is of the highest importance to understand thoroughly the practical side of the problem. The difference in question is that, while, in surgery, the application of the disinfective method is performed directly by men who have spent the better part of their lives in studying the theory and practice of operations, sanitary disinfection has to be carried out vicariously, by men who, having had no scientific training, do not adjust their work to scientific rules. Such, for ins-

tance, are the men entrusted with the disinfection of dwellings, furniture, hangings, upholstery, &c., of ships or infected portions of ships.

But these men are but the necessary instruments, and the man of science must guide their hands while engaged in the process of disinfection, must furnish them with minute instructions, must put them through repeated lessons until entire familiarity is attained.

On the other hand, the disinfection of mattresses, bed-clothes, underwear, and the articles technically known as susceptible, is performed by means of the steam disinfector, an apparatus which does its work with entire perfection.

The principle that it is easier to prevent disease than cure it is older than medicine. The sacred books of India and the Book of Genesis are the earliest witnesses to the existence of that principle. Hygiene has always formed an integral part of medical science and the Hippocratic works are full of it. But Sanitary Science, as at present understood, is quite modern and its progress has been so rapid that the degree of perfection attained in the sanitation of cities constitutes to day the great standard whereby the civilization of nations may be estimated. The eagerness of scientific men to extend their knowledge in this science is evinced by the fact that 8 International Health Congresses have already been held. To night's assemblage is itself a signal proof of the tendency of modern hygienists to widen their field of observations.

If there be any one who still persists in believing that it is not given to man to diminish the number of diseases, to prolong human life and to ameliorate the condition of the race, he would surely be disabused of his error if he saw this small army of the most eminent authorities in sanitary science from every State of the American Union and the Dominion of Canada, who, leaving their homes and their affairs, have travelled thousands of miles and assembled in this spot with the purpose of contributing by their teachings to the improvement of the health of Nations. It is absurd to suppose that a mere



