

Prevention of yellow fever in Florida and the South : a paper read before the Baltimore Academy of Medicine, December 4, 1888 / by W.C. van Bibber.

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Publication/Creation

Baltimore, Md. : Journal Publishing Co. Print, 1889.

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PREVENTION OF YELLOW FEVER

IN

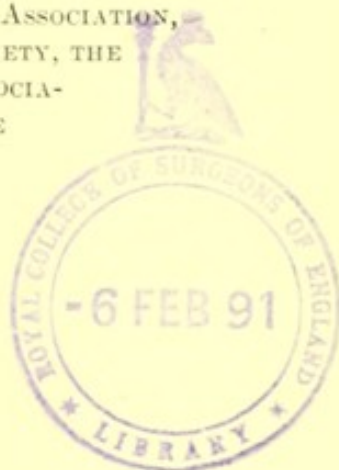
FLORIDA AND THE SOUTH.

A PAPER READ BEFORE THE BALTIMORE ACADEMY OF MEDICINE,
DECEMBER 4, 1888.

BY

W. C. VAN BIBBER, A. M., M. D.,

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ETC.



BALTIMORE, MD.

JOURNAL PUBLISHING CO. PRINT.

1889.

The yellow fever was introduced into Key West, Florida, from Havana, during the Summer of 1887; from Key West into Tampa, Florida, in August, 1888; from Tampa into Jacksonville, and from Jacksonville into Decatur, Alabama, and other points, in September, 1888; and in consequence of this an extensive and ruinous panic spread throughout the southern and southwestern states during the latter part of the summer of 1888. See the reports of the Boards of Health of the different states, particularly of Tennessee, and especially, Bulletin No. 3 of that Board of Health, dated Nashville, Tenn., October 15th, 1888.

TO

HON. JOHN T. LESLEY, OF TAMPA,

WHOSE EXERTIONS FOR THE PROSPERITY
AND ADVANCEMENT OF FLORIDA, HIS NATIVE STATE,
ARE WELL KNOWN, AND APPRECIATED BY

HIS FELLOW CITIZENS,

THIS PAMPHLET IS RESPECTFULLY INSCRIBED.

LET THOSE DO THE WORK WHO KNOW HOW.

THE PREVENTION OF YELLOW FEVER IN FLORIDA AND THE SOUTH.

The presence of yellow fever in Florida is certainly a serious matter; and the occurrence of an epidemic at such a centre as Jacksonville, with out breaks at more northern localities, is a wide-spread calamity. It is not alone for the loss of life and on account of the great sufferings endured in the infected districts that it is to be dreaded ; but so long as the disease does not seem to be perfectly understood by the public, and all the conditions which favor or prevent its extension are not definitely settled, no one can tell what proportions it may not at some time assume. Although I am not an alarmist, yet it seems to me not unreasonable to say, if the same course of management continues to be pursued as existed last summer, it might at some time even become a national calamity. At the present time, and under the present methods, a single case at the beginning of hot weather suffices to throw a whole community into a paroxysm of terror.

This should not be the case, with the existing knowledge ; and I have for a long time been impressed with the belief that it would be better to change the manner which has been pursued for more than half a century, of presenting the disease to the public. If such a change should happily be made, it might alter the entire procedures in the matter ; and as the results of the

methods which have been in use for so long a time have not yet been successful in subduing the disease, it would seem well to try something which might with more certainty have this effect. I would suggest, therefore, to change the points of discussion from the contagion, the transportation and quarantine of yellow fever, to the yet more practicable subject of its entire prevention at home, and its immediate extinction if introduced from abroad. It is plain, if the disease can be prevented, the other points connected with it are cancelled, and are of no public importance.

It is a physician's duty to consider possibilities as well as probabilities ; and, looking at the records of the past, we can say to-day, that it is the belief of those who have studied the subject, and are capable of giving an opinion, that yellow fever is a preventible disease. If this is correct, it is of the first importance to Florida to act promptly upon such knowledge, provided the citizens of the State will undertake to carry out those measures of prevention which may be deemed most effective. The State of Florida has more than ordinary advantages in carrying out any preventive measures its citizens may wish to adopt, because the entire peninsula is under one legislative government, and there is no very large commercial city within its boundaries.

Before proceeding to describe any definite plans for the prevention of yellow fever, and for the purpose of leading up to the subject before us, something should first be said concerning the fever itself, and of the methods which have heretofore been used in the public management of the disease, both before it becomes epidemic, as well as during and after its prevalence.

Yellow fever is a disease so well marked, so deadly, so different from all other diseases, that no one, whether a physician or not, can avoid being attracted by almost anything which may be written about it, and this may be one of the reasons why its liter-

ature is so immense. I have before me a catalogue of several hundred volumes treating of it; and the number in the library of the Surgeon General's office at Washington runs up into the thousands. This fact of itself is sufficient to prove that the disease has not been slighted by the medical faculty, or, that its importance has not been recognized; yet a research into this voluminous literature will show that up to this time no definite conclusions have been reached concerning its origin, contagion, infection, transportation and quarantine. These subjects have been captivating to writers because they involve many abstract points and much varied learning; but the subject of prevention is more practical, and may be dealt with to advantage, since we now have knowledge which brings us nearer to this point than we ever were before.

The methods which have been heretofore used for the public management of the disease are briefly as follows:—

When the hot weather sets in, the more prudent and observant citizens, seeing the neglected condition of their town, expect an increase of sickness, and naturally, from experience, think of an outbreak of yellow fever. They call public attention to this dangerous state of affairs, but as there is generally no sinking fund, or unappropriated surplus that can be drawn upon for thorough measures, nothing effective is done. A few of the most flagrant and offensive nuisances are abated, and the citizens are notified to keep their premises in good order; and that is about all. Those who can afford it send away their families for the summer, and go themselves, if their affairs permit; and while they are gone, the fever appears. Then comes a flight of all who can get away, and those who cannot leave, begin at last to see the danger of the "foci," as they are called, and try to remove them. It is then announced that yellow fever is epidemic, and the town

being quarantined against abroad, the authorities quarantine persons coming from infected places. In this way the town or city becomes isolated and the inhabitants seek assistance. In this country the Howard Association sends acclimated nurses; physicians volunteer; and business friends from other cities send money. Thus the people, shut up within their own limits, work and clean, and pass the wretched existence of a plague-stricken city or community—praying for cold weather or frost, or for some end to the pestilence by disinfection or limitation. As soon as the end comes they count up losses and search in every direction for the origin of the trouble. Each one has his own theory, and all relate their personal stories of exertions made during the epidemic. Thus some pride is taken in the success, and the belief spreads, that what was done towards cleaning the town was a necessary experience, and therefore, in the end, rather a blessing to the survivors. In this spirit business is resumed, the quarantines are abolished—by degrees the past is forgotten, and in the course of time the “foci” are allowed to collect again, and sooner or later the same experience is repeated.

Such methods as these will not be sufficient for the interests of Florida. In former years they have been adopted by New Orleans, Savannah, Charleston and other seaports in our own and other countries where frost does come, and where cleaning, although badly done, does avail for the time being, because their situations as seaports have attractions for commerce which brings back their trade to them without much trouble. But in Florida, during some seasons, and in some places, frost comes very late, if at all, and the commerce of that State is not in such articles as to insure its return. For Florida some other plan is indispensable. The methods mentioned did not suit Memphis, Tennessee; and there other efforts directed to prevention were made, with encouraging

success. But those methods, which consist principally of systems of sewerage, are not applicable where the lands are low and flat, as in Florida; and it is to propose a method, or combination of methods, suited to that State, which is the object of this paper.

Before proceeding further it may be well to show how yellow fever will *not* be prevented in Florida. The following extract is taken from "Science" October 26th, 1888, p. 197.

"YELLOW FEVER AND BAD SANITATION."

"Surgeon General Hamilton has just published the reports of several of the government inspectors who were detailed to visit the cities and towns of Florida, to ascertain their sanitary condition, and whether yellow fever prevailed in them or not. Among these reports is that of Dr. J. L. Posey upon a visit to Macclenny, a small town of about six hundred inhabitants, in Baker County, in which the fever was epidemic. Here is what he says about the sanitary condition of the place:—

"The general appearance of the town, which consists of perhaps a hundred stores and dwellings scattered over a rather large area, indicated a very wretched sanitary condition. The streets along the railroad track, as well as others, were covered with heaps of decaying saw-dust, and garbage of every description spread over them, drains obstructed, and open lots overgrown with weeds and rank vegetation. The floors and platforms of the depot-buildings, passenger and telegraph offices, and their vicinity, were covered with lime, which had recently been thrown broadcast. A further stroll through the town revealed a similar deplorable sanitary state—the steps and front galleries, the porches and premises of residences, lavishly sprinkled with lime, and the yards filled with accumulated garbage. No organized measures have been adopted by the local health authorities to

even ameliorate, much less correct, this unsanitary state of their town.

“The site of the town is a low flat, sandy plateau, without sufficient elevation to give effective drainage; the surrounding pine forests being interspersed with a series of marshes and alluvial basins. No attention had been given to the removal of excreta or their proper disinfection. The water-supply is generally obtained from wells at a depth of fifteen or twenty feet, and is of a quality which I consider unwholesome, having experienced personally its disagreeable effects. The atmospheric condition resulting from such foul surroundings was fully prepared to propagate the infectious material, which had been already introduced into the town, and had been gradually developed since the 1st of August.

“I went from house to house, and found the sick and dying huddled together in small rooms, with windows and doors closed, the floors sprinkled with chloride of lime, carbolic acid, and a variety of other disinfectants. The oppressive odor of disinfectants mingling with the close atmosphere of the sick rooms, laden with the emanations from the excreta and ejecta of the patients, together with the dreadful visages of the dying, was shocking to every sense, and the scene well calculated to appal the stoutest hearts. I have seldom witnessed a more pitiable and melancholy sight than that presented to my view in my house-to-house inspection through this desolate scourge-swept town. As I returned to the hotel in the evening, I met many whose pale, wan features, languid air and step marked them as convalescents from the disease, and others, who, with anxious look, approached me, and in whispered tones asked to know my opinion of the prevailing fever. I told them that they must escape with the rising sun, or, remaining, fall victims to yellow-fever.

“A late report shows that there have been 189 cases out of an actual population remaining of 195, the deaths being 21 whites. Of the above number, 160 were whites and 29 colored. There are now sick 11 whites and 8 colored.”

“Dr. Posey himself contracted the yellow fever at Macclenny but has since recovered.”

“Comment upon such a report as this is unnecessary. Yellow fever is a disease that seeks filth and bad sanitary conditions, and wherever it finds these, and an unacclimated population, it is certain to become epidemic. Its whole history in this country proves this; and especially was this illustrated in the terrible experiences of Galveston about twenty years ago, of Shreveport a few years later, and more recently at Memphis. Yellow fever never became epidemic where the sanitary conditions were good, although the germs of the disease have frequently been introduced into them. It is probable that the sanitation of Jacksonville is much better than that of the cities named was at the time the scourge swept over them; and this, it is believed, accounts for the mild form of the fever there, and the low rate of mortality.”

The condition of Jacksonville before the breaking out of the present epidemic has not been reported upon in detail by the government medical inspectors, because, since their arrival in the city, their time has been fully taken up with measures of relief. But the unsanitary condition of the city, especially along the wharves, is so well known, that it may be taken for granted that it was not a well kept or a clean city.

Under date of August 8th, 1888, Passed Assistant Surgeon John Guitéras, U. S. M. H. S., wrote to the “Weekly Abstracts of Sanitary Reports.”

“Two cases of yellow fever discovered this morning—other two

suspicious cases, traceable to same store where the others were taken sick. Health authorities are taking active steps in the matter. There is a circumscribed 'focus' of infection in one block in the city. Two more cases discovered, traceable to same centre."

"August 9th. Two cases found at the city hospital, Three other cases discovered to-day. Total, five new cases. We are beginning to lose connection with the original 'focus.' "

Dr. Neal Mitchell, President of the Board of Health of Jacksonville, under date of August 13th, wrote to the "Weekly Abstract of Sanitary Reports:" Surgeon General John B. Hamilton. "New cases four. August 14th. New cases three." "August 16th. It is too soon to speak of the original origin of the epidemic but it is quite probable that the case of McCormick, imported from Plant City, was not the first case at Jacksonville. Rumors of yellow fever at Jacksonville had been prevalent for several weeks," etc.

These reports are sufficient to show that towns and cities in the condition of Macclenny and Jacksonville are never secure against an epidemic of yellow fever, and that this disease will *not* be prevented under the present systems of building and quarantine.

Surgeon General John B. Hamilton, U. S. M. H. S., has traced the present epidemic in Florida to its source. It originated from a family of emigrants from Havana, who came with their household effects into Key West, and there rented apartments from a Mr. Baker. Some of the emigrants and the Bakers died of yellow fever, and from that beginning every step of the disease has been traced. Two fruit smugglers from Key West brought infected blankets into Tampa, and from this the disease is traced directly along from Tampa to Jacksonville. According to Sur-

geon George H. Sternberg, U. S. A., who investigated the matter, the yellow fever was brought into Decatur, Alabama, by a man from Jacksonville. It was formerly the habit, and it really seemed to be in the nature of our people, to question such evidence as this, even when given by distinguished experts; but now this is not the case. The manner in which yellow fever is brought into a place, and the reason why it spreads in that place, are, at present, accepted facts. Florida and New Orleans are both in constant easy communication with Havana and Vera Cruz. At both these places yellow fever is always present. We have no government control over either of these cities. The introduction of the yellow fever germ may occur at any time.

Can the disease be prevented, and how? What will be said hereafter in this paper will be to show the truth of one proposition: three answered questions, and one corollary—These are as follows:

Proposition. In a warm climate, continued cleanliness is the best safeguard against yellow fever.

Question first—Granted an unsanitary condition of a town, as Macclenny or Jacksonville, may yellow fever originate spontaneously?

Answer. No! The advanced doctrine is “No germ, no yellow fever;” but inasmuch as the germ has not yet been found, let the chance be divided.

Question second—Granted an unsanitary condition of a town, city or residence, and the importation of yellow fever germ, what will be the results?

Answer. The result will be yellow fever.

Question third—Granted a city, town or locality kept continuously clean, free from all “foci,” will yellow fever become epidemic, importation, or no importation of germ?

Answer. No! A place may be made and kept yellow fever proof.

Corollary. An unsanitary condition gives a chance and a half for yellow fever. A sanitary condition gives none.

I know that it is held by many physicians that a rigid quarantine is the best preventive against yellow fever. That the disease is spread by germs is true; but that it is impossible to prevent the introduction of germs from abroad by the present modes of quarantine, is fully proved by the past. In the first place it is necessary to know what places are to be quarantined against. But the germs may be brought from a place where the yellow fever is not known to exist. To prevent panic, and the loss of trade, the first appearance of the disease is invariably kept secret, in the hope that it may be stamped out before it becomes epidemic, and thus the germs may be scattered far and wide before any warning is given. Then the system of quarantine now in use is so onerous, that all means are tried to evade it; and if but one person passes having the germs of disease, all the labor and annoyance has been in vain.

Not that quarantine should be abandoned: keep out the germs as far as possible, but provide, that if, despite all precautions, they are introduced, they may fall upon clean places where they cannot propagate. Treasure quarantine, but make it pleasant and not hateful.

By what method can continued cleanliness be most easily maintained in a city in a warm climate? In the "Annals of Hygiene," March 1st, 1887, in a paper upon "House and Yard Ventilation" the writer says:

"I am personally quite familiar with this subject from actual observation in many of the cities and towns in the States of Pennsylvania, Maryland, Virginia, New York, the Dominion of

Canada, Ohio, Louisiana, Mississippi," and he might have added of Florida also. "I know that the yards attached to houses are, for the most part, from one hundred to one hundred and fifty feet deep, more or less, and are generally surrounded with decaying board fences eight feet high, and these enclosed yards have been, as a rule, the receptacles for all the refuse matters of families for a long time. Thus it will readily be seen that they affect the air of those dwellings which are near to them as well as those to which they are attached."

"From an eminence in the State of Mississippi, I once beheld a beautiful village, which, when seen in the early morning, with cluster roses and creepers, covering the roofs of its houses, looked like a fairy city of enchantment. Who would have supposed from the distance at which I stood that it was then the abode of a deadly yellow fever pestilence? Its board-screened yards, undrained, level and water-soaked, were filled with things offensive and useless, which sheer carelessness had allowed to accumulate. Its cemetery was daily being filled from no other cause than the neglect of its inhabitants." It may be answered therefore, that cities and towns, especially in a warm climate, which are built and kept in a manner similar to what has been described, cannot be said to have come up to the standard of continued cleanliness."

In 1881, a paper was read before the American Public Health Association, at their meeting in Savannah, Ga., under the title of "Two Suggestions concerning Healthy Buildings." The first suggestion made was "to build houses upon arches or piers in low flat grounds. Man has the privilege of building under his own control. He must take the earth as he finds it, but one style of building may be more healthy, convenient, and salu-

brious in one situation than another. Instead of springing the houses out of the ground in low flat situations, it is better to interpose a stratum of air between the house and the ground. If the house be built well up off the ground, and the earth paved beneath it, with no enclosed yards, then continued cleanliness could be easily maintained. The surface ventilation of the air would be one prominent advantage of this style of building; surface drainage, an easy abatement of certain nuisances, with consequent increased healthfulness and comfort would be the result."

If Maccleenny and Jacksonville and Decatur had been built in this way, and had been kept according to the intention of such a style of building, their inhabitants would have been saved the recent epidemic. This plan of building the houses well off the ground, upon arches, columns or piers, with clean hard pavements of brick or concrete underneath and around them, I regard with great favor; it would not only be an improvement in itself, but would bring after it many other improvements. The objections which have been raised against it are the expense, the inconveniences and the danger from violent storms. The expense might be a little heavier at first, but if all did it, this increased expense would soon be equally distributed—if the house cost more to build, the workmen would get more for building it, and in this way it would not be considered a burden amongst the poor. As to the inconveniences, if there be any, they are not worth balancing against the gain, and habit would soon make it cease to be felt. The danger from violent storms could be overcome by the supports of chimney stacks sprung from the ground, or by supporting towers or beams, by means of which the houses could be firmly secured, and all danger averted.

It is difficult for some minds to divest themselves of the early

bias which they have had from infancy, for building on the ground with cellars, and pits and sinks. These are not suited to low flat lands in a warm climate; a sufficient standard of cleanliness cannot be maintained in their presence, or where they exist. The question as to how high the building-line should be off the ground, is an important one, if ever it comes to be considered as a matter of statute enactment.

I have said that quarantine may be made pleasant, and indeed attractive, and in this I have only echoed the sentiment of the distinguished President of the American Public Health Association in his address at the meeting in Memphis, Tenn. Certainly some change in the system of quarantine should now be made, if for no other reason, than to prevent a recurrence of such panics, confusions, sufferings and scenes, as are so graphically detailed in the reports of the Tennessee State Board of Health, Bulletin No. 3. With the Members of the Board of Health of this State and their agents, it was like fighting for life itself; and those engaged in this terrible conflict deserve far more than credit for their invaluable services. In a country like ours, such scenes as happened during the recent epidemic of yellow fever, should never recur. When the disease was announced at Jacksonville, consternation spread at once throughout the States of Florida, Georgia and Alabama, and extended into the Carolinas, Mississippi, Louisiana and Arkansas, Texas, Tennessee and Kentucky. Assuredly, a wise people, if proper leaders can be found and obeyed, should do better in the future than to re-enact such scenes. Whilst the recollection of these panics is still fresh in the memory, and for those who wish to change the future plan of quarantine, let us see both what advantages we possess, and in absolute reality, what we have to contend against.

The advantages may be summed up in this way. We live

amidst a profusion of knowledge, learning and ingenuity; we have upon our side the resources of science, the dictates of reason, the results of experience, and the active vigilance of a practical, intelligent and energetic people; with these in our favor, what excuse can be given for an onerous quarantine against only three diseases, a complete prevention for each of which is perfectly well known? What excuse can be given for not being victorious in such a contest without frightening the public?

That quarantine may be made attractive, who can doubt. But it cannot be done by the plans which an urgent necessity compelled the Boards of Health in the States mentioned to adopt in their active exertions for the safety of their people. Their quarantine had to be done mostly in the railroad cars in which passengers were questioned, refused passage to their destinations, turned back, frightened, dejected, and oftentimes driven to subterfuges in order to get to their homes and friends, with their baggage and letters fumigated, and frequently lost. Quarantine cannot be made attractive by these means.

Let us speak of the attractive quarantine of the future. In this, you will see four houses situated at a proper distance from each other, in the most accessible point of the State, built and appointed in a manner not only to make them most efficient for the comfort of the sick and afflicted citizens and strangers, but to serve also as schools and models to teach private citizens how they can preserve amongst themselves continued cleanliness and give no foot-hold to preventible disease. The humblest man in the Commonwealth cannot then plead ignorance as to how he should and must build his house and manage his domestic affairs, so as to preserve his own health, not injure that of his neighbor, nor impair the reputation of his State. These four buildings should have ample communication with each other and the out-

side world by telegraph, telephone, and what other appliances the future may have in store. Then no one who is quarantined will feel himself isolated or harshly treated. The visitor from abroad and the denizen can alike receive and send messages from and to all points.

In these establishments, all knowledge of yellow fever is to be centered; here the disease can not only be treated, but studied under the most favorable circumstances; and from them, all necessary rules for its prevention should emanate. They should be under the control of the Board of Health, who should be well selected and thoroughly competent, and they should see that nothing be wanting to make the establishment as homelike and attractive as the most agreeable resort.

I have said that four houses should be built, although there are but three diseases against which we quarantine in this country, yellow fever, cholera and small-pox, and this is what we have to contend against. For the first two diseases there is the same prevention—continued cleanliness—and as for the last, it is completely controlled by vaccination and re-vaccination. The fourth house should be for the officers of the institution, and for the temporary residence of persons who have been brought to the quarantine by mistake during periods of excitement. But in fact, it is only against the yellow fever germ that quarantine would be demanded at present. The arrangements for the other two diseases could be managed afterwards. Concerning the yellow fever germ, we know three very important things: these are, that it does not produce disease in the same individual more than once; it is easily destroyed by cold or frost; it does not spread in a clean place, or amongst a healthy people. To this I think may be added, that in a clean place, and in a pure atmos-

phere, the germ, if unhappily introduced, may now be easily sterilized by means of known antiseptics.

The advantages of such a quarantine establishment cannot be easily summed up, for the list is long; but most prominent amongst them would be public confidence at home and abroad. Every one would know that matters appertaining to this department of public health were properly organized, and each citizen would understand beforehand exactly what to do under all circumstances, when an epidemic disease was to be dealt with.

Last year it was estimated that 80,000 strangers visited Florida, mainly for the advantages of its climate. If the number is diminished this year, it will be in great part owing to the Jacksonville epidemic; and if the State should now lose its prosperity, and fail to fill its office amongst the other States, in being the delightful, safe and convenient winter refuge for the dwellers in more rigorous climates, who may be suffering with pulmonary troubles, it will be on account of permitting the prevalence of an entirely preventible disease. But if proper exertions are now made to correct the evils engendered by carelessness which have befallen the State, and to secure exemption from their recurrence, it is quite certain that enough is known, if only the knowledge be properly applied, to establish public confidence in the entire practicability of clearing the peninsula of yellow fever, and of keeping it perfectly and permanently free from this scourge. The advantages for doing this have been already summed up, but in addition, it may be said to Florida, keep up continued cleanliness in your towns and cities by introducing a different and a better style of building, suited to your climate; erect a commanding and model quarantine and make it attractive, so that it may stand as a monument of your intentions, and a seal to your good faith. Then your sister States will not fear you,

nor your neighboring States get into a panic when your name is mentioned.

On account of the geographical situation of Florida, and by virtue of the mission she can fill, it is the interest of all the States in the Union to help her at present, for she fairly belongs to the afflicted of all the States in common for at least four months in the year ; and for this reason it is equitable that they should lend a hand to clear this wonderful peninsula from these pests to humanity and make it a beautiful garden, which it is by nature, for themselves, and for the world at large, because, in its situation between the two seas, and virtually in two zones, there is no other land to equal it on the map of the world. It seems a pity that we should have such scenes as have recently been presented in the South-West on account of something which surely can be prevented, which is brought about by less enlightened people in other lands, and which is continued in our own country by carelessness and neglect. I feel that there is truth in these statements and that they will find a response among all intelligent people.

It may be some stimulus to our citizens to know that the people of England and Wales have recently appropriated more than £80,000,000 for sanitary purposes alone, and that they consider themselves well repaid for this, in the fact, that they have for the time checked the insidious approaches of the cholera-germ. The general government with \$200,000,000 surplus in the Treasury, for the benefit of all the States, might help Florida now; and the two together, that is, the general government and the State itself, should see that no necessary expense is withheld which will give her fair land a healthy record, and free her inhabitants from the reproach as a people, and as a State of the Union, of being behind hand in learning and energy in not availing

themselves of what is known in sanitary science, and of failing to apply simple and available preventions to a single microscopic germ, many of the peculiarities of which are perfectly well-known.

As if to help in this good purpose, it may be repeated that with peculiar boundaries, Florida has an advantage of being under one legislative government, so that any preventive measures its citizens may wish to adopt, can be secured with great facility. It is the largest State east of the Mississippi River and might be made, all things considered, the healthiest and most delightful winter residence in the world, if only its people will act energetically and harmoniously. Its statesmen and men of influence should be the leaders in the matter, should explain and convince and take initiatory measures themselves. No political question can be of one-tenth the importance of this matter of the prevention of yellow fever. Putting aside all other questions and looking at the matter from a purely pecuniary point of view, whatever outlay was incurred would be repaid tenfold. We can hardly realize what would be the future of this State if it was known to be perpetually secured against epidemic disease. Invalids, but especially those liable to pulmonary diseases, would take refuge there as soon as the cold weather began in more rigorous climates; capitalists and investors would make it their home, and develop its boundless resources under their own eyes. Population would multiply and wealth increase. The vacant lands would be taken up and the Everglades drained. Nature has certainly done wonders for this little bit of the tropics, attached like a terraced garden to the United States, and it only remains for man to remove the one obstacle to her progress by wise legislation heartily carried out by her people.

These are my matured views, after much study, upon this most weighty and long debated question. So important do they seem

to me, at least, that even at the risk of tautology, I will recapitulate the leading points. We have already seen that the introduction of the yellow fever germ may occur at any time, and that the quarantine as now enforced is no absolute safe-guard against it. Once introduced, there are but two known modes of preventing it from becoming epidemic. These are continued cleanliness and isolation combined. If there are any other modes, let them be told. It is not hard to accomplish and combine these two modes, provided a proper importance should be given to the subjects. On the contrary, every one will be better for the machinery by which they must necessarily be brought into action. Towns kept like Macclenny and the city of Jacksonville must then be reformed or disappear, for in them the germ will spread in a warm climate.

1. It has been proposed *in this paper* to abolish the system of board-fenced yards, with pits and sinks ; to pave with hard, clean pavements under the houses, which are to be built well up off the ground, and to keep the towns clean according to the enforced changes which such a style of building will of necessity bring about.

2. To place quarantine prominent, and so alter the way of conducting it as to make it attractive, and at the same time, through it, to keep a constant vigilance as to the introduction of the yellow fever germ and the isolation of the disease. Let the quarantine establishments be the great teachers of what is to be done, and how to do it. Not every citizen knows how to adopt measures of continued cleanliness, but the quarantine officers will be ever ready to teach them. Not every citizen can keep up a constant vigilance, but the quarantine officers can have this done for them. Nothing should be spared to make quarantine worthy of public confidence, and this will surely prevent panics. The differences which this style of building and living, together with

the teachings which such a quarantine—as that which has been proposed, would make a salutary change in the manner of life throughout the South. This difference to the poor would almost amount to that between life and death; certainly it would be the difference to the State between prosperity and ruin; between cleanliness and neglect; between beauty and ugliness in the appearance of the towns and cities, and might also show amongst the white population the difference between clear healthy complexions and the reverse. Individually, I would vote for these health measures if I were a citizen of Florida, or any of the southern States. I would vote for them, with proper modifications for climate, in my own city. Personally, I have experimented with this style of building, by showing an example of it on my own premises nearly twenty years ago, and have enjoyed its comforts ever since. I believe that no man in the United States would this day object to the general government so assisting their garden of Florida, in its present extremity, as to enable its inhabitants to improve the health arrangements of their State, in repelling the diseases incident to low flat lands in a warm climate, and of making this peninsula yellow-fever-proof.

The belief that this can be done is gaining confidence in every direction. The dreaded pest has dictated its own terms to an intelligent people; who, beyond doubt must sooner or later accept its ultimatum—and the sooner the better. The citizens of Florida, Louisiana, and of the country generally, are all linked together in a common interest for the prevention of yellow fever, and of the panics arising from its presence. The way of prevention has already been shown, and all should be encouraged by the good results which can be pointed out by examples already within the state. Amongst others I may refer to medical inspector Dr. J. L. Posey's report to the Supervising Surgeon-

General concerning Lake City, Columbia County, Middle Florida, published in the "Weekly Abstract of Sanitary Reports," vol. iii. Abstract No. 37. September 14th, 1888, which city was reported as a model for cleanliness and health. Also Dr. G. F. Hartigan's report to the same authority. Abstract No. 42. October 19th, 1888, concerning his inspection of St. Augustine, Florida, where, he says, "extraordinary measures were adopted to exclude yellow fever; a double cordon of guards numbering 300 invests the city night and day, etc., etc.," and although the disease was epidemic in two cities not far removed from the ancient gates of St. Augustine, yet not a case of yellow fever appeared within the latter city. The local Board of Health of the city of Tampa, in Hillsborough County, Florida, are now about to publish their mortuary reports, which, so far as they go, show a favorable comparison with the most healthy cities in any climate. Again, the public spirited men of Tampa are now erecting, and will soon have completed, a hotel built upon the principles advocated in this paper; elevating the structure high above the ground; keeping it free from all terrene emanations; and paving underneath and around it with hard pavement. This, as an example, will be valuable in the future. Besides this, the people of Jacksonville have done much in the improvement of the sanitary condition of their city; and there is now a strong public sentiment demanding a State Board of Health, with enlarged powers. It is to be hoped that these things, as the result of recent experience, will not have the effect of relaxing exertions against the future invasion of the insidious enemy, but on the contrary that they will encourage the citizens everywhere to still further efforts in the same direction, so as to establish a general public feeling that the presence of yellow-fever hereafter

may be considered a social or a national disgrace, as well as a public calamity. The co-operation which the United States Surgeons have given with the local physicians in Florida and elsewhere throughout the South, during the recent trouble, has been of great assistance ; and the finishing work now being done by the United States Marine Hospital Surgeons, is a fair example to show how public confidence can be established under the direction of meritorious officers in high position.



