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THE
SANITARY PROTECTION
OF
NEW ORLEANS,

MUNICIPAL AND MARITIME.

BY

JOSEPH HOLT, M.D.,

President of the Board of Health of the State of Louisiana



READ BEFORE THE AMERICAN PUBLIC HEALTH ASSOCIATION,
Washington, D. C., December 10, 1885.

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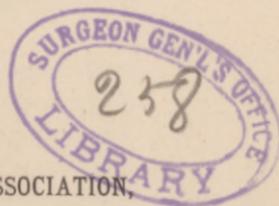
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IN order to avoid the error of prolixity—that unpardonable sin against intelligence and imposition upon amiable endurance—I shall present the subject of this paper in the form of generalizations, in the exposition of principles underlying action, rather than the narration of plans and specifications of municipal drainage and sewerage of buildings, machinery, and general paraphernalia of quarantine stations in weary detail.

Furthermore, to particularize and to dwell upon our achievements longer than to state that the health authorities of Louisiana, acting in perfect accord with advanced sanitarians of our country, sustained and encouraged by the moral weight of their consent, have enforced in practice the established doctrines of sanitary science, would savor of boastful pretension foreign to the purpose of this paper and contrary to the spirit of the Louisiana State Board of Health.

With feelings of humble gratitude, not of pride, we declare our earnest belief that, guided by the light of preventive medicine, of this star newly risen in the firmament of our destiny, in the adopted methods of "*maritime sanitation*," we have given to the people of New Orleans a new hope; to the people of the Mississippi Valley the highest known guarantee against the introduction of pestilence; while at the same time we have removed from commerce a bar heretofore insuperable.

The systematic sanitation of New Orleans is grand, almost limitless in possibilities, in realization prospective, a great achievement in the future. Its status is identical with that of faith, "the substance of things hoped for, the evidence of things not seen."

On account of geographical position, its nearness to the tropic, and location on the edge of the Gulf of Mexico (a vast body of warm water), together with its situation on a low swamp soil or alluvium, New Orleans, of all cities in the United States, requires a most thorough system of drainage and sewerage, as the foundation of health and comfort, upon which her hope of prosperity depends.

The exactions of sanitary law, imposed by a combination of physical conditions—high temperature, excessive humidity, lack of natural drainage, low situation, almost on a sea-level—are peremptory and severe.

Disobedience, whether the excuse be ignorance, poverty, or negligence, is more certain of rebuke than a like transgression on the part of communities in higher latitudes.

We are an unfortunate demonstration that justice, in the realm of Nature, is indeed blind, and her scales out of balance ; that even Nature is partial in the execution of judgment for violated law. Those negligences which she allows as mere venalities in Washington, New York, Baltimore, or St. Louis, become most heinous and outrageous violations in the case of New Orleans.

To illustrate this, let us for a moment suppose Chicago and New Orleans, moved by some gigantic force, suddenly to exchange places, the sanitary condition of each remaining the same !

Upon the approach of the so-called danger period of next summer, which city, do you imagine, would look forward to the time with anxious foreboding, tinged with terror, and which with a smile of complacency ?

This explanation of the relation of New Orleans to sanitary law is not offered as an apology for existing conditions. On the contrary, it stands in judgment against us ; for, however just or unjust, Nature is unmoved by sentiment, nor can the course of natural law be altered by apology.

Of us is much required, and there is no extenuation nor appeal ! Her demands are imperative, and must be satisfied.

Let none of my remarks be interpreted as disrespectful of Nature, or as taking her to task for the unequal distribution of the consequences of violated law.

Being a citizen of New Orleans, gentlemen, I am afraid of

Nature. She is a loving mother to you, but a step-mother to us. Generous to a fault, she lavishes upon us in wasteful profusion her precious favors. She gives us in abundance the best of food ; canopies us under skies of softest tint ; fans us with balmy breezes, and decorates herself in perfumed robes of loveliest flowers, in the ample folds of which she carries, concealed, a rod, ready with a will to lay it on.

With natural advantages of a kind such as, with care on our part, would soon make New Orleans a desirable place of abode, second to no maritime city in the world, we have the highest double incentive to effort, the richest reward for intelligent, persevering, laborious obedience on the one hand, and certainty of punishment for inaction on the other.

But let us placate Nature by singing her praises, if she is not equally insensible to praise and anathema. She is kind ! she is indulgent and considerate !

Seeing how little we have done to help ourselves, it is a matter for congratulation and of astonishment that consequences have not been more severe.

However ready in the inflictions of chastisement, Nature is constantly working in our behalf. We have neglected to provide adequately for the removal of sewage matter, while she continually tries to condone the fault by the destructive process of oxidation. She has generously washed our streets and back-yards every day, for weeks at a time, with millions of tons of pure, fresh water, and has never yet presented a bill for her services.

Having no sufficient drainage or sewerage, we would long since have been in woeful plight but for this constant operation of natural law in providing ways and means for our preservation.

It is a glorious tribute to the philanthropic zeal of sanitarians, and a positive demonstration of the effectiveness of their labors, seconded by the mighty power of an intelligent press, that the people of New Orleans are progressing in practical knowledge appertaining to public health and comfort, at a rate exceeding the expectation of the most hopeful of ten years ago.

Under the constant attrition of teaching, this continual iteration of precept upon precept, line upon line, here a little,

there a little, the whole mass of population is becoming progressively comprehensive of their necessities, more intelligently appreciative of their surroundings, of the causes of discomfort predisposing to sickness, and impressed with an earnest desire for improvement.

As a people we are venturing upon the high-road to reformation. The popular sentiment is becoming responsive to the guidance of science, and appreciative of the value of preventive medicine.

The educational process is at best a slow one ; even with an individual often tedious ; how much the more slowly progressive must we expect to be the movement along new channels of thought, in the acquisition of ideas projected upon higher planes of knowledge, the vast intellect of a great city !

New Orleans is moving onward and upward to achievements which shall place her, by universal consent, in the position she should rightfully occupy among her sisters, in the foremost rank of American cities.

Holding the thread of her own fate, her destiny must be self-determined. At this moment she is moving to the establishment of systematic sanitation to overcome the defects which have cost her so dearly. Even now the main question of providing ways and means for the efficient drainage and sewerage of the city is being urged with a general interest and earnestness which foreshadow substantial results.

The proposition is being discussed of creating a Board of Public Works, untrammelled by political entanglements, and not subject to the changes incident to party warfare—a board composed of citizens chosen for their integrity, clear judgment, their zeal and efficiency as public-spirited men.

Such a body, constituted for an ample period, with associate engineers competent to give expert consideration to all phases of the problem, would soon formulate a general plan, which would be carried out, step by step, with immediate amelioration of present necessities, in the direction of permanent improvement and relief, and that without creating a debt or requiring the levy of a burdensome tax.

With a comprehensive plan under such supervision, every dollar would be accounted for and placed where it could do the greatest public good.

The sanitary redemption of New Orleans from being a dream of the future would soon become an assured fact. An era of prosperity would open upon Louisiana with such a golden radiance as would send a thrill of unfeigned joy into the heart of every American, whose national pride and patriotic love of this glorious unity is generous, and as broad as the scope of this broad land, which is his heritage.

THE SANITARY PROTECTION OF NEW ORLEANS—MARITIME.

Maritime sanitation has taken the place of quarantine on the sea-board approaches to New Orleans.

The term is in itself a complete acknowledgment and a declaration of allegiance to the germ theory of the great pestilential infections, just as the word quarantine carries within itself the essential idea of prolonged detention; a virtual acknowledgment of utter ignorance of all the conclusions established by modern observation of the phenomena of these diseases, confirmed by microscopic research and experimental tests in the announcements of Pasteur, Koch, Klien, in the voices from the far regions of the tropics, Carmona, Freire, and their able coadjutors, and last, but of the first magnitude in this blazing galaxy of lights, Sternberg!

The inevitable conclusions deduced from the observed conduct of these diseases have compelled the germ theory* of their nature.

It is no ingenious figure of the imagination, but a doctrine hammered into shape by sheer force of logic. Every phenomenon of measles, scarlatina, diphtheria, small-pox, cholera, and yellow-fever gives a sledge-hammer blow, driving into us the idea of a living organism, a definite entity, as the essential cause of each, differing in kind according to the disease.

Laying aside certain hypercritical sophistries and the off-hand denunciations of constitutional objectors, even against Jenner himself, we may now declare that the germ nature of these diseases has passed from the form of a diluted theory into that of a crystallized fact, so that, in contending against the introduction of pestilence along the highways of commerce, we now no longer oppose mysterious phantoms with the suggestions of superstition, but fight a real and defined.

enemy with substantial shot and shell, so to speak, potent to destroy.

Even in our municipal management bonfires of tar-barrels, religious processions, and long-drawn prayers no longer count as disinfectants. These methods have swamped us invariably. Their failure has compelled us to rely upon the intellectual spirit within ourselves, and to change the personality of our enemy.

We no longer fight the machinations of the devil, or the devil himself, but a microscopic germ—a living ferment—a little leaven, which if not speedily destroyed soon "leaveneth the whole lump."

If there is any truth in the germ theory—and no proposition admits of clearer proof confirmed by demonstration—then may we confidently declare that "*Maritime Sanitation*," as conducted in the stations of Louisiana, is worthy of reliance in offering the highest relative guarantee against importation.

If the essential element or originating principle of small-pox, yellow-fever, and cholera can be demonstrated to exist within a definite and circumscribed limit, as in the field of a microscope, on the point of a scalpel, within the compass of a hypodermic syringe or the hull of a ship, and is capable of indefinite extension beyond that limit, it is conclusive that the essential cause or virus, having power of extension, can only do so by reproduction. It is, therefore, a living entity; and being definable *in loco*, it can be destroyed *in loco*.

This is the sum of all the law governing maritime sanitation.

The hypodermic syringe or the infected ship we may destroy with fire; the pestilential infection within will likewise be destroyed.

The same line of reasoning extends to other agents than fire. If every known organic form of life can be destroyed with the bi-chloride of mercury, the concentrated fumes of sulphurous acid gas and exposure in the superheated steam-drying chamber, the conclusion is inevitable that hypothetical organic forms can also be destroyed. Seeing the germ satisfies the intelligence and confirms belief, but is not essential to the validity of disinfection.

To strengthen every part of this position, we have accumulating assurances that these sometime hypothetical forms *are*

being isolated, cultivated, photographed in testimony of their reality.

Under a pressure of inconceivable intensity carbon, in a vague and unsubstantial form, suddenly crystallizes into a hard and sharp-cutting fact, called the diamond ; so may these assurances of experimental microscopists, under the prodigious pressure of unbelieving opposition, crystallize into ascertained facts, into sharp-edged brilliants, wherewith we may yet be enabled to cut the bands which have fettered the human race under the bondage of pestilence. The experiences of Jenner may yet repeat themselves.

When the decks, cabins, fore-castle, hold, bilge, and every available part of a vessel, together with all the baggage and apparel of every person on board, has been thoroughly wetted with the solution—one to one thousand—of the bi-chloride of mercury, and the entire atmosphere within displaced with the concentrated sulphurous acid gas, we have availed ourselves of the highest assurance as yet offered by science in the practicable and speedy disinfection of a ship. At present there is but one guarantee of a more positive kind—total destruction by fire.

When the process has been accomplished by the use of apparatus competent to do the work, there remains but one source of danger in the subsequent outbreak of the disease, cholera or yellow-fever already incubating in the system.

Here again the entire weight of testimony, established by such exact observations as furnish a scientific test, confirmed by the experiments of recent investigators, shows that the deadly ferment of these two diseases, once received into the human system, is not dilatory or uncertain in its incubatory movement, like that of small-pox, diphtheria, scarlatina, or hydrophobia, but, like the mortal virus of the cobra, is almost explosive in the rapidity of its action.

That a person should move about in the routine of his daily life, for days or weeks, with the germs of yellow-fever engendering in his blood, as of cholera upon the mucous surface of the intestinal tract, and the victim, unaware of his disorder, is contrary to expectation, to common-sense, and to all the teachings of carefully guarded observation and scientific research.

However common the reported cases of prolonged incuba-

tion, in every instance clearly ascertained movement of exposure, and in the experimental tests declared to be true, the period of incubation has been remarkably short: usually within forty-eight hours; never beyond three days.

Several occurrences in our quarantine experience of the past season have been singularly corroborative of this statement.

To give ample margin, however, and to keep on the safe side of possibilities, if a vessel has cleared from or touched at an infected port we detain her five days.

In the case of a vessel actually infected, she is remanded to the station provided for such vessels only, where she is treated with exceptional rigor, and held for a period of seven to ten days, from the date of removal to hospital of her sick and completion of the disinfection.

Under any other system than that of sanitation of the most exacting kind neither days nor weeks of detention can afford reasonable safety. Instances of failure can be multiplied to weariness. One of the latest will suffice: Cholera broke out in the harbor of Toulon on a ship from Saigon, in Chinese waters, where she had been exposed to cholera several months before, without cases in the interim.

Yellow-fever and cholera are due to living organisms. To destroy these directly is the object of our efforts.

I declare my conviction that the bi-chloride of mercury is potent to effect their instant destruction, and that it possesses every qualification as a disinfectant, above all others, to be desired.

Moving in the line of its reputation established in surgery, it is equally to be relied upon in municipal and maritime sanitation. Pre-eminently a germicide, colorless, stainless, odorless, not injurious to fabrics, perfectly safe to handle for months at a time, and exceedingly cheap, it is impossible to imagine a substance more efficient, and free from objection in practice.

The addition of a little indigo to the solution will abundantly warn any one against drinking it, the only danger that might attend its use.

Having had under observation a considerable body of men working in it daily, as though it were rain-water, and ships making repeated voyages, and upon each return drenched with it without injurious effect, is the highest testimony of its safety.

Unincumbered with objections which belong to other disinfectants, through the efficiency of this agent we are enabled to transfer the war against pestilence to a higher plane of decisive action, and to wage a fight, whether on ship-board or in town, in every respect parallel with that of fighting fire.

The surest preventive of a conflagration is to quench the first spark ; the surest preventive of an epidemic is to act upon the mere possibility of the existence of infection.

Not proclaiming itself by such outward evidences as light and heat and smoke, but incognizable to the senses, we must wage fight upon the *suspicion* of a pestilential manifestation.

In maritime sanitation we subject to treatment every ship coming from cholera or yellow-fever regions, regardless of bills of health, however clean ; while in municipal sanitation we attack, *in loco*, the slightest signs of these diseases.

To cite an instance : Small-pox declared itself in nine distinct foci during the past winter in the most crowded parts of this city. Being treated with these agents of destruction, applied with the extremest exaction of scientific requirement, the disease did not spread beyond the room of the primary cases.

If the schedule of symptoms in a single case is such as would indicate and be diagnosed cholera or yellow-fever during an epidemic of one or the other of these diseases, we act promptly in the enforcement of isolation and precautionary measures of disinfection, as though assured of the worst.

While willing to call the case "*suspicious*," we are determined to have no second case to confirm the nature of the first. Ceasing to be sticklers, for an exact diagnosis, we are content to resist even the appearance of evil.

Intangible, imponderable, unrecognizable by the unaided senses, and even with the best of aid only to the trained master in microscopy, the subtle nature of the essential agent of pestilence compels in practice the retention of the term "*suspicious*," as applied to first cases of which we cannot be positive ; the term must be retained, however much it may provoke harsh criticism and angry censure of those engaged in trade.

These demand that there shall be no report until every doubt is removed, and the nature of the disease confirmed,

which can only be in the repetition of cases and hopeless consignment to an epidemic.

It would be indeed a sorrowful recital to recount the disasters wrought through the powerful influence of a hideously selfish and depraved trade interest.

This narrow-minded, cold-hearted element is found in every business community, and in some is predominant.

Ignorant, arrogant, utterly unscrupulous in the means to attain its ends, pretending to exceptional respectability while inciting the popular hue-and-cry in its behalf, it essays with malignant vehemence, upon occasion, to subordinate all authority, every principle of honor, of humanity, and of prudence, bending all honesty, all obligation, and all law to the purposes of its own will—the *will* of a class, of whom it has been said, "Their ledger is their Bible, and gold their god."

Feeble-spirited and superserviceable health authorities and even bureaus of government, timorously submitting to the dictum of this unrighteous mammon, have suppressed the truth; have falsified reports; and have consigned States and nations to the ravages of unresisted pestilence, when thousands of lives might have been saved, at least, by flight, and distant communities, forewarned, might have protected themselves.

Witness the outrageous transactions in France, Spain, Italy during the last few months, and the repeated occurrences in cities of our own land, in times gone by.

As custodians of a sacred trust, health authorities must be true to their allegiance, and that allegiance demands perfect candor and timely warning to the people; not only of a community, but of all communities whom it may concern. Yea, more! This principle of action should be woven as a living thread into the texture of international relations. It should exist as an essential element in the comity of nations.

Health authorities must be courageous and ever ready for any sacrifice in resisting and putting under foot the insolent power that would make of them instruments for perfidious service.

The subject of this seeming digression is so woven into the affairs of practical municipal and maritime sanitation as to

necessitate its fullest recognition as an incorporated part. Burdened with annoyance and tempestuous contention if resisted, it is well baited with tempting morsels, set in snares of disgrace, if allowed.

Let the world beware of a board of health with commercial alliance in a line of policy.

A board of health with policy is a board without truth ! The one must subordinate the other.

As sanitarians and officers in the health trusts of the people, we are working in the teachings of the Great Master.

We cannot serve God and Mammon.

The relation of New Orleans to its sanitary protection involves the welfare not only of the city and State, but of surrounding States and of the Mississippi Valley.

To express in its simplest terms the direct dependence of the city upon its health protection, let us suppose these questions propounded by you at this moment : Why is New Orleans as it is ? Why not more progressive—a manufacturing and general industrial as well as a commercial city ? Why does not her commerce sweep the circle of the world at all times ; and, considering her age in relation with the age and growth of other American cities, why has she not a million of inhabitants ? I would promptly answer you in a compound word—*Yellow-Fever !* The visitations of small-pox and cholera have not afflicted us to retard our growth more than you yourselves have felt them.

The difference is due to one thing only—to a something superadded to the general sum of human miseries, which you have not.

The whole life of that people has been touched corruptibly with the venom of the yellow plague, oozing as an exhalation from the hovering pinion-tips of the Angel of Death ! the malignancy of hell on earth's potential !

To pluck from those hateful wings the plague-distilling quills, above the reach of mortal hand, may yet be done by science.

Moving in paths of her selection, the energies of the people will surely accomplish the redemption of New Orleans.

Under her instruction we are concentrating in our defence the whole armament of germ-destroying agents ; while, under

her instruction, Freire and Bourgeron, in Brazil, Carmona and his distinguished pupils throughout Mexico and at Panama, all of them in the nursery and hotbed of yellow-fever, pursuing their researches in the lines indicated by Pasteur, but first by Jenner, are piling up evidence in such irresistible masses, and all with the sanction and indorsement of their respective governments, as to command the hope that our salvation is even now at the threshold.

The promises of immunity by the inoculation of the essential germ or agent causative of yellow-fever are freely offered us.

Every demand of humanity and prudence compels a thorough investigation of this question.

To pass judgment *ad captandem* and ignore it without a test would be grossly unscientific and criminally indifferent.

As the apostles of sanitation in America, as fellow-soldiers in a warfare against misery and death, I appeal to you in behalf of Louisiana, and of Texas, and of all the States of the Southern Atlantic, Gulf of Mexico, and of Tennessee, to indorse with your approval and to present as the earnest desire of this composite body, the American Public Health Association, and Boards of Health of the United States, the following petition :

Whereas, The question of immunity from yellow-fever is so intimately connected with the social, industrial, and commercial growth of Tennessee, the Southern Atlantic, and the Gulf States of the Union as to determine the destiny of Memphis, Charleston, Savannah, Pensacola, Mobile, New Orleans, and Galveston ; and,

Whereas, A large and accumulating mass of testimony that the power of protecting the unacclimated against yellow-fever has been discovered and proven in the inoculation of the essential germ or cause of the disease by methods distinctly formulated and available, these aforesaid declarations and numerous instances cited in corroboration, emanating from medical scientists at the head of the biological departments in the highest institutions of learning in Mexico and Brazil, authorized by and bearing the indorsement of their respective governments :

Resolved, That we, the representatives of the Boards of Health in the several States of this Union, and we, the officers and members of the American Public Health Association, regarding the question as pre-eminently a vital issue, as one, in

its assumptions, true or false, and, if true, of incalculable worth, surpassing the computation of many millions of dollars, and to the saving of tens of thousands of lives of our own people, that we hereby petition and urge upon both branches of Congress, now assembled, the appointment by the President of a commission for the purpose of making a complete investigation of, and reporting after a thorough examination of the methods pursued, their effectiveness in protecting the unacclimated against the yellow-fever infection, together with all associated observations and experiments that may be ascertained.

Resolved, That in the aforesaid petition the commission shall be stated to consist of three persons, one of whom shall be of known ability and special attainment in biological research, particularly in the department of microscopic investigation and culture of the essential germ causative of the infectious and contagious diseases. The other two members of the commission shall be medical men of recognized ability, based upon long and ample experience, competent to give expert consideration to all phases of the symptoms and course of yellow-fever in any form wherein the phenomena of the disease may present themselves, whether induced in the course of pestilential invasion or in purposely devised inoculation.

Resolved, That this Commission aforesaid shall proceed at the earliest possible moment to Rio de Janeiro as the first field of its labors. Having completed there its work, it shall proceed to Mexico, and, if necessary in the accumulation of testimony, to Panama, Colon, and Havana.

Resolved, That the sum of \$30,600, or so much thereof as may be actually required to pay the necessary and unavoidable travelling and other expenses and the salaries of the members of the Commission, be appropriated by Congress.

Resolved, That the sum of \$5000 shall be paid as a recompense to each member of the aforesaid Commission.

