

Report of the Central Board of Health of Jamaica / presented to the legislature under the provisions of the 14th Vic. chap. 60, and printed by order of the Assembly.

Contributors

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Royal College of Surgeons of England

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REPORT

BY THE

CENTRAL BOARD OF HEALTH,

37/27
OF

JAMAICA.



*Presented to the Legislature under the provisions of the 14th Vic.
chap. 60, and printed by order of the Assembly.*

SPANISH-TOWN:

PRINTED BY F. M. WILSON, 5, MARTIN-STREET,

FOR THE HONORABLE HOUSE OF ASSEMBLY.

1852.

REPORT
OF THE
COMMISSIONER OF THE
GENERAL LAND OFFICE
OF THE
UNITED STATES
DEPARTMENT OF THE INTERIOR
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ERRATA.

- Page 27, line 24, for penal read penalty.
— 31, line 22, for Charges read Chagres.
— 33, line 27, for clause 19th read clause 9th.
— 43, line 1, for anfl read and.
— 56, line 15, for Charges read Chagres.
— 65, line 37, for also read always.
— 77, line 5, for purifaction read purification.
— 84, line 5, for communictions read communications.
— 88, line 12, for in read on.
— 102, line 13, for with a whole family read will a whole family.
— —, line 14, for huddled together read huddle together.
— 111, line 13, for fever read fewer.
— 114, line 13, for worst read most.
— 116, line 26, for understandings read undertakings.
— 117, line 25, for litigate read legislate.
— 118, line 18, for great importance in consideration read
for great importance in the consideration.
— 133, line 28, for plalanges read phalanges.
— 141, line 22, for most read moist.
— 141, line 32, for in other read under other.
— 143, line 35, for delopment read developement.
— 148, line 13, for obsarbent read absorbent.
— 184, line 15, for Dhawr read Dhawar.
— 216, line 3, for abolutely read absolutely.

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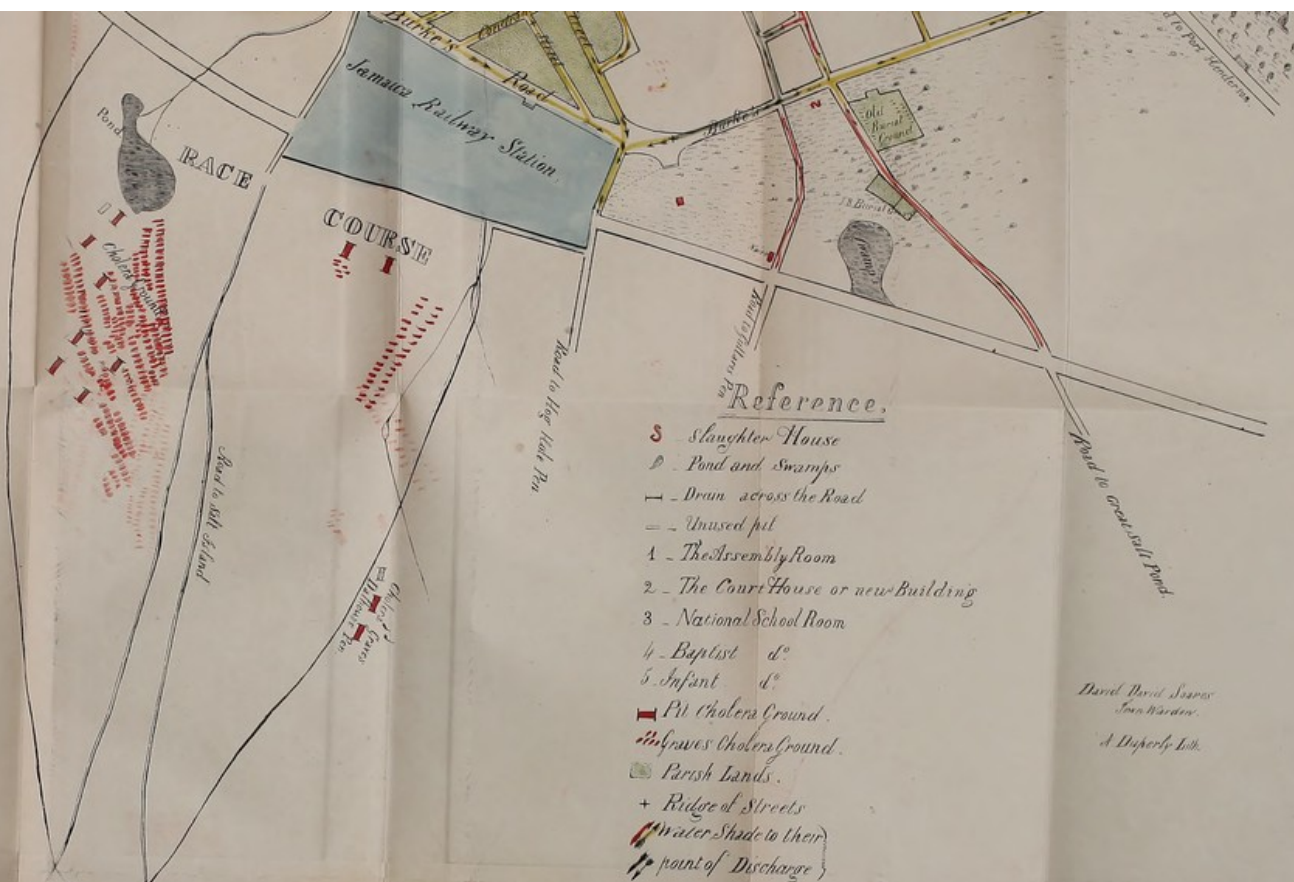
PLAN

of the Town of
S^t. Jago De La Vega
JAMAICA.



Reference.

- S Slaughter House
- P Pond and Swamps
- Drain across the Road
- Unused pit
- 1 The Assembly Room
- 2 The Court House or new Building
- 3 National School Room



CENTRAL BOARD OF HEALTH.

REPORT.

THE CENTRAL BOARD OF HEALTH, in accordance with the requirements contained in the act Fourteenth Victoria, chapter Sixty, entitled "An Act to establish, for a limited period, a Central Board of Health, and for other purposes,"

REPORT—

THAT in pursuance of the powers delegated to them, under the provision of the said act, they have enquired into, and sought to ascertain what measures exist, and what others are requisite to be enacted, for the preservation of the public health, as also what sanitary regulations it will be necessary to adopt, for preventing the spread of epidemic, endemic and contagious diseases; and to provide sufficient medical relief for the several districts and parishes of the island.

In the performance of these duties, the Board have had to encounter great, and in some instances, insuperable difficulties, arising from the circumstance that hitherto all sanitary measures have been neglected, the subject unknown, unthought of, uncared for, and also, from the acknowledged habits of the lower classes of society, which would appear to have been acquired under a total defiance of the laws of nature.

To overcome these habits, remove all prejudices,

and establish efficient sanitary regulations on an extended scale, will undoubtedly be a work of time, especially in a community constituted as this is, where the class of persons chiefly to be contended with are unaccustomed to the enjoyment of domestic comforts, and are but little influenced by the weight of reason, while on the other hand, the Board cannot but observe, with regret, that the upper classes of the community have not given the subject that attention and co-operation which could have been desired.

This indifference to a matter of such magnitude and importance, the Board think may be attributed to several causes ; the first and most serious of which seems to be, the present depressed and crippled condition of affairs generally throughout the whole island, causing an apprehension that by adopting sanitary reforms, an increased burthen of taxation will necessarily be entailed ; again, the possibility of being able to effect any radical change in the feelings and habits of the labouring population, is looked upon by some with utter hopelessness and despair. A serious obstacle to the promotion of sanitary measures here, arises from the great and general want of knowledge with respect to the vast importance of the subject, its wide and certain influence over life itself, and the inestimable benefits which have resulted in other parts of the world from their adoption. The existing misconceptions of some, in respect to the nature, origin, spread, and mortality of diseases, induce on their minds a strong tendency and feeling towards fatalism, unbecoming and illsuited to this enlightened age. On the first appearance of disease among this class of persons, they are apt to give themselves up as incurable, and no effort is attempted to ward off the impending blow ; all aid is refused, and dissolution alone looked for, as the certain result. This forms no hypothetical statement, for during the prevalence of the late fearful epidemic, cases of this character were almost of daily occurrence, and too often was it the lot of medical practitioners, to witness the sufferings

of those who labored under mortal disease, while their nearest and dearest kindred, and friends, would calmly remain seated around, in useless and idle observance; (medicines and nourishment unadministered, medical advice disregarded and set at nought), contenting themselves with the positive conviction that "it was of no use, as his time was come."—Again, it is found that on the outbreak of disease, there are persons ready to give assertion to their own pre-conceived opinions, while they cavil with facts, the result of the deep study, research, and extensive experience of the ablest and most learned authorities. These are apt to place their assumptions, acquired from limited experience, in opposition to the well considered and oft tried observations of those who have been specially appointed to consider these subjects, and have spent the greater part of their lives in their study, investigation, and treatment.

Every point which arises, having any tendency to strengthen or uphold their partially considered doctrines, is greedily caught at, and exaggerated, idle and unauthenticated rumours are readily seized hold of, decorated with the garb of truth and promulgated without reflection, conveying for a time misery and dismay to the minds, of even those who are least susceptible of their direful influences, and fatally augmenting the alarm and wretchedness of the timid, the nervous, and the afflicted. This state of things is not to be wondered at when the constitution of the human mind is considered, and its aptness to grasp with avidity and a tight hold, first impressions; the "*post hoc propter hoc*" argument, will ever be foremost, where the reasoning powers have not been duly disciplined and taught by experience, the uncertainty and fallacy of relying alone upon external appearances. This observation is not confined to the non-professional, for if the history of diseases be looked at, it will be found that at one period or another, physicians have been met with, who readily placed in the category of infectious and contagious diseases, many of those which

more advanced knowledge and modern experience have clearly shewn to be altogether void of any such properties, and are now easily attributed to their individual causes; among these, it were perhaps needless to say that ague once ranked as contagious, and scarce seventy years have elapsed since this disease was generally believed to be communicable from one person to another.

In the present day there still exists great difference of opinion among physicians as to the infectiousness of some few diseases, although those opinions have not unfrequently been founded, and the conclusions arrived at from the same cases, and the identical facts. The result of this conclusion, induced two enlightened physicians of modern times, in treating on the discrepancy which exists on this subject among the medical profession, to express their conviction that "it depends, in part, upon the different structure and disposition of men's minds, and their peculiar habit of thought;" may not also another and powerful reason for this difference of opinion, be found in the circumstance, that the contagious origin and spread of some diseases have long been taught in colleges and schools? Almost all medical men begin their professional life with this belief, and it is only those who are endowed with comparatively rare powers of observation, that ever abandon that conviction. Here however the contagionist and non-contagionist meet on neutral ground, for both allow the mitigating, and therefore preventive, power of sanitary measures, and thence, as Girdlestone expresses it, "the important principle that even the ravages of the most deadly pestilence, are in a great part due to man's sinful neglect of the means of preservation, which have been beneficently placed within his reach." Another obstacle to the successful promotion of sanitary reform has recently arisen, and it has been attempted by some, to damp, by the weapon of ridicule, the useful endeavours of those who desire to rectify existing evils, detrimental to health, and prejudicial to

public welfare. A self-evident truth is conveyed by the provision as a sanitary measure, "that the periodical or daily removal, if possible, of all dirt, stable manure, foul vegetation, and stagnant water from premises and yards, is essentially necessary to the promotion of health." Yet while the promulgation of this simple, but salutary, rule has created a smile, the sarcastic remark has not been wanting. "Is this all that sanitary measures are to teach us? why we knew this before." In replying to so feeble an enquirer it would only be necessary fully to admit the pre-existence of this knowledge, and at the same time to ask the question whether, being fully aware of its efficacy, is it in general practised? or is it not, on the contrary, grossly and criminally overlooked, not only in every part of this island, but in every country? or has its indispensable necessity, as a preventive of disease, been sufficiently and forcibly impressed upon the minds of those poor and ignorant persons who do not know it, but are daily and hourly exposed to the pernicious, and too often fatal, consequences of this very ignorance? Then if by reiterating this simple but salutary precaution, public attention is driven to its rigid observance, will not much good have been effected, and the desired end obtained, namely, the enforcing not alone of the cleanliness of the person, but even of the premises inhabited by the masses; and thus, by removing the impurities of their vicinity, at once fortify the whole community, and place it in a state of preparation to resist and conquer the very approach of epidemic diseases? It has also been urged, as an objection to the present progress of sanitary measures, that before it can be expected that the labouring classes will practise cleanliness, and reform their injurious habits in regard to their health, it would be necessary to enlarge the number of schools and increase the means for their obtaining moral and religious instruction, or in other words—that they must first be educated and trained to paths of virtue and morality. Is it quite

certain that if these desirable means were afforded they would tend to effect so favorable an end? or have not the promoters of this praiseworthy doctrine rather confounded cause and effect, and so far from the neglect of sanitary measures primarily arising from immorality; immorality (by the popular admission that cleanliness is next to Godliness) "is most unquestionably the offspring of the neglect of sanitary measures. The words of the present learned and zealous lord bishop of London may be quoted in support and confirmation of this opinion; the active and energetic part taken by this worthy and philanthropic divine, in the recent sanitary improvements in England, are well known and appreciated at the scene of his labours. His lordship says, in a sermon preached by him on the day appointed for a general thanksgiving on the cessation of epidemic cholera," no time must be lost "in endeavouring to do away with a state of things which is degrading to them as human beings, and still more as children of the church, which not only invites the approach and aggravates the malignity of disease, but which weakens all social and domestic virtues, destroys all self-respect, and removes opportunities and motives for self-improvement. The want of decent and cleanly habitations is one of the chief evils which oppress the poor; an evil continually increasing with the increase of our population, and which we ought long ago to have taken measures to prevent; neatness, order, and comfort are unknown in their miserable and overcrowded dwellings; modest reserve is impracticable; delicacy of feeling is destroyed; grossness of manners and language, the consequence of a mode of life which admits of no retirement, seclusion, and meditation, becomes the habit of childhood, and prepares the mind for vicious intercourse in future years; none of the comforts of home are there, none of its softening purifying influences; and can we wonder, if from such sinks of filth and immorality, come forth, if they are spared by epidemic disease, the scandals and

pests of society, the mendicant, the drunkard, and the thief? It is not less our interest than theirs that our poor neighbours should enjoy the conveniencies and decencies of life; that they should possess the means, of which many of them are entirely destitute, of being cleanly and observant of domestic propriety, having each their own home for their own family, and enjoying, if not many of the comforts of life, yet at least, the blessings of which none ought to be deprived, and which are common even to the beasts of the field—the pure elements of air and water, so necessary to the continuance of man's health and strength." In the mother country, great efforts have been made during the last few years, and are still being made, to improve the condition of the labouring poor; their difficulties far, far exceed those of Jamaica; their over-loaded population, and the terrors of approaching winter, are evils that are not felt here. There are, however, peculiarities in the climate and position of this island which render sanitary measures even more necessary. In this tropical clime putrefaction is more energetic; vegetation more rapid and rank than in a temperate one. The rains here are, for the most part, confined to certain seasons of the year, alternating with intense heats; and when they do come falling in torrents, inundating the whole surface, and being afterwards subjected to the broiling effects of a fiery sun, they give off in abundance, emanations teeming with the seeds of disease. Sickness also, in the lowlands at least, is more sudden in its attack, more violent in its progress, more fatal in its nature, and more rapid in its termination. Experience has proved that all these evils are remediable, that the great mortality which has hitherto existed from these causes is preventable. The real difficulty consists in the impoverished condition of the people, and in the comparatively small and scattered population, who are able to live throughout the year independent, almost, if not altogether, of daily labour—such is the richness of the soil, such the fer-

tility of the climate, such the absence of all biting necessity to labour, that many, aye, the vast majority of the lower classes of the population, either squat down in sullen laziness, or lead an idle migratory life, wandering from place to place in a state of partial nudity, subsisting, in a great measure, upon the fatness and abundance of nature. It is impossible to shut out the truth that much of the present calamities, and existing difficulties, viz. : the want of confidence on the part of the labouring class, and their unwillingness to earn their bread by the sweat of their brow, arise from the unforgotten recollections of slavery. To the rising generation, therefore, must be looked for, the improvement of things ; and although the fruit may now be effectually sown, still the harvest must be contentedly waited for ; in the meantime, bearing in mind the maxim that "*salus populi est summa lex*," it behoves the legislature, it behoves individuals to bestir themselves for their own preservation, and that of their fellowmen. The late awful pestilence, which came like a clap of thunder, and in a few short months, engulfed in the silent tomb, at least thirty thousand of the inhabitants, has not even yet left these shores. An all-wise and an all-seeing Providence alone can tell how soon it may resume its sway ; but after such an example, such an ordeal, shall the means be neglected of mitigating, if not preventing the ravages of such a fell destroyer of the human race ? While, however, attention is drawn to the evident and fearful effects of this sad visitation, let it not be overlooked that more quiet, but not less fatal diseases annually thin the numbers of the community, and have done so year after year, unperceived and attracting no public attention, through the neglect of one of the most important measures of sanitary reform, a registration of births and deaths.— But fortunately for humanity, the remedy against cholera is the remedy against all the other diseases.

The Central Board of Health, in pursuance of these views, and the urgently and immediately demanded sa-

nitary improvements, have, in conformity with the fifth section of the act, prepared and submitted to the governor in council a code of rules, and bye-laws, which was recommended for adoption in those parts of the island, where epidemic diseases continued to prevail. It is, however, a subject of regret, that the intentions of the Board could not be enforced, or as fully carried out, as were desired; deficiencies in the law being discovered, and there being a total absence of any power to compel the observance of rules, or to punish any omissions which were not already created offences under existing statutes, the Board were unable to effect any other good purpose in this respect, than imperatively to call by circular upon the proper authorities for rigid enforcement of the police law, the highway, and the towns and communities' acts, in their respective parishes. Should the legislature, in its wisdom, consider it necessary to continue beyond the present limitation, the existence of a Central Board of Health, together with the powers granted under the present law, it is then earnestly recommended that a defined executive authority should be given them, and the machinery clearly pointed out, whereby the due and effectual execution of the bye-laws and rules may be enforced, under the controul and by the direction of the Central Board of Health.

For the convenience and simplifying as much as possible, the labours of the Board, it was deemed advisable to classify the various subjects which formed the principal objects of inquiry, and in submitting the result of these investigations to the consideration of the legislature, the same classification has been adhered to, and the subject divided into five sections; this plan being considered easier for reference and more in detail than it otherwise would be for legislative purposes. The following points have chiefly engaged the attention of the Board, constituting as they necessarily do, the principal features of sanitary reform, and demanding, as their importance must, immediate attention for the public safety:—

Firstly—The subject of quarantine.

Secondly—The prevention of epidemic, endemic, and contagious diseases, including the subject of vaccination.

Thirdly—The present sanitary condition of towns and villages, including the dwellings of the poor, and the application of town refuse to agricultural purposes.

Fourthly—The providing of medical relief throughout the island, together with protection to medical practitioners.

Fifthly—The registration of births and deaths.

The Central Board of Health, in laying before the legislature this report, would desire to absolve themselves, from the supposition that it is either as full or complete as could have been wished; but the difficulties and obstacles already alluded to, together with the almost impossibility of obtaining, by lengthened examinations, and through the agency of correspondence, satisfactory information in respect to the existing institutions, accompanied with those statistical facts, absolutely required as the basis for legislative action, within the time limited by law, have rendered it clear that much valuable matter continues still shrouded from public observation, and there cannot be a doubt, that if enquiries were further prosecuted by competent individuals, in the respective parishes, many useful, beneficial and effective measures, would be brought to light, as imperatively required for the preservation of the health of the inhabitants, and that while thousands of pounds are being expended in the laudable desire of increasing population, through the means of emigration, the lives of those already settled here are being hourly in peril from the neglect and inattention to sanitary improvements.

QUARANTINE.

"Principiis obsta: venienti occurrere morbo."

The subject of quarantine is one of vital importance as concerns the public and the individual.

The term quarantine, from the Italian "*quaranta*," signifying forty, is used to express those legislative and other enactments and rules under which persons arriving in ports by water or over land from countries or places supposed to be suffering from contagious or infectious diseases are detained, and subjected to certain restrictions and precautionary measures.

It also comprehends the surrounding of towns or tracts of countries by means of men (cordons sanitaires) for the purpose of either enclosing the diseased within their limits, or of preventing and cutting off the access of the infected from without.

Quarantine was first established at Venice, in 1403, with the object of preventing the introduction of the plague from the Levant. A separate hospital for persons attacked by this disease was established on an island near Venice. The practice of isolating passengers and purifying goods, does not appear to have been adopted till many years after, about 1485.

Independent of isolation and detention within bounds, quarantine consisted of certain precautionary measures respecting men, animals, goods, and letters.

The intention of such measures was founded upon the then generally received assumption that by the absolute interdiction of communication with the sick, either by the person or by the infected articles, the introduction of epidemic disease into an uninfected community would be prevented. An assumption based upon the prevalent opinion that epidemic diseases were essentially different in their nature, each being thought to depend on its own specific contagion.

As regarded men and animals, the object was to keep those actually infected from all communication with the healthy, and to detain those not affected with the disease, so that should they have imbibed the poison within their systems, it might have time to develope and declare itself. The period of forty days was selected as one, at the expiration of which a certainty was afforded that the germs of disease did not so exist.

As regards goods and letters, restrictions and precautionary measures were imposed upon them on the belief then prevalent, that the poisonous principle or contagion might attach itself to them, and through them be transmitted to man.

In many places, chiefly in the Mediterranean, certain buildings and enclosures are attached to sea ports for the reception and confinement of the crews and passengers of vessels arriving with sickness on board, or which have come from places where disease was endemic or prevailing. They are termed lazarettos, and, for the most part, consist of various detached buildings with courts between, the whole being encircled with high walls. They are generally constructed in situations out of the town apart from dwellings, on the sea coast, and, in some instances, on a rock or island near the coast.

Attached to these institutions are large buildings or warehouses, in which goods, supposed to be capable of retaining contagion, such as wool, cotton, leather, silk, paper, &c. are detained and purified.

This is done by exposing them freely to the air, and stirring and moving them about frequently.

These duties are performed by persons termed guards, who reside within the walls, and are well paid for the confinement and risk they run.

With regard to vessels arriving at places where no lazarettos exist, they, with their crews, passengers, and cargoes, are sent to an anchorage at some distance from the town and shore, known as the quarantine ground, and there they are strictly guarded; any

breach of the rules being visited with a heavy penalty, extending even to the forfeiture of life itself.

Such is a brief statement of the institution and intentions of quarantine, as generally adopted, in most countries, and constituted as a distinct and separate code of laws. Each country, however, has enacted such regulations as appeared best suited to attain its own object. The consequence is, that great variations have, at different times, and in different places, occurred. Thus the period of detention imposed for the same disease varies in different countries. The very diseases for which quarantine restrictions are enforced also vary, thus one imposes them for yellow fever; another and adjoining country overlooks this disease, but declares it necessary for cholera; a third imposes it for small pox, measles, &c. diseases unheeded by the majority, but not for cholera or yellow fever.

It is obvious that quarantine restrictions, if really fulfilling all that they are intended to do, afford most invaluable protection to the country enforcing them. At the same time it is clear, that if they fail of affording this protection, if they merely give rise to a false security, their imposition—their existence becomes an irksome encumbrance—interrupting commerce, obstructing national intercourse, periling life, fostering and engendering disease, and squandering large sums of the public revenue.

Doubts, as to the efficacy of the quarantine regulations, have existed for some time among European and other nations. These have become gradually stronger and stronger, till at length the leading nations have so relaxed the restrictions, and abandoned the practice, that the law has virtually become, in many of them, a dead letter.

The General Board of Health, in England, in 1849, published a report on this subject, in which the conclusion is arrived at, after due consideration and a careful weighing of the vast mass of accumulated experience and observations of authentic authorities in

all parts of the globe, that the means employed are inadequate to effect the desired end, thus confirming a previously expressed opinion, "that internal sanitary arrangements, and not quarantine and sanitary lines, are the safeguards of nations," an enunciation in accordance with the experience and views of France, Belgium, Russia, Austria, Spain, and other enlightened nations; the result of which is, that, at the present time, a congress of representatives from the different nations has assembled at Paris for the purpose of considering the subject, and adopting some ultimate and determinate plan.

In treating upon this subject, the Central Board of Health may probably be obnoxious to the charge of causing unnecessary alarm in the minds of many.—The abolition of quarantine is considered by numbers to be a most unwarrantable act of rashness; its modification a most presumptuous innovation.

A rooted prejudice exists against the abolition or reform of old customs, especially against altering one which has been held up as effecting so desirable an object. The majority of mankind are quite willing to take the assertion of its efficacy as truth, and to consider it as one of the most useful safeguards for the protection of life. Indeed it may be said that so far as popular opinion is concerned, in spite of all the evidence to the contrary, so far from considering quarantine as ineffectual, or its present restrictions as unnecessarily severe, it rather doubts if the restrictions are sufficiently so. In performing their duty, however, the Board are actuated solely by a desire to suggest what they believe to be best for the public good; and, in doing so, they have availed themselves of every means, within their power, to arrive at a true state of matters, so as to enable the legislature to draw up and promulgate such enactments as may afford all necessary protection to the island; and at the same time to remove all useless and unnecessary restrictions from those who may be subjected to their imposition.

As previously stated, the object of quarantine is to prevent the introduction of epidemic disease from one country into another, and its regulations are based on the assumption of the contagiousness of the disease with which it deals, such diseases being supposed to be propagated by contact direct or indirect of the unaffected with the affected.

The origin of each epidemic disease was considered to depend upon a specific poison, and this view, at first glance, seemed to be confirmed by the vast difference observable between typhus, scarlatina, influenza, plague, yellow fever, small pox, and cholera.

The prevalent opinion of the day is that all these diseases, however different in appearance, derive their origin from one common agent, essentially the same in nature, but modified by peculiarities of climate and other circumstances, which, under varying conditions, gives rise to various forms or types of disease, each having definite characters, and running a particular course. How else shall we account for the overflowing of the Nile producing plague; that of the Ganges, cholera, that of the parts within the Tropics, yellow fever? How else for the sudden origin of diseases in the interior of countries, or on board vessels on the broad ocean? How shall we account for the appearance of new diseases in countries where they never pre-existed, or for the disappearance of particular diseases from places where they once prevailed?

One fact, however, is allowed by all;—whatever may be the supposed origin of epidemics, that there is a great resemblance between them in their requiring an atmospheric medium, and spreading through the agency of certain atmospheric conditions;—that they all obey similar laws of diffusion, irreconcilable by the theory of contagion alone;—that they all infest the same sort of localities;—that they all attack chiefly the same classes, and for the most part, persons of like ages, and that their intensity is increased or diminished by the same sanitary and social conditions.

The prevalent opinion of the spread of an epidemic is,

that this is effected through the medium of the atmosphere;—that, in order for a disease to extend itself, there must be, independent of its own existence, a peculiar atmospherical condition, which latter is essential to the propagation of every epidemic. A disease may exist, it may originate in the place, it may be imported, but yet, unless this certain requisite exists, it will not spread among the mass. It may occur, and be sporadic—scattered here and there. “Sydenham, who practised while the plague ravaged England,—Mead, who studied it profoundly, and Russel, of Aleppo, who lived where it raged for three years, have all taught us that without the essential preliminary of an epidemic atmosphere on the spot, foreign contagion is inert; and that unless both concur, no pestilence ensues. Hence this latter states that the city of Aleppo, though in unrestricted and constant communication with Egypt and other parts of the Turkish empire, where the plague appears annually, used to be affected, on an average, only once in eighteen years. The unknown influence which they called an epidemic atmosphere, was also reckoned by the ancients to be the invariable forerunner, or concomitant of spreading sickness. In their judgment, half the cause, at least one blade of the destroying shears is forged at home; and, without it, the other cannot do the work of fate.”

So also Sanctorius says: “Things infected with the plague communicate their infection as long as the proximate and remote causes subsist, one of which ceasing, the infection ceases, like as the motion of a clock stops if only a single tooth of one of the wheels is obstructed.”

The question of the contagion, or non-contagion of a disease, is quite a secondary matter as regards quarantine. Some epidemic diseases are allowed, by universal consent, to be non-infectious; others are, in this respect, *sub judice*; others, again, do most decidedly increase by communication; but they do not always spread when present, thus shewing that some-

thing more than mere contagion is necessary. But what this certain something is we know not. Theories have been formed, opinions given as to its nature, but as yet chemistry, with all her powers, has failed to detect it; but nevertheless experience has taught us that it does exist, and that when present it is the chief propagator of every disease; it baffles quarantine, and sets at naught all its restrictions.

An additional proof that a peculiar state of the atmosphere, does generally, if not always, precede and accompany spreading diseases, is the appearance of certain natural signs or phenomena. The historian Livy, attributes the origin of a pestilence to this cause. "The year was remarkable, he observes, for a cold and snowy winter, so that the roads were impassable and the Tiber completely frozen. This deplorable winter, whether it was from the unseasonable state of the year, which suddenly changed to an opposite state, or some other cause, was succeeded by intense heat, pestilential and destructive to all kinds of animals."

The connection between famine, however produced, and pestilence, has been noticed in all ages of the world.

An enormous increase of insects has frequently been observed to precede a pestilence. Thus, in 1610, Constantinople was infested with crowds of grasshoppers of great size, that devoured every green thing, and the next year the plague carried off two hundred thousand inhabitants of that city.

The presence of locusts and pestilence is often mentioned in holy writ.

We read also of the disappearance of birds from places immediately before the advent of epidemics, and the death of those confined in cages, and of the occasional prevalence of epizootic diseases, arising among horses, cattle, and domestic animals generally, as also of epiphytics or blights in the vegetable kingdom, previous to, or simultaneous with, the appearance of pestilence among human beings.

It is stated in the Report of the Sanitary Commissioners that contemporaneously with the change noted in the character of fever in the London fever hospital, an analogous change had been observed by the professors of veterinary medicine and surgery in the diseases of dogs, horses, sheep, and cattle, namely—a change from an inflammatory type to one of debility, and that this had been observed to be particularly the case with regard to all the diseases properly considered epidemic, to which these animals are subject.

These phenomena, and others affecting the temperature, humidity and electricity of the air have been observed, and described as attending almost every epidemic disease in every quarter of the globe; as regards cholera, we find them alluded to from its appearance at Jessore in India, in May, 1817. We find them accompanying it through its wonderful and mysterious march, till we have an opportunity of witnessing the facts ourselves. Look at the clear and unmistakeable evidence of some peculiar influence evincing an unusual constitution of the atmosphere, appreciable to the senses of all, noticed and observed by many during cholera. Its very course has been peculiar and irreconcilable with the laws of contagion; it has for the most part extended itself in one direction from East to West.

Experience all over the world has most satisfactorily shewn, that such an atmospheric influence may exist over an extensive space, and yet the epidemic disease prevalent confine or limit its violence to certain localities; in fact localizing causes are required, and it is by attending to these conditions, and removing them, that we can prevent its attack, or arrest its ravages. This is true of all epidemic and endemic diseases: experience has proved it to apply to all.—This is what Dr. Christison meant, when he wrote the sentence, “Cleanliness and ventilation will speedily extinguish any epidemic.”

To these causes Dr. Bancroft alluded: “It is for-

fortunate for mankind that the communication of the contagion of the plague depends upon the co-operation of so many favorable circumstances, and particularly upon that of a suitable temperature, and of certain aptitudes and susceptibilities in the human subject, for without such requisites, or such obstacles to its propagation, the earth might long ago have become desolate."

Assalini, in writing on the plague, says, "During my stay at Jaffa, I made use of no extraordinary means to avoid it. I was convinced that the disease was epidemic, and that if my health became impaired by a concurrence of any causes whatever, I could not escape it, even by the most strict seclusion; no, not even if I had been surrounded by the whole guard of health (*garde sanitaire*.) As I was persuaded that obstructed perspiration, damp and infected air, the exhalations of marshes, and bad food were the principal causes of this disease, I endeavoured to avoid unhealthy places, damp and cold air, and made use of the best food I could procure, and as I knew the influence of the affections of the mind in predisposing to disease, I avoided all melancholy ideas, by being always employed."

The same feeling actuated Rush. "To all natural evil," he says, "the author of nature has kindly prepared an antidote. Pestilential fevers furnish no exception to this remark. The means of preventing them are as much under the power of human reason and industry, as the means of preventing the evils of lightning and common fire. I am so satisfied of the truth of this opinion, that I look for the time when our courts of law shall punish cities and villages for permitting any of the sources of malignant fevers to exist within their jurisdiction."

It was a consciousness of the same truth which induced Dr. Watson thus to write: "Now it is a very instructive fact respecting this disease (small pox) thus rankly contagious, and arising from no other source than contagion, that when it is epidemic in any

place, many instances of it occur which we can by no means trace to contagion." Dr. Gregory tells us, "that of the numerous cases received into the small pox hospital, (to which he has long been physician), not one in twenty is capable of being referred to any known source of infection, the disease being ascribed by the patient to cold, fatigue, change of air, or some other innocent circumstance." Whatever share contagion may have in the propagation of an epidemic disease, it is quite certain that of itself it is not sufficient. Hitherto its powers have been over-rated.

The history of epidemic diseases, and the annals of different countries in which quarantine has been enforced in innumerable instances, declare its insufficiency to check the introduction of disease. Times without number has it failed, and even in some cases its apparent success may frequently be called in question. When we consider the capricious and mysterious course which disease often assumes, we are apt to attribute to the imposition of quarantine what is really due to the peculiar character of the disease.

Having thus considered the soundness of the fundamental principle of quarantine, it now remains for us to consider some of its restrictions and regulations, and to observe if their imposition, as at present practised, is necessary, and whether it is attended with positive good or positive harm.

We may here quote the words of the report on quarantine, published by the General Board of Health, in 1849. "We are advised by custom house officers, and other competent persons, that there are at present, as there might be expected to be, such extensive evasions of the quarantine regulations as to render them a nullity for any protection on the theory of contagion. The whole of the passengers and crew being exposed to grievous inconvenience on account of the sickness of individuals, it is the practice to prevail on the sick to misrepresent the nature and cause of their sickness; thus, rheumatism, catarrh,

scurvy, diarrhœa, sea-sickness, are frequently assigned for febrile and epidemic attacks."

"When those only are dealt with, who are sick, or affected with premonitory symptoms, and dealt with by appropriate treatment, having regard mainly to their own benefit, and in such a manner as not to alarm them, and to lead them to imagine that they are to be sacrificed to a feeling of apprehension, in behalf of others, we may fairly expect less of concealment, and so far as the absence of concealment is concerned, less of real danger of the escape of cases of malignant epidemics than under the present system.

The practice of thrusting persons into lazarettos, or confining them in vessels, apart from all communication and medical aid, is unnecessary. The narrowness of the sphere of alleged contagion is a subject which has long engrossed the attention of many.—Numerous instances have been adduced, the results of careful and extensive experience, which prove that the emanations arising from living bodies do not extend beyond a few feet. Thus, from the experiments of Dr. Haygarth, for determining the absolute distances to which the power of contagion or infection extends in different disorders, the result was, "that where ventilation is complete, in other words where the gaseous poison is freely diluted with atmospheric air, the sphere of its operation is very limited." As regards emanations from living, healthy, or diseased bodies, Drs. Percival, Ferrier, Carmichael, Currie, Russel, Roberts, Arnott, Alison, Christison, and many others, to quote the words of the report on quarantine, "deny that exhalations from the living body are capable of permanent suspension in the atmosphere, or that they can be conveyed unchanged through pure air to great distances. They regard it as established by an indubitable body of evidence, that the moment these exhalations come in contact with the external atmosphere they are diffused through it: that by such diffusion their injurious properties are destroyed, and that though when pent up in close

unventilated rooms, they may acquire permanent concentration and virulence, yet when they once pass into the ocean of air, they disappear as a single drop of rain is lost in the ocean of water," and these authorities view the properties thus possessed by air, to neutralize and destroy these exhalations as a provision of nature for our well being. Dr. Christison, in an article on fever, in the Library of Practical Medicine, gives a striking illustration of the effect of different degrees of concentration of the poison of typhus fever, as observed in the wards of the Edinburgh hospital, where, if fever patients were admitted only under a certain proportion to the other patients, the fever did not spread ; but if beyond that proportion the persons about them were seized and very exactly in the ratio of their exposure to the infection, the nurses preceding the clerks and house surgeons, then the dressers, and then the general students and physicians, and it was remarked that none of the persons so attacked when removed to their private dwellings, communicated the disease to their attendants." Similar observations have been made by the physicians of the London hospitals. "The London fever hospital, is separated from the small pox hospital, only by the space of between thirty and forty feet, and the windows of the wards of both establishments are immediately opposite to each other, yet there is no instance of the communication of small pox to the typhus patients, nor of typhus to the small pox patients, nor of either disease to the convalescent, or to the official inmates of the adjoining establishment. There does not appear to be a single instance on record, in any country, of the extension of infection beyond the wall of an hospital, or even of a lazar house, so as to injure in any manner the nearest inhabitant." There is little doubt that the contagious principle of every disease has been overrated. This Dr. Christison distinctly states, relative to typhus fever, "The infection of continued fever is, for the most part, by no means virulent. This is contrary to universal prejudice among unprofes-

sional persons, and to the opinion entertained even by some members of the medical profession. But it is nevertheless certain, so far as minute observation of several violent epidemics, during the last twenty years, can determine the point that moderate precautions will render the infectious atmosphere inert. Cleanliness and ventilation will speedily extinguish any epidemic, for it is well ascertained that fever, communicated to an individual in the better ranks by attendance on the sick in hospital, is very rarely propagated in his own station, or to any of his attendants :” exactly the same facts have been observed with regard to plague and cholera.

Few medical men in private practice, imagine that they run any risk in visiting a patient suffering under an epidemic disease ; why therefore such strict regulations are to be enforced against unfortunate persons under quarantine, it is difficult to say. There is no danger, as experience distinctly shews, in a medical man attending the sick in well ventilated rooms.

Numerous instances have occurred, proving the serious mischief accruing from the confinement and overcrowding which frequently takes place in overcharged and tainted lazarettos and ships ; not only is existing disease aggravated, but in many instances it has given rise to, and engendered, fresh and even more fatal affections. The history of quarantine teems with such melancholy instances. Few who have not studied the subject, and examined the evidence obtained from those employed in carrying out these regulations, can imagine the heart-rending scenes that the walls of a lazaretto, or the decks of a vessel under quarantine, have witnessed. In many such cases the cause of disease has existed all the time in the vessel itself. Sanitary measures should not be confined to towns and communities alone. It is now well ascertained that a foul ship is just as bad as a filthy house. We have it on undoubted authority that epidemic diseases do frequently break out and rage during a voyage.—The mortality among merchant seamen, from epi-

demic diseases, is great, and were it not that seamen work in a purer external atmosphere, that they are below decks comparatively for short intervals only, and that in general they are men at the most robust periods of life, it is probable that epidemic disease would be still more frequent among them; an inference, supported by the fact that, whenever passengers, emigrants, and others are, owing to stormy weather, much confined to the berths below, some form of malignant disease is almost sure to break out. The difference of the mortality between the merchant service and the navy is, in these days, very great, owing, no doubt, to the great attention now paid to sanitary measures on board her majesty's ships. On the subject of the propagation of disease in ships, Dr. Sutherland thus writes: "If we consider that ships are, in reality, floating buildings, and those of the mercantile class usually of a worse construction than any which exist in our towns—that they have no provision for ventilation—that they are generally kept in a filthy condition—that though requiring constant drainage, as much as any private dwelling does, there is no regulation whereby this is secured—that when in port, and especially in river harbours, which receive the drainage of towns, a portion of water, already stagnant, or of diluted sewer water, is sure to pass in by way of leakage, and evolve the usual unwholesome gases, and that even putrid mud has been found covering the bottom of such vessels; in short when we have sanitary conditions, as bad, or even worse than in the worst parts of our crowded cities and towns, we need not be surprized to find that merchant ships are not exempt from the operation of those causes which engender disease on land, and that when they happen to be placed in epidemic centres, the disease, whatever it may be, obeys the usual law of its propagation, and fastens on the ship just as it would do on any equally unhealthy spot on shore. A foul bill of health is the consequence, and the vessel is put in quarantine at the first port where its bad sanitary re-

putation happens to excite the fears of the government, or people." Such is a description of a merchant vessel, but that of an emigrant ship is far worse; instead of this mortality among sailors, they ought to be the healthiest of men. In such cases, however, what horrors, what sufferings does quarantine impose? The act, which places a ship so circumstanced under restrictions, and retains the passengers and crews on board, can deserve no title but that of recklessness and cruelty, and ought no longer to be upheld or tolerated in civilized communities.

As regards the restrictions upon animals, this, from experience, appears to be altogether unnecessary. No authenticated instance is on record of the disease being so communicated to man. With regard to the plague, Dr. McLean informs us, that certain animals are supposed to be more susceptible than others; thus, the cat is said to be much more so than the horse, in fact the latter is stated to be insusceptible. Their retention therefore on board can only be productive of cruelty to the animals, and of over-crowding to the passengers and crew.

Experience has fully shewn that the detention of goods and letters is unnecessary; the division of the former into susceptible and non-susceptible appears to be fanciful and capricious. No instance is adduced of the guards of a lazaretto suffering; in fact, in all countries, their immunity has been remarkable. With regard to bedding which has been used, and soiled linen, there can be little doubt that the danger from these, for a time, will be commensurate with the danger arising from the body of the infected person. It is very much to be doubted if even these will retain any communicability beyond a very limited period. With regard to the clothes of those dying of plague, Bruce, the traveller, tells us: "The Turks and Moors, immediately after St. John's day, expose, in the market places, the clothes of the many thousands that have died of the plague during its late continuance; and though these consist of furs, cotton, silk, and

woollen clothes, which are stuffs the most retentive of the infection, no accident happens to those who wear them.

As regards letters and papers, no well authenticated instances of their giving rise to the disease, have been brought forward; whereas the opening and detaining them, often entails mistakes, delays, and other serious inconveniences.

We have now to consider quarantine as conducted in this island. The act at present in force, is one passed 19th December, 1840, fourth Victoria, chapter twenty-two, entitled "An act to regulate the performance of quarantine, and to prevent the spreading of infectious diseases within this island, and to fix the salaries of the health officers." It repeals an act of forty-one George III, entitled, "An act to oblige ships and other vessels coming from foreign parts, infected with malignant fevers or contagious distempers, to perform quarantine, and for preventing the spreading of infection in this island;" also a certain other act, fourth George IV, entitled "An act for reducing the fees, and for regulating the duties of the health officers;" as also an act, fifty-eighth George III, entitled "An act for establishing the fees of health officers."

Clause 2. Enacts that all persons, goods, letters, &c. from suspected places, are liable to quarantine, at discretion of government and council; includes pilot. No persons, goods, letters, &c. permitted to be landed, until after the expiration of quarantine, unless with license of governor, with advice of privy council. Period of quarantine, and place for performing quarantine, to be fixed by the same. Vessels from suspected islands, though not bound to this island, subject on their arrival here to quarantine.

Clause 3. Goods particularly specified, subject to such regulations as may be ordered by the governor and council.

Clause 4. In case of emergency, governor empow-

ered to make orders—governor may shorten time or release vessels from quarantine.

Clause 5. Vessels under quarantine shall hoist such signals as may be directed. Vessels not undergoing quarantine, not to hoist such signal under a penalty of £50.

Clause 6. Vessels from suspected places to be visited at a convenient distance from shore by health officer or assistant. Masters of vessels required to give true answers to health officer. Penalty for false replies.

Clause 7. If vessels be required to perform quarantine, such vessel may be compelled to repair to such port as may be appointed for the performance of quarantine. Any vessel from an infected port, or having contagious disorder on board, not reporting same, and hoisting signal appointed, convicted and liable to penalty of £200 sterling.

Clause 8. Masters of vessels subject to quarantine to deliver bill of health, manifest, &c. to health officer on demand, under a penalty of £100 for refusing.

Clause 9. Masters of vessels under quarantine not to land themselves, nor permit any person from their vessel to land, under a penalty of £300 sterling. Any person leaving a vessel under quarantine, may be compelled to return on board. Penalty for quitting vessels under quarantine.

Clause 10. Persons undergoing quarantine subject to the directions of the health officer. Health officers empowered to enforce their orders, and call in assistance. Persons called upon required to assist in enforcing quarantine laws. Persons subject to quarantine willfully violating the law, may be compelled by necessary force, to comply with the directions of the law. Penalty.

Clause 11. Constables and peace officers empowered to seize any one landing while under quarantine, and carry him before a magistrate. Justice to issue his warrant to convey offender to vessel where he

was performing quarantine, or to any place of safe custody, except the public gaol.

Clause 12. Persons, boats, and vessels prohibited from going within the limits assigned for performing quarantine. Penalty.

Clause 13. Any officer embezzling any article under quarantine, declared incapable of holding such situation, and forfeits £100 sterling. Any officer deserting, or permitting goods under quarantine to be landed, or granting false certificate, guilty of a misdemeanour. Officer wilfully damaging goods under quarantine, to pay £100 sterling, damages and costs of suit, over and above the value.

Clause 14. Vessels having performed quarantine, passengers, &c. upon producing a certificate from health officer, liable to no further restrictions.

Clause 15. Goods on board vessels after being aired, and certificate procured from proper officer, liable to no further detention. Evidence to be given on oath before proper officers.

Clause 16. Persons forging certificate guilty of misdemeanour.

Clause 17. Persons landing goods, &c. from vessels liable to perform quarantine, to forfeit £300 sterling. Persons conveying letters, goods, &c. from vessel actually under quarantine, to forfeit £100 sterling.

Clause 18. Persons authorized to take examinations, to administer an oath. Any person examined by such qualified officer giving false evidence, guilty of perjury.

Clause 19. Governor to appoint officers. In case of their absence or sickness, their duty to be performed by such officer of the customs as may be appointed.

Clause 20. Advertisement inserted by authority of governor, or proclamation, to be sufficient notice to all parties concerned.

Clause 21. How fines and penalties are to be recovered.

The other clauses relate to actions and payment of salaries, &c. A short act was passed appointing commissioners to erect a lazaretto, a sum of £3000 was authorised to be raised. This was never carried into effect, although the committee has, on one or two occasions, assembled.

The Board have procured evidence as regards the present working of the quarantine law in this island, from the majority of the gentlemen holding the appointment of health officers, as also from the harbour master of Kingston.

The Board of Health, after mature consideration of the subject, feel it their duty to declare that, as at present enforced, the quarantine law does not afford to the public health the protection it is generally supposed to do. In their opinion, the act does not provide the proper machinery for carrying out the rules and regulations it intends to enforce. By clause two, the power of imposing and relieving quarantine is altogether vested in the governor and privy council. The Board are of opinion that this would be more easily and conveniently effected by means of a committee of the Central Board, of whom a portion shall be of the medical profession, and that this would be preferable.

In the same clause, the pilot boarding and bringing in a vessel to port, is included in the quarantine. Instances have been mentioned to the Board, and are known to one or two of its members, where the crew of the pilot's boat also boarded and remained on board for some time, the boat being kept in tow during such time. It will be observed that the health officers generally are not aware of this practice. Dr. Cooke, however, the health officer of Morant Bay and Port Morant, in reply to the following question—
“Do you know of an instance or instances where the pilot boarding a vessel at sea, has taken the crew of his boat on board, and that the crew afterwards left the vessel and returned on shore, leaving the pilot on board to take the vessel into port?” states,

“It is their constant habit.”

Dr. Steven's answer is, “The pilot and his crew are not permitted to leave a vessel till she has been so examined.”

Dr. Johnstone, in his evidence, states, “The pilot generally boards some distance from the port, *and his crew usually go on board with him, towing the canoe with a line;*” and adds, “the pilot never leaves the vessel until boarded.”

Dr. Bayley's answer is—“It is a common practice for the crew of the pilot boat to go on board the vessel at sea with the pilot, and the boat is towed into harbour, the crew of the pilot boat seldom return on shore before the pilot.”

Dr. M'Farlane's answer is—“In general the pilot boards the vessel at sea, but the pilot crew do not board, they proceed, when within a reasonable distance of the anchorage, for the health officer, who immediately goes alongside, and ascertains the state of the vessel, admitting her to pratique, or otherwise, according to circumstances. I am not aware of any instance where the crew of the pilot boat have boarded a vessel, and returned on shore leaving the pilot on board.” He afterwards adds, in answer to another question, number eleven—“In my opinion the system of quarantine at present existing, affords a tolerably efficient protection to public health. It is not a perfect safeguard to the importation of epidemic disease, unless the pilots were prevented from boarding before ascertaining the existence or non-existence of disease on board, and also having some efficient means of preventing any communication with the shore, in the event of a vessel being put into quarantine.”

Dr. Lemonius states—“I believe that the pilot *only* goes on board any vessel, and sends his canoe on shore.”

The Central Board would most urgently call the attention of the legislature to the fact, one they believe of no unfrequent occurrence—the inducement to go on

board, or hold communication while being towed along by a vessel, is too great a temptation to be left to the discretion of a pilot and his crew. In other countries the pilot boards, and his boat immediately quits.

This clause enacts that all vessels shall be subject to the inspection of the health officer. Dr. Chamberlane, in his evidence, in answer to question twenty-five, says—"All coasting vessels (droghers) bearing the island flag, are not subject to the visitation of the health officer." They are exempt by law.

In answer to question twenty-six, he replies—"I have heard they sometimes go to Cuba and Saint Domingo. I do not know it as a fact. They never apply for a certificate as other vessels to enter at the customs—no vessel can enter at the customs without producing the health officer's certificate of pratique."

In answer to question twenty-seven, he says, "No, they come into port with the island flag, and considering it wrong, I have reported them. The Caymanas are a dependency of Jamaica."

In answer to question twenty-eight, he says, "Yes, American steamers from ~~Charges~~ and New York, come up the harbour during night, at all hours. I have reported them to the Board of Health, and to the governor. They are examined by the deputy health officer and myself, or report themselves on arrival to the health officer. No prohibitory measures have been taken, and they continue to do so, after examination at Port Royal and Kingston."

The Board of Health would call the attention of the legislature to the fact here stated. Since the above evidence was taken, the Board have received from an officer of her majesty's customs, the annexed memorandum.

Droghers or vessels coastwise.	}	Not required to produce health officer's certificate on entry at the customs.
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Droghers trading at times beyond the island.	}	Required to produce health officer's certificate every time of entry. These vessels chiefly
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trade to Cuba, Saint Domingo, and the Spanish Main, and cannot enter without such document, when they change their character.

It will be observed that this memorandum by no means contradicts the above evidence.

With regard to the American steamers, they often bring from two hundred to three hundred passengers. The reporting themselves after having arrived in Kingston, and had free communication with the shore, can be of little real utility. This is said to occur, when they come in during the night. If the quarantine laws, are able to effect what they are intended to do, they should be most rigidly observed; if not, they should be modified, or abolished.

As regards clause six, which enacts that vessels from suspected places, are to be visited at a convenient distance from shore, by health officer or his assistant.—The Board must observe, that, in many instances, the medical officer appears, in his zeal, to have overstepped the bounds prescribed. Thus, Dr. Johnstone says, “I board immediately on her coming to anchor, and if necessary to place the vessel in quarantine, my instructions are, to place her in, and to leeward of the other vessels in the port.”

Dr. Bayley states, “The pilot has instructions if a vessel has any epidemic disease on board, not to bring her into port. The health officer, boards a vessel when she comes into harbour, but no communication is permitted with the town, until the health officer visits the vessel.” In another place, he writes, “It has been my practice to board the vessel, and personally examine the crew.”

Dr. Stevens also says, “Vessels are boarded by the pilot at a distance from the harbour, who, before he boards, ascertains that no sickness exists, or has existed, during the voyage. The vessel, if the replies are satisfactory, is then brought into port, where she is boarded by the health officer and examined.”

Dr. Clachar states, "The pilot is the first to ascertain if there be sickness on board of the vessel outside the port. If brought into port, the health officer would, if necessary, place her in quarantine, and report the same to the Executive, or Central Board of Health."

The Board must here remark that the medical officer boarding any vessel, which is afterwards placed in quarantine, is not contemplated by the act,—in fact, it is in direct opposition to its principles. In some of the above answers, it appears as if it were optional with the pilot to board a vessel.—Vide Dr. Steven's evidence.

The Board must now draw the attention of the legislature, to the following circumstance, as one fraught with the greatest mischief. To the question, "In your absence, the health visit may be performed by an officer of the customs? Dr. Chamberlane, the health officer of Kingston, answers, "Yes, if he is sick, or temporarily absent, the officer of the customs may act as his substitute, according to the quarantine law, but the duty is generally performed by a medical man in such cases.

Dr. Walsh, his deputy, the acting health officer at Port Royal, answers, yes—it may—it is permitted by the quarantine act.—Vide clause nineteenth.

Clause nineteenth enacts, that masters of vessels, under quarantine, are not to land themselves, nor permit any person from their vessel to land, under a penalty of £300. On this subject, the Board would draw the attention of the legislature to the fact, that at many of the usual quarantine grounds, there is no means of enforcing these restrictions. To the query, "Are there any means of preventing communication with the shore?" Dr. Clachar answers—"The anchorage is about half a mile to the leeward of the port. There are no means of preventing communication with the shore, except the fear of penalties under the quarantine law." Dr. Chamberlane says, "Not any, but the commanders or masters are held respon-

sible for the due performance of quarantine." Afterwards he adds, "I may mention that it has been known that persons have sometimes been landed from vessels outside the palisades, and have made their way to Kingston with small pox on them." A case of this sort occurred about twenty-four years ago—the vessel was the schooner Montague, from Liverpool, the man was apprehended, and the spread of the disease prevented."

Dr. Johnstone says, "There are no means of preventing communication with the shore, that I am aware of, further than the strict orders of the master on board to the contrary."

Dr. Cooke—"The crew can always be prevented—not the crew of the pilot boat, as they may board and come on shore before the vessel is in sight."

Dr. Bayley—"There are no means, to my knowledge, to prevent communication with the shore."

Dr. Tarrant—"I am not aware of any."

Dr. Maitland—"I know of none, except through the interference of the magistrates and police."

Dr. M'Farlane—"There are no means of preventing communication with the shore."

Dr. Clarke—"I do not know that there are any particular means of preventing communication with the shore."

Dr. Chevers—"But no means of preventing communication with the shore."

Dr. Jelly—"There are no means whatever of preventing communication with the shore."

Dr. Potts—"The integrity of the master and a *coast guard*."

To the question, are there any means of preventing communication between vessels in quarantine, (at Green Bay,) and the shore at night?

Dr. Walsh answers, "None whatever."

The Board would here observe, that in all other countries in which quarantine has been enforced, due care has always been taken to provide the means of carrying out the restrictions. Of all disagreeable de-

privations to which a subject is liable, none equals the imposition of quarantine. The history of the custom shews us, that it has always been dreaded, and, in every possible way, resisted. In fact no civilized country would have persevered in its adoption, had it not been till lately considered a necessary evil. — The infliction of suffering and misery upon the few, for the good of the many. The opinion of the Board most decidedly is, that the attempt to carry on quarantine, by the present existing law, is altogether a fallacy; and, in effect, so absurd, as to excite the ridicule and contempt of all well thinking individuals. It may have the appearance of doing something, but it has no substance, except to injure and fetter commerce, while it materially interferes with the rights of our fellow-men, under the semblance of guarding the public weal.

Such are some of the evils of the existing quarantine law. To these, however, the Board feel called upon to add others which have been brought to their notice.

Thus there appears to be no code or printed list of instructions, by which the health officers are guided in the execution of their duty—no list even of susceptible and non-susceptible goods as noticed in clause three. Thus Dr. Chamberlane, when asked, “Is there any code of quarantine instructions or regulations?” Answers—“I am not aware of any such code. I never received any.”

The Board would strongly recommend that certain regulations be drawn up by competent authority, printed and furnished to each health officer, concisely laying down his duty in all respects, stating for what disease quarantine is to be imposed—fixing the period under the different circumstances which more commonly occur—pointing out exactly to what ground a vessel is to be sent from every particular port. In fact, laying down precisely what the health officer is to do, and what he is not. It is too evident that at present, one does one thing, and another, ano-

ther. An additional irregularity and contradiction is, that though the law says a medical officer shall not board a vessel for the purpose of examining the crew, and ascertaining the presence of disease, yet, when that point is determined on, and the vessel placed in quarantine, the health officer boards and attends the sick. Thus Dr. Johnstone, when asked, "Is any medical attendance given to the sick on board a vessel in quarantine?" Answers—"Were it necessary, medical attendance would be given."

Dr. Tarrant—"As health officer, I would consider it my duty to give professional advice when required."

Dr. Jelly—"Medical attendance is given to the sick on board."

Dr. Clachar—"I always give medical attendance to the sick on board. The case last mentioned (cholera) proved fatal after the vessel was placed in quarantine."

The Board must also notice the fact, that no record of quarantine matters has been kept, at any rate, for several years—thus, depriving the island of all by-gone experience, and most valuable information. Another circumstance which the Board cannot pass over in silence, as they are convinced it is of itself sufficient to render nugatory and useless all the restrictions adopted where it exists, is, that in some instances, a health officer fills two, or more appointments, and performs the duties himself, the places being at a distance from each other, and at a distance from his usual residence. Thus, Dr. Tarrant holds the appointment of health officer for three ports, viz. : Old-Harbour, Salt-River, and Carlisle-Bay, distant respectively, from his abode, nine, one, and twelve miles. Dr. Cooke holds two, Morant-Bay, and Port-Morant, distant from each other, nine miles by the post road. Independent of these pluralities, it will be found, by the appended evidence, that some of the health officers live many miles from their port—one gentleman no less than eighteen. Under such

circumstances, it is impossible that the restrictions of that port, can be carried out—or if they are, it is quite evident, that a custom-house officer can perform the duties equally well. One more subject the Board feel they must bring to the notice of the legislature, as their attention has been strongly drawn to it by two of the health officers—it is this—the want of the means for performing the duties of the office. If the allegations are correct, the Board would strongly recommend, that the cause of complaint should be removed as speedily as possible—being fully convinced of the correctness of the saying, “Sanitary economy is expensive.” Dr. Chevers of Alligator-Pond, writes, “Although few vessels call at this port, nevertheless, I consider a boat and men ought to be placed at the command of the health officer, and a small sum per annum for the men. I had great *trouble* to get the fishermen to take me off to the coasting vessels during the month of November and December, 1850, and part of January, 1851.”

Dr. Cooke writes, “The existing quarantine laws, are perfectly adequate to the prevention of the importation of epidemic diseases, if faithfully and rigorously carried into execution, but the remuneration afforded, in many instances, to the health officer, renders their services almost altogether inefficient, and in some cases, entails a loss to the holders of the office. At this port, or roadstead, the sum of sixty pounds is paid by the receiver-general;—out of this small sum, the health officer has to provide a boat and crew, which absorbs nearly one half of the income. Now, should it so happen that a vessel arrives with an infectious disease, the health officer is expected to give his whole attention to the sanitary condition, not only of the cases, but of the vessel. Should such an unfortunate contingency arise, he must take his choice of either starving, or doing his duty. I would suggest, that either the salary be increased, or a sum be allowed for a boat and crew. I am no advocate for doing away with quarantine regulations, as I con-

scientifically believe them to be a safeguard to the public health."

The evidence contains materials, from which many important conclusions can be drawn, relative to the working of quarantine in this island; and the Board, at the risk of being considered tedious and prolix, think it right to lay before the legislature such information as they may deem of service, to enable them to legislate upon this difficult and disputed subject.

It should be stated that several of the present health officers have held their appointment for a comparatively short time. It may be well here to introduce a tabular view of the persons from whom reports have been received, the ports they represent, and the period of time during which they have held office respectively.

Dr. Chamberlane,	Kingston,	24 years.
" Walsh, his deputy,	Port Royal,	2½ "
" M'Farlane,	Montego-Bay,	2 months.
" Stevens,	Falmouth,	2½ years.
" Jelly,	Savanna-la-Mar,	2½ "
" Potts,	Lucea,	9 "
" Clarchar,	Port-Antonio,	3 "
" Maitland,	Black-River,	10 "
" Lemonious,	Rio Bueno,	13 "
" Johnstone,	Dry-Harbour,	11 "
" Bayley,	St. Ann's Bay,	13 "
" Clarke,	Annotto-Bay,	1 "
" Cooke,	Port-Morant, }	6 "
	Morant-Bay, }	
" Tarrant,	Old-Harbour, }	
	Carlisle-Bay, }	2 "
	Salt-River, }	
" Chevers,	Alligator-Pond	4 "
Capt. Cooper, harbour-master,	Kingston,	5 "

No returns have been received from the ports of Green Island, Port-Maria, and Oracabessa.

The quarantine grounds are all described as affording safe anchorage, and every officer states that he

knows of no accident ever having occurred to a vessel while performing quarantine at the anchorage within the port to leeward of the other vessels; the other stations vary in distance from the port, from half a mile to twenty-two miles. In some instances the same anchorage is made use of by two or more ports. From the evidence of all the health officers, there appears to be no means of preventing communication with the land, though they all agree in stating that many instances of violation of quarantine restrictions are unknown to them, in fact they are aware of none; still, as before alluded to, cases have been known to be landed outside the palisades, at Port-Royal. Dr. Chamberlane says, "The schooner came into harbour with the disease on board from the opposite coast. I secured the parties and placed the vessel in quarantine." Drs. Walsh and Tarrant also mention instances of persons boarding the vessel before the health officer has paid his visit; and the latter alludes to instances of the captains of vessels going on shore before the ship has been examined by the health officer; so also does Dr. Chamberlane.

Dr. Jelly alludes to a case where a drogher, under observation for cholera, landed a passenger. The master was fined £3 by the magistrates.

It is much to be regretted that the Board have been unable to obtain any information relative to the number of vessels upon which quarantine has been imposed in the port of Kingston. Dr. Chamberlane states, he has kept no list.

The outports, above named, have afforded but comparatively few instances. The majority of the officers stating, that during their incumbency, no vessel has been placed in quarantine or under observation. This has been the case at Rio-Bueno, Dry-Harbour, St. Ann's-Bay, (in fact Dr. Bayley states, that to his knowledge, no vessel has been placed in quarantine within this port for twenty-one years,) Morant-Bay, Port-Morant, Annotto-Bay, Old-Harbour, Carlisle-Bay, Salt-River, and Montego-Bay.

The return of the number of vessels placed in quarantine in the outports, on account of disease on board at the time of their arrival, is as follows:—

Two for small pox.

One for typhus.

Three for cholera.

They occurred at the following ports:—

At Lucea, one with small pox.

At Falmouth, one with small pox.

At Black-River, one with typhus, and one with cholera.

At Savanna-la-Mar, one with cholera.

At Port-Antonio, one with cholera.

At different ports, as Alligator-Pond, Savanna-la-Mar, Port-Antonio, and Black-River, several vessels, chiefly droghers, were placed under observation for cholera, but in these no disease occurred. Upon a view of the above facts, the Board are of opinion that under a new quarantine act, it would be advisable to select a few of these ports as quarantine stations, where such dwellings and buildings might be erected as are necessary for the reception of the sick, and crews (if landed) of vessels arriving with sickness on board—and furnished with the means of purifying and cleansing foul and unwholesome ships. Their station should be as central as possible, in situations most readily reached by vessels. (Vide Dr. Clachar's evidence.) If admitted to pratique, the vessel could then go to her destined port. The advantages of this plan would be, that independent of centralization, the safest anchorage would be obtained, and the most eligible place chosen, and the expence of erecting buildings in ports, in which but few vessels at present enter, would thus be saved—and, if requisite, means of isolation and of supervision, be more effectually adopted. If, however, the irksome and unnecessary restrictions of quarantine are done away with, and the sick are taken care of and looked after, there is little doubt that all coercive measures would cease to be requisite.

The diseases for which quarantine is at present imposed are stated by Dr. Chamberlane to be the following, viz.: small pox, scarlet fever, measles, and Asiatic cholera.

From what has been already mentioned, it is evident that the health officers have no regulations to guide them as to their duties, or as to the diseases requiring the imposition of quarantine—but it appears, from Dr. Chamberlane's and Dr. Clachar's evidence, that a communication must be made to the governor, on any and every occasion, for instructions how to act—thus we have just heard of a vessel being placed at Black-River under quarantine on account of typhus fever. On referring to Dr. Walsh's evidence, we find that he states—"That quarantine at Port-Royal is not imposed for fever, either continued or periodic." The case at Black-River appears to have occurred on board a Spanish schooner, it was not fatal. Dr. Chamberlane tell us that yellow fever cases arrive constantly at Kingston, and are never placed in quarantine, that they were formerly, but are not now.—At New York, we are informed by Dr. Milroy, that this is the only disease for which quarantine is imposed. On this subject, Dr. Chamberlane mentions, that he has seen one instance in which yellow fever appeared to be communicable, but that he would not place a vessel in quarantine, unless she had several cases on board.

Experience has shewn, that in case of malignant fever occurring on board a ship, especially within the Tropics, the speedy removal of the crew and passengers is the only means of checking its ravages. Instance upon instance might be cited; Port-Royal would afford sad testimony of the fact; the celebrated *Eclair* case, which roused Great Britain from one extremity to the other, is in point, that quarantine aggravates the mischief. The following case may be given in the words of Dr. Musson, the excellent rector of St. Catherine's: "Some years ago, the *Harpy*, brig of war, came into Carlisle Bay, Barba-

does, having among her crew yellow fever, from which most of the men and many of the officers had died previously to her coming into harbour. The commodore, then in the Bay, sent on board a surgeon and men to do the work required. The surgeon died and most of the men. Another surgeon subsequently died, and the commodore at last, finding that the persons who went into the Harpy fell victims to the fever, declined to send any more, and offered to receive the sick on board his own ship, where they rapidly became convalescent. These facts I had from the late bishop of Barbadoes, to whom they were related, I believe, by the commodore." The same circumstances are constantly observed on shore in close and dirty abodes. Ventilation and free air are the antidote and the only cure for the sick ;—while cleanliness is freely insisted on, experience has proved that no fear need be entertained by those around.

We will here quote a passage from the Report on quarantine, to which we are already deeply indebted, "A foul ship is not only a centre of disease to those on board, but a source of disease to her neighbourhood. From a variety of evidence, it appears indisputable that, while the foul state of a ship's hold is the frequent cause of malignant fever to her crew—the air issuing from such a hold, and the cargo taken from it, are capable of producing disease in the neighbourhood of the wharf, where the unloading takes place, and of affecting persons who come on board from the shore. Observations of this kind have led to the apprehension and belief that, epidemic diseases may be introduced from one country into another, in this manner—and were it possible, the actual condition of ships in general, would afford the most perfect means for the incubation and developement of pestilential virus that human ingenuity could devise. That a foul ship should produce disease in those who go on board of her, or near her, is no more surprising than that a foul chamber should do so." In selecting

a place for the cleaning and purifying of foul vessels, care should be taken ; the above facts should be borne in mind in unloading. As regards distance from, and the position of dwellings or other ships—all such operations should be superintended by a competent authority.

The Board are of opinion that the health officer of each port should have the supervision of every vessel as long as she remains in port, and should see that such sanitary measures, as may be appointed by competent authority, be enforced.

Before considering the diseases seriatim for which quarantine has been and is imposed, it may be well to observe the evidence given on certain other points connected with the performance of quarantine.—The following question has been submitted to the different health officers :

“ Do you consider that the public health would be endangered if the health officer went on board—instead of merely alongside as at present—every vessel upon arrival, and ascertained by personal inspection, and examination, the condition of those on board, and also the state of the vessel itself?” This question, as might have been expected, has been variously answered by different health officers, according to their belief, or not in the power of contagion.

The preponderance of opinion, however, is in favor of a medical officer boarding the vessel, and personally examining each individual among the passengers and crew, and also the general state of the ship and cargo, that this, with due precautions, can be safely and satisfactorily performed on board even a foul ship, experience proves.

Some among the health officers, as Dr. Bayley, when asked if he can suggest any alteration, says—“ The only modification I would suggest is, that the health officer should be required to board each vessel, and not to trust simply to the captain's report of the health of his crew.

Dr. Chamberlane, who has had more experience

than any other, says—"In the first place I should recommend that the health officer should go on board, instead of merely going alongside, of each vessel, and fully ascertain the actual condition of those on board, and also of the vessel itself, preparatory to the adoption of such precautionary measures as may require to be carried into effect if any disease be on board." This practice has been observed in some of our ports, although, as before stated, in direct opposition to the principles of the existing law. It is pursued in many countries, and Dr. Milroy, the other day, informed the Board it is practised at the Havannah and at New-York for cholera and yellow fever respectively.—What greater objection a medical man can have to board a vessel with a case of cholera, small pox, measles, or any other disease on board, than to see a patient on shore, suffering from the same malady, the Board cannot imagine.

The Board would most strongly recommend the adoption of this measure, verily believing that without it no just or satisfactory opinion can be arrived at as regards the state of the health of persons on board, or of the state of the vessel and its cargo.

This point granted, the question as to the provision of medical aid to those sick on board a vessel under quarantine, may be considered as settled, though on this subject, as already mentioned, the health officers have hitherto been divided in their opinions and practice. To the question—"If any persons be sick on board, how is medical attendance obtained while the vessel is in quarantine?" Dr. Chamberlane answers—no arrangements have ever been made for such attendance; from motives of humanity, I have sent medicines off to the ship, without going on board however to see the sick persons—but it is no part of my duty to do so; all my assistants have done so likewise, and looked at the patients on board. To the query—"In the event of any person or persons being confined to bed by sickness, in the between decks, would you recommend that the health officer should go below

and see them, if there was no medical man on board?" Answer—Yes, I would; I have done so in some instances with the American steamers, when dysentery and intermittent fevers prevailed, and I have caused the dead to be removed from them, and buried on shore.

To the question—"Do you consider that the medical attendant of a patient, laboring under an infectious disease, is apt to convey the malady to his other patients?"—he replies, yes, under some circumstances I think he may do so, as in small-pox for instance, or scarletina.

Question. Have you ever seen such instances in your own practice?

Answer. I have.

Question. Frequently, or occasionally?

Answer. Occasionally, and that rarely.

Question? Would you, under any circumstances, deem it necessary that any sort of restriction be imposed on a medical man on shore, while he attends cases of infectious diseases, with the view of preventing its spread?

Answer. Certainly not. I have never heard of such a course being pursued, but nevertheless, I am of opinion, he may become the medium of infection as I have stated, under certain circumstances.

Question. What remedies should you adopt to prevent the spread of an infectious disease on shore?

Answer. I should advise the sick to be separated from the healthy, and that all sanitary precautions in the way of cleanliness and free ventilation be enforced.

Question. Would you advise that any of the healthy or unattacked inmates of the house, where the disease occurred, should be put in quarantine, or under any restriction?

Answer. No, I should not; segregation and temporary isolation, and the strict observance of sanitary measures would preclude such a necessity, but much depends upon the nature of the disease, and the number of persons infected.

Alas, how inconsistent are quarantine regulations.

We have seen that they consist in a forcible detention and deprivation of all human aid and comfort. We find medical men hesitating as to the propriety of visiting such persons. How differently do the members of the profession, when left to themselves on shore, act towards persons suffering from the self-same disease. Who would hesitate, when summoned, to repair to the help of the sufferer, lying on his bed of rags, or too often on the hard bare ground, without light or air, in a foul, offensive, over-crowded hut or hovel? Why is this difference? Shall the dictates of humanity be quenched—the assurances of experience be distrusted, and the noble example of more enlightened lands be unheeded because of the dark prejudices and fallacies of a selfish inhuman practice of bye-gone days?

With regard to the utility of lazarettos or quarantine prisons for the confinement of the passengers, crews, and cargoes of vessels condemned to hoist the yellow flag, as previously stated, a law was passed a few years back, appointing commissioners with power to establish a lazaretto, but nothing practical has been done. To the question, “Has there been a lazaretto, or any place provided, where the sick or the healthy may be landed while quarantine continues?” Dr. Chamberlane replies—“None.” On one occasion, about six years ago, the bishop of Jamaica, and other passengers from on board the same vessel, a ship of war, performed quarantine, at the Apostles’ battery; a case of small pox had occurred on the voyage from Nassau, N.P., but there was no sickness on arrival. The case here alluded to, is fresh in the minds of some of the members of the Board; the persons sent to the Apostles’ Battery were all adults, and had been vaccinated; though inconvenienced by the imposition of quarantine, and shut up within the walls of a fortress, still free admission and exit were allowed to other persons, a fact personally known to some of the members of this Board. Several instances of crews and passengers being landed have occurred,

thus the *Glen Huntly*, an emigrant vessel, with small pox on board. Several alluded to by Dr. Clachar, as occurring at Navy Island, and the recent case of the *Brandon*, at Fort Augusta. No case of the spreading of the disease in these instances has come to the knowledge of the Board. To the question—"Is there any convenient place on shore to which the sick might be sent for medical attendance if you deemed it advisable that they should be removed out of the ship?"—the majority of the health officers appear to think there would be, in some instances, great difficulty. The Board, however, are of opinion that this might, in all cases, be easily effected as regards the majority of diseases, more especially if the plan of lessening the number of quarantine stations were adopted, and the requisite accommodations provided at those which may be selected.

The same objections have also been made relative to the following question:—"In the event of a vessel being found to be exceedingly foul, and therefore liable to produce, or to keep up and aggravate sickness, is there any place on shore where the healthy on board the vessel could be conveniently located during the progress of cleaning and purifying her?"

The Board are of opinion that no difficulty whatever would be experienced in finding fit and proper places. To the question—"If it was deemed advisable that vessels should, instead of being visited by the health officer at Port-Royal, be permitted to come up the harbour, and be then boarded from the shore, is there convenient anchorage ground in the stream, and within a short distance from the shore, where vessels might come to, and what place would you recommend?" Captain Cooper replies—"There is perfectly good anchorage ground, and vessels might be anchored three-quarters of a mile from the shore, south of the town; they would then be perfectly clear of all vessels lying in the port of Kingston, by placing a buoy there, and instructions being given to the pilots to anchor all vessels at this spot until boarded."

Are there any disadvantages or inconveniences attending the present practice of vessels being visited by the health officer off Port Royal?

Answer. None; but I do not consider that sufficient time is given to the health officer to make the necessary enquiries and examination, the vessel being under weigh at the time, and frequently, two or three vessels entering at the same time.

Question. Would it be, in your opinion, a convenience or saving of expence to the shipping, if such a plan were adopted in place of the present practice?

Answer. It would not be a saving; but if it be necessary that quarantine regulations shall be strictly carried out, it would be a far better plan than the present, and, to the best of my judgment, without any additional risk to the public health. The Board are satisfied, that in all cases of a vessel arriving in harbour, and upon being found by the medical officer to have disease on board, but to be otherwise clean, that she may safely be allowed to run alongside a wharf, and there be subject to the supervision of the health officer, as regards the disposal of her sick and healthy passengers, and cargo.

If found to be in a foul and unwholesome condition, her crew and passengers might be landed, and the vessel taken to the appointed ground, to have her cargo removed and her hold purified. The more rapidly the healthy passengers and cargo are distributed and scattered, the less fear is there of disease arising.

The practice of placing vessels under quarantine while the disease is raging on land as an epidemic—an instance which we have already witnessed—is on a par with many other of the irregularities and inconsistencies which beset the performance of quarantine in this island. But to hear men attribute the escape of certain localities to the adoption of such measures is surprising; let them look about on shore, and mark if the ocean surrounds large tracts of land;—the parish of Manchester for instance. Let them ask themselves if the immunity of this place was the result of

the imposition of quarantine upon coasting vessels. Another subject to be considered in the performance of quarantine, is the discharge of the cargo, and delivery of letters, &c. On this subject the Board have already expressed their opinion. In his evidence, Dr. Chamberlane says,—“As I have never seen or heard of an authentic case of any infectious disease being conveyed by any description of merchandise or goods, (excepting perhaps foul rags, or linen, in certain infectious diseases,) I do not see any good reason why the cargo might not be landed at once.”—He also states, “No clothes or body linen on board are ever permitted, under any circumstances, to be landed from a vessel in quarantine.” To the question—“Have you ever witnessed a case where you were satisfied that any disease was conveyed from a vessel to the shore by letters, or by any description of ‘fomites,’ under which term the cargoes of vessels, also body clothes, are included?”

Answer. No, I never have—but the introduction of cholera at Port-Royal, was falsely ascribed to the latter cause—I mean foul linen. With regard to the susceptibility and non-susceptibility of goods, he does not place any credence in it, but observes, some think otherwise—that cotton and woollen stuffs possess such properties.

Question. Would you permit the body clothes of those on board a vessel in quarantine to be washed?

Answer. I see no objection, provided they were first immersed in boiling or in sea water. With regard to letters, Dr. Chamberlane says, “If it be wished to send letters on shore, they are directed by the health officer to be fumigated with sulphur, and sprinkled with vinegar, and to be then put into the ship’s boat, astern, from which they may be taken by the people in the bum-boat, when provisions are sent off. Letters are not generally landed in the health officer’s boat; occasionally a few single letters are landed by him, (in opposition to the law,) but never any packages of letters. The mail bags, after being fumigated, are re-

moved at once into the boat of the superintendant of steamers." To the question—"Do you consider it necessary that the letters should be fumigated before being landed?" He replies—"I do not, the present practice might be discontinued with perfect safety *under certain restrictions*; thus, in case small pox or other infectious disease appeared on board *at or near* the end of the voyage, the mail bags ought to be fully exposed to the air for some time before being landed or fumigated."

The Board must observe here, that this fumigation in whatever it may consist, is left to the persons on board. In other countries it is done by persons regularly employed for the purpose. With regard to Dr. Chamberlane's observations and restrictions respecting letters, the Board are of opinion, that they are unnecessary.

To the question, in your opinion, is the dead body more, or is it less liable to convey and diffuse an infectious disease, than the living one? He answers—"I am induced to think that it is less so; such fears never operated with me during the recent visitation, but this is adverse to the general opinion." In answer to a question, Dr. Walsh states—"that he has known an instance of a vessel arriving with the corpse of a patient who had died on board from fever; no quarantine was imposed."

Dr. Cooke, on this subject, expresses the following opinion—"I am convinced that neither cholera nor yellow fever is at all contagious, except in the former, after death. I am confirmed in this opinion by a lengthened and extended experience."

This is a subject which the Central Board think proper to notice, as one which, in their humble opinion, is unfounded in fact, and most mischievous in theory. During the late awful visitation, its horrors were tenfold magnified by this phantom of a panic-stricken mind. The Board are well aware of, and do most fully admit, the impropriety of exposing dead bodies, especially during the prevalence of an epide-

mic. They well know that such exposure, where putrefaction has commenced, especially in a tropical climate, is attended with danger, but that such danger results from any specific poison in the body, they must firmly declare is unsupported by any fact. As regards the plague, the same was long ago asserted, but as Dr. Cragie informs us, it is now established, that whatever be the contagious property of the living frame, when under the influence of plague, the disease cannot be communicated by the dead subject; of this, ample experience has been afforded by various pestilential epidemics. "It appears from the account given by Benza, of the Vienna plague of 1712, 1713, and 1714, that the physicians of that city, fearlessly inspected the bodies of those cut off by the distemper, and that none of the individuals engaged in this duty were attacked.

"In the Marseillaise and Provençal epidemic of 1720, and 1721, M. M. Chicoyneau Vernier, and Souillier, and M. M. Deidier, Robert, and Rimbaud, inspected many pestiferous corpses, so as to describe their appearances accurately, and sustained no inconvenience; and it is also said, that the dogs and other animals which preyed on the bodies, were not infected. Thirdly, In the plague which attended the French army in the Egyptian campaign of 1788, and 1789, Desgenettes, Larrey, and Pugnet, who inspected several of the bodies of the dead, arrived at the conclusion, that corpses were inadequate to communicate the disease, however contagious the living might be. Lastly, some disgusting stories are recorded by Jordan and others, of sextons and bearers robbing the dead of their apparel, and even violating the persons of virgins, cut off by the disease, without being attacked by plague. These results, singular as they seem, are in perfect accordance with physiological principles. If the disease be contagious, which there is good reason to believe it is, the contaminating principle must be elaborated by the organism only during life, and must possess its infecting power only

while the organs are still possessed of vital properties. When death takes place, a series of new actions commence, and the chemical properties of the elementary principles begin to operate, and subvert those which are physiological. The longer, therefore, that decomposition proceeds, and the further it advances, the more completely must it have annihilated any vital product, and if a contagious principle has been formed during life, it must cease to be formed at death, and is most probably destroyed entirely." If such is true of plague and fever, the supposition is that it must be so of cholera, a disease in which, from the excessive out-pour of discharge, the inference may safely be deduced that any poison which produced the disease would thus be eliminated or got rid of. The Board here think it proper to mention a case which they know to be authentic, viz. : that of an infant who was found clinging to the breast of its mother, who had died some time previously of cholera, and which did not suffer. It may be said, this is a solitary case ; so it is, but still a strong one. The opinion of the Board is, that supposing cholera to be contagious during life, that at death, the power of communicating either entirely and at once, or soon after, ceases. They consider the opinion which holds that a body, dead of cholera, is more contagious than a living one, or that a body, dead of cholera, is contagious only after death, to be unphilosophical and contrary to all experience. The Board are willing to allow, that the contagion of small pox does continue after death for a limited time, but this disease is different in this respect from plague, cholera, and fever, a specific virus is here formed. To the question—During your residence at or near the port of which you are health officer, what epidemic diseases have prevailed in the town or surrounding district—were they distinctly traceable to introduction by shipping ? The epidemics mentioned are small pox, in 1830 and 1831, fevers, measles, scarlatina, dysentery, small pox, and hooping cough.

All the officers agree in stating that these epide-

mics were not traceable to the shipping. In no instance could they be traced to importation, excepting in that stated by Dr. Potts, who informs us, as before alluded to, that cholera was brought into Lucea by passengers arriving by land and by water.

Another subject bearing on the performance of quarantine is, whether ships of war, on their arrival at Port-Royal, might be permitted to carry out precautionary measures against the introduction of disease under the directions of the principal medical officer of the Royal Navy hospital.

Dr. Chamberlane says, "I am of opinion that quarantine regulations may be safely carried out by such authorities in their own department. I may mention that prior to 1830, ships of war were not subject to the inspection of the health officer, or to the quarantine regulations affecting other vessels, but the legislature deemed it necessary to include them afterwards." The Board are of opinion, that this may safely be done, and further, that all steam packet vessels, carrying surgeons, should be allowed to proceed at once to the wharf, on the assurance of the captain and surgeon that there is no disease on board, for which the port would impose restrictive measures.

With regard to cholera, Dr. Chamberlane tells us, that the period of quarantine imposed upon it, has lately been curtailed, formerly it used to be fourteen days, but latterly five days only have been imposed. With regard to this disease, there are certain facts stated by Dr. Chamberlane which are of importance. In answer to a question, as to the period of detention imposed for cholera? He says—an order was issued by the governor and council, last October, requiring that all vessels from a port suspected to have cholera, should not receive pratique until five clear days had elapsed since leaving the suspected port, and provided no case of the disease had occurred on board. Under the latter circumstance, the vessel was to be detained until the governor's pleasure was ascertained. To the question—What qua-

quarantine measures were adopted to prevent the introduction of the cholera into Jamaica? He answers—In September, by an order of the governor in council, quarantine was imposed on vessels coming from Carthagena, Savanilla, (the sea-port of Baranquilla,) and Santha Martha, where cholera was said to exist. This order was rescinded on the 4th of October following; subsequent orders were issued in October, 1850, viz.: those above alluded to. It must be borne in mind, that at this time, the disease was already in Port-Royal. It was stated both publicly and privately to exist in Cuba during the latter end of 1849, and, a great portion of 1850, and in answer to the question—Were any quarantine restrictions placed on arrivals from Cuba in that year? Answer—I am not aware of any. I never received any instructions respecting any port in Cuba. But if any vessel arrived from Cuba in less than five days, cholera being known to exist in the port from which she came, I should certainly have put her into quarantine accordingly. To the question—Was it generally known here that cholera existed in Cuba, in 1849 and 1850? He answers—I read it in the newspapers at the time. To the question—If cholera did not exist in her port of departure, although it prevailed in other parts of Cuba, you would not have put her into quarantine? Answer. No, if she brought a clean bill, and the port was reported free, or known to be so. In answer to the question—Was the port of Chagres mentioned in any of the orders of the governor in council, respecting the places which were deemed suspected either in 1849 or 1850? Answer. No, it was not, to the best of my recollection, nor could I learn that it was after the most rigid and formal examinations. To the question—You are aware that many persons have alledged that the first cases of cholera, at Port-Royal were traceable in vessels from Chagres, what is your opinion? It was certainly not traceable, although I used every exertion in my power to discover if it were so. I examined, on oath, all the masters and

surgeons of the American steamers, and the documents are in the possession of the executive. To the question—Are you acquainted with the localities where the two first cases of cholera, in Kingston, occurred—if so, describe them? Dr. Chamberlane replies—Yes, they occurred in the district of the city of which I had charge. They both occurred in Oxford street, but in houses far apart from each other; the rooms were small, very close and filthy. In both instances, the window of the room faced, at the distance of two or three yards, a foul privy. Question. Do you consider that quarantine is of any avail, in preventing the introduction of cholera? Answer. I do not think that it is. This disease has defied quarantine restrictions in all parts of the world up to the present period; nevertheless they continue to be imposed by other governments. To the question—Is it your opinion, that in future no quarantine should be imposed on vessels coming from an infected port, or on board which, a case or cases of cholera had occurred during the voyage, but which were quite healthy upon arrival? Answer. In my opinion, no quarantine should be imposed under such circumstances; I am one of those who think it is not contagious or infectious. It may be contingently so, not otherwise. There are many who think differently.—Question. If cholera existed on board a vessel at her arrival, should you recommend she should be put into quarantine? Answer. No, I should not in solitary cases, and when sanitary regulations are enforced rigidly; civil and military physicians are of different opinion in such cases. Dr. Chamberlane adds, “Cholera never appeared, nor travelled to these shores, till last year; and an extraordinary year it was, in reference to atmospheric phenomena. Some great epidemic was anticipated by many, and preparations made accordingly.” To the question—Do you consider that the atmospheric peculiarities to which you have just alluded, are necessary accompaniments or precursors to the spreading of all diseases which are

now and then liable to prevail epidemically—of small pox, and the other febrile exanthemata as well as the plague? Answers—Yes, I do; and would give the late awful visitation as an instance worthy of record. Previous to the outbreak, numerous cases of intermittent fever, dysentery, and diarrhœa prevailed in the district of Kingston under my charge.

It is an unhealthy district, surrounded by graveyards, &c. and it is inhabited chiefly by paupers of the lowest order. On the subject of the imposition of quarantine for cholera, there was evidently some confusion. There is no doubt that the disease did exist in Cuba for some months, and that no quarantine was established here. From the account given by persons from *Chargès*, there seems little doubt that, at the time alluded to, cholera did not there exist. With regard to the alledged importation into Port-Royal by means of foul linen, this is disproved by the facts themselves as set forth by Dr. Chamberlane and Dr Watson, who attended the first cases in Port-Royal. The Board are of opinion that if quarantine laws are to be enforced, and that they are really effective in keeping out the introduction of disease, that vessels arriving from a port in Cuba, during the prevalence of an epidemic in that island, even though it brought a clean bill of health, should have been subjected to detention. As a cruel and unnecessary act, under the quarantine law, the case of the *Inflexible*, ship-of-war, may be mentioned; she left this weeks after the cessation of cholera as an epidemic in Kingston and Spanish-Town, for Demerara; on her arrival there, she was detained for some two weeks or so, with her decks crowded with troops, while at the very same time, one, or more of the men belonging to the same regiment, and exposed to the same epidemic, had been allowed to land out of the packet. As concerns the importation of cholera, the Board of Health would remark the fact, that during the prevalence of cholera in Kingston, numbers of persons left in the steamers both for New-York, and Saint Tho-

mas, and yet there were no instances of the disease appearing in either of those places, or on board of the vessels. As regards small pox—Dr. Chamberlane informs us, that the usual period of detention has been from nineteen to twenty-one days—counted from the date of the last death, or from the convalescence of the last case. He says, he has, during his residence in Jamaica, seen a good many cases of the disease. It was, during slavery, a common and fatal disease. In answer to the question—Has it ever prevailed as an epidemic during that time? He replies—Yes, there was a severe epidemic in 1831. It proved very fatal to children as well as adults. The first case of that epidemic occurred in Water lane, in Kingston. I am not aware that it could be traced to importation by any vessel.

Question. Is there any published account of that epidemic?

Answer. Yes, a paper, by Dr. Paul, appeared in the Jamaica Physical Journal.

Question. What is your own opinion as to the development of the epidemic in 1831—could it be traced to importation?

Answer. I took all possible pains to discover the origin of the disease, but my enquiries upon that occasion proved fruitless. It might, however, have been imported. Dr. Paul insinuates it was.—Vide evidence.

Question. Do you remember whether any vessel, or vessels, were put into quarantine upon that occasion in the harbour here, upon the suspicion that they had brought the disease?

Answer. I do not think that any vessels were then put into quarantine.

Question. Have you seen or heard of cases of small pox in Kingston since the epidemic in 1831?

Answer. Yes, several cases occurred in the town in 1840.

Question. Were these cases, in 1840, traceable to importation?

Answer. I do not recollect that they were. The disease did not spread much in Kingston; prompt measures were adopted by the mayor to separate and seclude the infected, and to prevent all communication with them.

Question. Have you known many instances of vessels arriving with cases of small pox on board at the time, or in which cases have occurred during the voyage?

Answer. Very many on board of vessels from all parts of England, America, the Spanish Main, and the Windward islands. They have all, in their turn, been subjected to quarantine.

Question. What is the greatest number of cases which you have ever known to occur on board any one vessel?

Answer. Three or four.

Question. Not more than three or four on board any emigrant ship?

Answer. The number of cases certainly never exceeded six or eight, if there ever were so many.

Question. Is the occurrence of single cases of small pox on board a ship not unfrequent, the rest of the crew and passengers remaining unaffected?

Answer. It is by no means unfrequent. I may mention the ship *Brandon*, with emigrants, which arrived here a few days ago, as an instance.

Question. Are you aware whether, in some of the instances of emigrant vessels having two or three cases of small pox on board, there were several persons on board unvaccinated?

Answer. I am not quite prepared to give a definite answer. In the recent case of the *Brandon*, there were a good many emigrants on board *unvaccinated*, who did not catch the disease. There were two hundred and forty-nine African emigrants, and twenty-eight of a crew. Three cases of small pox occurred during the voyage from Sierra Leone, two were fatal, one recovered. The two fatal cases occurred in unvaccinated persons—the patient who recovered had been vaccinated.

Question. What length of quarantine was imposed on the ship Brandon?

Answer. As seven days had elapsed from the date of the *death* of the *last case* upon her arrival, she was kept in quarantine twelve days, before she was allowed to have any communication with the shore.

Question. Did all on board remain healthy?

Answer. Yes, up to the 31st ultimo, (May,) when she sailed for the north side of the island.

Question. Can you alledge any reason why small pox should not appear spontaneously, *i. e.* independent of communication with persons already infected, as well as chicken pox?

Answer. I see none whatever—but like varicella, measles, and scarlet fever, it seems to depend upon a specific contagion.

Question. Supposing that a vessel arrived, having had, during the voyage, one or two cases of small pox on board, but that all, upon arrival, were quite healthy—what duration of quarantine, or segregation in a place of detention would you recommend?

Answer. I should require fourteen days to elapse, since the date of the last *death*, or the convalescence of the last case, before I would permit any on board to have pratique; I think this the minimum in such cases. I speak from facts.

Question. How long would you detain, or from what exact period of a case, would you date the convalescence from small pox, measles, and scarlatina?

Answer. In reference to measles and scarlatina, I should date from two or three days after the completion of the desquamation of the cuticle, in case of small pox, perhaps later.

Question. At what period of an exanthematous fever do you regard the activity of the morbidic poison, or the risk of infection, to be the greatest?

Answer. In measles, after the eruption has appeared, or is fully established, but particularly during the desquamation. In scarlatina, at the commencement of the process of desquamation in particular, and per-

haps shortly after the commencement of the efflorescence. In small pox, soon after the maturation of the pustules has commenced, and during the process of desquamation also. I allude to the ordinary forms of these exanthematous diseases.

Question. Would you require the same period of detention in quarantine for vaccinated as for unvaccinated persons who happened to be on board a vessel, in which one or two cases of small pox had occurred during a voyage, but which was free from disease on her arrival?

Answer. No, I consider that one half the period would be sufficient for vaccinated persons under such circumstances, and, therefore, that only seven days should be required in this case to have elapsed since the death or convalescence of the last case.

Question. Do you consider that if all on board a ship which was put into quarantine in consequence of a case or two of small pox having been on board, were vaccinated immediately upon arrival, the period of detention might, with safety, be abridged?

Answer. Yes, I think it might; nevertheless it must not be forgotten that one vaccinated emigrant on board the *Brandon* took the disease, but recovered.

Question. Have you ever heard that cases of small pox have occurred on board any of the Royal Mail steamers during the voyage from England to Jamaica, if so, were they put into quarantine?

Answer. I have been quite recently informed by Dr. M'Lean, the chairman, that a single case of small pox occurred in the *Medway*, in November, 1849. The man, one of the crew, sickened after leaving Madeira; when they reached Barbadoes he was convalescent. The vessel was put, and kept in quarantine during the three days she remained there, and the patient was put on board a schooner for the purpose of completing his quarantine; a sort of sentry box on the deck, in which he had been kept apart from the rest of the crew, was thrown over board. The *Medway*

proceeded on to St. Thomas' where she was at once admitted to pratique; as she was leaving Barbadoes, they saw some fishermen hauling the sentry box ashore and landing it. The Medway arrived at Jamaica six days after leaving Barbadoes, and was at once admitted to pratique, having a *clean bill of health* from St. Thomas', and all on board having continued healthy.

Dr. Milroy has also informed me, that a single case of small pox occurred on board the Severn, during his voyage out in January last. The man, one of the crew, was convalescent when they reached St. Thomas, and the vessel was, in consequence of this, and of no other case having occurred, admitted to pratique at once.

Dr. Milroy and the other passengers for Jamaica were transferred to another steamer, the Great Western, which brought a clean bill of health from St. Thomas, and *consequently* received pratique on arrival at Port-Royal. I had not heard of these cases until the other day. These cases speak for themselves, and prove the inutility of unnecessarily severe restrictions; in these instances, certainly, a clean bill covered a multitude of sins, if there is any efficacy in quarantine as it is.

Of the two cases of vessels arriving with small pox at the outports, one had only one case on board, which got well. The other, an emigrant vessel, is stated to have lost several while undergoing quarantine, and several others after having been removed to shore.

Dr. Clarke states, "as illustrative of the beneficial operation of quarantine in this island, I may be allowed to point to the entire absence of small pox from it, for a period of nineteen years, although infected vessels have arrived at its shores during that time." This statement is not quite correct, as Dr. Chamberlane's evidence proves every now and then the existence of small pox.—It must be in the minds of many, that some months back a report of this kind was current as regards the parish of Metcalfe, and

persons were said to have died, but nothing further was heard of it.

The Central Board would here observe, that by many persons, the epidemic spread of small pox is often overlooked. The facts, which at first glance, suggest the notion of an atmospheric agency, and which at any rate, seem to associate small pox with the large tribe of epidemic disorders, are the following:—Small pox at particular times spreads with extraordinary facility over a certain district of country. Its ravages in these epidemic visitations increase for a length of time—attain their crisis or heighth, and then gradually recede. Attempts have been made to fix the periods of epidemic visitations, and while some have stated seven, others have named fourteen years as the most common interval. The great epidemic years experienced in England were 1781, 1796, 1825, and 1838. The intervals have thus been fifteen, twenty-nine, and thirteen years, but on various intermediate occasions, small pox has prevailed, though with less intensity. At present, small pox exists in this island, and circumstances are stated in the evidence, which, if correct, would go far to prove the complete inefficiency of quarantine. The information was obtained from Dr. Dalrymple, by means of questions furnished him by the Board of Health. He states, several cases of small pox have lately occurred, about thirty. “The two first cases occurred about a month ago, at Hyde estate, and were two lately imported Africans, by the ship Brandon, the disease was of a mild type, which did not attract much notice; in a few days after, the disease spread amongst the creole negroes, and in a more aggravated form.” He was unable to state whether the persons were vaccinated or not. The disease extended over a space of five or six miles round. A few days after the appearance of the disease in the Africans, three creoles, man, wife, and child, (living under the same roof,) were attacked, the man died, and the nurse who attended him has since died of the disease—these re-

marks are dated 15th August, 1851, so that the disease broke out about the 15th July. On the 31st May, the vessel sailed from Port Royal, with all apparently well, having undergone quarantine at Fort Augusta.

Scarlatina.—Dr. Chamberlane says, “I do not recollect any instance of a vessel being put into quarantine for this disease. During my residence here, I have frequently seen cases of scarlatina. A very severe epidemic occurred in 1841, the mortality was alarming on that occasion.”

To the question—Can you state where the first case or cases in that epidemic occurred?

Answer. I believe, at Fort Augusta, or at Spanish-Town.

Question. Were there any reasonable grounds for believing that the disease was imported on that occasion?

Answer. No, there were not; at least it was not traceable.

Question. Were the cases of scarlatina, which you have seen in other years, and which were sporadic, ever traceable to importation?

Answer. No, they were not, as far as I could discover or learn.

Question. If one or two cases of measles or scarlatina had occurred during the voyage, but upon arrival all were quite healthy, what duration of quarantine, or segregation, in a place of detention, would you recommend?

Answer. As in the case of small pox—but for a shorter period, viz.: a week or ten days. Measles and scarlatina are highly infectious diseases.

Question. During your residence in Jamaica have you often met with measles?

Answer. Yes, frequently.

Question. Has it ever prevailed as an epidemic, and if so, in what year?

Answer. It occurred in 1821, and then proved very fatal. I mention this year from memory.

Question. Had you reason to believe that, upon all or any of the occasions in which you have seen cases of measles, the disease was imported?

Answer. I do not know that the epidemic of 1821 was imported; but I may mention that a few years ago a good many cases of measles occurred at Up-Park Camp among the children and soldiers of one of the black regiments which had recently arrived from Nassau, N. P., where the disease was prevailing at the time of their departure. The disease on that occasion did not spread to the town, preventive measures having been taken by the military medical officers at the time, and with whom I held a conference on the occasion.

Question. Have you known instances of measles on board a vessel when she arrived here?

Answer. A few; a recent instance occurred with H. M. S. Alban.

Question. What length of quarantine was imposed on the Alban?

Answer. I think it was ten or twelve days from the date of convalescence of the last case.

Varicella.—Question. Is varicella of frequent occurrence?

Answer. Yes, it is.

Question. Do you regard it to be communicable?

Answer. Yes, I think it is.

Question. Does it, do you think, occur spontaneously, or has it been ever traceable to importation?

Answer. It certainly occurs spontaneously; and, like small pox, seems to depend upon a specific contagion.

Question. In your opinion is there any affinity or alliance between varicella and variola?

Answer. I do not know of any, but authors seem to think so.

Hooping Cough.—Question. Does hooping cough ever occur in Jamaica?

Answer. Very rarely.

Question. You regard it as infectious?

Answer. It is considered to be so by some.

Question. Would you impose quarantine for it.

Answer. Certainly not ; I never heard of its prevailing at sea.

Question. Did you consider the epidemic disease known by the name of Dandy fever, which prevailed here, and in other West India Islands, as infectious ?

Answer. I did not, but many medical men did, as they do cholera.

Question. Have you seen other epidemic diseases in Jamaica, besides those already mentioned.

Answer. Yes, I have seen influenza, and also epidemic dysentery, and erysipelas.

Question. Was either of these diseases, in your opinion, ever introduced by shipping ?

Answer. No, I could not discover that they were, but others thought that they were.

Question. Against what diseases do you consider that quarantine is necessary ?

Answer. Against small pox, measles, and scarlatina, also whenever there are very many cases of yellow fever, erysipelas, and dysentery.

Yellow fever, he says, is absent sometimes for several years, except a sporadic case or two ; nine or ten years ago, it made awful ravages amongst the military and naval *forces* here.

Question. During your service as health officer, has quarantine ever been imposed for yellow fever ?

Answer. No, I do not recollect such an occurrence—I never did.

Question. Have many vessels, with yellow fever on board, arrived during that time ?

Answer. Yes, a great many.

Question. You therefore permitted yellow fever patients to be landed at once, and the rest on board to be admitted to pratique without any delay ?

Answer. Yes, I have ~~also~~ done so ; yellow fever ^{twice} patients are continually being landed at Kingston, and likewise dysentery cases ; particularly out of the steamers from Chagres and the United States.

Question. Have you ever, during your residence in Jamaica, seen an instance in which yellow fever appeared to be communicated from the sick to the healthy?

Answer. Yes, I think once here; the occasion was a great many years ago (1807,) before I was health officer. I have seen no such case of more recent years—on the occasion I allude to, it assumed a typhoid type, and was very fatal to the crew.

Question. Was it not once the practice here, and in some of the other West India islands, to impose quarantine for yellow fever.

Answer. Yes, it was; I believe it was done here also, not in my time as health officer.

Question. Have you ever heard of a British ship of war being refused pratique, in consequence of having yellow fever on board, in one of the British West India islands, and receiving it at once in a foreign one?

Answer. Yes, I have; the case occurred I believe, with the ship ———, the island where she received pratique was St. Thomas, but I have no personal knowledge of the facts.

Question. Are you of opinion that erysipelas is ever infectious?

Answer. Yes, I am disposed to think it is, under certain circumstances or conditions of insalubrity.

Question. Is dysentery also liable to become infectious?

Answer. Yes.

Question. Would you recommend that quarantine be imposed in cases of infectious erysipelas and dysentery?

Answer. Yes, if there were numerous cases of the disease on board a vessel, but not otherwise, *and if it did not put on that character.*

Question. With regard to atmospheric phenomena; how do you account for such phenomena in reference to plague, yellow fever, and cholera?

Answer. By the peculiarities of season, and the

existence of certain atmospherical influences. This is the ordinary occurrence in all parts of the world.

Question. Then these diseases show no tendency to spread or become epidemic in some years, although no restrictive measures are adopted, while they do in others ?

Answer. Yes, it is so.

Question. What measures should, in your opinion, be adopted in the event of a vessel having any of the diseases now enumerated on board, (to wit, small pox, measles, and scarlatina ; also, whenever there were many cases of yellow fever, erysipelas, and dysentery) ?

Answer. I should recommend that all on board, the sick as well as the healthy, be removed out of the ship, and landed in a lazaretto or place of security, keeping the sick and the healthy apart from each other, while the vessel should be fumigated and cleansed. We have no lazaretto, but Fort Augusta was recently converted into one for the service of the emigrant ship.

Question. Do you think that the healthy and unattacked should be kept in quarantine, as well as the sick ?

Answer. In some cases I am of opinion that they should, for some days at least.

Question. In the case of numerous cases of yellow fever, erysipelas, and dysentery being on board a vessel on her arrival, what measures should be taken ?

Answer. I should only detain the sick, but I should impose no restraint on the unattacked ; segregation would answer all purposes in preventing any mischief in such cases, *especially if they had not assumed an infectious tendency.*

Question. Do you consider that vessels might, with safety, be allowed to come up at once to the port of Kingston, and be boarded by the health officer there, in place of being detained at Port-Royal for the purpose ?

Answer. Yes, I do, at the wharf or wharves at the

west end of Kingston. I think that a better and more rigid mode of examination could be carried on, and the public more effectually secured against the introduction of all or any contagious or infectious diseases, than by the course now adopted. There can be no danger from such a course being pursued. I have sent a vessel from that direction or station, into quarantine, having a case of small pox on board while lying in the stream, just as it broke out and prevented the spread of the disease.

Question. Are you aware that formal quarantine is virtually abolished in England?

Answer. I have heard so, under the free trade laws and regulations, and I look upon it as rather unsafe, and a dangerous experiment in some cases—I mean the substitution of sanitary measures alone, for quarantine restrictions as recommended by the General Board of Health of England.

Question. Do you consider that quarantine as it is at present practised in Jamaica, is a safeguard, or affords much protection to the public health?

Answer. No, it is not a sufficient safeguard as it is carried out, but it might be rendered otherwise, very easily too, and the public health better protected.

Question. Is it a source of much inconvenience and distress as well as of expense to the shipping?

Answer. Yes, it is, I believe. No class of persons are disposed to submit, under any circumstances, to restrictions on their liberty.

To the question—Can you inform the committee of the average expenses to which a vessel is subjected in the ports of Cuba, when she is detained there in quarantine?

Captain Cooper says—"The Hero, a cutter, during quarantine for seven days in St. Jago de Cuba, was charged £10 10s. 0d. That was the amount of her duty."—Vide evidence.

To the question—Do you consider that the existing system of quarantine, as carried out here, affords a security and safeguard against the introduction of infectious diseases?

Captain Cooper answers—No, I do not.

To the question—In your opinion does the existing system or practice of quarantine, afford a safeguard or protection against the introduction of infectious or contagious diseases?

Dr. Walsh answers—I think not, in its present state.

The following are the opinions of the different health officers, in answer to the following question:

In your opinion does the system of quarantine, as it exists at present, and is carried out, afford protection to public health—and is it, do you consider, a safeguard against the importation of epidemic diseases?

Dr. Stevens.—If the present system is carried out properly, I consider it a safeguard to public health—the disease, the introduction of which, we have most to dread, is small pox—and the proper inspection of the crew of vessels, is the only safeguard, as little reliance is to be placed on the master's report.

Dr. Cooke.—I do, with the exceptions already stated in regard to pilots leaving the vessel before the visit of the health officer.

Dr. Chevers.—I consider this port being free from the cholera was, in consequence of *all* coasting vessels from Kingston, according to his excellency's judicious orders "that all vessels, either from Kingston or any other infected port, should be put under quarantine, or be a certain number of days from the said port."

Dr. Clachar.—The present system of quarantine cannot, in my opinion, afford adequate protection to the public health, nor be a security against the importation of epidemic diseases, so long as the means of enforcing quarantine regulations are so inefficient.

Dr. Jelly.—In my opinion the system of quarantine at this port is defective, from the absence of more ample means to ensure protection to public health; but I consider it, to a limited extent, a safeguard

against the importation of epidemic infectious diseases.

Dr. Bayley.—I do not; there are ports adjacent to St. Ann's-Bay where vessels might go in, and no health officer present to board them; I may mention Ocho-Rios especially—this port is to the windward of St. Ann's-Bay—there is no health officer there.

Dr. Maitland.—I consider a system of quarantine indispensable.

Dr. M'Farlane.—In my opinion the system of quarantine, as at present existing, affords a tolerably efficient protection to public health. It is not a perfect safeguard to the importation of epidemic disease—unless the pilots were prevented from boarding before ascertaining the existence or non-existence of disease on board, and also having some efficient means of preventing any communication with the shore in the event of a vessel being put into quarantine.

Dr. Tarrant.—Certainly, when properly carried out.

Dr. Potts.—I think it does. In the case of the Glen Huntly the measures enforced prevented the spread of the small pox among the inhabitants.

Dr. Lemonious.—*I am not possessed of the quarantine law*, and therefore cannot give any opinion on it; but I consider that when epidemic or infectious disease is imported in any vessel, her being put in quarantine must, in a great degree, prevent such disease from spreading among the inhabitants on shore.

Dr. Clarke.—I believe that it is calculated to afford considerable protection, but I will not say a complete safeguard against it.

The Board of Health are convinced, from a consideration of the history and theory of quarantine, that the fundamental principles upon which its practice is based, are erroneous; and that the enforcement of quarantine regulations and restrictions, however stringent, are inadequate to prevent the origin or spread of epidemic disease; the Board most unhesitatingly subscribe to the opinion, "That internal sa-

nitary arrangements, and not quarantine and sanitary lines, are the safeguards of nations."

The Board of Health after calmly reviewing the island statutes upon this subject, making themselves acquainted with its practical workings, and patiently considering the evidence of the health officers of the various ports, are of opinion, that the law is defective, its working is unsatisfactory, and the general evidence of the health officers confirmatory of the fact, that the whole machinery for carrying out, and enforcing quarantine in this island, is insufficient, and not in accordance with the views at present entertained on this subject, by the most enlightened nations on the earth.

The Board are of opinion, that quarantine laws, as at present conducted in this island, are an irksome encumbrance, interrupting commerce, obstructing national intercourse, periling life, fostering and engendering disease, and squandering large sums of public revenue. They would therefore suggest, that the quarantine law be revised, that the existing one be repealed, and another be enacted, modified, and suited to the requirements of the island and the real utility of the subject.

With this view, the Central Board of Health would submit the following suggestions to your honorable house :—

1. That instead of the power of imposing, relaxing, or removing quarantine, being as at present vested in the governor and privy council, it would be more easily and more conveniently effected by the Central Board of Health.

2. That, for the future, the crew of no pilot boat shall be allowed to attach the boat by towline, or in any other way to any vessel, or shall hold any communication with the crew and passengers on board such vessel, further than what is really necessary for the putting on board the pilot.

3. That the Central Board of Health shall

promulgate such regulations as may be deemed requisite for the guidance of captains and masters of vessels arriving at the several ports of this island; the same shall be printed, and that every pilot shall furnish a copy to each vessel which he brings into port, under a penalty.

4. That the Central Board of Health shall promulgate a code of regulations for the guidance of the health officers of this island: that this shall embrace their duties in every respect, and shall direct them what to do in such cases as do usually occur, or which may be considered as likely to take place; that it shall specify every disease for which restrictive or other measures may be deemed requisite, including also such directions as may be considered necessary for the cleansing and purifying of ships, their cargo, &c.

5. That in consequence of the small traffic carried on in many of the ports in which quarantine regulations are now enforced, as also from the proximity of many of these ports to each other, and the circumstance that besides these ports above alluded to, numbers exist into which vessels do enter irrespective of all quarantine restrictions, or in which, at any rate, no provision for a health officer is made, the Board would recommend that a certain number only of these ports be selected as quarantine stations; and all vessels arriving in these seas, and bound to any intermediate port in this island, shall first visit the nearest quarantine port, and there remain until visited by the health officer; if free of disease, she shall be admitted to pratique, where if the port is the one she is bound to, she may directly haul into the wharf and land her cargo, or if bound to another or adjacent port, she may at once proceed thither, or should sickness exist, independent of foulness of the ship itself, the sick may forthwith be landed and the vessel be allowed to depart, or if sickness is to be attributed to the

causes within the vessel, she shall be treated as hereafter to be directed.

6. That such ports or other places, shall be selected for quarantine or sanitary stations as may be most convenient for vessels making the land, selecting those if possible, which may be at regular distances from each other, and which afford an easy access, safe anchorage, and facilities for cleaning foul ships, &c. That in order to effect this object, a Board shall be formed, consisting of such harbour masters, pilots, captains of ships of war, masters of merchant vessels, and medical men, and engineers, as may be appointed, whose duty it shall be to fix upon the best and most appropriate ports.

7. That all coasting vessels whatsoever, shall be subjected to the same forms and penalties as others.

8. That all vessels arriving at intermediate ports, shall be examined by a proper authority, and if not provided with a passport from any one of the quarantine stations, she shall be subjected to a heavy fine.

9. That all ships of war arriving in this island, shall not be subjected to any of these restrictions, but shall be left to the care and control of the naval officers.

10. That all steam vessels and other packets arriving in this island, at those ports, shall not be subjected to an examination; but that the health officer shall visit each, and on receiving an assurance, in writing, from the captain and surgeon, that no disease liable to quarantine or the imposition of sanitary measures exists on board, shall be admitted to pratique; should disease of such a nature be on board, the passengers shall not be allowed to land or hold communication with the shore, her coaling (if required,) shall be performed by her own crew; all passengers bound to this island shall be committed to the charge

of the health officer to be dealt with, as to him shall seem fit.

11. That at each such station, buildings shall be erected, such as may be deemed requisite for sanitary and other purposes, and a proper and convenient place selected, at which foul ships may be moored and cleansed under the superintendence of the health officer, and where all conveniences shall be furnished.

12. That at every port or place so appointed a sanitary station, means shall be at hand to co-erce obedience.

13. That in every port or place so appointed, the person selected as health officer shall reside ; that on no account whatsoever shall he hold more than one such appointment ; that at every such port or place where a health officer is appointed, a boat and boats crew shall be provided, and be at his disposal.

14. That every such officer, on his appointment to office, shall be furnished with a copy of the law, and a printed code of regulations, which latter shall be his guide.

15. That under no pretext whatsoever shall any person, in the absence of such medical officer, assume to himself the functions of such officer ; that every medical officer accepting such an appointment, shall make such arrangements, that in case of his unavoidable absence or sickness, he may be represented by another medical man.

16. That every health officer shall be furnished with a proper book, in which shall be entered the name, description, &c. of every vessel coming into his port, together with a statement of her sanitary condition, &c. at the time of arrival, departure, &c.

17. That at the end of three months, a copy of such book shall be forwarded to such person as may be appointed to receive it, in order that they may be recorded.

18. That, in order to derive all practical information, and also to ensure the well working of any bill or measure your honorable house may enact, the Board would recommend that a superintendant of quarantine should be appointed, whose duty it should be to pay particular attention to all points connected with the department—who shall draw up all regulations and directions to the health officers—shall superintend the different stations—shall act as registrar of quarantine, and be a member of the Central Board of Health.

19. That all vessels anchored within any port of this island shall be subjected to periodical inspection of the health officer of the port, who shall see that such sanitary measures as may be directed shall be duly enforced. The Board would strongly urge upon the legislature the necessity of extending sanitary regulations to vessels anchored within our ports.

20. That in every instance of a vessel arriving at a port she shall at once enter, and drop her anchor at such convenient spot as may be determined upon; she shall, as soon after as practicable, be visited by the health officer, who shall board the vessel, muster the crew and passengers, and personally examine every individual on board; he shall then enquire into the state of the vessel itself and its cargo during the voyage, and shall inspect the condition of the vessel.

21. If found clean in all respects, she shall immediately be admitted to pratique, and be allowed either to take up her berth, or proceed at once to her destined port.

22. That a heavy penalty be imposed upon any person who shall communicate with a vessel thus arriving previous to the health officer's visit, as also upon any person who, from any vessel so circumstanced, shall land, attempt to land, or

hold any direct communication with the shore, boat, or any other vessel, previous to such visit being paid.

23. That should there be any sickness on board not attributed to the foul state of the ship, or her cargo, but for which sanitary measures are ordered to be adopted, the sick and convalescent shall be forthwith landed, and be considered under the care of the medical officers; the vessel then to proceed as above stated; all the healthy passengers and crew being admitted to pratique.

24. That in case of a vessel arriving with sickness on board, attributable to the foul condition of herself or cargo, her crew and passengers shall forthwith be landed, both sick and well; the vessel shall then be taken to the ground selected for cleaning, where she shall be purified under the superintendence of the health officer, her cargo being taken out as quick as practicable, and if not removed at once, shall be placed in convenient sheds on land, to be there erected.

25. That the cargoes, packages, and luggage of the passengers may, in all cases, be forthwith landed, except in the case of a foul ship, which shall not be touched, till she has been moored at the appointed place and duly cleaned, as the Central Board shall direct.

26. That as regards bedding, soiled linen, and body clothes of persons suffering from disease, or who have so suffered on board, these shall be immersed for two or three hours in salt water, and afterwards landed and washed under the direction of the health officer.

27. That in case of the cargo or any portion of it being in a decayed state, measures shall immediately be taken for its immediate removal and destruction, the ship being purified as above ordered.

28. That all animals which are on board, shall

be landed as soon as possible, and shall not be subjected to any detention.

29. That all letters, newspapers, and mail bags be landed without delay, and without undergoing any ceremony of purification, &c.

30. The Central Board are of opinion that every disease for which restrictions shall be adopted, should be specifically stated. The Board, after mature and anxious inquiry, are of opinion that the only disease whose progress, when not epidemic, can be stayed or ought to be subjected to restrictive measures, is small pox, and they are confident that modified measures will effect this end. The Board are of opinion that as soon as sanitary measures shall have been properly established, and general vaccination enforced, even this disease will not require the adoption of such means.

31. The Board would recommend that in case of a vessel arriving with small pox, she should be treated as other vessels before described, as soon as the health officer has paid his visit. The passengers and crew shall be immediately landed. The sick and convalescent shall be sent to an isolated airy apartment, there to be treated by the medical officer; all those who are in health, or who have previously had the disease, or been vaccinated, shall be admitted to pratique, such as are unvaccinated, shall, if possible, be at once subjected to the cow pox, if not, they shall be detained according to the discretion of the health officer.

32. The Board are of opinion that in cases where the other exanthemata exist on board, at the time of a ship's arrival, that the healthy should at once be admitted to pratique, that the sick and convalescent may be removed to any airy apartment, hospital, or other building, as the health officer may appoint in cases of these diseases being present; if any of the crew are sick,

and the vessel is clean, well ventilated, and not over-crowded, there appears to be no necessity why they should be removed.

33. The Central Board would recommend the same measures should be adopted as before-mentioned, in the case of other exanthemata than small pox; also in cases of persons arriving in ships in which fevers, cholera, dysentery, and erysipelas prevail on the principle laid down, and the assurance of the truth of the statement, that ventilation and cleanliness, will prevent and check any epidemic.

34. The Board are of opinion, that the use of lazarettos, or sanitary prisons, together with "cordons sanitaires," or lines of fixed bayonets and loaded muskets for the prevention of diseases, is now obsolete.

PREVENTION OF EPIDEMIC, ENDEMIC, AND CONTAGIOUS DISEASES.

"For the Angel of Death spread his wings on the blast,
And breathed in the face of the foe as he passed ;
And the Eyes of the Sleepers waxed deadly and chill,
And their hearts but once heaved, and for ever grew still."

BYRON.

In considering what sanitary regulations are requisite to be adopted for the prevention of epidemic, endemic, and contagious diseases in this island, it will be advisable to take a cursory view of the island, as regards its general features, its position, and climate.

Secondly, To specify briefly the more common exciting causes of disease among the inhabitants.

Thirdly, To consider what are the prevalent diseases, more especially those which assume the character of epidemic and endemic.

And lastly, To point out such means, the adoption of which, may seem necessary for the prevention and mitigation of such maladies, and for the general improvement of the public health.

The island of Jamaica is situate between $17^{\circ} 10'$ and $18^{\circ} 10'$ north latitude, and between $76^{\circ} 15'$ and $78^{\circ} 25'$ west longitude, distant about thirty leagues south of Cuba, and about the same distance west of Saint Domingo.

It is of an irregular oval form, lying indirectly east and west. Its length is computed to be about one hundred and fifty miles, and its breadth about forty-five, containing, therefore, about three millions eight hundred and forty-two thousand acres.

This island was discovered by Christopher Columbus, in his second voyage to the new world, May 3d, 1494. At the time of its discovery, it was inhabited by a race of Indians, who, the historian Martyr de

clares, were more enlightened, kind, and gentle, than any its discoverers had met with. Columbus described it as "the most beautiful island in these seas," and said, "that the innumerable canoes which came off to him, attested an abundant population." Las Casas, an eye witness, declares that the island abounded with inhabitants, "as an ant hill with ants."—There can be no doubt then, that Jamaica was thickly populated, and its favored spots, the savannas, richly though rudely cultivated. It would be foreign to the object of this report, to enter into the interesting history we possess of the simple habits and customs of these people. The only remains of their existence, when the English forces took possession of the island in 1655, were their bones mouldering in caves, whither, when pursued, they had fled for refuge; and accumulations of broken pottery, and beds of shells of marine animals, used by them for food, pointing out where their villages had once been.

Certain it is, that when subjugated, the island did not contain a single Indian; so effectually had the Spanish blood-hound, and the Castilian blade performed their work.

At the time of its discovery, the Indian name for it, was "Xaymaca," supposed by some, though on this point authorities differ, to signify an abundance of rivers—hence Jamaica has been called, "The isle of springs."

The surface of the island is very irregular, and is chiefly occupied by bold and lofty mountains of various heights, intersected by corresponding valleys. The principal and highest range runs from east to west, forming almost a perfect barrier between the north and south portion of the island. This is known by the name of the Blue mountain range, and is situated in the parishes of Port-Royal, St. David, St. Thomas in the East, Portland, and St. George. On its summit are three principal masses termed peaks, stated by Robertson to be of the respective heights of eight thousand one hundred and eighty six, seven

thousand six hundred and fifty six, and seven thousand five hundred and seventy six feet above the level of the sea. Sir H. De la Beche estimates the highest to be about seven thousand six hundred feet, a measurement which approaches nearer to the recent one of Mr. Arnaboldi, of Kingston, who reduces its principal peak to seven thousand feet.

Another lofty range, but inferior in altitude to the last, extends in a direction from north west to south east, through the parishes of Port-Royal, St. Andrew, and St. George. This range includes St. Catherine's peak, estimated by De la Beche at four thousand nine hundred and seventy one feet.

The appearance of these mountains is grand in the extreme, and the effect of light and shade upon the ridges and chasms, such as no art can represent.

Their declivities are steep and abrupt—their ridges sharp ; (thus, the summit of the main ridge of the Blue mountain, is not more than three or four yards across,) they are partly bare, and partly covered with trees. The valleys, for the most part deep and narrow, contain but little level ground.

To the westward of these ranges, the mountains are of less elevation, though here and there a more lofty hill appears. They are, however, different in appearance from those before described ; they are, in their outline, less irregular and craggy, more clothed with verdure. On the northern side of the island the mountains are not so lofty ; here the land rises from the shore into hills and swells, remarkable for their beauty—they are not so much disposed in parallel ridges as on the south side.

The valleys generally, are of limited dimensions. That of St. Thomas in the Vale, embosomed in the hills, is nine miles long, and two and a half wide ; it forms a perfect basin were it not that the Rio Cobre bursts through the mighty barrier on its southern aspect ; besides this, there are innumerable valleys remarkable for their beauty and fertility, as Luidas

Vale, in St. John's, and the basin of Whitney, in the Mocho mountains, in Clarendon.

The most extensive plain, or savanna, in the island, is that of Liguanea, which begins a few miles east of Kingston, and stretches westward, through the parishes of St. Andrew, St. Catherine, and St. Dorothy, to a point west of Old-Harbour, a distance of about thirty miles, with an average breadth of from four to seven. Its eastern extremity is raised about seven hundred feet above the level of the sea, to which it gradually declines. It is defended at this portion, from the ocean, by the palisadoes, a sand bank several miles in length, which joins the town of Port-Royal to the main land; in the remainder of its extent it is bounded inland by the base of the mountains already mentioned, and to the southward by the shore, west of Port-Henderson, where it widens very much; a range of low hills, called the Healthshire hills, intervene, for a few miles, between it and the sea.

This plain is divided from that of Vere and lower Clarendon by a narrow range of hills, which approach the sea, near Salt-River Bay. It extends from south east to north west, about eighteen miles, with an average breadth of seven or eight.

On the north west, the Vere plain is joined by the Mile-gully, a picturesque valley, several miles in length. On the western side of the island the savannas are not of great extent; the largest are the Pedro plains, near great Pedro point, and the Savanna-la-Mar, in Westmoreland, towards south Negril point, the most westward cape of the island. A considerable portion of these plains is low, and covered with swamps. On the eastern side, the plain of Bath extends from the town of that name, to the mouth of the Plantain-Garden river, near Point-Morant, the most eastern cape of the island. On the north side, no plains of any extent occur. The country, between Montego-Bay, on the west, and St. Ann's-Bay, on

the east, consists of low, abrupt, and precipitous hills, with but little land between them and the sea.

This island displays characteristic appearances of having been the sport of mighty revolutions; it bears indelibly impressed upon it, the record of the earthquake; its thermal springs, and volcanic reliques, point to imprisoned fires bursting from their thralldom, when the Carribbean Archipelago was probably upheaved into islands, and its intervening valleys overwhelmed by the bubbling tide.

Since these days, however, Jamaica has felt the influence of subterranean forces, and has been on one, or more than one occasion, shaken to her very foundation; its fissured cliffs, and distorted strata, its mural precipices, its cavernous pits, and rocky vallies, all bear witness of the miraculous fury of convulsed nature.

Primitive or unstratified rocks, which formed in the days of chaos, or ere man was, the naked skeleton of the globe, do not appear to exist. The oldest rock here is of the transition formation, and consists of *granwacke*, under different varieties and forms. De la Beche informs us, that these rocks are to be met with, chiefly in the mountains of Surry, the site of the loftiest and largest ranges, also in the parishes of St. Mary and St. John.

As regards the geological conformation of Jamaica, a glance at a map of America suggests to the mind that the chain of islands which stretch from the southern to the northern continent, and enclose, within a basin, the Carribbean sea, are a continuation of one of the easterly mountain chains of Equatorial America. The smaller islands are the detached points of the ridge, between whose depressions the ocean flows, while the larger antilles are masses that expand out, and radiate into less elevated lines.—Humboldt, in his *Memoir of the Mountain Chains of the Earth*, remarks that “their linear characteristics, serve to elucidate many problems in geology and physics which had previously been considered inexplicable. In pri-

meval times the elastic powers of the interior, more energetic perhaps, and with more facility, traversing the crust of the globe, filled this crust with crevices, and injected it with masses and veins of basalt, metallic substances, and other matters introduced after solidification had been completed. The period of the great geological revolutions was that, when the communications acted upon a greater number of points, and when the tendency to establish these communications gave rise, in the line of the long crevices to the cordilleras of the Andes, and Himmaleh mountains, to chains of less elevation, and to the ridges whose undulations embellish lowland landscapes." As a proof of these protrusions, he directs attention to the plains of the Magdalena, and the Meta, extending almost, without interruption, over platforms of sandstone, having an elevation varying from eight thousand nine hundred and fifty to ten thousand two hundred and thirty feet. Now, the West Indian islands are a prolongation of the linear crevices, and of the elevations that form the mountains between the Magdalena and the Meta; and what the sandstones spoken of are to the plains of Equatorial America, the limestones are to the coral deposits of the Carribbean sea. Rocks have been protruded around circular apertures, or through longitudinal cracks of small extent, and the elevated masses still manifest the original power that protruded them, by shaking the crust of the earth in linear directions, or in spaces which remain the same through numbers of years.

In the rocks of the transition formation, De la Beche also enumerates transition limestone of a blue greyish colour, and of a hard compact nature, traversed by veins of calcareous spar; these occur in different parts of the island, associated and mixed, in a confused manner, with sandstones, argillaceous, and micacious slates, &c.

Next, he alludes to the medial or carboniferous rocks, and describes the red and grey sandstones, varying from very compact to friable, mixed up with

conglomerates and marls. The rocks of this formation are not very generally diffused, but occur in isolated districts; in some parts, as in St. Andrew's mountains, there are found shale, schistose, sandstones, and more compact sandstone beds, closely resembling in mineralogical structure, the coal measures of some parts of England, and the probability of their being such, becomes the greater, from the circumstance that thin seams of coal are observed among them. "I met," he adds, "with only three of these seams, of not more than an inch and an inch and a half in thickness how numerous they may be, it would be difficult to say; as the section presented was of no great size, yet I do not suspect that there are any beds of this substance that would be worth working for useful purposes."

Of the supermedial or secondary rocks, he mentions porphyritic conglomerate, associated with porphyry, syenite, greenstone, and other trap rocks.—These exist chiefly in those parishes which surround and contain the Blue mountain range, as also St. Mary's and St. John's. It should be remarked, he adds, "that the trappean rocks of Jamaica are often very much decomposed to a considerable depth, so as not to be always easily recognized." This is often known popularly, by the name of "rotten rock." This decomposition chiefly takes place in those varieties, in which felspar forms a considerable portion of the mass; it would then seem to arise from the decomposition of this mineral, under the effects of exposure.

Of the superior or tertiary rocks, he mentions the white limestone, the savanna conglomerate, and sandstone, and alluvium and diluvium. The white limestone formation is the one which forms the most considerable portion of the island. De la Beche informs us that it is not homogeneous in its composition, some parts of its strata being more argillaceous than others, these parts become decomposed by the action of the atmosphere, causing the surface to be ragged and full

of sharp inequalities, from which circumstance the name of "honey comb rock" is very generally applied to it.

This appearance is only seen upon its surface, or exposed portions. The strata are often from ten to twenty feet thick, frequently interstratified with extensive beds of red marl and sandstone, as also with chalky marl. Beneath the limestone, and its associated strata, there are layers of sands and marls, the latter containing fibrous gypsum, and often mixed up with primitive limestone. The lower part of this white limestone formation consists of beds of a yellowish white limestone, of a chalky, sandy, and marly nature, but many beds are compact. This chalky bed is often rich in fossils. In many parts this formation is of considerable depth; in some, to which De la Beche refers, it cannot be less than from two thousand to three thousand feet. The diffusion of the white limestone is very extensive, constituting whole ranges of hills, as the Manchester, St. Catherine, St. Thomas in the Vale, and St. Ann's—also the Healthshire hills of St. Catherine, and the long mountain near Kingston; in fact, nearly all the midland, and by far the greater portion of the whole island.

It is characterized by being hollowed into innumerable holes and cavities, among which the rains, which fall in the district composed of it, immediately disappear;—hence arises the general scarcity of springs in those portions of the island, principally composed of these rocks, and the necessity the inhabitants of such parts are under for making tanks to preserve a supply of rain water. The portions of country occupied by the white limestone formation, are in a great measure shewn upon a good map of Jamaica, (Robertson's small one,) by a want of rivers, while they are numerous in the districts composed of other rocks. Some rivers will be found to flow for a short distance, and then to sink, sometimes coming to the surface, and again sinking; several springs flow only a very little way, being swallowed up by some of

these cavities. They are properly known by the name of sink holes when small, and of cockpits when large; many of them are of great depth. As may be supposed Jamaica possesses some extensive and magnificent caves.

The savanna conglomerate, and sandstone of De la Beche occur in some parts, as in the plains of St. Jago, Vere, and other places, but it is not very generally diffused; he states that he so named it from finding it chiefly confined to the savannas resting upon the white limestone.

This formation contains a quantity of magnetic iron ore, which may often be seen colouring black, water courses in the savannas after heavy rains. There is no doubt that the rocks of Jamaica are rich in mineral ores, but as yet, from want of enterprise and capital, little has been done in exploring them.

As regards the diluvium and alluvium, these chiefly occur in the valleys and the plains, and at the mouths of rivers. Thus the plain of Liguanea is almost wholly composed of diluvial gravel, consisting principally of the detritus of St. Andrew's and Port-Royal mountains, and evidently produced by causes not now in action, but derived from these mountains by partial decomposition of the rocks which compose them. These mountains are composed of white limestone, porphyry, syenite, greenstone, red porphyritic conglomerate, and silicious sandstones, with red sandstone and conglomerates of an older date. Rounded pieces of all these rocks, (those of the first being very rare, from its comparative softness,) form the diluvial gravel of Liguanea. The Hope river, with the Mammee river, which falls into it, drains a considerable portion of the St. Andrew's mountains, and loses itself, when the waters are low, among the Liguanea gravels, where the latter meet the solid strata of the mountains; but when swollen by heavy rains, the river rushes with considerable force through the defile near the Hope tavern, and traverses the gravel plain, which it has cut to a considerable depth, so

that, in fact, the causes now in action tend to destroy the diluvial plains rather than to add to them. The section of these gravels, which the river has formed by cutting its bed, cannot be less than from two hundred to three hundred feet in depth near the Hope tavern.

In addition to the river, numerous gullies, (formed by heavy tropical rains,) cut the diluvial plain of Liguanea in various directions, so that every stream that crosses it tends to its destruction.

As previously stated, at its upper portion it is defended by the palisadoes; alluvial matter is deposited on some parts of its shore, particularly between Kingston and Port-Henderson, where mangrove trees are numerous. These trees are particularly well calculated for the formation of alluvium—their long stilt-like roots collecting mud and other matters together, and protecting what they have accumulated from any sudden rush of water.

The diluvial plain of Liguanea is continued westward through the lands of St. Catherine and St. Dorothy; sands and clays, of different colours, are more abundant, but in other respects the diluvium is the same. The sections afforded by the rivers and gullies are of considerable extent, though there is none so deep as that of the Hope river.

The large plain of Vere and Clarendon is separated from the above, as before described, by a low range of white limestone. It is surrounded by white limestone hills and mountains on all sides, save on the south east, where it is washed by the sea, with the exception of that portion protected by the Portland ridge. The greater part of this plain is diluvial, consisting of gravels, clays, and sands. The former are composed of the same trappean rocks as above named, and these appear to have been, in a great measure, derived from the partial destruction of the trap districts among the St. John and Clarendon mountains.

Diluvium occurs at the bottom of Luidas Vale, and

in some parts of the St. Thomas in the Vale basin, mixed with alluvium ; it forms a considerable part of lowland between Annotto-Bay and Buff-Bay. As might be expected, the mouths of rivers, generally speaking, are alluvial, though some are also diluvial.

Volcanic Rocks.—De la Beche describes rocks of this character as existing in St. George's ; he describes the Black hill, which he thinks referrible to what are commonly called extinct volcanoes.

It will thus be seen that the soil of Jamaica is, in the cultivated parts, chiefly alluvial, and to this is added large quantities of manure, requisite for the cultivation of the sugar cane and other vegetable staples.

Except the districts which lie within the white limestone formation, Jamaica has the advantage of being well watered by numerous rivers, rivulets, and springs. None of the rivers are navigable, except the Black-River, in St. Elizabeth, by which goods are brought down and carried up about thirty miles in flat bottomed boats and canoes.

The other chief rivers are the Rio Cobre and Minho, on the south, and Martha Brae, White, Ginger, and Great rivers, on the north.

Some of the rivers, as above alluded to, in the limestone district, sink suddenly, and after a subterranean course, appear above ground again. The majority of the rivers are small, as regards their general breadth and depth. During the seasons, however, or after heavy rains, they become enormously swollen ; in fact, they are then transformed into torrents, sweeping down every thing in their headlong course to the ocean, in which their discoloured streams often flow for a long distance without commingling their waters. During such floods, they often overflow their banks, inundating whole tracts of land, thus giving rise to swamps. Many of the rivers have splendid cascades.

Some of the smaller rivers arising in the lowlands are sluggish in their movement, thus giving rise to

morass and lagoons, this is the case in the Caymanas district, in St. Catherine's.

Several parishes are almost entirely devoid of springs, as Manchester and St. Ann's, while others as St. Andrew's, Port-Royal, St. George's, and St. Mary's, abound with them—a few mineral springs occur in Jamaica, thus the Milk River Bath in Vere; two at Bath, in St. Thomas in the East, the one thermal, the other cold.

An aluminous chalybeate at Silver Hill, in St. Andrew's, and a chalybeate at St. Faith's, in St. John's; a saline spring also makes its appearance on the Long hill near Kingston.

There are numerous harbours—besides a vast number of bays, creeks, and coves, capable of affording more or less shelter to vessels. The safest and most capacious of these, are those of Port-Morant, Kingston, and Old-Harbour, on the southside; and those of Lucea and Port-Antonio on the northern shores.

There are two rainy periods, commonly known as the May and October seasons. Considerable variation is observable in the seasons of the year in different parts of the island; thus, generally speaking, the rains are much more frequent, and fall at less regular periods on the north, than on the south side. The seasons vary also as to the time they make their appearance; thus, they are sometimes earlier, and sometimes later than usual. Sometimes they do not make their appearance at all. They seem indeed, in recent years, to have become more uncertain than formerly, both as to their existence and as to the time of their coming, as also of their duration.

At both periods of the year the seasons are preceded by an intense closeness of the atmosphere; there is generally a complete lull of the usual winds, or if the trades continue, they blow directly from the south east, and are then sultry and oppressive. No strata of clouds appear above to screen at intervals the scorching rays of a vertical sun. The little mois-

ture that exists on the surface of the earth is rapidly vapourized and taken up. After a time, the clouds begin to accumulate on the mountain tops, and fall in sudden heavy showers, accompanied with vivid flashes of lightning and rolling peals of thunder; gradually dense dark masses of clouds bank up to the southward, and rapidly pass round to the west; at regular periods of the day they suddenly descend like torrents from on high, accompanied with tremendous peals of thunder. These showers cease and recur; sometimes they last for hours, alternating with gleams and bursts of sunshine. This periodical and diurnal fall of rain in the case of the May seasons, is continued for a space of from ten days to three weeks. As regards the October or Autumnal rains, these are also preceded by great heat and closeness of the atmosphere, continuing day and night. Now, however, the horizon thickens with heavy clouds, the whole face of nature appears downcast and troubled, a fearful stillness reigns, the electric discharge occurs, and down the deluge comes; the rain descends in sheets, inundating, in a few minutes, the whole country, and sometimes continues with little or no intermission for days and nights. These falls of rain are sometimes accompanied with sudden violent gusts or squalls of wind. After a variable duration, the showers become less heavy and less frequent;—the sun bursts out in all his glory;—the north east wind, or regular trade breeze, blows fresher and stronger;—the atmosphere becomes cool and balmy, and the whole of nature seems roused from a state of torpor.

The annual fall of rain is sometimes reckoned at fifty inches. At New Castle the fall has been found to be about seventy inches. Generally refreshing rains fall during the months of July, August, and December, in the latter month about Christmas.

The trade wind, or sea breeze, usually sets in between the hours of eight and ten o'clock in the mornings, increases as the sun approaches the meridian, and gradually declines or dies away as he advances

to the westward, until it is succeeded or overpowered in the evening at a varying hour, by a rush of cool air from the mountains, which blows towards the low-lands in every direction; this is termed the land wind, and extends only a limited distance from the shore. The causes and sources of the trade winds are now understood.

The sea breeze seldom blows direct east, but from a point to the north or southward of that quarter, the former is properly considered the prevailing and trade wind, and is that which proves the most refreshing to the inhabitants. When it blows from the southward of east, it is often a forerunner of rain, owing to the situation of the island, which does not lie directly east and west; the trade wind is interrupted in its regular course by the eastern extremity, which, by lying to the southward of east, occasions the inhabitants on the south side to receive the breeze immediately from the southward, though its natural course is from the northward of east. The wind from the north east in Kingston or Spanish-Town, is usually a partial land wind, conveying an increased heat, and is generally considered unhealthy; it is well known to the inhabitants by the name of "rock wind."

The land breeze depends upon the air over the sea at night, becoming warmer and more rarified, than that on the land, where radiation is still going on.—In consequence, the cold heavy air rushes down to supply the place of the hot and lighter air which descends. This only holds true of the mountainous islands; in other or flat islands, the sea breeze continues to blow all night, although much diminished in force, but there is no appreciable land breeze.

These breezes, however, vary much—thus sometimes the sea breeze does not set in at all, or not till very late; sometimes it continues to blow all night, instead of the land breeze.

The temperature of the atmosphere of course will vary according to the situation and elevation of the

land. In the plains, on the sea coast, the thermometer does not generally vary more than nine degrees in the middle of the day during the year, its highest range being about 92° (in very hot years, it has been known as high as 96°) and its lowest 84° or 82° at that period.

In the nights, there is a considerable difference, the thermometer in the months of July and August, seldom falling lower than 85° , while in December, January, and February, it sometimes sinks down to 70° , 65° , or 62° .

Mosely, in his work on the diseases of Jamaica, states, "The greatest heat shewn by the thermometer in the open sun, is about three o'clock in the afternoon, when the mercury rises several degrees higher than it does, placed in the sun at any other time of the day. Here (Spanish-Town,) it frequently mounts to 120° and 130° , and much higher, according to the clearness of the sky, and as the earth or situation is more or less reflecting."

The northside of the island, from being more mountainous, or rather its plains, occupying a very small distance from the sea, and from its being directly exposed to the north east trade winds, experiences a greater difference as to climate and seasons to that which distinguishes the south. The rains in the former are much more frequent, and fall at less regular periods than in the latter; while from the vicinity of the coast to the mountains, the atmosphere is rendered cooler, and receives more frequent concussions and changes from the thunder and lightning that so constantly prevail, and with so much more force on the north side. During the months of December, January, and February, strong north winds often prevail, blowing direct from the American coast.

Almost any climate may be obtained in the mountainous districts. The mean temperature of the hills on the south side, at the elevation of a thousand feet or upwards, is in summer about 75° ; in the winter about 72° or 70° , though the thermometer sometimes

sinks to 55° ; and even in higher districts to 48° ; snow has never been seen, but ice has been obtained on the top of the Blue mountain peak; hail is not of uncommon occurrence, and has been known to fall even in Kingston.

The fall of dew on fine serene and calm nights, is very heavy, giving in fact, the appearance of a light shower having fallen; excepting immediately preceding a hurricane, the barometrical changes are imperceptible, the mercury always remaining opposite 29.50 on the scale of the instrument.

Earthquakes, after very hot dry weather, sometimes occur in Jamaica, and it is well known, have formerly been productive of great mischief. Jamaica has from time to time been visited by those terrific phenomena called hurricanes. They usually set in from the south east and pass off at the north or north west. They have generally been confined to the summer months, as August, September, and October, which are therefore commonly known as the hurricane months. They occur less frequently in Jamaica, than among the other Antilles. Little, as yet, is known respecting the electrical states of the atmosphere, but that they have a close and important connection with the changes of temperature, no one can reasonably doubt. It has been considered advisable to insert here the following description of the trade winds, and the explanation of the causes of hurricane, as given by Mr. Richard Hill, a well known naturalist, and an accurate observer of the phenomena of nature:—"It is easy to comprehend the difference in the two seasons, (May and October, or vernal or autumnal,) which converts the broken squalls of the one, into the fell and disastrous hurricanes of the other. When the sun enters the northern hemisphere, and rises towards the zenith, the breeze from the north east softens, and at length ceases. The rains then descend, and the south east wind follows the sun to the northern solstice. The difference of temperature between the tropics and the southern zone be-

ing now the greatest, the Antarctic currents exercise an influence on the diurnal breezes of the northern hemisphere. In the traverse of the sun to the south, the same succession of changes occur, and the north east wind is, in its turn, restored. The strength and duration of the prevailing breezes are determined by the position of the sun. Wherever the sun is vertical, *there* exists the boundary of the two winds, and the space is subject to calms, interrupted by violent storms. On either side of this line, the breeze is either north east, or south east. The electrical condition of the atmosphere (the state upon which all its meteorological phenomena depend,) is more replete with the material of storm in these latitudes, after the sun has passed and re-passed to and from the Tropic of Cancer, than when it is approaching it in spring. It has been unceasingly receiving an accession of electricity from the ascending currents of vapour, raised by the directer rays of the sun, through the interval of time from May to August. The northern sea breeze now regains its ascendancy, but not *gradually* and *moderately*, as in the setting in of the southerly trade winds, but with a sudden intensity.—If the meeting at an angle of two winds, of very circumscribed influence, occasions them to turn upon a centre, and causes the local whirlwind, and the phenomena of the water spout, the occurrence of the two constant breezes of the tropics, the north east and the south east trade winds would induce strong gyrations, and originate the rotatory and progressive tempests peculiar to the regions over which these winds prevail.”

From the foregoing glance of the physical condition and other phenomena, the assemblage of which constitutes the so called climate of a country, it must be obvious that the island of Jamaica, like most other intertropical places, contains, within itself, all the material necessary for the production of disease.

Its uneven and irregular surface, however, affords a multiplicity of climates. Among its rocky mountain

ranges are to be found districts in which all the requisites for health are perfect, and in salubrity and fertility they yield to none in the known world.

This, however, is not the case as regards its lower hills and plains, on a level with the sea. Here its solar heat and light, its oft cloudless sky, its high and varying temperature, its different electrical conditions, its periodical torrents, its rain-like dews, its atmosphere humid often to saturation, co existing or alternating with intense heats and protracted droughts, predispose to morbid action; and exerting their influence on its rank vegetation and impenetrable forests, its alluvial valleys, its retentive clays and marls, its sea-washed savannas, its sluggish swamps and lagoons, give rise to the most fertile and deadly sources of disease.

These conditions are natural; they exist independent of man's presence.

"Philosophers have proudly boasted," observes Dr. James Johnson, "that man is better able, by the power of his constitution, to bear migration from one country to another, however extreme the change may be, than any other animal."

This is an assertion, which like many others of the kind, is by no means substantiated by facts. Nature does not appear to have afforded to the mere physical constitution of man, any power above that granted to the brute beast, to withstand the influence of climate. It would not be difficult to adduce reasons for supposing that some animals are more gifted in this respect than man; for instance, it is well ascertained that the wool of the sheep becomes impaired, and assumes a hairy character in some climates; that the arctic animal is clothed in a covering of a different texture and colour during winter, to adapt it to the severity of the season; and that in vegetable life the change effected by artificial culture, is nature herself, manifesting under new exigencies, the primary power of organic instinct, "the response of something subjective and within, to the impress of external things."

That man, however, does withstand the deleterious effects of climate, better than other animals, is evident, but not as the spontaneous act of nature. It must be attributed to the vast superiority he possesses over them in mental faculty, by the resource of artificial means, by which he calls in aid the protection and melioration which reason may dictate and experience confirm—

————— “Study well the clime,
Mould to its manners our obsequious frames,
And mitigate those ills we cannot shun.”

It will now be necessary to consider whether any circumstances exist, whether any habits or customs are practised among us generally, which are detrimental to health, and act as causes of disease.

First, it must be remarked, that the majority of the towns and large villages are built upon the savannas close to the sea shore, often on the banks of rivers, and at their mouths. The cause of their being there constructed, is evident. The objects of commerce and free communication were to be obtained, but when so obtained, they are acquired at the sacrifice of health, and too often of life. The same may be observed as regards the location of sugar estates, and other settlements, together with their attendant dwellings. Of course, the alluvial valley has been sought out for its fertility; but in how many instances do we find the houses of the managers, and the huts of the labourers placed in the worst possible, the most unhealthy situations, crowded into a small nook or glen, surrounded with trees and rank vegetation, often close to ponds, or deposits of stagnant water, or heaps of vegetable matter, in all stages of decay. In such situations, productive grounds have certainly been obtained, but the number of those intended to reap the fruits, has been lessened.

When the building of a hut is left entirely to one of the labouring class, it is indeed wonderful to observe how certain he is to select the spot, of all others, most detrimental to health. It must be fresh in the minds

of many, that during the very heavy May seasons, in 1848, numbers of persons lost their lives, being washed away in their huts during the night, by the sudden down-pour of rain; in these instances, they had built them on the inclined banks of the very bed of the river itself, which happened to be then dry from the effect of a long and protracted drought.

Generally speaking, the towns and villages are straggling, and cover a large space of ground, in proportion to the number of houses. They have for the most part, been laid out, without any attempt at design or uniformity. The streets are often crooked, and irregular, from projecting steps and piazzas; instead of being, as they ought to be, channels to conduct, and add force to the sea breeze, they often run in such directions as altogether, or partially, to exclude it; they are, for the most part, narrow, unpaved, flat, or even concave, and without any provision for foot passengers; too frequently they become the receptacles of all sorts of filth and dirt, often partially evergrown with grass and bush; in many places they receive the contents of open drains from yards; in others they are covered with fetid pools of stagnant green water, often riddled with slimy offensive holes, the wallowing beds of innumerable half starved hogs, only occasionally mended, and then often filled up with stable manure, and mud; drainage, there is none, save what the natural declivity of the place may afford, or the water shed of the street supply as a conduit of rain. Goats, hogs, poultry, and dogs wander about the streets at all hours of the night and day, picking up the garbage and trash, and not unfrequently the carrion crows hold their carnival over their carcases. In many of the towns and villages, slaughter houses exist; and overloaded burial grounds occupy their very centres.

The market places, situated in the most crowded thoroughfares, their sheds and buildings miserably ventilated and undrained, frequently tainted articles of food exposed for sale, contaminate the surround-

ing atmosphere with their putrid effluvia. Yards, attached to stores, where salt provisions are sold, filled with empty salt fish and other barrels, which, after rain, send forth steams of the most horrible description; numbers of dilapidated and falling houses, useless for all habitable purposes, ruined walls and remnants of fences, together with unenclosed sites of pulled down houses, covered with filth and bush, complete the scene of every old Jamaica township, and the out skirts of the new; frequently too, they are situated within a short distance or to windward, or in a direct line with some swamp or lagoon, often surrounded with rank and unwholesome brushwood, overhanging the very roads. These latter are at times impassable, or next thing to it, from their bad construction and want of drainage. Frequently their sides and immediate neighbourhoods are scattered over with stable manure, night soil, old mattresses and beds, on which persons have died, heaps of broken bottles, iron hoops, and carcasses of dead animals.

The houses are variously constructed, some are built of stone or brick, others partially with wood, others again altogether of the latter material; in some places sheds, more fit for the shelter of brutes than men, occur, composed of the staves of salt fish and flour barrels. The majority of the houses are low, consisting of only one story, frequently not raised beyond a few inches from the ground; in some instances not at all. Among the lower classes, the floor is formed occasionally of bricks or terracing; sometimes it consists of the bare ground itself. For the chief part in the towns, the houses are covered in, or roofed, with shingles, and it often happens in the case of an upstairs house, that the roof of the next dwelling just reaches to below the upper windows; in which case these wooden surfaces, especially if partially rotten, and covered with vegetation, (as they often are,) emit after rain dense vapours of sickening odour, and at times reverberate upon the neighbour intolerable heat.

In villages, and on small settlements, the huts or dwellings of the labourers are composed chiefly of mud walls, some times of wattles plastered with the same; they are, for the most part, roofed with thatch, composed of the leaves of the palmetto thatch plant, (*chamærops palmetto*,) or of various species of grass. In very few cases are they raised off the ground, or are they floored in any way. As regards the admission of light, this is generally very badly provided for in all classes of houses; many windows, even of sleeping apartments, are unfurnished with glass sashes—they are merely jalousies. In the huts of the labourer it is often, almost entirely excluded, so much so that during sickness it is frequently necessary, at mid-day, to procure a lighted candle to be able to examine the sufferer.

Ventilation, or the admission of fresh air, is almost invariably neglected. As regards doors and windows, to shut up either, is to leave all entrance and exit of air unprovided for. In many of the houses of the poor, a room has merely a door, and an outside shutter of board, attached to a hole in the wall, in the shape of a window, about one foot square. In the best houses even, the bed rooms are frequently close and confined, the window placed in the wrong position to receive the usual breeze; in fact every thing is sacrificed to the public or sitting rooms. The houses of the poor, and the huts of the labourer, often present a most filthy appearance, both inside and outside; the walls are daubed and discoloured with smoke, and rarely, if ever, are they lime-washed or cleansed.

The yards attached to houses are often small, and confined within a very small space at the side or back; into this are huddled servants rooms, kitchens, store-rooms, wash-houses, coach-houses, stables, and privies. The yards are frequently paved with bricks or river stones, but the only drainage, in general, is into the streets or lanes; in some cases small open cess-pools are attached to houses. Till the outbreak of

the last epidemic, a dung heap in a yard was no unusual sight ; at present even something of the same kind may be witnessed. Among the poorer classes pigsties often exist, built immediately below the window ; poultry and pigeons, and goats, perhaps a poney, or an ass or two, complete the small menagerie, covering the unpaved surface with a coat of moist offensive filth, extending to the very threshold. The rays of the sun extricate the moisture, or the rains from Heaven sweep it bodily away, otherwise it remains, with perhaps a brick or two thrown into it, as stepping stones, or an old board laid across it.

On the out skirts of the town, and in the villages, the fences of yards are often composed of the penguin, (*Bromelia penguin*;) these are objectionable, as they take up much room, prevent the free ventilation of air, and harbour vermin ; the best fence, most lasting and most economical, for such purposes, appears to be the common stockado. A highly improper practice was formerly very common of interring the dead (and remains as yet unprohibited by law) in these confined yards.

Very few houses are furnished with water closets, and in these, the supply of water is often defective. Usually, in the better houses, two privies exist, one for the family, and the other for the servants ; for the most part they are under one roof, and built over one cess-pool or pit ; usually, these privies are crammed into a corner, off the stables, without any attempt at ventilation. The cess-pools are unpaved at the bottom ; during the seasons or heavy rains, they often get full or partially so, and in this way they become, after a time, partially emptied. Rarely is this effected in any other manner. Many of the houses or sheds of the poor have no such accommodation, in fact, they have no out offices at all, except perhaps something in the shape of a kitchen, serviceable, however, only during fine weather. In these cases, the calls of nature are performed by them in the open air, or if decency so far forbids, the utensil used, is soon

emptied within a few feet of the house or shed, there to become the food of the first hungry beast that passes.

In the huts of the poorer classes, the fire for cooking, especially during wet weather, is frequently made on the floor; in these cases the whole becomes soon filled with an atmosphere of smoke, which none but those accustomed to it could tolerate for an instant.

These small dark unventilated houses are frequently over-crowded, especially at night; within the small space of a few square feet, perhaps on the bare ground, or may be on a mattress or mat, or in some cases on a bed, with a whole family of eight or nine persons, of all ages and of both sexes, huddled together, with the door and so called window closed; all clad in the same clothes which they wore through the day, with children sleeping on mattresses often soaked and half rotted with urine and other secretions; should there be accidentally a hole or a crevice, this is immediately closed up by means of rags or something of the kind. The rush of pent up odours, on opening such a place, must be experienced to be understood. The supply of water in the towns is very defective; only Kingston, Spanish-Town, and Falmouth are supplied by means of water-works; in some the supply is daily, in others at longer intervals, but still the mass of the people are unfurnished with this necessary of life, in consequence of the high rates imposed by the different companies. In some towns, as Kingston, there are pumps, from which the public obtain what may be required daily for domestic use; in other places, near rivers, as Spanish-Town, carts are employed, but the poorest are unable to afford to purchase the supply, and they obtain their water, for drinking purposes, in small jars, calabashes, &c. from the stream. In the better class of houses the water is received into tanks or casks, in which it is kept for daily use. In some parts of the island, especially in the white limestone districts, the only supply of water, for all purposes, afforded them, is by means of tanks

and Spanish jars, into which the rain is collected as it falls, with what is procured from the roof of the houses by means of gutters and pipes. In such districts ponds furnish the chief supply of water to the poor. In case of drought they sometimes have to go a long way to obtain sufficient for drinking purposes. At these periods cattle and other stock are frequently obliged to be turned into the deep woods to subsist on the moister vegetation, and at any rate to be screened from the effects of a scorching sun; but in spite of this, they often die in numbers.

The water, however obtained, especially after heavy rains, is thick and discoloured, and before it can be drank with any feeling of pleasure, it requires to be filtered or cleansed from its impurities; this is usually effected by passing it through drip-stones, composed of a species of coralline sand stone from Barbadoes; the poor, however, cannot indulge in this luxury, and too often are they obliged to allay thirst with a fluid of the colour, if not of the consistence, of pea soup, living with larvæ of musquittoes.

As regards water for domestic purposes, it is very much to be feared that a large proportion of our poor population seldom think of that. Their persons are never abluted, save on crossing a river or being exposed to a heavy shower of rain. Even when the daily ablution of the hands and face is performed, it is done by means of a few ounces of water, and without soap or towel. As regards the washing of clothes, this generally is executed at the side of a river, or stream of water, which locality often presents at these periods, a busy and noisy scene, characteristic of a tropical climate; here the washerwomen assemble in numbers, and having stripped themselves and tyed a napkin or cloth round their loins, proceed to wash and *bang* the clothes with a species of wooden battledore. This is frequently continued from morning till night, their bodies being thus partially immersed, and partly exposed to the rays of the sun; a large portion of the population,

however, get on without this operation, both as to their bodies and their clothes.

It will thus be seen, from what has been stated, that a large section of that portion of the community cannot be very attentive to personal cleanliness; nor is this confined to the mere want of ablution; it extends unfortunately to every possible respect in which this great, this all but sacred duty can be broken; the hair is allowed to become the abode of vermin, the chigoes are often allowed to insinuate themselves beneath the skin, and there breed, producing ulcers, often leading to the loss of a limb. During illness, such is the neglect of open sores—such the disregard of cleanliness, that parts frequently become fly-blown and destroyed by maggots; instances are known to the Board, in which they have been allowed to remove the penis and scrotum, in the male, and a large portion of the prolapsed womb, in the female.

It may be said that this exhibition of the domestic condition of the people is too unexceptional, and that there exists a very appreciable amount of a quality of life and circumstances which partake both of comfort and economy. An attendance to the full extent of this claim is designed to be made both in the preceding and the succeeding account of the social life of the people. The object in giving it this decided prominence is, not that it should be accepted as universal but as general, and so general and obtrusive as to warrant it being assigned as a manifest deteriorating cause of the public health and safety.

As regards clothing:—Among the better and middling classes, this is often insufficient and inappropriate to the requirements of the climate; the use of flannel, so requisite in a tropical climate, so much more requisite than in a temperate one, is frequently neglected. The linen next the skin, on the slightest exertion, becomes soaked with perspiration and chills the whole surface. On many occasions the bed clothes used are insufficient. Persons, on retiring to rest, finding it warm and close, remove the clothes,

and when, before day dawn, the cold land breeze rushes down with increased force, they are apt to become chilled ; this is no doubt a frequent source of indisposition among children in the lowlands, where the night winds are most felt.

Very little attention is paid to the subject of dress among the lower classes ; some of them are anxious to present a gay exterior on Sundays and gala days, but this over, they become negligent and careless for the rest of the week. Their clothing is often insufficient during the day, and more so during the night, many of them, as before mentioned, retiring to rest in the same vestments they have worn, and perhaps worked in, all the day, and afterwards lying on the ground without any covering. This habit it is that has caused them to exclude every breath of air from their sleeping apartments, to shut it out as if it was pestiferous. Some persons have an idea that in so warm a climate, clothes, beyond those necessary for decency, are not requisite ; never was there a greater or a more fatal error. As regards the European, it is fraught with danger, and has hurried many to an untimely tomb ; but still more is it mischievous in the case of the African. No one who has carefully examined the skin of a black person (especially anatomically) and weighed well its splendid development and enlarged functions, observed its close sympathy with the lung, and mucous membrane of the intestinal canal—noted their sufferings under exposure to cold, especially, if alternating with heat—and remarked the misery induced in them, by a cessation of its function—in fact, has seen the sick negro courting greedily the hottest rays of the sun, and complaining that he has, “ pain o’ kin,” can doubt for a moment, clothing is essential to the health of all. A large majority upon this subject, as upon all that concerns their temporal welfare, display a most lamentable apathy ; they wander about in filthy rags, torn in all directions, without any feeling of shame. The clothing of children, especially among the lower class, is frequently

insufficient, consisting, for the most part, of one linen or calico shift. As concerns food—there is little doubt, that even among the upper and middling classes, excesses are frequently committed, the appetite is goaded on by means of stimulating and richly spiced dishes, with a variety to boot. Nature appears to have intended the use of spices, peppers, &c. which are so lavishly produced, but there can be no doubt, that the use is often carried to abuse. Liebig, in theorising upon the subject of food requisite for the different nations, tells us that the Jamaica man requires but little animal food; however correct this may be in theory, it certainly is opposed to practice—that is to say, if the amount consumed is really required for the sustenance of the body. There is reason to believe that many consume, on an average, much the same quantity as they would in a temperate climate, and in the country parts, certainly as much. Among the upper classes too, great mischief to health arises from the practice of dining late, and immediately afterwards retiring to rest. Among the lower classes, great errors occur in relation to food, both as to quantity, quality, and the period of taking meals; many, if not the majority of them, are in the habit of taking a little coffee, or sugar and water, or some such infusion, as lemon-grass tea, (*andropogon citratus*,) the first thing in the morning; from this time, till night, they take nothing more; nothing like a regular meal, except perhaps trash, as canes, fruits, &c.; at night, however, they take what they term their pot, this consists of a sort of soup, composed of salt beef or pork, (if rancid or high, it is preferred,) with vegetables of all kinds, highly seasoned, or of salt fish, or corned fish, with plantains, yams, cocos, &c. of this they partake most freely, literally fulfilling the meaning of the expression, “belly full.” Frequently at the commencement of the seasons, the ground provisions are unripe when brought to market. The meal over, they fall asleep, and as might be expected, are most difficult to arouse.

The predilection for salt articles of food, is one that soon grows upon a person after a residence in such a climate. There is little doubt that its constant use is injurious, as also is the abundant use made of lard, butter, and oil, by the lower orders, whenever they can get either. The desire for heavy solid food, as the ground provisions above named, is often striking, and melancholy to witness. Persons in this station of life, in the last stages of dysentery, &c. will often pine after such a meal, and instances have been known, where death has overtaken the sufferer over the repast. Numbers subsist, almost, if not altogether, during portions of the year upon fruits; these they consume in enormous quantities, but of themselves they are insufficient to keep the body in a state of health or vigour.

On the article of food, Dr. Williamson says, "The guinea corn grows in great abundance about the fall of the year, it is reaped in January and February.—In many parts of the island, such as Vere, St. Dorothy, and some of the lowland districts, the negroes depend on it for their principal food. At these places they are accustomed to the manner of preparing it with care, but in St. Thomas in the Vale, their omission in this respect, has become the source of formidable disease. A barby attachment to the grain, a little black coating on it, after being dried, seemed to me to be the cause of so many bowel complaints among the negroes, for when pains were taken to remove them, the guinea corn was as wholesome and good an article of diet as the country afforded." This explanation appears to be very probable; it is the same with the oatmeal as eaten by the Scotch. No instances, however, of intestinal calculi are mentioned as occurring here. Horses, with bots or thread worm, are often fed on guinea corn for the purpose of getting rid of these vermin; in them the husk, &c. certainly acts mechanically on the worms.

The food of children is a subject fearfully misunderstood, and is a prolific cause of disease. There

can be no doubt that the lives of numerous children are annually sacrificed through the errors and prejudices existing on this subject. The cruel and unreasonable practice of stuffing young infants with thick pap (which the spoon can stand up in) of arrowroot, cornmeal, cassava flour, &c. is most injurious and destructive to future health, if they survive the present effects.

Their common diet too, when of mature age, is highly unfitted for their tender frames. As regards drink—the history of the island gives us sad accounts of our predecessors in this respect. The use and abuse of ardent and other spirits appears to have been, at all periods, a crying sin in Jamaica. The facility of procuring these, and the false vigour temporarily imparted by them to those fatigued and worn down by exertion and exposure to the sun, coupled with the convivial habits of the inhabitants, must be considered to have been the cause. New comers were persuaded that, without their use, they could not stand the climate, and many, in those days, considered that disease was to be attributed to not taking enough, rather than to taking too much. Moseley, who served some time in the army out here, thus writes:—"The ridiculous notion that people are to die of putrid diseases in hot climates, unless they keep up their spirits, and embalm their bodies by the assistance of an additional quantity of wine, strong liquors, and living well, as it is vulgarly called, has caused the death of thousands."

This practice, however, is fast disappearing; it is by no means so common as it was among the upper and middling classes.

In former times the lower orders of the labouring population were considered to be very abstemious.—There appears, however, to be a tendency to excess among many of them, especially those located in towns; their favorite drinks are those compounds known as Anisettes and Liqueurs, of a similar kind; and there is reason to believe that the injury they

produce is aggravated by these, and other spirits, being too often adulterated by those who retail them.

The prevalent use and abuse of such articles, during illness, is most reprehensible; there is no doubt that, at the commencement of the recent epidemic in this island, numbers died from the combined effects of stimulants and narcotics, and not from the epidemic.

The administration of them to children in health is prejudicial; and, in diseases, except under the supervision of a medical practitioner, is unnecessary and wicked.

One cause of the less consumption of wine and ardent spirits among the upper and middling classes in the towns, at least within late years, may be supposed to be the free introduction and common use of ice. The real luxuries of the West, like those of the East, as Bishop Heber observed of India, being felt to be "cool water and cool air." The practice of taking, as it is termed, "long drinks," is one very prejudicial to health. These drinks vary much as to their components—such as brandy, rum, lemonade, tamarind and water, or plain water. Independent, however, of the quality, the quantity is injurious; tumbler after tumbler of fluid is swallowed, and the function of digestion is thus often irreparably injured. Sir John Keane, when lieutenant-governor here, who was noted for the violent exercises he underwent, had made it a rule never to exceed a single wine glass full of fluid at a draught.

Smoking is a habit frequently abused by all classes, and even by children; when carried to excess, it doubtless becomes a source of suffering; besides which, it is a most expensive and extravagant habit. The money spent upon tobacco, if laid out in the necessities of life, would tend greatly to improve, not only the morals, but the health of individuals.

As regards exercises, many of the upper and middling classes pay little attention to this most important necessary for the well being of the individual.—

This remark applies more particularly to females, many of whom, from the beginning of the year to its end, never quit their homes for the purpose of taking exercise. This arises, in a great measure, from the state of the streets and towns, from the want of a public place of recreation and amusement. This is a subject which has very much engrossed the attention of the authorities in other countries, and was always a subject of municipal importance to the French and Spaniards, in the neighbouring colonies; the one had their *alamédas*, or public walks, with rows of trees, and the other their parks or *champs élysées*. In England, parks are now being formed in all directions, especially about the environs of the large cities. Among the lower classes the same remarks are applicable. The majority of these, not impelled by circumstances to be field labourers, are too lazy to move; they frequently squat down all day in a sort of sullen apathy; they eat and drink, and sleep like the brute that perisheth, but all the more active impulses of their human nature appear to be as little excited as if they were totally wanting. This state of indolence is pernicious both to the body and the mind; while it is necessary to guard against the common error, it is at the same time expedient to beware of its extreme, over-exertion and fatigue of body and mind, or exertion too long continued, is a strong pre-disposing cause of disease, especially in a warm climate, and during the prevalence of disease.

It is a well known fact that all the towns and villages contain a large number of persons, who have no ostensible means of earning their livelihood; the way in which they subsist is an enigma to themselves and others. Exposure to night air, especially during heavy dews, is a very prevalent habit among the lower classes; under various excuses, they meet in numbers, frequently in the open air, or under temporary sheds, as at the performance of wakes over the dead, and also at their revels of *john-canoeing*, as it is termed, about Christmas time; on these, or other occasions

of the kind, they give full scope to animal enjoyment, and at the pitch of the excitement of the prevailing passions, their gestures and acts, resemble more those of demons, than of human beings.

There are certain trades, occupations, or avocations, which carried to excess, or where the means (known to mitigate or check the necessary evils arising therefrom,) are neglected, tend much to induce disease; of these the following may be named: the planter, the policeman, the printer, the painter, the baker, the clerk, the tailor, the shoemaker, &c.

In these instances, from the nature of the avocations, they are exposed to fe^wer, or more of the causes of disease. Thus, the planter and policeman, to wet and heat, in fact, to the vicissitudes of the weather; the printer and the painter, to the influence of delirious metals; the baker, to sudden and great alternations of heat and cold, while employed at the oven; so also the sugar boiler; and the clerk, the shoemaker, and the tailor, to confinement, and constrained positions and attitudes, which often promote disease.

Excessive indulgence in sleep on one hand, and long continued interruption of repose on the other, are apt to give rise to serious maladies. It cannot be too forcibly urged upon the whole community, that the practice of early rising, is one which promotes both mental and corporeal energy, and in this climate where the days are so hot, and the evenings so short, it is the only fit period for taking exercise, so conducive to health. It has been remarked by the actuaries of life assurance companies, that early rising is, of all habits, the most conducive to longevity, all long lives being early risers. Among the lower classes, the nights about Christmas time are often devoted to their revels, and this circumstance, coupled with the fact, that cold north breezes frequently prevail at that time, often produces among them a vast deal of diseases. The due regulation of the mind has great influence over the state of the body; excessive intellectual toil, the domination and unruly sway of violent

passions, the frequent recurrence of strong mental emotions, vicious and exhausting indulgencies, each and all sap the strength and grievously impair the health of the body. No one who has seen any thing of the lower orders, but must have observed the complete want of controul they possess over themselves, have witnessed the outbursts of furious and ungovernable rage, simulating mania rather than a mere ebullition of temper, during which they often wreak their vengeance upon others, and frequently also upon themselves. Instances of persons injuring their bodies and destroying life itself under these storms of temper, are not uncommon, and in the majority of cases are traceable to jealousy. This subject leads us to the consideration of promiscuous intercourse. The evils arising from it are fearful to contemplate, both in a moral and physical view. That the morals of the upper and middling classes are, within the last few years, much improved in this respect, there can be no doubt; at any rate, among those who yield to the influence of public opinion, a feeling of shame exists, under violations of the rules of decency and propriety, which leads them to court secrecy; but there yet prevails, both in town and country, a mass of the people who are reconciled to look only to convenience in their family arrangements, and to believe it a sufficient warrant for immorality.

Among the lower classes of the population there is great reason to fear that little or no advance has been made in better maxims of social life. If a moral feeling exists among them, it is shewn by the calendars of our criminal courts, where the women complain of rape, or of attempts to commit rape, and unhappily they occur incessantly. If any one fact has been made clear during the great sanitary movement, it is that this sin owes its origin in a great measure to the overcrowding which occurs at night in rooms and houses. The precocity of children out here, and its relation to this subject, is truly appalling. The physical evils arising from an abuse of this animal pro-

density are great and endless, not only to the individual but to the public weal. It is to the vicious habits thus engendered, that we must, in a great measure, attribute the want of increase of our population, the marked infertility observable among females of the lower classes, a fact noticed during slavery, but now there is reason to fear, greater than ever. That the procuring of abortion was always a common custom, there is every reason to believe; that it, together with its allied crime, infanticide, is, if not increasing, made more manifest, is evident. And it behoves the legislature to adopt means to remedy the evils. Superstitious habits have ~~always~~ been, and will always be, common in a community like this, composed of individuals of so many different nations and countries, many of whom openly profess heathenism. The dark practices of obeah and myalism have at times effected a vast amount of mischief in this island. In many cases the mere impression and belief in the possession of supernatural power has been sufficient to cause the body to pine and waste, and even to produce death; in other instances, there is room to believe, that where the mind of the doomed person was either too strong or too torpid to feel the spell, other and more effectual means have been clandestinely used, at least to cripple the body, if not to destroy life.

Another practice, injurious to health, is the common habit of neglecting the first symptoms of disorder, or the first outbreak of disease. The late epidemic taught us a fearful lesson upon this subject. Many diseases are remediable, chiefly, or only at their commencement; this is a practice among all classes, and is often based upon the idea of economy. Every day's experience teaches us the fallacy of such reasoning. Many are in the habit of prescribing for themselves, and others; in such case, the usual tendency is to give too large and excessive doses of medicine, often the most powerful drastics. The evils arising from this, are too frequently witnessed by medical men.

The prevalent notion is, that as long as biliary secretion is ejected from the stomach, a person must be, as it is commonly expressed, "billious;" this is an idea fraught with the greatest mischief, and is often productive of irreparable injury to health. In country parts, where medical advice cannot often be obtained, it becomes frequently indispensable to attempt to relieve suffering, but in all such instances, it is much more prudent to do little, than to attempt too much. The resources of nature are great, if left to herself, and if there is any doubt about the matter, it is far better to confine oneself to the administration of the ~~most~~⁺ simple remedies, in fact, to adopt what is termed, the "expectant practice," bearing in mind the old adage "*ne puero gladium*," do not let the inexperienced handle dangerous weapons.

Among many again, there is a great preference shewn to be attended by quacks and unlicensed practitioners; this can solely be attributed to the bold and positive assertions, the promised cure, which only an ignorant and presuming charlatan would presume to make; among the lower classes, there exists a strong aversion, generally speaking, to enter a hospital, or parochial asylum. It would be well that attention should be paid to this subject, and these institutions placed on a proper and uniform footing. Numerous cases occur among the lower orders, which cannot be satisfactorily attended to, and treated in their close dark huts and hovels.

Another practice which leads to much misery and suffering, and loss of life, is the present system of ignorant, uneducated females attending as midwives; the majority of these are aged African crones.

In Lady Nugent's Journal, there is a graphic account of the devices of the midwife in that day; with a person of her consideration and quality, to ensure the "*diana adhibetur ad partus*," and unhappily, the belief in charms, and propitiated influences, still continues; and though not among the wealthier, there are still those among the poor, who resort to all spe-

cies of superstitions, and ridiculous forms, and too frequently, by over-meddling and interfering with the efforts of nature, cause the death of the infant, and the injury of the mother. This is a subject which requires distinct legislation, as for some reason or other, it has not been included in the enactment constituting a college of physicians and surgeons.

A frequent cause of ill health occurs among females of all classes, by the practice of nursing their children for too protracted a period. The reason generally alleged is, the fear of too large a family, often a fallacious one, but at any rate, a bad excuse for the mother ruining her own health, and that of her progeny.

Such then are the more common causes of disease in the climate, viz. : those arising from the physical conditions of the island, and those, the fruits of man's wilful and sinful neglect of the dictates of nature.

That both of these can, in a great measure, be removed, is an undoubted fact; many of them will yield to the industry and perseverance of man, when guided by the powerful aid of science, and all may be mitigated, so as to render their effects less pernicious. In other climes, where these causes of disease have been rife, the remedy has been applied, and the diseases have ceased to exist. Dr. Conolly has forcibly expressed the fact, in the following words :—"Man, however, has not been left unprovided with the means of meeting or combating diseases; some of them he has been enabled to mitigate, and others have quite disappeared before his increasing knowledge and skill. In the same manner as beasts of prey and venomous and offensive reptiles loose their ferocity, or recede in all parts of the earth, and finally disappear before the advancing civilization of mankind, so also, it would seem, do the diseases which prey upon health and life become modified by the resources of man's ingenuity, or disappear before his discoveries and growing wisdom; and when philosophers perplex themselves concerning the origin of evil, they little suspect how many of the physical as well as moral

ills of humanity are destined to disappear before the sagacity, the research, and the enlarged virtue of the species." As regards the second class of causes, experience, in different parts of the world, has most satisfactorily proved, that these can be annihilated—that their effects can be prevented. They may not be removed by individual efforts, but they are susceptible of extinction by the united measures of a community; such being the case, it becomes the imperative duty of those in power to institute those measures and to compel their performance.

The golden days of Jamaica are past; absenteeism is at an end. Proprietors to reap any benefit from possessions must make Jamaica their home—they must reside—they must be content with limited means. Had this been done some years back, the state of Jamaica would have been different now; "the most beautiful island in the Carribbean sea" would have been able to boast of cities as great and as wealthy as the Havanna.

The time has now arrived when, to save ourselves from utter ruin, we must be up and doing; we must cast off that apathy which has so long distinguished us as a community, which has made the creole a bye word among nations, which hangs as a veil over all our undertakings, and is visible throughout all the departments and workings of our constitution; mars the usefulness of all our public improvements, and is too evident in all the concerns of private life. It is useless to cry out for more labourers, or for immigration; where are the thirty and odd thousand beings, who, this time last year, were among us? Before we import others to supply their place, let us ascertain why it is our population has not increased; why has immigration so signally failed; let us search out the number of those who daily and hourly die from the effects of preventable cause; let us apply the remedy that experience assures us does exist; let the mouldering bones of hundreds of immigrants, victims of misplaced confidence, cause those in authority to

pause, ere they, by their sanction, delude others; ere they hold out promises which can never be realized. Examine the present sanitary condition of the island—mark the fact, that districts of twenty, thirty, and forty square miles in extent exist without a single qualified medical practitioner; observe well the fact, that the existing laws, meagre as they are, as relates to sanitary matters, are daily broken, are put to open defiance in our very towns and thoroughfares. Consider this, and few, under such circumstances, can advocate the further introduction of his fellow-man.—Correct all this, and then will immigration prove to us a benefit; then will it be a boon to the liberty-crippled American black, a source of temporal and eternal advantage to the African heathen. Till this is done, any further attempt to induce strangers to embark their fortunes here, can be but to disregard the laws of God and man, and by exposing the deceived to destruction, to bring down greater judgments yet upon the authors of their ruin. As it is, with the population we already have, great difficulties must be anticipated; old habits and darling prejudices must be torn up and rooted out, and whatever the labour may be, it must be done. To reason is useless, to [†] ~~legislate~~ and not enforce, is worse than useless. “*Sa[†]regi- lus populi est summa lex.*” A government must, on such occasions, if need be, exercise a paternal authority. The mass of the people must be taught the necessity of these measures, by precept and example, by practice; the efficacy of sanitary measures, as a preventive of disease, must be brought home to their senses, made clear to their ears and eyes; they must themselves become witnesses of its worth, and partakers, though unwilling, of its benefits.

In enumerating the diseases which prevail in Jamaica, the object will be to mention those which are prevalent or endemic, that is to say, arising from, and depending on, local causes. Briefly to allude to those which sometimes occur, but cannot be attributed to any fixed local agency; to note general-

ly, at what seasons or periods of the year disease chiefly exists; and lastly, to observe what diseases, occurring here, may be considered as epidemic and contagious, with such remarks as may be deemed requisite.

It has long been observed, and daily experience teaches us, that persons arriving from other climates or other countries, are more susceptible to the causes of disease prevalent in the place to which they have come, than those who have long been resident there. The constitution gradually undergoes a change, and adapts itself by degrees, to the altered physical conditions and other habits and circumstances, dependant upon the change, so as in time to be better able to resist their influences. This adaptation of the system, is termed seasoning or acclimatization; always an important period to the individual, and of great importance in ^{the} consideration of sanitary matters, and of sterling interest, as relates to the subject of life insurance.

Of course the changes which take place in each person, will vary according to many circumstances, in proportion to the difference between the climates of the two places. Thus, as a general rule, it may be said that the changes, as regards this climate, are greater in the European than in the African, in the ratio of the difference of their respective climates with this. The period usually considered requisite to effect this alteration in the system, must vary; on an average, in the instance of a European, it is generally fixed at from two to three years. A change occurs also in those residing in the upper mountain ranges when they come down to the plains, and in sickly seasons of the year; or during the prevalence of an epidemic disease, persons, so circumstanced, show a marked proclivity to disease, and may be considered to incur greater risk than had they remained above, or been permanently resident below. The period necessary for seasoning, in these cases, is of course lessened. During the existence of

slavery great attention was paid to this subject by slave-holders, and the *salt water negroes*, as they were termed, were subjected to certain forms of treatment. It is a prevalent notion with some persons, that in order to be so acclimatized, a person must have, at least, one sickness, and it has hence got the appellation of the seasoning fever, or sickness.—This is an error, and a mischievous one too, inasmuch as a timid person is always anticipating what he conceives to be the necessary evil—the ordeal through which he must pass; this feeling of itself becomes a strong predisposing cause; and, on the other hand, should he get his expected attack and recover, he becomes reckless and careless, considering himself safe, having passed the rubicon of his imagination. No attack is necessary to effect this end—the longer a person has been in the island without suffering, the less chance is there of his being attacked.

The subject of seasoning is one that is generally considered a fit object for domestic treatment; cooling acidulous medicines and drinks are prescribed and daily given; the different organs (already in an excited state from the effects of temperature, &c.) are teased and irritated, and disease often produced. It may not be out of place here to observe that new comers, or as they are facetiously termed “Johnny Newcomes,” should arrive during the cooler months, as December, January, or February. Physicking, unless demanded by particular symptoms, is unnecessary and injurious. Due care should be taken to avoid the known causes of disease. With these precautions, experience proves that moderation in eating and drinking, in sleep, in the indulgencies of those appetites, feelings, passions, and desires, which have been implanted in our natures by a wise Providence, for our advantage, gratification, social improvement, and happiness; an equitable state of the mind, with confidence in our own powers, and the pleasant excitement accompanying a well regulated course of application to business or study, are the best means of re-

sisting the impressions of injurious agents, and of change of climate.

There are certain classes to whom this climate, with all its existing evils, has nevertheless been found to be favourable :—thus Europeans, who have been subject, or who are predisposed in their native country to scrofulous, rheumatic, or pulmonic complaints : in the latter disease. If only the predisposition exists, the outbreaks or developement is often prevented ; but if the morbid action has commenced, or progressed, the change to a warm climate is more apt to hasten the fatal termination ; in some such cases, however, in particular stages of the disease, if its progress is not checked, still a longer truce is obtained to persons of a spare, but not weakly habit, and more especially, to such as have passed the meridian of life ; it being an observation founded on experience, that the individuals who enjoy good health at the age of forty-five or fifty, in a tropical climate, will probably live to a greater age in the West Indies, than in their native country, or as it is sometimes expressed here, “ old age is rendered more comfortable.” This climate seems also to agree with the constitutions of children, who, during the state of infancy, are usually stouter, and are subject to fewer diseases than those of Europe. They are likewise observed to discover earlier marks of comprehension and intellect, and have more mental vivacity than children in Europe, but after the age of four or five they fall off in these particulars, become weakly, relaxed, and languid, and acquire the features or constitution peculiar to natives of warm climates.

In enumerating the diseases which occur most frequently in this island, it will be well to bear in mind that these may be, or are very much modified, according to the causes peculiar to the individual. These may briefly be mentioned—original conformation and hereditary predisposition, habit, and constitution ; as also previous functional disorder and convalescence from disease ; the pregnant and puerperal states, &c.

They will also vary, as we have before seen, according to the trade or avocation—the circumstances of life, as comparative wealth, poverty, and destitution—residence in the mountains or in the plains.

It would be foreign to a report of this kind, and would exceed the bounds usual on such occasions, to dwell upon, and dilate on each of these interesting and important subjects. It is well, however, to bear them in mind, as by a knowledge of them we can often explain away apparent contradictions and anomalies in the history of particular diseases.

The diseases which may be considered as endemic “*ἐν* among *ἔθνος* the people,” of frequent occurrence in this island, and which are due to local causes, are

Fevers—Continued typhoid and typhus, intermittent, remittent, and yellow fever.

Hepatic derangements and diseases, enlarged spleen, usually the sequela of fevers.

Dysentery, diarrhœa, and melœna, cholera morbus and cholic.

Dyspepsia, in all its protean forms, colica pictonum, or dry belly-ache.

Pulmonary consumption, pneumonia and pleurisy, bronchitis, catarrh, and sore throats.

Dropsies, generally the result of visceral disease and anœmia.

Tetanus and tetanic affections.

Coup-de-soleil.

Verminatio or worms.

Rheumatism and rheumatic pains.

Anæmia and cachexia Africana.

Hæmeralopia and nyctalopia, and pterygium.

Inflammation and enlargement of the prostate gland.

Cheloid tumors, ulcers about the ancles, lichen tropicus or prickly heat.

Among female diseases, the following may be mentioned as very prevalent:—

Leucorrhœa, chlorosis, menorrhagia, prolapsus

uteri, and malignant diseases of the womb, as cancer and cauliflower excrescence.

Of puerperal diseases, there is a surprising freedom from this class. No one can be said to be endemic or of frequent occurrence. Cases of convulsions do occasionally occur. Phlegmasia dolens is sometimes met with. Mania is rare, cases of puerperal fever have been mentioned to the Board, as occurring, and distinctly traceable to the existence at the time in the house or ward of erysipelas.

Of infantile diseases, the following are of frequent occurrence:—

Encephalitis, and diarrhœa with discharges of blood, dysentery, these often terminate in the hydrencephaloid disease of Marshall Hall.

This latter is certainly the most fatal infantile disease of Jamaica, and is often induced by neglect of diarrhœa or over physicking. Trismus nascentium and umbilical hernia are both endemic, and chiefly confined to the blacks; the former disease is now very rarely seen, at least in the towns; formerly it is represented as being very common and destructive. The cause of this disease has been stated to arise from the smoky atmosphere in which the little infant was kept. Dr. Williamson gives us an account of the dressing of the chord which he witnessed. "On enquiry as to the manner of managing the umbilicus after birth, it was found that some ashes were shaken on the parts, tied up with wool, and a bandage over that, which was not removed for nine days." Such being the case, there seems little need to theorise much about the exciting cause.

On the subject of umbilical hernia, he informs us, "it is a common complaint among negroes, and it affords an instance of the irrational opinions of which they are capable; that the complaint is rather desired than avoided by parents, and the old females, on a belief that the male, the larger an umbilical rupture is, the genitals will become proportionally

greater. It is difficult to persuade them of the absurdity of such an idea."

There are other diseases which are very common, but the majority of them are evidently of African origin, as elephantiasis arabum, elephantiasis græcorum, yaws and kra-kraws, coco-bay, or joint-evil, dracunculus, or guinea worm. The two former are, however, distinctly endemic.

The diseases of the mountains are so few, and comparatively of so little importance, as not to require a distinct enumeration.

The prevailing consist of mild intermittent and remittent fevers, with slight inflammatory affections. Dysentery and diarrrhœa, however, are at times epidemic and severe. Besides these diseases, the inhabitants of Jamaica are exposed to all the other maladies common to all climates, and which do not appear to derive their origin from anything peculiar to a tropical one. Many of these, however, are generally milder than in a temperate or cooler climate. The rapidity of disease here, is its most striking feature to a new comer, but two or three days frequently intervening between health and the grave. Mosely tells us, that it is pertinently stated in the French West Indies, "*un homme n'est plutôt tombe malade, qu'il voit à ses côtés le médecin, le notaire, et le confesseur, tous trois presque au même instant.*"—All the exanthemata occur both sporadically and epidemically, so also erysipelas, which sometimes shews a tendency to spread. In some instances symptoms resembling those of Barbiers, have presented themselves. Tubercular peritonitis is of frequent occurrence, among the blacks especially, and may be said to be very prevalent in the prisons of this island. Ophthalmia at times is prevalent, and now and then is seen to spread through a family or household, recent instances of which are known to the board. Dr. Williamson states, 31st October, 1798—"An epidemic ophthalmia had been exceedingly troublesome." Deep-seated inflammation of

the eye is by no means rare, giving rise to iritis choroiditis, &c., influenza, asthma, hooping cough and croup, all appear at times. Mumps are frequent.—Scurvy and purpura are occasionally met with. Hydrophobia contrary to the generally received opinion, does sometimes occur in this island. The celebrated John Hunter taught that hydrophobia never existed in Jamaica. This, however, is incorrect, as undoubted cases do occasionally offer themselves.—Hillary says, when treating upon canine madness, “it is so frequently seen in most hot countries, and especially in the West Indies, that it may be said to be endemical.” Mosely states, “in 1783 the disease was general in Jamaica. Many negroes were bitten and died of hydrophobia.” He adds several instances. The idea of hydrophobia occurring more frequently in hot countries, or even in hot weather is repudiated by Mr. Youatt, a great authority on such subjects. The disease, however, does occur in Jamaica, and the numerous race of half starved sneaking curs, which wander about the country in search of carrion, and not unfrequently visit the sheep pens, where they commit sad and wasteful havoc, call loudly for legislative enactments. The negro dog, in his appearance and sneakish habits, appears almost to be a distinct species. The common method of naming them is peculiar, a whole sentence being in general devoted to that purpose: a common one is “woman no for trust.”

Equinia or glanders and farcey in the human subject must be rare, only one instance at least of its being recognised, has come to the knowledge of the Board—the subject was a black man, a farrier.

Some years back, in 1827, an anomalous affection visited the island, together with the other Antilles.—It was known by the name of the Dandy fever, from the ridiculous figures and attitudes persons suffering from it assumed; it was generally supposed to be of a rheumatic nature; it attacked all classes, but does not appear to have been fatal. In the year previous

to the appearance of this disease, a very fatal fever occurred in some parts of this island of an erysipelatous type, and which is said to have been accompanied with malignant tumors about the body.—Rheumatism of the intestines, as described by Chomel, was witnessed here some years back, both in Spanish-Town and Kingston. Chylous urine, which is generally stated to be an endemic disease of the West Indies, is very rare.

Affections of the kidney, and among them Bright's disease, occur.

Calculous diseases are generally said to be rare; this, however, is not so certain. The operation of lithotomy is decidedly very rarely called for, but small calculi are frequently passed by the natural passages, consisting of the different kinds. Mosely says, "I have known many Europeans subject to the gravel at home, who had no symptoms of it during their residence in the West Indies." Hæmorrhoids, prolapsus and fistula in ano are common in all classes; the second particularly so in children. As regards fistula in ano, seldom does any difficulty arise from its being operated on out here; syphilis is very rare, and, in many instances, persons arriving here, afflicted with it, rapidly recover. "I have often," says Mosely, "known inveterate lues venerea, particularly when seated in glandular parts, that could not be subdued by medicines in England, to yield to the climate of the West Indies without any medicine whatever." Gonorrhœa is, at times, very common, frequently giving rise to urethral and vesical disease. Gleet is sometimes very obstinate. *Mania e potu* is, by no means, unfrequent, and seems to be increasing. Bronchocele does sometimes appear, but is not referrible to any particular cause. Cancrum oris is not unfrequent, and, in the majority of cases, is distinctly referrible to the use of calomel in an anæmic state. Hernia is of common occurrence in all classes. It is said to be very prevalent among the members of the Jewish nation; the Mungolas, an

African nation, are said to be very subject to it.—Mania is by no means a frequent disease. Suicide, except among the Africans, and of those, certain nations, is rare in Jamaica.

Of cutaneous diseases, it may be said that for the most part they are very common, and often very troublesome and difficult of treatment; cases of lupus appear frequently among the white portion of the inhabitants. The syphilida or syphilitic eruptions are very rare.

The last disease which it is necessary to mention is Asiatic cholera, which, for the first time, in the memory of man, visited this island last year.

Of these diseases, some of them occur at times in an epidemic form; the latter will be more particularly examined in a subsequent part of this report.

The hepatitis or acute inflammation of the liver, is not so peculiar to Jamaica as to the East Indies, where few Europeans escape its attack. This disease, with its sequela abscess, is decidedly rare. During the present year, since the subsidence of cholera, more cases have occurred than have been known during the last twenty years. The blacks seem seldom to suffer from it. There is a stage of congestion hardly amounting to inflammation, which is very common, and much oftener present than is usually expected. There are, it may be said, few diseases that resist the common treatment, which are not connected with an affection of the liver, and they are often accompanied with such ambiguous symptoms, as to excite but little suspicion of the liver being affected, until the fact has been ascertained by a recourse to those medicines which are principally adopted for the removal of such affections; slight functional derangements of the liver are frequent.

Some years back (1836) jaundice prevailed and attacked several persons, proving fatal in many cases. In April, 1804, Dr. Williamson states, "several persons, who were under jaundice, intermittents, &c., recovered by the influence of fair weather."

Enlarged spleen is of frequent occurrence after intermittent and remittent fevers, and sometimes attains a great size. Melæna is a frequent sequela of fever, in which congestion of the various viscera has taken place. Cholera morbus, English or sporadic cholera, occasionally takes place during very hot weather, and as the result of fish-poison, and is generally traceable to some error in diet, particularly to large draughts of cold fluid, taken while the body is heated and fatigued. A case occurred in 1840, of a gentleman who was so attacked after a large draught of iced beer; he died in less than thirty-six hours, with all the symptoms of cholera asphyxia.

Cholic is very common among the black classes, attributable no doubt to the heavy and solid food they make use of after long periods of fasting.

Dyspepsia, in all its forms and varieties, is of frequent occurrence among all classes, as might be expected from the habits previously described. Among the negroes, it is often very severe, giving rise to very acute suffering. "Pain o' tomack" is a very common complaint among them, and may be attributed to their general mode of dietary, and to the large quantities of fruit they consume. Pyrosis, or water-brash, is an affection very prevalent among them.

Dry belly-ache appears formerly to have been a very prevalent and fatal disease among the white classes. It is now very rare. It was generally attributed to the introduction of salts of lead into the system, this seems doubtful. It does occasionally occur among the darker classes. On this subject, Dr. Copland writes, "The form of colic which occurs, and even prevails in some of the West India islands, has often been confounded with lead-colic, from the supposition that the new rum drunk in these islands contains lead in solution. Dr. Quier, Dr. Chisholm, and Dr. Thompson, who resided long in the West Indies, state that this disease is not so common as formerly in these islands, owing to the improvement in morals,

and the use of warm clothing, and that nothing is more erroneous than attributing it to the power of lead. These physicians refer it to the intemperate use of spirits, and to alternations of heat and cold.—Dr. Quier and Dr. Musgrave, who have given a very detailed account of this complaint, as they observed it in Jamaica and Antigua, where it is of frequent occurrence, state positively that lead is not concerned in its production.” M. Larrey imputes it, or rather an identical disease, occurring in Spain, to atmospheric vicissitudes, and acid beverage, and designates it, “*colique biliense rheumatismale* ;” a name at least applicable to the disease previously alluded to. Dr. Henderson, of the parish of Portland, states—that this disease was prevalent in his district at the time of the outbreak of cholera last year.

Pulmonary consumption is a disease which is generally said to be much more common since emancipation than formerly ; this seems questionable.—Perhaps the difference may be put down to the improved methods of diagnosis, by which it is now more certainly detected. On referring to the registry of the parish of St. Catherine, in which, for the space of thirty-five years, commencing from 1774, the causes of death are inserted, it is evident that the disease was not then rare. Dr. Dancer, in his *Jamaica Practice of Physic*, remarks, that in his time, “some practitioners are of opinion that consumption is more prevalent in Jamaica than formerly.” It is now very common, rapid in its course, and fatal. Several reasons have been assigned for the greater frequency of this disease since emancipation, but none of these are satisfactory. The class, especially attacked at present, appear to be persons who were not affected by the change from slavery. No measure is more likely to solve the difficulty, and direct us to the remedy, than a correct registration of births and deaths. Some have considered that the atmosphere being loaded with small particles of the fibres or cottony flocculi

of the epidendron anfractuosum or ceiba, at particular periods of the year, might act as an exciting cause of this disease.

Pneumonia and pleurisy, single or combined, are very common diseases, especially among the blacks. It is rare to open a body in which the lungs are not more or less bound to the ribs by old adhesions; in some cases, abscess exists without any sign of tubercle in the lungs, or any other part of the body. This appears to be frequently the case in the young recruits of the black regiments, who are chiefly Africans. The presence of those affections often give rise to continued and typhoid fever of a most insidious and fatal form.

In many instances this disease occurs, accompanied with hepatic symptoms, and yellow expectoration, but without any acute hepatitis tending to abscess; it generally assumes a typhoid type. Cases are not unfrequent among the blacks confined in prison. Bronchitis and catarrhs, are very frequent at particular seasons of the year.

Sore throat, with ulceration is often very troublesome, and prevails at times among many; in fact, perhaps it should rather be considered as epidemic. It often occurs among children, and appears at all times of the year; it probably depends upon some changes in the atmosphere.

Dropsies are common, as the result of diseased viscera, the sequela of fever, and also of anæmia, however produced, and cachexia Africana.

Tetanus and tetanic diseases are certainly endemic, both in their idiopathic and traumatic form; they appear to be more common among the darker classes.

Coup de soleil occasionally takes place on exposure of the head to a very hot sun; it does in very warm seasons affect even the negroes, though the protection afforded by the woolly covering is surprising.

Verminatio, or worms, are very common indeed among all classes; all the usual species exist. Black children are very subject to them, and sometimes pass pots full; this was observed during cholera, large masses, entangled and twisted together, would escape in the dejections.

Rheumatism and rheumatic pains are sometimes very severe, and attack all classes. Acute rheumatism not unfrequently produces pericarditis endocarditis, &c. Rheumatic pains are very common among the negroes, especially during the prevalence of strong land winds.

Anæmia—This is observable in the majority of the inhabitants of the plains, but more especially in those of towns. It appears to be a general relaxation of the whole system without any marked disease. It is often the result of derangement of the menstrual discharge, as also of enlarged or diseased spleen.

Cachexia Africana, mal d'estomac, dirt-eating, was formerly a very common and fatal disease among the blacks; in fact depopulating estates and districts. It has been variously accounted for. In many instances it has been attended with symptoms of nostalgia. It appears to be less frequent now.—The earth generally eaten was a species of marl, but some would take tobacco ashes, hair, &c. Dancer says, "There is no calculation of the general mortality of this disease, but it sometimes sweeps off one half or more of the negroes on a plantation. It has become much more prevalent since the large importation of Angola negroes, who are more particularly addicted to dirt-eating than others. Dirt-eating prevails more in wet than in dry parishes. In the Port Royal mountains it is almost unknown, though it is frequent in St. Andrew's, which is perhaps owing to there being more of the earth they are fond of in the latter situation."

Nyctalopia and hæmeralopia are generally des-

cribed as endemic. They are rare, but do occasionally occur, particularly in the sandy and white limestone districts.

Pterygium is a very common affection, especially among elderly females, so much so as to have attracted popular notice.

Inflammation and enlargement of the prostate gland appears to be common, attributable, most likely to the quantity of spices usually taken, and perhaps to excessive horse-exercise. Cheloid tumours are peculiar to the blacks, and are very common; they appear to follow any breach of the surface, as from a cut or a blister; their usual seat is over the sternum, or on the lobule of the ear.

Ulcers about the ancles are very common, and exceedingly troublesome; they vary as to their nature, but the majority of them are indolent; they have a convex surface, of a pale pinkish colour, often affecting the deeper tissues, and inducing diseases of the bone. They are said to be more common in the mountains. So serious are these ulcers, that Dr. Hunter tells us in his work on the diseases of the army in Jamaica, the "ulcers in the military hospitals in Jamaica, are in the proportion of one third at Spanish-Town, one half at Fort-Augusta, and two thirds at Stoney-Hill. No method of treatment has been found successful, and they are therefore invalided and sent home. Dr. Lempriere tells us precisely the same, as the result of his experience in the army in this island." Dr. Williamson tells us, "ulcers in negroes are frequently connected with constitutional distempers." In some new-comers the bite of the mosquito gives rise to irritable and painful sores.

Dr. Jackson, an eminent military medical writer, who served in this island, informs us "that sore legs are intimately connected with intermitting fevers and diarrhœa; in wet weather, or in the rainy season, intermittents and diarrhœa are frequent; in dry weather, sore legs are more common; sore legs also frequent-

ly occur among classes of men moved to a new climate, who seem little susceptible of febrile irritation, from the application of a febrile cause. Such are Africans, and persons who live temperately, and soberly, (in common language poorly,) or who have experienced frequent changes of climate, and under these changes, led a life of debility. Blotches on the skin, and sore legs, frequently appear in crowded barracks, in ships, or hospitals; they depend evidently on a cause of febrile contagion, but the precise state or degree of contagion, which originates this form, is difficult to be marked; the appearance, however, usually shews itself at an early stage of contagion, in a contagion generated among a set of men, rather than imported from a concentrated source."

Prickly heat, though a trifling complaint in general, is one that prevails at particular seasons, and attacks some individuals more than others, depriving them of rest, and, for the time, rendering their lives miserable. Besides the prickly heat, "there are" says Mosely, "in the West Indies, vesicular and exanthematous eruptions and efflorescences, to which new comers and others are sometimes subject in the hottest months, which resemble *ιδρώα*, papula, sudamina, esere; and what Hippocrates calls *φλυκταίναι*, the eruptive produce of summer, in temperate climates." Hillary describes the same.

Leucorrhœa, chlorosis menorrhagia, are very prevalent among females of all classes. Among the lower classes, prolapsus uteri is of frequent occurrence; the result both of relaxation, and also of the ill-timed efforts made during labour, and the injurious treatment often adopted by midwives.

Elephantiasis arabum and græcorum, or epra tubercurata, both occur, and attack those of all colours; neither the one nor the other appears to be at all contagious; as regards elephantiasis græcorum, opinions differ. The elephant leg, (E. arabum,) compared with its prevalence of old time, may be said to be surprisingly diminished in frequency.

Yaws are distinctly an African disease. It is a singular fact that previous to the emancipation, every estate had its yaw hut, which was always filled; but since that period, the disease seems almost to have disappeared. In the towns, it is rarely or never seen. There is little doubt that inoculation must have been very generally practised.

Kra-kra appears to be a species of itch. Kra-kra, or craw-craws. Dancer observes, that this appears to be the same affection known as ongoes, in Madeira, and is attributed to the presence of an animal-cule. Dr. Grainger tells us, "The kra-kra is not the itch, but the consequence of the yaws."

Coco-bay, or joint-evil, is a most disgusting disease, attacking chiefly the negroes; it is attended with loss of the fingers and toes. It is said to be occasionally hereditary. No good account of this disease exists.

Dr. Copland partially describes it under the head of *lepra anæsthesiaca*, and alludes to the descriptions of it as given by Dr. Winterbottom and Mr. Robinson. His account, however, that "Ulcers form on the metacarpal and metatarsal articulations in the lines of flexion, and afterwards in the corresponding parts of the articulations of the larger joints, and that these ulcers enlarge and sphacelate, and the fingers and toes drop off," appear to denote another and a different disease. In this affection, the disease is almost invariably confined to the phalanges of the fingers and toes, nor do they sphacelate and drop off, but they seem to gradually disappear by a sort of atrophy in by far the greater number of cases. The rudimentary nail will be found existing on the end of the first phalanx, thus proving that the skin, at least of the tip of the finger, could not have dropped off, but has rather shrunk up.

The Guinea-worm is generally imported from Africa; it does not appear to arise here.

It will be well to consider the usual weather, and what diseases occur at the different periods of the year; in so doing, the account given by Dr. Lem-

priere, of the weather, as it occurs on the south-side of the island, will be our guide.

“ From the middle of December to the middle of April, dry weather usually prevails, if we except a few transient showers, which sometimes fall about Christmas, popularly termed ‘Guinea-corn rains.’—The months of December, January, and February, are more or less subject to north winds, which blow directly from the continent of America, and sometimes with considerable force and coldness. The northerly influences are first felt in the month of November, and are found to coincide with the termination of what is usually called the Indian summer, on the North American continent. The hazy glow of the last lingerings of autumn terminates suddenly in a hurricane of wind and snow, and winter being set in from Labrador to Florida, by the end of November the cold of Canada then sweeps through the valley of the Mississippi, and penetrates the gulf of Mexico. The time of setting in of the northerly winds, or of their duration, is by no means however regular or certain, for sometimes they occur early in December, and continue only a short time; at others they will blow from that period with some little variation until February; while there are particular years when they have not set in until the beginning or middle of January. They are occasionally attended with rain and hazy weather, but more frequently with a clear dry atmosphere; the former, or what is termed the wet norths, are generally very unhealthy, and productive of remittent and intermittent fevers, colds, ulcerated sore throats, and bowel complaints; the latter, or the dry norths, (if we except elderly people, and others with delicate constitutions, who are more readily affected by a colder atmosphere,) are usually conducive to health, by checking and giving a favorable turn to the disease occasioned by the preceding rains. At this period of the year the sea breezes are but weak, and, in the absence of the norths, are more usually superseded by strong

land winds, which blow both day and night, and, though not in a great degree productive of disease, yet, in the day, they are not so refreshing as the sea breeze; and in some situations, from passing over tracks of swampy or wet lands, they give rise to a frequency of fever.

The thermometer during these three months, is commonly from 83° to 85° in the middle of the day, but at night, or rather very early in the morning, it falls sometimes so low as 68° and seldom rises higher than 78°.

The month of December, if the autumnal rains have set in, and terminated early, may be considered healthy, and favourable to the arrival of Europeans. If otherwise, fevers are apt to put on the same form, and are as frequent as in the preceding month.

In January, the north breezes usually set in, the weather is dry, the effects of the rains have nearly ceased, and fevers, when they occur, are generally of the intermitting type, and readily give way to the common mode of treatment. Convalescents, or patients with obstinate intermittents, which commenced during the more sultry months, (unless they are much reduced,) usually begin to recover during the month of January, and by February or March are re-established in their health. Fevers of the continued form, or yellow fever, seldom are observable at this period of the year, so that from January to April may be considered most favourable to the arrival of Europeans, or the conducting of any active military operation in the West Indies.

In March, the weather is dry, the land wind, usually very strong during the night, but is succeeded early in the morning by the sea breeze, which blows in its regular track with considerable force, which circumstance certainly renders this the most healthy and pleasant month in the year. The thermometer varies but little in the middle of the day from the preceding months; but in the morning it is observed to range a few degrees higher. This kind of weather

continues until about the middle of April, when the sun, having advanced into the northern hemisphere, the sea breeze either fails, or blows from the south east, and renders the air, in the middle of the day, very oppressive; heavy clouds begin to collect on the tops of the mountains, whence there frequently fall transient showers, and these appearances are certain presages of the succeeding rains, which generally fall in May. The thermometer, about the middle of the day, approaches 86° , and in the morning early varies from 75° to 80° . The sun is vertical in the latitude of Jamaica from the 8th to the 12th of the month, its northern declination being 17° to 18° , a circumstance that determines the May rains of the island. Such weather, though not always unhealthy, induces great relaxation, and in those who have been much reduced by former attacks of fever, it frequently brings on a return of the complaint, May being the month in which the spring seasons or rains are expected. The hot and oppressive air which distinguished the month of April, continues increasing until the heavy rains commence, and this sometimes happens at the beginning, but more frequently about the middle of the month. They first come from the mountains in heavy and repeated showers, and afterwards from the south-east in constant torrents, accompanied with much lightning and tremendous peals of thunder. The rains alternating with bursts of fine weather, usually last a fortnight or three weeks. The heat is now much increased; it has a warm sodden feel. The thermometer varies at noon from 85° to 88° , and seldom falls lower in the morning than 80° . The month of May certainly cannot be considered healthy; since the rains, and the hot oppressive air to which this gives rise, induce general relaxation, and seem to aggravate the complaints of those who are already indisposed. Affections of the bowels also are more observable during wet or damp weather than at any other periods.

The month of May is, however, not distinguished.

for the frequency of fevers, except in those who were in a state of convalescence, or who had been subject to attacks of that disease. The rains indeed seem rather to suspend the progress of fever, and reserve it for the aid of a more powerful agent; the solar influence, which in the month of June, produces exhalations that render it unusually sickly. In this month the weather is clear, hot, and dry, with a failure of the land wind at night, and of regular strong sea breezes during the day. The sky is seldom obscured by even the appearance of a cloud, and the heat, though more intense, is not so oppressive as in April or May, when the sea breezes have failed. The thermometer between May and June varies but little, and the difference is frequently not to be observed. The preceding rains usually give rise to fevers of the remittent and intermittent type in June, which of course, are more or less fatal in proportion to the quantity of rain that has fallen, and the degree of heat to which the ground may be exposed; but they seldom put on so bad a type and frequency as after the October rains. Fevers of the combined form, or yellow fever, sometimes occur in June among newly arrived Europeans, but they are by no means so frequent or fatal as in the succeeding months. July, August, (when the sun is again vertical,) and September, may be considered the hottest months in the year. The thermometer has, within my observation, risen so high as 92° at noon in Spanish-Town, and in the morning it seldom falls below 83° . The nights are uncommonly sultry and oppressive, from the failure of the land wind. The days are intensely hot, but from the strong sea breezes which prevail in these months, not so oppressive as in some of the cooler months, when the rainy seasons are approaching; July and August, for a few days in each, are subject to transient showers from the mountains, with thunder, which in general, are not productive of disease, excepting the sudden chills which come on in the direction of the showers from the mountains, when an in-

tense degree of wet prevails in the lowlands ; otherwise they vary little from the preceding month. In constitutions already assimilated to the climate, these months give rise to cholera morbus, and other bowel complaints, from an increased secretion of bile, to spasms, headaches, and various other symptoms, produced by dyspepsia, or an obstructed liver ; to a few cases of hepatitis, and, in weakly constitutions, to great relaxation of the whole system. Fevers are by no means prevalent during these months, except after an unusual exertion and exposure to the sun, when they are more disposed to run into a form, in which remissions are very indistinct, and difficult to be induced ; however to the newly arrived European, these months prove the most unfavourable and fatal. Their intense heats act as a powerfully predisposing cause of fever, while, at the same time, they seem to concentrate the remote cause (marsh miasmata) to a degree that in constitutions, not assimilated to the climate, more frequently produces fever in the continued form. (Dr. Lempriere considers yellow fever to be a continued one.) From the latter end of July to the commencement of November, is the period usually distinguished by the appellation of the hurricane months ; more blowing weather prevails in these months than during any other time of the year.

About the latter end of September there is the same oppressive weather, with a moist atmosphere, which distinguishes April, the usual presage of the seasons, and this continues until October, when the autumnal rains set in. Yet they are by no means regular in their time of occurrence, as they will sometimes commence at the latter end of September, and at others not until near November ; however, about the commencement or middle of October is the period when they may be usually expected. They generally set in by heavy showers at different periods of the day from the mountains, accompanied by a land wind, which afterwards gradually veers round to the south

east and south, and brings such constant and heavy torrents of rain from the sea, as sometimes to wash down bridges, huts, and every thing not fixed upon the firmest basis. The thunder is not generally so loud, nor the lightning so prevalent in these as in the May seasons.

The autumnal rains continue with but little interruption for several days and nights, and induce such a stagnation in the air, as often to affect respiration, and occasion a listlessness and lowness of spirits.—With the occasional intervals of a few dry days, this weather continues until the middle or latter end of November, making altogether a period of about four or five weeks; it is then succeeded by the norths, which give rise to a change. The thermometer in October and November differs, in the middle of the day, about three or four degrees, from the preceding months, but in the morning early it falls at least six or seven degrees lower, and the nights are subject to strong land breezes, and are consequently cooler.

It is during the month of November, and part of December, when the ground has been previously saturated by the heavy rains, that the upper surface, by the action of the sun, begins to crack, and forming a passage for unhealthy exhalations, proves the most sickly period for all descriptions of people.—November is the most sickly month of the year.

The continued, or yellow fever, appears sometimes at this period among the newly arrived Europeans, though the disease generally, about this time, puts on the remittent and intermittent forms in their worst type, which are prevalent among all descriptions of people, but more especially among the lower orders of white inhabitants, in many of whom these forms of disease have been so rapid in their progress as to prove fatal in three days; for although remittent at first, they may seem to assume a mild type, yet it will frequently happen, that the patient, after having taken large quantities of bark, sinks at the termination of the second or third paroxysm.

The intermittent is usually, at this period, of the double tertian type, frequently with anticipation, as in the semi-tertian, and often running from one form to another so rapidly, as to admit of but little distinction.

Dysenteries and bowel complaints are less frequent during these months, than at the period of the falling of the rains, or at that season of the year when the remittent puts on a more favourable type, and they appear to be a milder form only of the endemic; they are frequently combined with it, and the two diseases often change from one form to the other.

Having made these general remarks on the weather, especially of the plains, it is necessary to observe, that notwithstanding what has been noticed, the seasons or rains will often vary as to their period of commencement, force, or duration, and sometimes fail altogether. The sea and land breezes do not always occur in the order they have been mentioned, and the heat, in some years, has been nearly as intense in December as in June or July. This must necessarily produce a difference in the state of health, and render it impossible to set down a fixed rule for their time of occurrence or form. These results will therefore only serve to give a general idea of what may be expected from the climate of Jamaica in ordinary years.

Having frequently made use of the words malaria, and marsh miasmata, it may be well, before proceeding to the consideration of those diseases which are epidemic in Jamaica, to ascertain what is meant by these terms, and also what are the more common properties of malaria: we have seen that it not only produces fevers of all types, common in the island, but that it also engenders or gives rise to, or aggravates and modifies other diseases.

It is the specific cause of several diseases, and is itself the offspring of some of the physical conditions of tropical climates. It imparts a peculiar character to most, if not all the diseases which occur here, by

imparting a periodicity or tendency to intermit or remit, besides producing disease. It is observed that the natives of marshy districts, who permanently reside in them, lose their whole bodily and mental constitution, contaminated by the poison they inhale.— Their aspect, says Dr. Brown, “is sallow and prematurely senile, so that children are often wrinkled, their muscles flaccid, the hair lank, and frequently pale; the abdomen tumid, the stature stunted, and the intellectual and moral character, low and degraded; they rarely attain, what in more wholesome regions would be considered, old age; as examples may be cited, the cretins of the deep vallies of Switzerland. It is remarked that the inferior animals, and even vegetables, partake of the general depravation; they are stunted and short-lived.

Malaria or marsh miasmata are emanations, or effluvia which arise from certain sources, under the influence of a high temperature; these sources may be said to be pools of stagnant water, partially covering the soil, or covered by vegetable substances;—vegetable matter in a state of decomposition;—most absorbent soils exposed to the sun’s rays;—the muddy and foul bottoms of lakes;—marshes and lagoons, or the muddy banks of rivers and canals;—low grounds which have been partially inundated by the ocean or by rivers;—collections of low and dense brush wood, or of weeds and grass which are called jungles, and are so familiarly known to be productive of malaria; that jungle fever is as common a name for malarial disease in India, as marsh fever is in Europe. The decomposition of vegetable matter, ~~in~~⁺ other circumstances, than in connection with soil, has frequently proved a prolific source of malaria. This is often exemplified by the very pernicious effects of the steeping of flax and hemp, so also indigo. Rush and others mention examples of fevers originating from the decomposition of coffee, potatoes, pepper, and other vegetables. The sickness in ships, from the leakage of sugar in a

damp hold, and the occurrence of a fever which committed fearful ravages among the crew of the *Priamus* frigate, from the action of bilge water on chips and shavings left in the hold from repairs of the magazine, as mentioned by Burnett, may be referred to the same class. Neglected sewers and drains, have proved under a high temperature, to be productive of fever by generating this poison. "When," says Dr. Copland, "dead animal matters or exuviae mix with vegetable substances, and putrify with them in a warm and moist air, the effluvium assumes a more noxious form, especially if the air stagnates in the vicinity of its source, and it becomes more certainly productive of disease, than that which proceeds from the decomposition of vegetable matter only, the effects produced by it being often of a more adynamic or malignant type." The term marsh miasmata is wrong, as though they often arise from marshes, still this is not invariably the case. The essentials for its existence appear to be a high temperature, moisture, or a certain soil, with or without decaying vegetable and animal substances; many circumstances tend to prove that for the production of malaria, only a small proportion of water should exist. It is remarked by African travellers, that in that country, the evolution of malaria commences immediately on the falling of rain; and that of this, the inhabitants are so conscious, that they then retire to their houses, and endeavour to exclude even the least access of air. As the rains continue, and the ground becomes thoroughly wetted, the sickness abates, to be renewed with greater violence, on the ceasing of the rains and the ground becoming dry. In the case of inundations, it is at their subsidence that sickness prevails, as was exemplified by the mortality among our troops under such circumstances during the Birmese war. In temperate climates, a marsh, the whole surface of which is thoroughly wet, is comparatively innoxious; but if partially or entirely dried by the summer's heat, it

becomes entirely pestilential in autumn. It is when, after being wet, the ground begins to dry and cake that their effluvia seem most common.

A theory has been started that malaria, and the emanations from decaying vegetable matter, are two distinct and separate processes, often co-existing, but not connected: it is further maintained that the former only is prejudicial.

This theory maintains that malaria consists in the effluvia arising from certain soils, impregnated with moisture, but free from vegetable decomposition. In proof of this several alledged facts have been adduced, which appear to carry great weight; but still the prevalent opinion is, that vegetable substances, during decay, do, under certain circumstances, produce the specific cause of fever. What malaria is, we know not. Chemistry, hitherto aided by the microscope, has failed to explain it. We recognise its presence only by its effects. It is carried absorbed, or entangled in the atmosphere, as is often proved by its being transported to places at a distance from its source. Observation has frequently shown us, that places lying between the prevailing wind, and a marsh or source of malaria, suffers; thus it is sometimes wafted up the side of a hill from a marsh below. The general opinion is, that the three diseases mentioned, viz:—intermittent, remittent, and yellow fever, are all one and the same disease, arising from the same causes, produced by the same poison, but varying only in degree. The history of the disease strongly supports this view. Malaria does not exist in the arctic regions—nor does it appear during the colder seasons of more temperate climates. It is seldom traceable beyond the fifty-sixth degree of north latitude, and it is supposed to require, for its development, a continuous temperature, higher than 60° . The nearer we approach to the equator, the more abundant, violent, and pernicious does the poison become whenever it is evolved at all.

In England it gives rise to intermittents alone.—

In warmer climates we have both intermittents, and remittents prevailing, and in the West Indies and other tropical places we have intermittents, remittents, and a severe form termed yellow fever; by some this latter is considered as a different disease from the other two—a continued fever, a disease—*sui generis*, and differing in its characters; this, however, may be doubted; it must be allowed that it assumes, at different times, various types; in proof of its being identical with the others, it may be stated that they often prevail at one and the same time; thus, at a certain height, intermittents and slight remittents occur; lower than this, intermittents and some remittents; while on the plains and the sea coast, we have intermittents, remittents, and yellow fever all raging. The intermittents affecting old stagers; the remittents, persons who have been acclimatized, but who are affected from local or personal causes more powerfully. And lastly, yellow fever, attacking the new comers, the unacclimatized, and those in whom the predisposing causes are still stronger than the last. There are a few properties belonging to malaria, which it is well should be mentioned; thus, as above stated, it is often transported by the air, especially when in a hot and humid state. This property acts deleteriously and beneficially at the same time. Thus, the wind may waft malaria to a distance, and thereby render a spot unhealthy, which naturally might not be so; so also, it is often of service in clearing the poison from other places and preventing its concentration. Dr. Watson observes, “a knowledge of these facts ought to be valuable in determining the choice of encampments, and of sites for dwelling houses. In aguish districts, settlers in hot climates, especially where trade winds prevail, would do well to avoid founding towns on the lee side of any swamp, or suspicious ground.—The outlets of rivers are commonly selected for the convenience of commerce, and there is often a right and a wrong bank. I believe that most of the prin-

cipal towns in the West Indies are built for the advantage of the outward bound vessels upon the western or lee side of the island."

All malarious districts are found to be more dangerous at night than during the day; whether the poison be then more copiously evolved, or whether it be merely condensed and concentrated by the diminished temperature, or whether the body be at this time more susceptible of its influence, it certainly is most active during the hours of darkness. "To sleep at night," says Dr. Watson, "in the open air in such places, is almost to cause an attack of the fever."

Lancisi, who first explained the origin and sources of malaria, asks the question—" *Cur juxta paludes noctu præsertim indormientes magis quam vigilantes lædantur?*" Thus, it is evident that the land breezes very often prove deleterious.

Dr. Watson observes—"The practical lesson to be derived from a knowledge of this fact, is too obvious to dwell upon. In malarious countries, the open air at night, must be avoided. "Early to bed" is always a good and wholesome rule; but the other half of the proverb, "early to rise," becomes in such countries an unsafe precept—at least, it is hazardous to leave the house early, this rule may be used, but should not be abused.

Malaria loves, it clings to the ground; consequently houses raised from the surface, are the safest; and upstairs houses safer still; an instance of this was noticed by the legislature some years back. The fact is recorded by Dr. Hunter, in his work on the diseases of soldiers in Jamaica;—"The barracks of Spanish-Town consist of two floors, the first upon the ground; the second, on the first. The difference in the health of the men in the two floors, was so striking as to engage the attention of the Assembly of the island; and, upon investigation, it appeared that *three* were taken ill on the ground floor, for *one* on the other. The ground floor was not therefore used as a barrack afterwards."

Malaria is absorbed by water, it is a well ascertained fact, that it loses its noxious properties by passing over even a small surface of water.

Speaking of what occurred at Walcheren, Sir Gilbert Blane tells us—"not only the crews of the ships in the road of Flushing were entirely free from the endemic, but also the guard ships, which were stationed in the narrow channel between this island, (Walcheren) and Beveland. The width of this channel is about six thousand feet; yet though some of the ships lay much nearer to one shore than to the other, there was no instance of any of the men or officers being taken ill with the same disorder, as that with which the troops on shore were affected."

Sir John Pringle made the very same remark in the very same place, in 1747. "But commodore Mitchell's squadron, which lay at this time at anchor in the channel between south Beveland, and the island of Walcheren, in both which places the distemper raged, was neither afflicted with the fever nor the flux, but, amidst all that sickness enjoyed, perfect health, a proof that the moist putrid air of the marshes was dissipated or corrected, before it could reach them."

There is proof that malaria can be wafted to some distance, thus Dr. Macculloch gives one instance in which it extended three miles.

A strange property is its attraction towards, and its adherence to, the foliage of lofty umbrageous trees.—"So," as Dr. Watson observes, "it is very dangerous in malarious places to go under large thick trees, and still more dangerous to sleep under them. But this property, thus a source of peril to those who are ignorant of it, affords, when known, and rightly made use of, a mode of protection and remedy against the influence of the miasmata. In the territory of Guiana, where large trees abound, the settlers live fearlessly and unhurt, close to the most pestiferous marshes, and to leeward of them, provided that a screen or belt of trees be interposed.

New Amsterdam, in Berbice, lies on the lee side of

an immense swampy forest, in the direct track of a strong trade wind that blows night and day, and pollutes even the sleeping apartments of the town, yet it brings no fevers. The inhabitants are well aware that it would be almost certain death for a European to sleep, or even to remain after night fall, within the verge of the forest. To cut down the trees, would not only be a perilous operation in itself, but would let in pestilence upon the town. These facts were known to the ancients. Lancisi endeavours to show, that woods and groves were first made sacred, (on account of their conservative influence in this way,) to prevent their ever being cut down.

As a local instance of the utility of trees in absorbing malaria, the following remark of the Rev. W. Mayhew, the rector of Westmoreland, may be cited. It is extracted from an answer to a question on the subject of medical relief:—"It is not found advisable to cut down trees and bush in the neighbourhood of the marshes, as they absorb much of the malaria, and prevent its spread. Some years back when a clearing was made on the east side of the town of Savanna-la-Mar, an epidemic fever was the result."

Although cultivation renders a climate warmer, drier, and more salutary, especially in temperate countries, yet for many years after the soil is cleared from its more bulky vegetable productions, and when it is first exposed to the action of the sun, especially in low latitudes, its endemic diseases often become more severe than even previously, and not unfrequently assume an epidemic or pestilential form.

The medical history of the West India islands, and adjoining coast of America, as well as of the United States, furnish numerous proofs of this position.

The surface of the earth previously in a great measure protected from the action of the sun's rays, by the thick and exuberant vegetation that covered

it, and the temperature lowered by a freer evaporation and transpiration from the leaves, yielded a less noxious effluvium than when entirely exposed to the sun's rays, and to the free action of air, heated many degrees higher by the exposure. In its unreclaimed state, the noxious exhalation proceeds chiefly from the decayed vegetable matter covering the soil, a great portion of which seldom rises above, or extends beyond, the higher foliage of trees; in its cleared state the emanations are the product of the earth itself, and result from its richer constituents, and those elements of animal and vegetable matter with which a dark absorbent soil abounds, particularly in warm climates.

The generation, and consequently the effects of malaria are prevented or lessened by culture of the soil, and more especially by the culture of cereal plants, and plants of similar structure which present the entire foliage to the influence of the solar ray.

In various countries this has been distinctly observed, drainage and sewerage have been the artificial remedy and culture, the natural. By agricultural means, the domain of malaria is diminishing throughout the more enlightened portions of the earth.

It has been maintained that salt water alone, or even mixed with fresh, as at the mouth of a river, where it empties itself into the sea, cannot or does not produce malaria. These swamps, so situated, are often covered or lined with mangrove trees and bushes; to the trunks and branches of the mangrove oysters are attached, and they contain also marine animalculæ and small fish in such abundance, as to render the mud upon their surface frequently highly phosphorescent. It is this kind of swamp, which according to the venerable Humboldt, contains the constituents necessary to furnish the most violent species of malaria, viz.:—tannin and albumen combined.

The diseases which occur at different times as epidemics in this island, are the following:—

Fevers of a continued typhoid type, typhus,

intermittent, remittent and yellow fever; dysentery and diarrhœa. The different exanthemata, as measles, small pox, chicken pox, scarlet fever, erysipelas, whooping cough, influenza, mumps, dandy fever, and Asiatic cholera.

Epidemic from *ἐπὶ* upon, and *ἐν μέρει* people, are those diseases which attack a number of persons in any city, town, district, or country, at and about the same time or season; they are generally uncertain in their occurrence. Where they produce great mortality, they are termed pestilential. Among epidemics, are included some diseases which are considered contagious.

Many epidemic diseases appear, says Dr. Hancock, under certain circumstances to be communicable by contagion, and some diseases avowedly contagious, prevail epidemically.

Facts in all ages would seem to show that most epidemic diseases have a tendency to spread by intercourse with those exposed to the same causes of disease, and thus predisposed to it. This tendency has been made too much of by systematic writers in some cases, and in other cases too little. No epidemic disease either attacks simultaneously, or rages with indiscriminate violence among all classes, in any community; and no contagious disease attacks every one who is fully exposed to its influence. Epidemic diseases, whether contagious or not, have their assigned laws; even when highly pestilential and destructive, they observe stated seasons, and periods of rise, increase, and decline; when their attack is most sudden and general, they pass over a large proportion of the community. In the former case the disease loses its malignity; in the latter some constitutions are proof against the common destroyer, without any apparent immediate intervention of art.

The subject and history of epidemics, have unfortunately been made the battle ground of opinions and prejudices of contagionists, and non-contagionists. Medical men on the spot where diseases were raging,

as Dr. Hancock expresses it, "have sometimes like children at play, taken opposite sides, and maintained their ground with unseemly pertinacity, so that we look in vain to either party for unprejudiced observations." The records of all modern visitations of pestilential epidemics, present us with opinions and statements, as much at variance as light and darkness; and hence we must conclude, either, that one set of observers are right, and the other wrong, or both partially informed, but blinded by prejudice, so that they cannot see any truth in their antagonist's assertions; consequently that many things which they report as facts, are only partial observations, or vague rumours, or hastily formed conjectures, or unconnected and adventitious appearances.

It may here be right to state, that a common notion prevails, that any non-professional person, with a reasonable share of sense, is as competent to give an opinion on the contagious, or non-contagious nature of a disease, as a medical man; others go further still and maintain, that the opinion is often a better one—as unbiassed and unprejudiced. These opinions may be true, and doubtless are so in many instances, but that the opinion of a non-professional man on this subject is, or can be as good as that of a well educated medical man, is insulting to common sense—as well may it be said that the opinion of a physician on some theological or legal point, is as good as that of a divine, or a lawyer.

The subject of contagion is one which requires a knowledge of the physical and chemical actions of the body, as also of the various predisposing, exciting, and remote causes of disease; a knowledge of the laws of contagion, is, in fact, to be attained only after study and experience. As was formerly urged when on the subject of quarantine, the subject of the epidemic spread of disease is proved by certain phenomena of nature, and by certain facts, which observation in all parts of the world, has proved to be true.

Those we saw consisted in the natural phenomena, or signs which are either the antecedent indications, or the concomitants of a pestilential epidemic—such as intemperate seasons and unusual weather or mortality among any species of the lower animals, uncommon abundance of some of the insect and reptile tribes, departure of birds, the death of those confined in cages, blights and disease in the vegetable kingdom.

To these may be added the fact, that it is a rare thing that any one form of epidemic disease rages alone, that is without being preceded or followed by another. We ourselves have just witnessed a remarkable and strong exemplification of this truth.—First—Asiatic cholera, then influenza, then an unusual prevalence of liver disease, followed by a very general epidemic of mumps. Besides the other proofs of an epidemic atmosphere peculiarly existing, may be mentioned the singular changes which have been observed to occur in the common or reigning diseases of a place, before, during, and after an epidemic pestilence. The changes in the symptoms, or type and character of the epidemic pestilence itself, and the circumstances attending its migrations from one place to another; the facts relating to the connection of epidemic pestilence with offensive cities, marshy grounds, and low filthy situations, with peculiar geological conformations; with bad food and a condensed filthy and ill-fed population in all countries; and, on the other hand, the exemption of those places where due attention has been given to cleanliness, wholesome, and sufficient food, and a rational system of health police.

Thus then it is clear that a peculiar state or constitution of the air, present, or just past, and perhaps also of the body, are indispensables to the epidemic rage of a pestilential disease.

Sydenham's remark appears to apply to plague, yellow fever, cholera, and every known epidemic dis-

ease: "all epidemics, at their first appearance, seem to be of a more spirituous and subtle nature, in other words, more violent and acute, as far as can be judged from their symptoms, than when they become older."

Thus, at the first rise or outbreak of an epidemic pestilence, the proportional mortality is always greatest; and, on the contrary, at the decline, whether a few months or weeks only comprise the whole career, the disease loses much of its fatal character, putting entirely out of view the interference of medical art in either case. The circumstances attending the spread, period of violence, and decline of epidemic disease cannot be accounted for by the laws of contagion.—Experience has fully proved that sanitary measures will mitigate the violence and prevent the origin of epidemic diseases. It matters little whether the disease is contagious or not. The contagion of any disease—small pox itself—can do but little harm at any time in any country, unless there be a strong predisposition of body, concurring with a pestilential season.

The signs, or indications of this pestilential season, (for they do exist,) and the way to remove this predisposition, or remote cause of disease, is of far more consequence than the prevention against a foreign contagion.

The history of epidemics all over the world, the observations of the most enlightened enquirers seem all to prove that the whole apparatus of an epidemic pestilence, from beginning to end, is the production of the country where it rages.

As regards the epidemics of intermittent, remittent, and yellow fever, it may be observed, that the general opinion is, that these three are one and the same disease, dependent upon the same cause, produced by the same agent, but varying only in degree.

Some consider yellow fever, as previously remarked, to be a disease, *sui generis*, different and distinct from the others; the three different forms occur

sporadically at all times of the year; at the commencement and fall of the year, intermittents and remittents usually prevail;—but severe remittents and yellow fever, only exist epidemically when the exciting causes are powerful from some local or personal circumstances. Epidemics of fever in this island, are often confined to certain districts; shewing that the local causes are then and there in force. Thus, at this very time, severe fevers are prevalent in St. Thomas in the East, and St. Thomas in the Vale, places wide apart, and unconnected; at other times the cause is more general, and it rages over the whole island; months and years sometimes pass without the disease occurring either in a sporadic or epidemic form, and then suddenly it bursts out with all its force. (It has been observed to the Board, that it is believed, that no case of yellow fever has occurred in Spanish-Town since the early part of 1848,) These fevers are common to all classes; some, however, deny that the black race can suffer from yellow fever; instances however do occur, though rarely. The more usual types of intermittent, are the quotidian, the tertian and double tertian; occasionally other forms occur, thus recurring every seventh and fourteenth day. The prevalent opinion, that one attack of yellow fever defends the person from another, is decidedly fallacious.

It would be useless to attempt to note down the various epidemics which have occurred at different times; thus, when raging fearfully among the soldiers, civilians have enjoyed an almost perfect freedom. There is one fact connected with the military, and the occurrence of yellow fever, which is well worth recording, (although hitherto we have purposely avoided alluding to the military,) the officers of a black regiment although the location of these regiments is exclusively tropical, is much smaller than among those of a white regiment, *cæteris paribus*, this we think may be accounted for by the fact, that the former are saved that mental depression and feeling often amounting to panic, which arises in an officer,

on seeing many of his men dying and dead around him.

As regards fevers of a continued typhoid type, they are stated by many to exist, and to prevail epidemically in certain places. "Its attacks," Dr. Thomson tells us, "are often protracted to the twenty-first or twenty-seventh day; it attacks those of a weak relaxed habit of body. Women who have produced many children, and those labouring under great mental agitation—the age of puberty, when the physical powers of the body are suddenly excited, and the important process of menstruation not thoroughly established, are particularly noxious to the attacks of this insidious disorder, and according to their previous habits and constitution, the type will assume more of a malignant or nervous character." This kind of fever is described as prevailing very much in St. Thomas in the Vale and other damp districts of the island.

It is said to attack all classes, and never to be accompanied with black vomit, or any eruption like typhus on the surface. In many cases, especially in the negro, this fever appears to be associated with, or dependant upon, subacute pleuropneumonia. In many instances of remittent fevers, during their progress, they assume a typhoid type generally referable to some local congestion or mischief. True typhus, is said to occur occasionally, both in the plains and higher lands, as proved by its general symptoms, together with the existence during life of the measles-like eruption, with petchiæ, and vibices and inflammation, and ulceration of Peyer's glands as disclosed after death.

Dysentery and diarrhœa frequently prevail—sometimes by themselves—at other times preceding, following, or co-existing with remittent fevers. They exist both in the mountains and plains. In the former they appear to be often induced by excessive damp and cold breezes, and are sometimes very fatal to the negroes. In 1845 and 1846 a severe epidemic raged in the St. Andrew's and Port-Royal mountains,

and carried off numbers ; the same disease also raged in the lowlands at that time. Generally speaking, the epidemics of dysentery in the lowlands are not fatal. On the occasion alluded to, however, it was. Chronic dysentery is a very common disease, especially among the dark classes. Among them it appears to be the most fatal disease.

The different exanthemata do all and each prevail at times, both sporadically and epidemically.

Measles occur sometimes ; thus, in 1822 there was a severe and fatal epidemic, which extended over the whole island. In 1837 there was a mild epidemic ; since then, cases have presented themselves here and there. Instances have occurred of vessels arriving with it on board, and although the parties were landed, yet it did not prevail. Dr. Chamberlane, in his evidence on quarantine, gives an instance where a number of soldiers wives and children had it, they were isolated, and confined within bounds, and the disease did not spread. Dr. Williamson mentions its appearance in March, 1809. In the parish register of St. Catherine the following deaths from measles are recorded, as occurring between 1774 and 1808 :

1783	.	.	.	9
1792	.	.	.	1
1795	.	.	.	3

A few cases of this disease occurred in 1843, in Spanish-Town.

Small Pox.—This disease has occasionally made its appearance in the island.

The following is an extract from the parish register of St. Catherine of the number of cases of small pox which were buried in the yards of the church of England, during the years

1774	.	.	7	1794	.	.	1
1775	.	.	4	1796	.	.	3
1776	.	.	7	1798	.	.	2
1778	.	.	3	1800	.	.	4
1779	.	.	6	1801	.	.	1
1781	.	.	3	1802	.	.	2

1785	.	.	11	1806	,	.	1
1788	.	.	1	1807	.	.	1
1791	.	.	1	1808	.	.	1

These include soldiers, with their wives and children, as also cases of inoculated and natural small pox.

Formerly inoculation was very much in vogue, and was most successfully and extensively practised by Dr. Quier; it at last gave way to vaccination.—There is reason to believe that inoculation is still practised by some; a subject which demands legislative attention.

General epidemics of this disease appear to have occurred; and, during the period of slavery, it appears often to have existed for a long time together. Dr. Williamson alludes to an epidemic in December, 1799—again in 1802, and again in 1810—the two former in St. Thomas in the Vale, the latter in Spanish-Town; all these appear to have been mild—so much so that many of the writers on the diseases of the West Indies appear to think that the negro race are not very susceptible to the contagion of small pox. In 1830 and 1831 a very severe epidemic occurred, which committed sad ravages among the labouring classes.—Since this no epidemic has taken place.

From Dr. Chamberlane's testimony, it will be evident that vessels have frequently arrived with this disease on board, and that, in some instances, the persons have got on shore and mixed with others. In 1840 the disease attacked several persons in Kingston; they were, immediately on detection, isolated by orders of the mayor, and the disease did not spread.

With regard to the epidemic of 1830 and 1831, it commenced in Kingston, and there appears to be no evidence that it was imported, although Dr. Paul, in his account of the epidemic, thinks it might have been. At this present time the disease exists in the parish of Trelawny—an account of which has already been given under the head of quarantine. The disease has now been some months present, but has not ex-

tended itself widely—owing, no doubt, to the want of those peculiar circumstances necessary to its spread. Its contagion exists, and it prevails within a circle; very different was the behaviour of this same disease in 1830 and 1831.

The remarks of Dr. Gregory on this subject are so pertinent that they must be stated:—"The peculiar miasm, or morbid matter of small pox, is receivable into the human body in three modes—first, by the lungs, through the medium of respiration—this is called the mode of infection. Secondly, by application of the matter to the unbroken surface of the skin or mucous membrane of the nose, &c. This is properly denominated contagion, although the terms contagion and infection are generally made synonymous. Thirdly, by application of matter to the wounded surface, which is the mode of inoculation."

"The diffusion of small pox by the air, in the mode of infection, as thus defined, presents many interesting peculiarities. It takes place much more energetically in certain states of the air than in others. Occasionally the atmosphere appears to be altogether incapable of disseminating the poison. That peculiar, or as it is sometimes called, epidemic constitution of the air, which is so favorable to the propagation of small pox, is not all understood. It is appreciable neither by the thermometer, hygrometer, nor the barometer. Small pox spreads sometimes in a dry and warm, sometimes in a cold and moist state of the atmosphere. The phenomena may probably depend upon some electrical state of the air, which has hitherto eluded the researches of philosophers, but which time and closer observation may, perhaps, eventually succeed in discovering."

Connected with this subject is that of vaccination. In spite of all the ridicule and abuse so profusely lavished on it, even from the pulpit, vaccination has triumphed. If it is not a decided preventive of small pox, it at any rate (if we study the history of small pox previous to the time of Jenner,) is a great bless-

ing to mankind. As one instance out of numbers that might be cited to prove the utility of vaccination, in preventing small pox, the following extract is inserted. From the government—"Statistical reports of the sickness, mortality, and invaliding among her majesty's troops for twenty years, viz.:—from 1817 to 1836 inclusively. We learn that of the dragoon regiments and guards, with an aggregate strength during that period of forty-four thousand six hundred and eleven men, and a total mortality of six hundred and twenty-seven, there were but three *deaths* from small pox. Among the troops at Gibraltar, one death only from small pox occurred, the aggregate strength being sixty thousand two hundred and sixty-nine, and the whole mortality one thousand two hundred and ninety-one.

"In the West Indies, although several epidemics of small pox had ravaged the island within that period, not one person died of the disease among the British or white troops, with an aggregate strength of eighty-six thousand six hundred and sixty-one, and a total mortality of six thousand eight hundred and three, while among the black troops, on the same station, with an aggregate strength of forty thousand, nine hundred and thirty-four, and a mortality of one thousand six hundred and forty-five, there was not even one case of small pox.

"At Bermuda, Nova Scotia, New Brunswick, Cape of Good Hope, and the Mauritius, not a single death from small pox occurred during those twenty years, and even the white troops of Western Africa wholly escaped this disease, which was carrying off hundreds of the black unprotected population."

In Malta, from 1818 to 1836, including (a period of nineteen years,) the aggregate strength of the British troops was forty thousand eight hundred and twenty-six, the total mortality, six hundred and sixty-five, and the mortality from small pox, two. Yet in the year 1830 and 1831, small pox raged there as an epidemic and destroyed one thousand one hundred and

sixty-nine persons, for in 1830 there died of small pox one thousand and forty-eight, the total mortality being three thousand four hundred and seven, and in 1831 there were one hundred and twenty-one deaths from small pox, out of an aggregate mortality of two thousand five hundred and eighty-three. Again, in Ceylon, three epidemics of small pox occurred during the twenty years included in government reports; namely, in 1819, when of the natives seven thousand eight hundred and seventy-four took the disease, and two thousand nine hundred and forty-five died; in 1830, when eight hundred and six took the disease and one hundred and sixty-nine died; and in 1834, when four hundred and twenty-five took the disease and ninety-four died—yet in the same islands, during the very same period, there were among the white troops, with a total mortality of three thousand, four deaths from small pox, (out of eight cases.) Among the Malay troops, with a total mortality of eight hundred and fifty-eight, nine deaths from small pox. Among the pioneer corps with a total mortality of six hundred and forty-seven, one death from small pox; and in the last of these epidemics, Dr. Kinnis states, that not one instance of the disease appeared among the white or native troops. Facts, equally conclusive, are to be found in the statistics of our armies in India.

Thus, it is evident, in spite of all arguments to the contrary, that vaccination is a preventive of small pox, and that by enforcing vaccination and adopting other sanitary measures, this disease *may*, in time, be driven from the surface of the globe.

Connected with vaccination, several questions of great practical moment and interest present themselves.

First. Whether the protecting influence of cow pox upon the human frame, diminishes by lapse of time, and at length wears out?

On this subject opinions differ. In many instances

every attempt at re-vaccination has failed ; in others, however, it has appeared to take most fully ; it is evident that an objection may here be raised, that in the latter case, the first vaccination was a failure. It is still an unsettled point, whether vaccination renews or adds to the security from small pox. Dr. Gregory says, of the practice of re-vaccination, " We have sufficient facts before us to state, with confidence, that it need never to be recommended prior to the tenth year of life, and that the age best fitted for it is from the period of puberty to that of confirmed manhood."

Second. Is there any ground for supposing that the wished-for protection ever fails to be conferred, because the operation is performed too early ?

We know the usual time of doing it is in early infancy, while the child is at the breast. This is a period when they are not in general susceptible of contagious diseases.

Third. How far the frequent failure, in late years, of complete protection can be ascribed to the circumstance that the vaccine virus has been repeatedly transmitted from one human being to another, and its supply thus kept up without any fresh recurrence to the cow, the original source of the disorder ?

To this Dr. Watson replies—The analogy of other animal poisons supplies no warrant for such a belief.

Fourth. As regards the number of vesicles and the degree of constitutional disturbances which are requisite to ensure and prolong the protective power of vaccination ?

To this Dr. Watson replies—The constitutional effect will bear some proportion to the number of vesicles, and of these it would seem, there should be several, and one or two of them at least should be suffered to pursue their entire course untouched.

Fifth. What are the comparative merits and advantages of inoculation and vaccination ?

On this point there can be no doubt. The one requires legislative interference to punish those that practice it, while the other requires to be enforced.

Among the population of Jamaica, comparatively few have been vaccinated, this cannot be attributed to any prejudice to, or dislike of, the operation, but arises from apathy. An habitual want of prevoyance of character, added to an unwillingness to take the necessary trouble. Among the lower classes, if they can be persuaded to have their child vaccinated, it is almost impossible to get them to bring it back, so as to be able to ascertain whether or not it has properly taken.

In this climate, during the warm months, vaccination with lymph from England and America, often fails, especially in the plains. It has been well ascertained that a temperature of 95° destroys its efficacy. If practicable, it would be a great boon to the island, especially to those arriving on board vessels with small pox, and who have not been vaccinated, if a vaccine establishment could be formed and regularly kept up in St. Ann's, or one of the cooler districts of this island. Experiments also to ascertain the expediency of obtaining a fresh supply from the cow, are very desirable.

Scarlet fever occurs occasionally in this island, both in a sporadic and epidemic form. Formerly it appears to have prevailed very commonly. In the register of St. Catherine's putrid sore throat constantly occurs as a cause of death, and Dr. Williamson, in his work, mentions several cases of cynanche maligna, as occurring in his practice at different periods; there appears, however, to have occurred a long interval, during which the disease did not make its appearance, at any rate, in an epidemic form.

In May, 1841, the first case of an epidemic appeared in Spanish Town; from thence, it soon spread over the whole island, and raged with great severity and mortality among all classes. Since this, occasional and sporadic cases are stated to have occurred,

especially in Kingston, and some of them very lately. Such cases are detailed by Dr. Chamberlane, Dr. Magrath, junior, and Dr. M'Nab.

In the parish register of St. Catherine, the following cases of putrid sore throat are entered ; as also the following, under the head sore throat, as occurring between the years 1774 and 1808 :—

Putrid sore throats.	Sore throats.
1775 . . . 1	1780 . . . 1
1778 . . . 1	1781 . . . 1
1780 . . . 2	1783 . . . 1
1781 . . . 14	1784 . . . 2
1782 . . . 1	1785 . . . 1
1784 . . . 2	1793 . . . 2
1791 . . . 1	1794 . . . 1
1792 . . . 10	1795 . . . 1
1793 . . . 8	1800 . . . 16
1795 . . . 1	1801 . . . 9
1800 . . . 4	1802 . . . 4
1801 . . . 12	1807 . . . 1

Chicken pox, or varicella, is a disease that occasionally makes its appearance more or less in an epidemic form, it is generally very mild.

Dr. Thomson states, “as an epidemic, it occurs often in this island, particularly in tracks of continued hot dry weather. I have seen two cases terminate fatally. In one, the eruption was confined to the head and neck, and from cold, being suddenly repelled, the patient died delirious ; fluid was found in the ventricles of the brain. There are two species, the pustular and lymphatic. In severe cases of the first, matter is formed, and the mark left in the skin is in the form of a small line ; a distinguishing character from the cicatrix of small pox, which is of an oval form.”

This disease has long been supposed to be connected with or allied to small pox. In fact, the two diseases have been supposed to have one common origin. This opinion is a very old one, but was revived some few years past by Dr. John Thomson.

Hooping cough, or chin cough is a disease which occasionally prevails at times epidemically. It does not however seem to be of frequent occurrence in Jamaica, nor is it very fatal. Two or three epidemics of it have occurred during the last fifteen years ; generally speaking it seems a mild disease.

Instances have been known of individuals going through an attack at the age of eighty years or thereabouts.

In the parish register of St. Catherine the following cases of hooping cough are recorded as having proved fatal during the following years :

1781	.	.	1	1799	.	.	1
1785	.	.	1	1804	.	.	1
1786	.	.	1	1805	.	.	2
1798	.	.	1	1806	.	.	1

In 1839 there was a smart epidemic of it.

Mumps occasionally occur as an epidemic, they have lately been very common, and in fact are now prevalent in many parts of the island. In Spanish-Town, in several instances, the disease has been very severe, and in a few cases there has occurred a metastasis to the testicles. Something of a similar kind appears to have been epidemic among horses, but in these cases suppuration has almost invariably occurred. This disease is said to affect cats.

Influenza is a disease which has at times been prevalent in Jamaica ; of all epidemic diseases it is the most universal in its range. Its history is very interesting, but a consideration of it would occupy too much room in an article of this general description.

Dr. Williamson states that it prevailed in Jamaica, in 1802. It will be observed that in 1803, this disease was noticed as visiting Europe, Africa, and Asia. Writing of the epidemic in this island, he states, " In Kingston, Port-Royal, and extending to the interior, an epidemic catarrh made its appearance similar to the influenza, which extended over a great part of Europe some years before, and, on former occasions, wherein its epidemic character was unequivocal.

cally marked." The same author has written an essay on this disease under the title *endemica catarrhalis pneumonia*, which prevailed in Jamaica, in 1802.

In this, he gives the history of the epidemic, and observes, "In January the weather was exceedingly cold and sometimes rainy. In February cold norths continued, but little rain.

"Thermometer as low as fifty-four degrees. In March warmer, but north winds prevailed, and it may be observed, that in this month an epidemic disease appeared among horned cattle of a destructive nature.

"In April the first appearances of an epidemic in man was discovered. This epidemic appears to have proved very fatal, especially to the negroes."

He also describes another epidemic of this disease, which occurred 10th December, 1807, which was also very fatal.

Dr. Dancer tells us that this same disease prevailed in 1789 through North and South America, and in the West India islands.

In the parish register of Saint Catherine, for this year, there are five deaths recorded.

The most singular feature in the history of this disease is its apparent connection with morbid affections of the mucous surface of the stomach and intestines, as diarrhoea, dysentery, and cholera.

This has long been observed; and, in late years more especially; the truth of this observation as regards cholera has been verified.

We ourselves have lately seen it treading on the steps of cholera.

In the recent epidemic it has visited several of the other Antilles, even those which have as yet escaped cholera.

Some years past, in 1827, this island, together with the others in the Caribbean sea, were visited with a fever of a rheumatic type, termed the dandy fever; it was very general, but not fatal. The so called dandy has been variously described by different au-

thors—thus it has been termed *febris exanthematica articularis* ; *exanthesis arthrosia* ; *plantaria* ; *dengue* ; *demga* ; *febris peculiaris epidemica* ; *giraffe* ; *bouquet* ; *dandy* ; *eruptive articular fever* ; *epidemic eruptive rheumatism* ; Cock calls it *epidemic anomolous disease* ; Stedman, *peculiar epidemic fever*. Dr. Copland, in his work entitled a *Dictionary of Practical Medicine*, thus describes it under the head of *scarlatina rheumatica* :—“ Severe pain commencing suddenly in the small joints, followed by local swellings and chilliness, or shiverings ; to these succeed heat of skin, intense pain in the head and eye balls, which soon become general ; and on the third or fourth day a scarlet efflorescence appears on the palms of the hands, spreads rapidly over the body, and continues two or three days, after which the symptoms subside ; the malady being infectious and epidemic.”

Whenever it has occurred it has prevailed almost universally—few persons having been exempt from it. The first account of its existence was brought from Rangoon, in the East Indies, in May, 1824, and it appeared in Calcutta in June. It extended in various directions to the different presidencies. The disease made its appearance in the island of St. Thomas, in the West-Indies, in September, 1827, and soon extended to the rest of these islands, and to the southern states of America. Dr. Stedman, who practised in the island of St. Thomas, and Dr. Dickson, of Charleston, have given good descriptions of it. The former states, that of a population of twelve thousand, in the principal town of St. Thomas, scarcely one escaped. It appeared so suddenly, and spread so rapidly as to have caused great alarm, but it soon was discovered that although a most painful, it was not a dangerous malady, yet it often left much suffering, and even disease, after the decline of the more severe symptoms. Dr. Stedman remarks that the negroes were much less severely attacked than the white inhabitants, and yet the only three fatal cases which occurred in the island were negroes. Very young

children were liable to the disease, even from a few days after birth; some were supposed to be born with it. In these the skin was of a scarlet red, and the tongue and lips smooth and fiery. In the *Charleston Medical Journal and Review*, for the present year, are two valuable contributions, one in the March number, by Dr. W. T. Wragg, entitled *History of the break-bone fever*, an epidemic which prevailed in Charleston in the summer of 1850; the other published in May, by Dr. R. D. Arnold, of Savannah, on the *Dengue or break-bone fever*, as it appeared in Savannah in the summer and fall of 1850.

In Charleston, about the end of July, and the beginning of August, 1850, break-bone fever began to prevail epidemically, and the first case seen in Savannah by Dr. Arnold, broke out on the 28th August. In Charleston up to the 15th or 20th September, it raged in an epidemic form; persons of all ages and conditions were affected; but there were very few fatal cases, although the disease is estimated to have attacked seven or eight tenths of the population of Charleston. For an excellent abstract of the abuse, we are indebted to the *London Journal of Medicine*, No. xxxiv. 1851.

Erisypelas, at times, shews a tendency to spread within a limited distance, and has occasionally done so in this island. In such cases there will generally be found to exist want of cleanliness and due ventilation.

The last disease, which it seems necessary to mention here, is the one which has so recently occurred, and which is now even lingering on our shores. A history of it will, no doubt, be published by Dr. Milroy, who was sent out by the British government.—It is now fresh in the mind of us all—the fearful and terrible scenes then witnessed, can surely never be effaced from the memory.

The effects of the disease were appalling, but the most awful part of the whole, was the display of the

worst feelings that can emanate from the human breast—feelings engendered by selfishness, and nurtured by ignorance.

To such a frightful extent did this exist, that hourly cases occurred of father deserting the son—the mother, the daughter—the wife, the husband ; all social ties, all bonds of friendship and duty severed ; the sick, in many instances, left to endure their mortal struggles without aid ; the dead to swelter under a tropical sun, pouring forth seeds of disease, contaminating an already affected atmosphere, and proving far more destructive than the dreaded contagion. This ill-timed panic, this offspring of prejudice, in many instances, placed man on a lower scale than the very animals. Seldom, if ever, will the brute-beast that perisheth desert her young ; seldom the male the mate, even in the face of immediate and impending danger.

The annals of no country can shew greater horrors, or disclose more demon-like behaviour, than it was our sad lot to witness ; and why all this suffering, all this misery ? On looking back to that dreadful time, on calmly re-considering all the circumstances preceding and accompanying the outbreak and progress of the disease, it must be evident to every impartial observer, that all the harbingers of an epidemic had ushered it in. Its sudden violence, lasting in almost each place for a similar period, could not be accounted for by the laws of contagion. Its origin, its selection of places, its rejection of others, its attacking certain classes, its re-appearing after long cessation in the same place, all and each are inexplicable by the spread of contagion or infection alone. In the words of Dr. Mosely, “ There are no epidemic or contagious diseases that attack every person who breathes the same air, or that is in contact with the infected, else whole regions would be entirely depopulated. The habit must be graduated or adopted to the reception of a disease. In some constitutions of body the access is easy, in some difficult, and in

others impossible. But where the revelation of the mystery is to be found, no one can tell." It is indeed a mystery, and ever will be so to those who attempt to account for epidemic diseases by contagion alone. Whatever the cause may be we know not, but we feel the effects, and experience tells us that we can relieve, we can prevent them by certain measures, calculated to benefit all within their sphere, both physically and morally. It would have been desirable here to have appended, at least, a short distinct statement of this epidemic, but unfortunately the material does not exist. Beyond the facts which came under one's personal observation, all is uncertainty. No official records exist; and to judge from present appearances, there is little doubt that ere a very short time has passed, Jamaica will be, as if cholera had never been. Tombs, the only now apparent marks of such a fearful visitation, will be level then. Even now the people are returning to their old habits, to their dirty ways. Our streets are teeming with putrid effluvia, the dog is returning to his vomit, and the hog to his wallow. Truly then does it become the legislature to bestir itself, to adopt what we have been assured by the experience of more enlightened countries, is an antidote to all our wants, to all our evils. From personal experience, the members of this Board most willingly subscribe to the following statement, as set forth by the General Board of Health of England in their first notification, in respect to the "Nuisances, removal, and contagious diseases prevention act."—"The extent, uniform tenor, and undoubted authority of the evidence obtained from observers of all classes in different countries and climates, and amidst all varieties of the physical, political, and social conditions of the people, appear to discredit the once prevalent notion that cholera is in itself contagious; an opinion which is fallacious, must be mischievous, since it diverts attention from the true source of danger, and the real means of protection, and fixes on those which are imaginary; creates panic, tends

to the neglect and abandonment of the sick, occasions great expence for what is worse than useless, and withdraws attention from that brief, but important interval between the commencement and the development of the disease, during which remedial measures are most effective in its cure. Although it is so far true that certain conditions may favour its spread from person to person, as when great numbers of the sick are crowded together in close unventilated rooms, yet, this is not to be considered as affecting the general principle of its non-contagious nature, nor are such conditions likely to occur in this country.—Moreover the preventive measures founded on the theory of contagion, namely, internal quarantine regulations, sanitary cordons, and the isolation of the sick, on which formerly the strongest reliance was placed, have been recently abandoned in all countries where cholera has appeared, from the general experience of their inefficiency. The experience of the Board fully bears out the following:—"The proved identity of causes which promote the origin and spread of epidemic diseases in general, with those that favour the introduction and spread of Asiatic cholera, appear to indicate the true measures of precaution and prevention against a pestilence. The chief pre-disposing causes of every epidemic, and especially of cholera, are damp, moisture, filth, animal and vegetable matter, in a state of decomposition, and, in general, whatever produces atmospheric impurity, all of which have the effect of lowering the health and vigour of the system, and of increasing the susceptibility to disease, particularly among the young, the aged, and the feeble." The attacks of cholera are uniformly found to be most frequent and violent in low-lying districts, on the banks of rivers, in the neighbourhood of sewer-mouths, and wherever there are large collections of refuse, particularly amidst human dwellings. The following extract from the Fourth Notification, published, June 11th, 1849, exactly tallies with the experience of this Board. Recent experience has fully

confirmed the evidence previously adduced that the localities of this disease, and the localities of other epidemics, are the same ; not a single instance having come to the knowledge of the Board, of the spread of this scourge in groups in any other than the ordinary seats of zymotic diseases, those seats being universally marked by the existence of filth, bad ventilation, overcrowding and other local causes of atmospheric impurity. This is so certain and constant, as to afford stronger grounds than ever for the presumption of culpable ignorance and neglect, whenever successive causes continue to occur in any locality, or whenever the disease widely spreads through a court, street, or district. Some have attempted to persuade others, and themselves too, as a balm to their consciences for doubting, or affecting to doubt, the result of the mature and repeated experience of others, most capable of judging, that although this disease may not be contagious in those countries which have been described, still that it may be in this, an argument which, on the face of it, carries absurdity, and is opposed by all analogy. The maintainers of this doctrine, however, in many instances, had expressed their opinion ere they waited to form a judgment from personal experience.

The opinion that emanations, arising from animal substances or excretions, are not injurious to the human frame was formerly maintained. This opinion has been upheld by men of high celebrity, and has been at various periods supported by reference to certain trades ; in this way, facts have been adduced in proof of this opinion. The majority of which, however, may be ranked in that class commonly known as false facts. The more prevalent idea of the present day is opposed to this. Experience in the more recent epidemics has fully established the fact that such effluvia are injurious ; that where they exist, disease is present, and where they abound, death is the result ; facts, as Dr. James Johnson remarks, too stubborn to be swept away by the brush

of sophistry. These remarks are confirmed by innumerable instances which may be found scattered throughout the various reports on the recent epidemics.

We have already seen that the emanations thrown off from the living body, whether in a state of health or disease, are limited to a very narrow sphere, that they mix with the circumambient air as a drop of water with the waters of the ocean; fortunate for us it is so, else we should live only in solitude; by our presence we should poison each other; the first symptoms of illness would be the signal for the abandonment of the sick, and we should be compelled, by a due regard to self preservation, to withhold from persons afflicted with disease every kind and degree of assistance that required personal attendance.

Dr. Copland says, "Emanations from animal matters (unmixed with vegetable) the air being in other respects uncontaminated or frequently renewed, are seldom productive of any serious maladies. But when they burst forth suddenly, in a close and moist air, the effects are sometimes very pernicious." It has been recorded that fevers of a very malignant kind have attacked persons who have opened a grave and exposed the body whilst undergoing decomposition, the effluvia having instantly produced a sensible influence upon the frame. Several lives have been of late years lost from the crowded state of the burial grounds of London. A deep grave is dug, and this is kept open to be piled with coffins until filled. Persons venturing into these graves are immediately suffocated. A volume has been written on grave yards by a surgeon, Mr. Walker, in which, cases without number are given, in which life at least was jeopardized by exposure to such emanations. Disclosures are made of the fearful state of the London church yards, and of the wicked and brutal practices of those entrusted with the burial of the dead. Descriptions which harrow the very soul, and fill the mind with disgust and wonder, that such things should be in the

very heart of the most enlightened nation of the day. The effects of air, accumulated in sewers, privies, and drains, have over and over again proved deleterious, and engendered or impelled the spread of epidemic diseases. It would be out of place here to notice these cases; they are to be met with in all medical works. The annals of all countries tell us of the fearful fevers and plagues which are frequently the sequels of great battles, earthquakes, and other causes of great and sudden mortality. No practical anatomist is ignorant of the fact that the air of the dissecting room is a frequent cause of diarrhœa. Enquire of the horse racer and other persons who tend upon animals, whether these suffer from neglect of cleanliness. Mr. Toynbee has performed a number of experiments upon rabbits and other smaller animals, to prove the effect of want of ventilation, and light, and cleanliness, in inducing constitutional diseases, such as the deposition of tubercles. The tendency of putrefaction to impart deleterious qualities to animal matters, originally wholesome, has been long known, and is quite unequivocal. Thus Dr. Christison observes, "To those who are not accustomed to the use of tainted meat, the mere commencement of decay is sufficient to render meat insupportable and obnoxious." That habit will enable the stomach, and system, to bear a vast deal, is evident, when we find epicures devouring half putrid substances under the title of "game," and some nations revelling on the putrid carcasses of fish, and other animals, as their choicest food. Again, we have dead animal bodies, engendering poisons, which do not produce peculiar and specific diseases, but merely inflammation, thus in over-driven cattle, no peculiarity is discoverable in the solids or fluids; to quote the observations of Morand, "the flesh of such animals is wholesome enough when cooked and eaten, but if the blood, or raw flesh, be applied to a wound or scratch, nay, even sometimes to the unbroken skin, a dangerous and often fatal inflammation is excited, which at

times differs little from diffuse cellular inflammation, and at other times consists of a general eruption of gangrenous boils, the “*pustules malignes*” of the French.”

Dr. Christison observes “the deleterious effects occasionally observed to arise from offal, are probably analogous in their nature and their cause.—“Mr. Brodie has lately made some remarks, which tend to shew that the application of various kinds of offal to wounds, and especially wounds of the fingers, with spicula of bones from the hare, may cause an obstinate chronic erysipelas of the hand.” Of this kind also, are dissection wounds, by which members of the medical profession are annually cut off. The subject is an interesting one. Putrid animal matter, when injected into the veins of healthy animals, proves equally fatal; and from the experiments of Gaspard and Magendie, together with the more recent researches of M. M. Leuret, and Hamont, the disease induced seems to resemble closely the typhus fever of man.”

Magendie observed similar effects, when dogs were confined over vessels in which animal matter was decaying, so that they were obliged to breathe the exhalations. The real point of difference on this subject appears to be, whether putrid effluvia can really engender fever in men; it appears from testimony, that under certain circumstances, they can, such as a want of ventilation, &c., and no one can doubt that their presence must deteriorate the atmosphere and disorder the living functions, so that it must act as a predisposing cause to disease, to say the least of it. That a person who is by habit exposed to a putrid atmosphere may come to tolerate it, is undoubted, daily experience proves it; thus at the great nackery of Mont-Fauçon, which has existed close to the walls of Paris for several centuries, is an enclosure of many acres, where the contents of the necessities of the city are collected in enormous pits, and where horses, dogs, and cats are flayed to the

amount of forty or fifty thousand annually. The fat is melted for blow-pipe lamps; the bones are, in a great measure, burnt on the premises for fuel; the intestines are made into coarse gut for machinery; the flesh, blood, and garbage are heaped to putrify for manure, and in summer a bed of compost is spread to breed maggots for feeding poultry. There is no drain. Description cannot convey an idea of the stench thence exhaled. The committee of the board of health, appointed to make enquiries into the best mode of abating the nuisance, in vain attempted to penetrate into the place, and yet Parent Du Chatilet makes out that this fearful concentration of all that is horrid, "is not merely not injurious to the health of the men and animals employed in and about it, but actually even preserves them from epidemic or epizootic diseases." Is this credible? or can it be possible that no injury is produced by the following mode of burial practised in Rome, and detailed by Mr. Lyman? "The poor, and all who die in charitable establishments, are thrown into pits naked and without coffins. I went to see three pits in a small cloister behind the church of the hospital, at the head of the corso, near the piazza del Popolo, the most crowded and populous street of all Rome; this was on the 2d of January, one of the coldest days, with the clearest atmosphere, during the whole year. Nevertheless when the flat stones that covered the pit, just fourteen inches square, were removed, the putrid vapour arose so instantaneously and in such thick fumes, that even the attendants moved towards the door of the cloister till the first and most pestiferous exhalations should have passed. In the first pit there had been no deposits since the French revolution, and it then contained only a small quantity of bones, green, moist, and mostly decayed. In the second, in which there had been no burials for seven months, there was a great mass of putrid flesh, but not a body or limb, or any form or shape whatever could be discerned; an accumulation of one hundred

and twenty two bodies rotting, ulcerated, marked with white blueish spots, and streaks of black.—As the putrid air gradually escaped, a faint sound could be heard, and the mass of corruption was observed to sink down deeper in the pit. In the last pit, they were then burying a wretched emaciated body that had been thrown in that morning. It was lying across the pit, with the top of its head cut off by the surgeons, and the eyelids hanging back in a frightful manner; the hard shrunk leg of a ghastly object was slowly pressing into a swollen and inflamed body, just ready to burst; long black hair, clotted and moistened by putrid oozings, still clung to the wasted skull, where the eyes had fallen out, and the lips had shrunk away from the teeth. Some bodies had slid down to the bottom of the pit, and near the top there appeared the legs and feet of a body still sweating and swelling with decay. There were men, women, and children, and as the mass rotted and consumed, they sunk and mixed together; a deadly yellow colour, and a thick dirty sweat seemed to pervade and spread itself over the whole heap. A cold sluggish oozing mingled with the slow silent process of putrefaction. I saw no living creature in this vault, neither worm, rat, nor tarantula. A large torch, burning with a full blaze, expired instantly three times, on being put into the mouth of the pit. Such is Christian burial, and yet we are told, each such burial costs one dollar and sixty cents for transportation, wax lights, and the mass; circumstances never neglected, though the body itself should be dragged to the pit with hooks, and thrown upon the pile as if it was carrion.” Can it be believed that this is adduced as an instance of the non-injurious effects of animal matter? Remove the narrow mouth, and allow the effluvia to become diffused throughout the cloisters, and the church. Can the existence of such and similar enormities as those above alluded to, account for the great mortality ex-

isting in these two cities, Paris and Rome, as compared with that of London?

In 1838 it was ascertained, that in London, about
1 in 40 died annually.

In Paris, 1 in 32 ,, ,,

In Rome, 1 in 25 ,, ,,

How else shall we account for this enormous disproportion of mortality? Shall we, with such facts, the matured fruits of a registry of births and deaths, listen to the specious arguments, the crude and narrow views, the one sided dogmas of theorising philosophers? *Facta non verba*, must be our motto. The tomb is a silent but faithful record of the sanitary condition of a place. Alas! we have among us at this present moment, pits not unlike these, save that a foot or two of mould cover them. The Board would strongly call upon the legislature to enforce the banking up of all such pits or graves, as were filled during the recent epidemic.

That the various excretions of the body, if retained near it, must prove injurious, no one can doubt.—Some, however, have been ready to maintain that the excretions, as urine and fæces themselves, if exposed, are not injurious to health;—this is most decidedly opposed by all experience. It may here be added that it is contradicted by the Mosaic law; each rule and regulation of which appears to have been founded upon sanitary principles; thus, in Deuteronomy, chapter 23d, verse 12th, “Thou shalt have a place also without the camp, whither thou shalt go forth abroad. And thou shalt have a paddle upon thy weapon, and it shall be, when thou wilt ease thyself abroad, thou shalt dig therewith, and shalt turn back and cover that which cometh from thee.”

Those who maintain this argument, base it upon the supposition that an all wise, and all merciful creator would not commit such inconsistency and wilful cruelty as to cause the natural excretions of

the body to become poisons to the animals themselves. As well and with better reason might they say that these secretions, retained within their different organs, would not injure health. None, however, will be found so bold as to assert this; his own frame would give him the lie; with all his philosophy he cannot persuade himself when suffering to the contrary. As proofs that it was never intended that man should be neglectful of cleanliness in these respects, it might be adduced that these excretions themselves, particularly the fæces, are unpleasant at the moment of being voided, and are rendered so, not by exposure to air, but by a peculiar secretion from the large intestine. This very circumstance appears to be a providential design to cause man and animals generally, to keep aloof from these deposits. Besides this, we find that some animals, from natural instinct, bury and conceal their fæces, as for instance, the cat and the dog. Again, as regards birds, we see a most beautiful contrivance existing, by which the nest is kept from being soiled. Even plants are supposed by some Botanists to exhibit a like provision for preservation against self-poisoning in the constant spreading of their roots into new soil, uncontaminated by their own excreted matter. Observations, such as these, must certainly have great weight, and how any person can maintain a contrary opinion is indeed surprising.

Such then is a brief but defective statement of the usual epidemics of Jamaica. They come and go, and are forgotten. The Board would here recall to mind the evidence of the health officers, previously cited, that not one single epidemic that they had witnessed in Jamaica could be attributed to importation. There is nothing here to mark time; no winter, no decided break in the seasons and the weather, no social hearth to gather round, no starting point for the memory. Hitherto all sanitary measures, to prevent or mitigate these visitations, have been neglected, and therefore it cannot be wondered at, that no

record of their occurrence has been kept. It may cause surprise that no medical man in this island should have as yet attempted to give an account of the recent epidemic. Those who know the real state of matters, will not be much surprised at this apparent negligence. The paucity of medical men in the island was incredible, and the majority of those who were here had to go through exertions, which, when now looked upon without excitement, almost appear supernatural. No rest by day, no sleep by night, no time to perform the necessary functions of life; it seems a miracle that any were left to tell even what they saw. From the little, however, that can be gleaned, it is evident that the epidemics of this island, are of the same nature as those that exist elsewhere; they come in the same way—they behave in the same manner, and it is only reasonable to suppose, are amenable to the same treatment, curative and preventive.

As regards the contagious diseases of this island, a great deal of confusion has arisen from employing several different terms to express the same property. Thus, many persons consider contagion and infection to mean the same thing, and they are commonly so used. The word communication would far better express what is usually intended by the use of those expressions. Some diseases are purely contagious, that is to say, they require actual contact; such are, syphilis, yaws, gonorrhœa, itch, real ring worm, hydrophobia, and cow pox, and a species of itch termed kra-kra, apparently of African birth.

Others are communicated by contagion, as also through the medium of the atmosphere, *infection*, such are small pox, measles, erysipelas.

Others again spread purely by infection, as hooping cough, chicken pox, scarlet fever, typhus, dysentery, mumps.

These are diseases that all allow to be communicable; we see many of them occurring sporadically, and at other times epidemically. There must be

some reason for this ; the disease surely cannot so far change its nature as to be contagious at one time, and not at another ; it is the cause of this difference which is the object of research—which is the preventable portion of disease.

Of the other epidemic diseases of this island, some are generally allowed to be non-contagious, viz. : intermittent fever, remittent fever, and yellow fever, dandy fever and influenza. Each and every one of these has been considered contagious in its turn here, and elsewhere, and some are even now so considered.

There is one disease *sub-lite*, cholera.

On this subject there is one question which the Board think ought to be put to every person who advocates the doctrine of contagion. It is this—in 1831 and 1832, cholera raged in Cuba and at New York—Jamaica escaped. In 1849 and 1850, cholera raged in Cuba—Jamaica suffers. What is the cause of this difference ? Can it be attributed to quarantine ? Read the history of quarantine—examine the island laws upon this subject—search well into its secret workings—mark well that during the raging of cholera here, numbers left for the other islands—yet none of them have been infected. In some of these islands no restrictions were imposed. If, in spite of all this, quarantine is still maintained to have been the safeguard, then indeed has that mind been lulled into a fancied security, and become the victim of short-sighted prejudice.

The Board have already expressed their opinion that the mere question of contagion is a secondary one. The disease spreads as an epidemic, and whether in its nature contagious or not, it is chiefly propagated through other agency ; and this agency has been proved to be amenable to sanitary measures.—Under these circumstances the Board would most emphatically warn persons, who promulgate theories, the bantlings of their own limited knowledge, and still more limited experience, to pause ere they wilfully give rise to opinions directly opposed to those

emanating from authorities ; persons whose opportunities of judging have been much greater than theirs. The horrors of the last epidemic were fearfully increased by hasty expressions and crude surmises.—The disease is now, at this instant, in some parts of the island sorely afflicting our fellowmen. How soon it may be our turn again to feel its influence God alone knows ; in the mean time the Board would urge upon one and all the fearful fact that we are not now more prepared to meet the enemy than we were before. Our dear-bought experience has proved of no avail. That sanitary measures will mitigate, will prevent the spread of the disease, the experience of all nations shews us. We cannot, we dare not, doubt the fact. Let all then, contagionist and non-contagionist put forth their best energies to cope and struggle with the substance, and not the shadow. Should disease, in spite of this, come among us, and should we ourselves fall victims to it, our last moments will be soothed with the feeling that we at least did our best to preserve our lives, and that our duty to our neighbour was not sacrificed to a debasing selfishness—an unmeaning brutalizing panic.

The Board would here introduce the following note by Mr. Richard Hill, to whom they are much indebted for his kind and useful suggestions in drawing up these reports :—

A brief summary of the weather for the last thirteen years.—From the year 1838 to 1848, a succession of droughts had almost uninterruptedly prevailed in Jamaica.

In 1840, the island both in the plains and the mountains, first suffered from the failure of the ponds, many springs dried up, and many rivers dwindled into brooks. The number of instances in which the cocoa-nut trees in the plains perished, shews that such exhausting dry weather had not prevailed for half a century.

Remarkable December storms occurred three times ; the third, and most remarkable, was on the

15th December, 1847, with a continuance for six days. Taking the law of relation between the temperature of the air, and the power of the air to hold water in solution, as laid down by professor Leslie, to be at the freezing point, equal to the one hundred and sixtieth part of its weight, and at eighty six degrees, the fortieth, that is double at every twenty-seven degrees, these rains are to be ascribed to the south side of the island remaining under the influence of warm southerly winds, when the north side was suddenly swept by cold breezes at 60°. The flooding rains of December, 1847, exclusively confined to the northside of the island, were owing to the quantity of vapour with which the continued south winds had loaded the atmosphere under sudden condensation, and a continuance of the same force; the quantity of vapour with which the air was charged, poured down as through a filter, under the action of the cold north breeze that suddenly set in.

In the year 1848, the spring rains were perfect deluges. They were the heaviest known for a long series of years, they fell unremittingly for three days. They were heaviest to the southeast of the island, coming up with the southerly winds—not a valley escaped inundation. The quantity of rain progressively diminished from east to west. The rain that fell in St. Thomas in the East estimated at some thirty inches, was double that which was ascertained by the rain guage in Vere.

The rest of the year was characterized by drought. Dysentery was common in 1848. It was exceedingly fatal on the northside of the island, especially in the leeward parishes.

From the 25th December, 1848, to the 5th March, 1849, there was a remarkable steadiness of cold weather in all these intertropical seas. The wind was constantly at N. W. with casual variations to the north. The thermometer out of doors was, in Spanish-Town, at 52°, and in St. Thomas in the Vale, in the large central plain at the foot of the mountains,

it was at 48°. Never, in the memory of any living person, was there so severe and so long continued a prevalence of steady cold weather. In Florida the cold was so intense, and the frost so prevailing, that almost all the orange trees died. Mr. Peese, who communicated "observations on the Geology and Natural History of Mexico," to the Academy of Natural Sciences of Philadelphia, (Vol. iv. page 91,) "says, that during the months of January and February, in the neighbourhood of the Jalapa, where the cultivation of rice, coffee, tobacco, sugar, and other staples of the tropics is carried on throughout the whole year, several nights of severe frost stripped the trees on the hills of their foliage."

The month of May, 1849, was dry and hot, there were only occasional breezes, and only casual showers on the mountains. In this year there was still a continuance of diarrhœa. There was a prevalence of low fevers, a general state of nervous depression, characterized by fits of transient excitement, and acute burning pains that pervaded the body in mere lines. I suffered from nervous fever from the middle of May to the middle of July, and, on going a coasting voyage for change, I found that at the western extremity of the island, the same depressing diseases had very generally prevailed.

In 1850, the May rains set in copiously. Rain continued with casual remissions to September, when they assumed the character of severe but transient storms. The general health appeared steadily good, when suddenly, in the month of October, cholera made its appearance in the island.

The Board would also here append a letter from Dr. Chamberlane, the health officer of Kingston, relative to the introduction of cholera into Jamaica, as also an account of the first cases by Dr. Watson.

"To the Editor of the Colonial Standard and Jamaica Despatch.

"SIR,—I take the liberty of sending for publication in your journal, the able "account of the first outbreak" of cholera in this island, in 1850, from the pen of the erudite Mr. Watson, surgeon of the naval hospital, at Port-Royal; and I trust the contagionists, (lay and medical,) will gather some useful information by the perusal of this letter, originally inserted in the "Lancet," of the 11th January, ultimo. Their attention is respectfully and particularly directed to the concluding paragraphs, and in addition to these, I beg to furnish others equally startling to their doctrine. And first, Mr. Corbyn, a surgeon, who wrote a treatise on Asiatic cholera, tells us, "that he sailed in the Mangles, from England, for India, in the year 1814, (mark the year,) and after being two months at sea, Asiatic cholera suddenly broke out in the ship, and sixty persons were thrown overboard before the vessel arrived at Table Bay. Secondly, The Liverpool packet, with four hundred passengers, sailed from England in 1849; the port from whence she sailed was free from such a disease; a clean bill of health was furnished by the authorities to that effect. The passengers and crew were in perfect health before and at the time of leaving, and three or four days after cholera broke out in the vessel, and the loss sustained during her passage to America amounted to forty souls. The disease was confined to the fore part of the ship—none aft were affected by it."

"So much for its appearance on seaboard. I would ask, how did it get to Orenburg, (in Russia,) in 1828?—to England, in 1831?—to the French capital, in March, 1834?—crossed the Atlantic, and was raging at Quebec, in June, of the same year?—and subsequently spread nearly over the whole American continent?—how did it happen that Baltimore was exempted from its ravages in 1849, when travelling vans, full of passengers from infected districts, were arriving daily at that place? Direct communication

was uninterrupted ;—and yet no one was attacked at any period during its prevalence in the neighbourhood, nor afterwards. This place enjoyed a complete immunity from its invasion. I say, how is this explained ?—how does it happen that it broke out at four distinct places far distant from each other, at the same moment of time ? viz. :—

Cincinnati, in Ohio,
St. Louis, in Missouri,
Lewisville, in Kentucky,
Cleveland, in Ohio,

“ On what hypothesis, for example, asks Mr. Bell, can the following facts, which fell under his personal knowledge, be explained ? The military hospital at ²Dhaxwā, an oblong apartment of about ninety feet by twenty, was within the fort, while the lines of the garrison were about a mile distant beyond the walls. On two different occasions, 1820 and 1821, when the disease prevailed epidemically among the troops of that station, but while no case had occurred in the fort within which the hospital was situated, I brought, says Mr. Bell, the patients at once from their quarters into the hospital, which was crowded with sick, labouring under other disorders. No attempt was made to separate the cholera patients from the others ; on one of those occasions, no case of cholera occurred within the hospital among the numerous patients, or the hospital attendants ; on the other occasion, one of the sick was attacked, but he was a convalescent sepoy, who was at liberty to leave the fort during the day. The disease, on each of those occasions, was confined to a particular subdivision of the lines, and none of those residing within the fort was attacked. Here then, continues Mr. Bell, there were from twenty to thirty cases of cholera admitted in the course of a few days into the same apartments, with from forty to fifty patients suffering from other ailments, and yet not a single instance to countenance the notion of contagion occurred.” I say again, how is this ? I could quote many other occurrences re-

specting this mysterious epidemic, equally extraordinary and difficult of solution ; but I am not disposed to trespass on the editor's permission. Let the learned pundits, and the courteous Board of Health, answer the interrogatories in this, and the following communication extracted from the "*Lancet*." I say, contagion had nothing to do with either or all. The reports spread over the country that the pestilence was imported, is a gross and wicked fabrication. The commanders and Medical officers of every American steamer arriving at this port from Chagres since August last, to the present month, have been carefully examined by the deputy health officer and myself ; and if they are to be believed on their oath, no case of Asiatic cholera ever showed itself on board of any of those vessels, during their passage to this island ; nor was anybody landed from them on these shores, at any period, before the eruption at Port-Royal, so affected.

"The depositions taken by order, concerning the sickness and death of Nancy Johnson, and the examinations of all the American steamers in succession, will be found in the bureau of the governor's secretary, and the office of the president of the Board of Health. The case of the two Prawle's, who travelled from Chagres with the contagion in their pockets, and infected therewith the whole population of Jamaica, has been satisfactorily disposed of by Mr. Watson. And as to the presentment on the occasion of the inquest on the body of the old sickly washerwoman, it was too contemptible to attract my notice, and not worth a moment's comment.

"The opinions of some of the faculty that this direful scourge is contagious and infectious, or either, is not only preposterous, but in these enlightened days it is absolutely obsolete, and the promulgation of such sentiments are painfully detrimental to the best interests of humanity—destructive to commerce and commercial intercourse between nations—contracting that little remaining to us at this juncture into insig-

nificance. Quarantine restrictions—cordons sanitaires—isolation—all, all have in turn proved useless in arresting the progress of such a pestilence as cholera. Since the year 1817, when the disease first appeared in India, in an epidemic form, up to last year, it is calculated and shewn, by recorded interments, that one hundred and forty millions of the human race have fallen victims to this fell destroyer alone. During this period it has invaded every variety of climate, attacked people of every degree of civilization, and habit of life. Now, I would ask, why this island was to be exempted from the ravages of this new plague? The islands in the vicinity were, in turn, ravaged, the opposite continent did not escape, and the virulence with which one town was assailed, causing an unprecedented mortality, has no equal in the annals of this malady. Then I repeat, why was Jamaica to be excluded from her share of the calamity afflicting the habitable globe? aye, why? was it in consideration of the preparations made in her towns to purify and cleanse them? were her streets and lanes kept from the pollution of carrion and other abominations? did the people set their houses to right, and prepare for the coming visitation! or did sanitary measures of any kind occupy public attention, when the unwelcome tidings reached their ear? I answer nothing was done; all the elements that could promote, foster, and engender, and give virulence to the poison, were found in full force in every house, in every hovel, in every street, in every lane, in every recess.

“The two towns were a disgrace to a civilized people. They have not a parallel under the heavens, and here I take leave to bear testimony to that of Mr. Watson’s, as it has reference to the sanitary condition of both. I say too, they are matchless in filth, and every loathsome abomination that can render the abodes of man disgusting, hateful, and health-destroying. Lord Dundonald foretold the consequences of one of them, if an epidemic disease

should break out, and his prediction has been verified to the very letter. This is the contagion we are to fear, and the only contagion; poor Prawle's old clothes—and old Nancy Johnson's wash tubs are bug-bears; that this pestilence, like dysentery, typhus, yellow fever, is contingently so, I do believe, but not otherwise. I shall say nothing of the treatment of a disease quite new to most of the faculty here. It must be as various as the human countenance, and the remedies are as numerous and as thick as blackberries, and in most instances, as useless as the infinitesimal doses of the humbug homœopaths. The best safeguards against the assaults of this most formidable foe to the human race are found to be the means nature has pointed out. They are under our own control—cleanliness in every department—in your person—in your dwelling—free ventilation—wholesome diet—a cheerful joyous mind, and a fearless carriage of deportment at home and abroad—in the mansions of the affluent—in the hovels of the destitute, the afflicted, and the forsaken. Then take your change out of contagion.

“I am Sir, your humble servant,

“R. CHAMBERLANE, M.D., M.R.C.S.E.”

“CHOLERA IN JAMAICA.

“*An account of the first outbreak of the disease in that island, in 1850. By J. Watson, esquire, surgeon of the naval hospital, Jamaica.*

“The ancient but decayed town of Port-Royal, consists of perhaps the filthiest collection of hovels, occupied by the filthiest inmates, which the whole civilized world can show. It is built on a peninsula of sand, which is only about two or three feet above the sea-level, any rain that falls soon percolates through the sand; the sea breezes blow constantly by day, and in general the place is looked upon as salubrious

for Jamaica, in spite of its filth. Indeed, it is frequently resorted to by invalids from other quarters, for the sake of its fresh breezes. By the last census, the population was between nine hundred and one thousand. The past summer was unusually rainy, and the tides, in the latter part of September, and beginning of October, were uncommonly high, two coincidences which rendered the ground floor of houses damp. It is the practice of the great majority of the natives to sleep on those floors, with nothing more than a mat under them, and commonly in the same rags which they wear during the day. The doors and windows are shut, and from six to twelve persons are thus pent up in a space less than is comprised in the dimensions of a common sitting room. The temperature in the shade, during the day, has averaged 88° fahrenheit, and a few degrees lower at night, and the barometer was observed to range lower than usual. The natives, who are of all shades of colour, from black to white, but mostly black or dark brown, live chiefly on fish, salt or fresh, and large quantities of crude vegetables of the country, such as yams and plantains. Drunkenness is not particularly their besetting sin.

“Every thing being thus admirably disposed to encourage the full developement of any pestilence, I was, on the seventh October, requested to see a woman about fifty years of age; she complained of having been purged the preceding night, and was, when first seen, cold, and had cramps of the extremities. She was also passing upwards and downwards the rice water-looking fluid characteristic of Asiatic cholera. She died the same day. At this time no one entertained any suspicion that such a pestilence was hovering over the island.* In consideration of the

* The Board is enabled by a letter lately received from the hon. Henry Roberts, chairman of quarter sessions for the leeward parishes, on the north side of the island, to shew that a distinct announcement of the appearance of cholera in Jamaica had been officially made some eight or ten days before the cases related by Dr. Watson, as the first outbreak of the pestilence, in Port-Royal, where it is usually supposed

mischief which would be caused by the announcement that cholera had appeared, if it should turn out to be unfounded, the coroner, who was furnished with a written statement of the case, consented to dispense with an inquest.

“ On the night of the 7th and the 8th, two other persons became affected with similar symptoms in the same neighbourhood, and died rapidly. After making two post-mortem examinations, I reported formally to the authorities that malignant Asiatic cholera existed in the town. At first the report was received with incredulity, and was poo-poo'd ; but the danger of the reported calamity was too terrible to permit it to be disregarded. The custos of the parish, (I believe the official corresponds with our lord-lieutenant of a county,) and some medical gentlemen, were deputed from Kingston, to investigate here,

cholera first appeared. The following communication establishes this fact most unquestionably : “ I believe you are right in supposing that I discovered the first case of true cholera in the island. Dr. Milroy mentioned to me that he had my notes to the custos and coroner of St. James, and that they bore date some eight or ten days before the Port-Royal cases. Upon returning home I referred to my diary, and true enough, all circumstances were there described under the date he had given me. When I first wrote to the custos I was sure that I was not mistaken, but wrote him cautiously, and requested him to observe caution in giving rise to any rumour ; but I was anxious to have medical enquiry immediately entered into, and at the expense of the public, which could only be effected through the coroner. * * * * *

The coroner made it a convenient case, stopping some fourteen hours before he appeared after receiving notice from me. So impressed was I with a fear of the result of people gathering together, that I sent to beg there should be no wake and no tarrying in the house, but this was not heeded ; still apprehensive when they brought the body to Lilliput land for burial, I had hot coffee, bread and butter, and breakfast given to the bearers, and to those who were engaged or fatigued, to aid that physical vigour which would be necessary to stave off infection ; yet all these precautions availed little, for almost every living soul at the wake and funeral is now numbered with the first victim by the effects of the disease ; although the deaths did not occur until five or six weeks afterwards, yet they were all swept off before the disease appeared at St. Ann's Bay, in Falmouth, or the neighbouring places.” [*Letter to Mr. Richard Hill, dated 29th December, 1851.*] Here is a coincident outbreak of cholera in two very remote parts of the island, Port-Royal and St. James, more than a hundred miles apart ; the one on the south of the island, and to windward ; the other on the north, and to leeward, a chain of lofty mountains interposing between them, and the leeward case preceeding the windward ones by some eight or ten days.

when only the three cases above mentioned had occurred.

“ I am not quite certain whether they were at once convinced when I detailed the histories of those cases. However, the disease very quietly spread abroad through this town, in such a way as to be unmistakable. In less than a month it destroyed upwards of two hundred and fifty of the inhabitants, or one-fourth of the entire population.

“ About a week or less after cholera appeared at Port-Royal, a few stray cases were reported in Kingston, a large city of fifty thousand inhabitants, situated at the head of the harbour. Somewhat later, it was found in Spanish-Town, which is the capital, and which is about twelve miles from Kingston, inland; and simultaneously the low-lying villages on the plain, and near the margins of this extensive harbour, were most severely attacked. Cholera gradually advanced into the central parts of the island, and is reported to have reached the towns on the north side.

“ In Kingston and Spanish-Town, which I think might successfully dispute with Port-Royal, its acknowledged pre-eminence in filth, fœtor, and all unwholesome abominations, and which are so far worse, because they are so much larger; thus, in both towns, the mortality has been terrible, but it is yet of unascertained magnitude and unchecked.

“ There was, of course, very soon a general panic; some said the disease was imported by the medium of contagion; there consequently appeared in many places great unwillingness to attend to the sick, and even difficulty in procuring people to inter the dead. The latter were reported, in many instances, to have been cast away in bye-places, to get rid of their bodies, and they were only discovered by the john crows, or carrion crows of the island; husbands refused to put their hands on the dead bodies of their wives to lift them into coffins; and even mothers deserted their children, when the latter took the dis-

ease. Such were the mature fruits of teaching the people to believe cholera to be contagious. At Port-Royal where we preach, I believe, a truer and certainly a more comforting belief, the poor people showed no unwillingness to help one another in their deep distress.

“ I do not propose now to attempt a medical history of this epidemic. The symptoms in the persons attacked here, were similar to those which I witnessed in Lisbon, 1833, and which are reported to exist in cholera patients in all parts of the world. The treatment has embraced the usual remedies, and they have, in most instances, been equally ineffectual here as elsewhere, after the disease fairly developed itself. My present object is to throw as much light on the statistics of cholera in Jamaica, in this, its first visit to this colony, as my opportunities of observation and my abilities will permit me to do.

“ For many months past, American steamers have been in the custom of touching here and at Kingston on their voyage between New-York and Chagres, for the purpose of coaling, receiving and discharging passengers, &c. Their passengers and crews landed of course, at both places.

“ Almost a week before cholera appeared at Port-Royal, two young men arrived from Chagres at this place. They reported that their father died of cholera at Chagres, shortly before they left. These two are the only individuals, as far as I am aware, who, about that time, became resident here after returning from Chagres, where cholera was said to exist, and they were suspected to have introduced the disease. They both laboured under common intermittent fever on their debarkation, for which I attended them, and were soon restored to perfect health, after taking some doses of quinine. No case of cholera has, up to this time, occurred in their house, nor in the two adjoining ones, right and left of theirs. No ship is known to have arrived in this port with a case of

cholera on board, or which has had any one ill of that disease during the voyage from Chagres, or elsewhere, to Port-Royal.

“The disease exhausted itself here, in less than a month from the date of its first appearance. Nine medical officers were assiduously employed for that space of time, night and day, attending to the sick in the fetid hovels of the town, and in the hospital, not one of whom was seized. There is a small respectable community belonging to the church, the navy, and army, who, with their families, are placed in circumstances favourable to health. Not one of them has yet taken cholera, nor any member of their families, although they form part of a community which was losing one-fourth of its number.

“In Spanish-Town and Kingston, the well-fed and properly housed portion of the inhabitants, have not experienced the same immunity, as many of them have died. It may be observed, however, that persons of a similar class here are generally in the prime and vigour of life, as they are necessarily occupied in the performance of duties which could not be discharged at the advanced age to which many of the respectable civilians of the island have attained.—Moreover the persons alluded to here are mostly unmarried, and have therefore less of the class of young children and other predisposed individuals among them.

“On the first outbreak of cholera, the naval hospital contained about thirty patients, most of whom were far advanced in convalescence from intermittent fever, which they had contracted in the ‘Bermuda’ schooner at Grey Town, Nicaragua—one of them died of cholera.

“Five days after, cholera showed itself in the ‘Indefatigable’ frigate, arrived also from Grey Town. Her crew was sickly from a similar fever to that with which the ‘Bermuda’s’ people were affected, and it was contracted at the same place. Her men, how-

ever, were very weak on their arrival; whereas the crew of the 'Bermuda' as has been just stated, was nearly restored to health.

"We are quite accustomed, in this hospital, to the type of fever which generally prevails in ships returning from Nicaragua; it is, when the patients reach this place, usually intermittent, manageable, and curable by proper nourishment, quietude, and medicine.

"The 'Indefatigable' sent to the hospital, at this unfortunate juncture, one hundred and twenty-one patients. They did not convalesce well, and most of them had diarrhœa; twenty-nine men died from the undermentioned causes, viz.:—seven of uncomplicated fever; eight of pure cholera, sent in the first instance as such from the frigate, which did not allow communication with the town; thirteen first admitted for the cure of fever, who afterwards were seized with and died of cholera; and one man who was sent to the hospital as a nurse, who became the subject of cholera.

"In the meantime, seven persons belonging to the hospital staff died, viz.:—five nurses; men taken from the same class of the natives who were then dying in numbers in the town; a washerwoman, a debilitated old creature; and the cook, an old discharged soldier.

"On the 12th instant, the sloop 'Persian,' came into port from the same place, (Grey Town,) and her men had suffered more than had the crews of the 'Indefatigable' and 'Bermuda,' because she had been employed there more than thirteen weeks, a much longer period than either of the other two vessels.—The 'Persian' had lost many of her own men from fever at Grey Town, and on her voyage to Port-Royal, and on her arrival, her officers and people were universally affected with agueish ailments or debility, arising from former attacks of fever. She arrived here a few days after the patients had ceased to die of cholera in the hospital, and before the mortality

had quite terminated in the town, and has, up to this time, sent fifty officers and men to the hospital. The 'Persian's' patients were of necessity placed in the same wards in which cholera patients had recently died, and which still contained patients convalescent from cholera. They were attended by the same nurses and medical officers, and were surrounded by every circumstance conducive to the contagious extension to them of cholera. Not one of these men, up to the present time, has been affected with that disease, and their convalescence has been generally very favorable. Only one man died in the hospital, and he was admitted moribund, affected with fever.

"To recapitulate—'Bermuda's' people being restored to health before cholera appears, lose only one man in hospital by cholera.

"'Indefatigable' comes in when the disease is raging with the utmost virulence in the place, and suffers very severely.

"'Persian' arrives when cholera has ceased, or nearly so on shore, and although her patients are exposed to every imaginable source of contagion, they totally escape contamination, and have convalesced as favorable as such patients usually do.

"I cannot reconcile these very remarkable and interesting facts with the opinion which a great number of people entertain that contagion has been the principal agent in the spread of cholera in Jamaica. On the contrary, I think they prove, that if it acted at all, it played only a secondary part, and that some totally different influence mainly directed the march of the present fatal epidemic.

"Certain learned pundits tell us that the contagion of cholera is so virulent as to attach itself in some miraculous way to two lads, who, however, are not themselves attacked; that these two individuals carry their invisible charge through a sea voyage, and then contaminated the whole population of Jamaica.

"Will they be pleased to explain how it happened, that if this contagion be so virulent, fifty highly pre-

disposed men were thrust into hospital wards which were still reeking with the emanations from the bodies of cholera patients, and not one of them took cholera?

“While the above mentioned melancholy scenes were being enacted in the town and in the hospital, the soldiers, white and black troops, who, with their wives and children, amounted to about three hundred individuals, became subject to the disease, and lost, in a few days, I think about eighteen out of their number. They were marched to Stoney-Hill barracks, which, at the time, were very deficient in sleeping accommodation, and in every way less comfortable than the quarters they left. The march through a swampy country of twelve miles, or thereabouts, was performed under a heavy incessant rain. The change under these adverse circumstances was so beneficial that the pestilence was checked among them.” — *Lancet*.

The Central Board in attempting to point out the method by which the existence and spread of endemic and epidemic diseases are to be prevented, do so with the full assurance, that the majority or all the exciting causes of disease are remediable.

That the physical conditions of a place, are in a great measure, under the controul of man, no one can doubt. See the effect of cultivation, of levelling drainage and sewerage on an unhealthy, pestiferous locality. Soon it assumes an altered aspect, a different climate; flourishing and populous villages and towns take the place of deep offensive swamps. To effect these purposes, the aid of science is requisite, and this of the very highest description. Hitherto in Jamaica this has been much neglected. Whenever any public work of the kind has been undertaken, it has almost, without exception, failed, in consequence of the inefficiency or unfitness of the person employed to superintend; at whose election private interest, rather than the public welfare, has had its influence.

Much requires to be done in Jamaica, and the Board would recommend as the most effectual, and in the end, the most economical plan, that fit and proper persons should be obtained from Europe, whose duty it should be to make themselves thoroughly acquainted with the medical topography—the wants and requirements of every town and village throughout the island;—that they should examine well into the causes of certain localities being unhealthy, and, where practicable, apply the remedy. In this way, and in this alone, will it be possible to remedy many of the existing evils.

The cry of expence, and the impoverished state of the island, must not be allowed to have undue weight. That the establishment of effectual sanitary measures is costly and expensive, is doubtless true; but once more, the Board would urge upon the legislature, *salus populi est summa lex*. Experience has most fully proved that “economy in sanitary measures is expensive;” taking economy here to be a less than sufficient expenditure for a necessary purpose. It has further been proved, that however expensive their adoption may be to a country at first, still, that ere long, the returns are ten-fold, aye, a hundred-fold, whether we look to the increased health and physical strength of a community, or to the broad and fertile fields, rescued from the waste and dreariness of a malarious lagoon. It is far better to expend sums of money in removing the causes of disease and mortality, than to pay away the same under the items of parochial attendance on the sick poor, coroners inquests, coffins, and burials of the poor. Prevention is on all occasions better than cure; but in this instance, the neglect of it is wilful and sinful.

The cry of want of labourers, want of population to effect these purposes is preposterous. Take the city of Kingston alone, and there we are told by the authorities, there are from ten thousand to fifteen thousand of its inhabitants who have no ostensible means of earning their livelihood—who do not work.

To expect sanitary measures, or any legislative enactment, to do good under these circumstances is absurd, is insulting to the intellect; and to allow them to continue in this condition is culpable, is criminal in a government. As the remedy to such evils, the Board would recommend the formation of a strong and effective police force, and the enactment of a stringent vagrant act, which should not contain high sounding words and heavy penalties, but be couched in the plainest language possible, and be enforced by the strong arm of the penal code. It is folly to talk of the liberty of the subject when we see our church yards over-full, our population decreasing, and those who are able and capable of earning their bread by the sweat of their brow, sitting down in idleness in our towns, useless to themselves, and the predisposing causes of pestilence to those around. Little is thought of coercing that subject—that citizen who labours under insanity. Here the law interferes with the double object of benefiting the sufferer, and of protecting the public; how inconsistent then is it to allow those suffering from this moral insanity to bring ruin upon themselves and others.

To lessen the over-crowding of this superfluous mass of human shape in the towns, an act might be introduced authorising the removal and location on such estates as would erect proper buildings, or to rural villages, in well selected situations. Two important statutes having the objects here recommended as the basis of their provision, the thirty-fifth Charles the second, chapter two, and the seventh George the fourth, chapter twenty-six, for the want of executory power, with penalties for non-execution of the statute, have existed hitherto, only a mockery of legislation.

Another measure which is most imperatively called for by a serious and existing evil, is a bastardy act, by which every reputed father should be made to support his progeny.

The subject of the present report should be in-

cluded in an act, entitled the nuisance, removal, and prevention of endemic and epidemic diseases.

The Central Board of Health are convinced, that all epidemics, such as cholera, small pox, yellow fever, scarlet fever, measles, influenza, hooping cough, chicken pox, &c. &c. however widely differing in their symptoms and external features, have one character in common, which is, that each and all are aggravated by, and impelled to spread through the neglect of sanitary measures.

The Central Board of Health, from their own experience, confirmed by the results of their enquiries into the subject, feel fully assured, that irrespective of the contagious or non-contagious nature of any epidemic disease whatever, sanitary measures, if promptly applied and strictly enforced, will, in every instance, mitigate the violence, and in almost all, prevent the extension of the disease.

Under this impression the Board submit the following suggestions :—

The periodical or daily removal of all filth, and rubbish from the streets and lanes of towns and villages, and from around private dwellings.—The yards and courts belonging to which, should be kept free from all accumulations of dirt, refuse matter, and foul water.

The total removal of pigs, and pig-sties, from all towns and large villages. In rural districts, or isolated places, apart from towns and villages, the Board would strongly recommend the piggeries be situated at a reasonable distance from any dwelling, and in a direction to leeward of the dwelling.

That no large number of goats, (above two) be permitted to be penned, or kept in any yard, in any town, or large village.

That all dogs found in the streets and lanes of towns and large villages without a collar, on which the owners name is inscribed, shall be forthwith destroyed.

That efficient drainage and sewerage be established both in and about the towns, villages, and rural districts, where it is required, provided it be practicable; and that no waste, stagnant water, or open cess-pool be permitted in the vicinity of any dwelling.

That due attention be paid to keeping the privies clean and well ventilated, and that they be not too close to the dwelling house. That landlords and proprietors be compelled to provide such accommodation to all houses where it does not already exist.

That all refuse, stable manure, and other accumulations of filth, shall be periodically (daily if possible) removed from all premises, and deposited in such places as shall be pointed out for such purposes by the proper authorities, to be there disposed of, as shall be directed.

That the inflammable portion of such refuse and dirt shall be at once consumed by fire, in places appointed for the purpose; and that the remainder, as also the night soil, be deposited in pits provided for that purpose, at a proper distance from the town and houses, in such places as may be approved of by the authorities;—and that the said accumulations be frequently covered with a layer of earth.

That the custom of repairing streets and lanes in town and villages, with stable trash, be abolished, and some means be substituted that will be more conducive to the health of the inhabitants.

That all dead carcasses of animals, or any such nuisances, be immediately removed from any town, or its neighbourhood, and that it be forthwith burnt or buried, and that the original owners of such animals be subject to a penalty if they do not remove it within a reasonable time.

That no bush, underwood, or rank vegetation,

be permitted to exist in the immediate vicinity of any dwelling in town or country.

That no penguin fences be permitted within the precincts defined as within townships, or prohibited limits.

That all dilapidated houses, old fences, and walls, be removed ; and all unbuilt on lots of ground, be cleansed and inclosed by stockade fences.

That the utmost cleanliness and thorough ventilation be observed in all dwellings. That frequent white washing, with fresh lime, both of the inside and outside of the houses and huts of the labouring population, (more especially,) be practiced, at the very least, four times a year, under the superintendence of an officer or officers appointed for that and other sanitary purposes.

That it is highly advisable that the pernicious habit of sleeping on mats placed upon the bare ground, as practised by numbers of the poorer class, should be given up, and the use of bedsteads (easily constructed,) be adopted.

The Board would strongly recommend the adoption of the plan of allowing the mattresses and linen of a bed to be daily turned, and exposed for some hours to the air ; the bed should not be made up till the afternoon ;—all the windows and doors being left open, so that they may be freely ventilated.

That overcrowding at all times, but especially at night, and during the prevalence of epidemic disease, is highly detrimental to health, and should therefore be carefully avoided ;—at least ten cubic feet of space being necessary for each individual in health—and a larger space during the existence of disease.

That the earthen floors, now generally used, are highly prejudicial. It is advisable that the floor be raised above the level of the ground without,

and where it is practicable, be terraced, or still better, boarded.

That the thatched roofs, at present in common use among the labouring population, are injurious in themselves and dangerous in case of fire. That it would be advisable to substitute shingles or slates in lieu of them.

That, as at present constructed, there is, in the majority of the houses of the labouring population, no provision made for the admission of light, a most important agent in the provision of health.

That the common practice of lighting fires inside of the huts for the purpose of cooking, without a chimney or outlet for the smoke to escape, is most prejudicial.

That the present huts and dwellings of the labouring population and poorer classes are altogether badly constructed as regards comfort and health. Their walls are too low—the height of the roof is insufficient, and the means of ventilating or admitting air altogether inadequate.

On this subject the Board would strongly recommend a total reform by the adoption of the model proposed by the committee appointed to consider the dwellings of the poor.

That enclosures of the yards of the labouring poor should be constructed of wood (or stock-adoes) in lieu of penguins, as occupying less room, and not harbouring vermin.

That as regards the houses of the better classes, it is advisable that they should consist of two stories, and be raised by means of arches from the ground; that the upper portion of the building be devoted to bed rooms, and that, in constructing these, care should be taken that they should be of sufficient size and properly ventilated, and not be sacrificed as they so frequently are, to the public or sitting room.

That the prevalent use of jalousied windows,

in sleeping apartments, is highly inconvenient, and detrimental to health. It is advisable that glass sashes should be attached to every bedroom window.

That the yards and courts attached to each residence, should be paved or terraced, and so raised that all surface water may readily flow off.

That, for the future, no market place shall be constructed within the limits of any town or village, but should be placed at a convenient distance, and in the most eligible position.

That all the market places in any town or village shall be kept thoroughly clean. That the sheds and houses be thoroughly ventilated, and that no tainted or diseased meats or fish be exposed for sale.

That no slaughter houses be permitted within the boundaries of any town or village, and that every such slaughter house be kept clean, and be subject frequently to the inspection of an appointed officer.

That no tannery, soap manufactory, or any other trade of a similar nature, in the carrying on of which offensive emanations arise, shall be conducted in or within a reasonable distance of any town or village.

That no fresh hides, or empty fish barrels, or bones, shall be kept and retained in any store or yard, in any town or village.

That as ample a supply of good water as possible shall be provided to all towns, and villages, for the use of the inhabitants generally; as nothing is more conducive to health than personal cleanliness, and the use of impure water as drink, has been found to produce most deleterious effects.

That as, in many parts of this island, the water used for all purposes, domestic and culinary, is obtained from tanks and ponds, that in all

such districts tanks and ponds shall be provided for the use of the poorer inhabitants, subject to such supervision as may be deemed proper.

That whenever the present supply of water is defective as regards the labouring poor, and it is practicable to obtain water by means of wells, it is advisable that such wells should be sunk.

That as impurities are frequently found in the river water, and as water from tanks and ponds often contains foreign matter, the use of filters are strongly recommended. It would also be advisable to have the house, tanks, or vessels in which water is kept for daily use covered.

That, if practicable, the towns should be supplied with water, by means of pipes, so laid down, that at certain periods, the gutters and drains may be washed out or flushed.

That in all towns or villages supplied with water, by means of water companies, but the charges of which are too expensive to be borne by the poorer classes, tanks shall be erected, or pumps put up for their especial use.

That the food of the greater portion of the labouring class is faulty, and taken irregularly.—The salt fish and meat which they commonly use is frequently tainted and unwholesome.—The ground provisions being often eaten before they are ripe. The meals during the day are generally scanty and insufficient, whilst immediately before retiring to rest, they overload their stomachs with rich indigestible messes.

That a disposition to indulge to excess in spirituous liquors is gradually increasing among the lower classes, to the great detriment of their health and morality.

That to prevent, as far as possible, the mischiefs arising from the use of tainted food and adulterated alcoholic drinks, a strict supervision should be established over the houses where these articles are sold.

That as a large proportion of the mortality among young children is attributable to the use of food unsuited to their digestive organs, it is advisable that this subject should be carefully considered, and the necessity of reform in this respect impressed upon the minds of those who have charge of them.

That generally speaking, the clothing of the lower classes is insufficient and inappropriate to the climate; the habit of wearing and sleeping in the same clothes at night which they have had on and worked in during the day is by no means uncommon among the poor, and is highly detrimental to health. It is therefore advisable that some attention should be paid to this matter, and that, in every case, the covering at night should be different from that used during the day.

That the chief cause of the poorer classes closing up their windows and doors at night, so as to exclude every breath of air, arises generally from their making use of no covering or other bed clothes, but a simple mat placed upon the bare ground.

That the habit of roaming about at night, and sitting up to a late hour under various pretences is extremely detrimental, and that the holding wakes and other assemblies at night in the open air, where large numbers congregate together, is highly pernicious to health and morality. The custom of having evening service, is one that appears unnecessary, and calculated to produce disease.

That great injury is frequently sustained by the lower classes receiving medicine and surgical aid from persons utterly ignorant of their use, effects, and application; and that it is highly advisable to appoint duly qualified medical men, in the different districts of the island, to look after and attend to the health and sanitary wants

of the poor and labouring classes, and perform such duties as may be specified under the section of medical relief.

That nothing renders a person more liable to suffer from an epidemic disease than impaired health, or imperfect convalescence from a previous malady.

That numbers of the inhabitants are still unvaccinated, and considering the fearful mortality of the last epidemic of small pox in this island, and the encouraging statistical statement published in the Army Reports of the almost total disappearance of this pestilence from among our troops, the result of compulsory vaccination, combined with the enforcement of sanitary measures, it is advisable that vaccination should be made as general as possible, and to effect this, with anything like certainty, it will be necessary to appoint medical men, as vaccinators to each district.

That it is expedient that a regular supply of vaccine lymph should be kept ready at hand, in order to be used in case of emigrant, and other vessels, arriving with small pox on board. It would therefore be advisable to institute a vaccine establishment in one of the cooler districts of this island, from whence the other parishes might be supplied in case of need.

That, for the future, the inoculation of small pox shall be declared illegal, and persons offending shall be subjected to fine or imprisonment.

That great loss of life does annually occur, and permanent injury to health is often induced by the injurious acts and advice of persons calling themselves and acting as midwives; that it is highly advisable, that no person shall be allowed to act in such capacity but persons of known and tried experience; and these, not without

having received directions and a written or printed licence to practise as such, from the district medical attendant, or such other officers as may be appointed.

That in many instances persons, even if they obtain medical advice, are unable to get the medicines ordered, or the prescription made up; that it is advisable that a dispensary or dispensaries be formed in each district under the superintendence of the medical attendant, where a supply of medicines and drugs shall be kept available to the poor at all times and at all hours.

That in many instances poor persons, suffering from disease, even though supplied with medical advice and medicines, are still, from their utter destitution, and the wretched state of their habitations, unable to make proper use of the remedies; that the remedies indeed often, from this cause, prove sources of injury rather than of benefit; that it is advisable that a small inexpensive hospital, or sanitary cottages, be attached to each district or village to meet such exigencies, and that such hospitals be under the supervision and care of the medical attendant of the district.

That at healthy sea side places, small cottages should be erected for the use of the poor of the neighbouring towns.

The Board are convinced, from experience, that this plan would annually save many lives.

That the practice of interring the dead in yards within towns and villages, many of which are already overloaded with human remains, is highly injurious; that it is advisable that, for the future, a place out of the circle of the town, and the track of the usual breezes, be appropriated for the burial of the dead, and that the present places of interment be no longer used for that purpose.

That the practice of burying in private yards

within towns and villages is highly improper, and should forthwith be prevented by penal statute.

That in selecting ground for a cemetery, a large space should be enclosed, so as to avoid opening any unbricked grave oftener than once in five or seven years ; every grave should be dug six feet.

That in order that the above measures may be faithfully and strictly carried out, it is advisable that independant of any Central Board, with the various executive officers, there should be in every district, local and sub-boards, to whom the local management, as appointment of visitors, nurses, &c. shall be left.

That in the towns, especially the inhabitants unprovided with means of conveyance, are deprived of the power of taking exercise so conducive to the preservation of health, more especially among the young ; that it is advisable that every town should be provided with a clear space of ground, within an easy distance, which shall be laid out as a park or garden, and be accessible to the inhabitants at all times. Such provisions have been justly termed the lungs of a town.

That about all towns and villages, in such directions as marshy lands are situated, double rows of umbrageous trees shall be planted, such as the guinep, wild almond, sand box, &c.

The Board of Health deem it right to append certain measures to be adopted in case of the outbreak of disease.

Of course the measures requisite to be adopted will vary according to the prevailing epidemic ; thus, cholera will require much more prompt and energetic action on the part of the local authorities and medical attendants than dysentery, fever, or measles, but still sanitary measures are necessary for the prevention of the spread of all.

That in case of any outbreak of endemic or epidemic disease, it shall be the duty of some officer, or of the Central Board, to issue such directions as regards domestic treatment, &c. as may be deemed proper.

That in case of the existence of disease, should a dung heap or accumulation of filth, or a foul privy exist near any dwelling, it is in many cases more advisable to cover the two former over with a thick layer of earth or lime, and to fill up the latter with the same, than to attempt to remove it during the prevalence of disease; all open drains, ditches, &c. should be treated in the same way.

All huts, out-offices, stables, privies, &c. should be well and freely limewashed, and wherever offensive effluvia arise, the solution of the chloride of zinc should be freely used.

During the prevalence of an epidemic, every house should be freely ventilated; all partitions should be removed within and without a house which prevent a free passage of air; dry rubbing should be used in house cleaning rather than water cleaning; damp is a strong predisponent cause.

That should any room, house, or dwelling, appear to the medical attendant to be overcrowded with inmates, the proper authorities shall have power to remove them as the medical officer may direct.

That houses of refuge shall be obtained for the reception of such persons, or others, who may require shelter.

That should there be any difficulty in procuring such houses, the authorities shall have power to take temporary possession of any untenanted house or other building suitable for such purpose.

That during the prevalence of an epidemic, the Central Board, on the recommendation of the

medical attendant, shall have the power to cause persons to vacate a house or village, if deemed essentially requisite to health, and either to place them under tents, or other buildings or dwellings.

That should any house, dwelling, or yard, from any cause or causes be declared by the medical attendant unwholesome or injurious to the inmates or neighbours, the authorities shall have power to direct, or if requisite, to enforce such cleaning, purifying, or other measures, as may be deemed necessary.

The same to be applicable to ships in harbour.

That in case of contagious disease, as small pox, scarlet fever, breaking out in any district, the medical attendant shall immediately inform the local authorities, who shall forthwith isolate the individual or individuals attacked in some house or place wherein he shall have medical attendance, and all such indulgences as are requisite for his health and comfort compatible with the public weal.

That in all such cases of contagious disease, the soiled linen and bedding shall be boiled for some minutes on the premises; that it is not considered requisite to destroy such articles.

That the sick room should be kept freely ventilated. All curtains and impediments to a free circulation of air be removed. The sheets and body linen should be frequently changed, all excretions and soiled linen, should be immediately removed from the dwelling, and a solution of chloride of lime or zinc used. In all cases of debility, all exertions should be forbidden. Bed pans and feeding cups should be provided. No persons but those engaged in attendance on the sick, should remain in the room, every breath drawn, robs the sick of so much pure air.

That a supply of blankets, flannel, &c. should be kept in readiness at a convenient place, where they may be procured at all hours of the night or day.

That in case of any severe and general epidemic, that visitors shall be appointed to go from house to house, that they shall be supplied with requisite medicines, and other appliances with directions how to use them. That nurses shall be engaged to attend upon the sick.

That in all cases the necessary means of transit for those attacked shall be provided. The best appears to be a covered litter, carried by two men.

That supplies of appropriate medicines, nourishment, &c. shall be deposited in all directions, and at short distances, so that they may be readily obtained by every one.

That experience in other countries, and during the recent epidemic of cholera in this island, has satisfactorily shewn that the establishment of hospitals for cholera is objectionable. The same has been found as to fever, small pox, dysentery, typhus, &c. It is much better during an epidemic that the poor should be attended at their own houses, if practicable. Instances, however, will occur of persons being seized at a distance from their dwellings, and having no means of return, or such return being quite inadmissible; it will be prudent that some accommodation should be provided for the reception and treatment of such necessitous individuals.

That in case of death, the body should be immediately removed from the room, and placed in an airy and cool situation. Should there be any want of coffins, the body should be wrapped in canvass or a blanket, and smeared over with lime and tar. During the last epidemic indecent haste was too frequently shown in burying the dead. No body should be consigned

to the grave before six hours at least have elapsed, or unequivocal signs of death have presented themselves. If placed in a well ventilated place during that period, there is nought to fear.

That during severe epidemics a house or shed shall be selected or built as a receptacle for the dead, to which they may be removed as soon as death takes place, if considered advisable. This was done in many places in England during the epidemic of cholera. Thus Dr. Radcliffe, surgeon to the Leeds union, states, that on the first appearance of cholera in Leeds, the board of guardians, at his request, erected such a house in common with one of the cholera hospitals, and to this place, he says, I caused to be conveyed many bodies, from single and other rooms, previous to interment—indeed almost immediately after death; and when the poor found that the dead were treated with decency and respect, I found no opposition to their being sent there.

That experience has fully proved that contagion from the living body extends to but a limited distance, and that in the dead body this is still more reduced, and very speedily the specific contagion disappears altogether.

That in case of any church yard being too full to receive fresh bodies, the authorities shall fix upon and enclose another and proper place. At the same time the Board would strongly impress upon the minds of all, that no body dying of any disease whatsoever, can prove injurious if buried six feet below the surface.

That in case of a great and sudden mortality arising from any disease, ample provision should be made for the interment of the dead as soon as they are removed to the burial ground. Masses of dead bodies, in a tropical climate, cannot fail to render impure the atmosphere; and, during the prevalence of an epidemic, is almost certain

to aggravate and induce disease in all those within its sphere.

That during the prevalence of any epidemic, all fatigue, and every occupation which tends to lower the powers of the constitution, should be avoided—such as long fasting, excessive attention in nursing without taking rest, &c.—For this reason it is prudent, during the prevalence of an epidemic, to employ a vehicle when practicable, and not the labour of bearers, for the conveyance of the dead to the place of interment.

That during the prevalence of any epidemic, great care should be paid to diet, avoiding all substances likely to derange health, and above all, temperance in the use of alcoholic drinks, should be observed. The drunkard may escape the disease, but if attacked, he has little or no chance.

During the prevalence of any epidemic, a good nourishing diet often acts as a preventive, and at such times, the killing of a bullock or animal, and its disposal at the cheapest rate possible to the poor, is often a prudent measure.

That during an epidemic, great attention (if necessary greater than usual) must be paid to personal and domestic cleanliness, to due regulation of the bowels, and the secretions.

That during the prevalence of any epidemic, full occupation for the mind, an avoidance of all unnecessary gossip and exaggerated statements is advisable. A firm reliance in the goodness of an Almighty creator, and a humble confidence in one's own powers, combined with the adoption of all sanitary measures, appear to be the great support and preventives of disease. None suffer more than the timid.

That during the prevalence of any epidemic, more especially of cholera, a person, as soon as he feels himself attacked with any unusual

symptoms or sensation, should apply for medical aid.

The Central Board fully impressed with the utility of observing all meteorological phenomena, would suggest that sets of necessary instruments should be imported, and placed at the disposal of the Central Board, to be distributed in different parts of the island.

The attention of the Central Board has been called to the existing state of the prisons and jails throughout the island. The same want of light, of ventilation, and of full space attach to them, as well as to the private dwellings. There appears further to be no regulated scale of dietary in use, and those used, generally speaking, are not adapted to the condition of the patients. The dietary of the jail appears to be very defective, in fact, the system in these institutions is injurious to health and ruinous to morality. The abuses in these institutions call most loudly for legislative interference.

The appearance of persons suffering from elephantiasis arabum and græcorum, as also from coco-bay, or joint-evil in the public streets, is most improper, and would not be tolerated in any other civilized community; at present there is no separate establishment whatever appointed for them. It would be well to erect, in some healthy and secluded spot, a few houses in each parish for persons so grievously afflicted.

The Board would here suggest, as regards hospitals or places for the reception of the sick, that they are of opinion that these institutions, when built on the large scale, are, to say the least, less useful than they might otherwise be—more especially in a climate like this. The Board would suggest, that for the future, a number of well arranged cottages would be preferable—a plan proposed by Dr. Sympson, of Edinburgh, for lying in hospitals; these might, in this climate, be constructed of wood, at a very economical rate.

That a premium shall be offered for the best constructed and most economical dwelling for the poor, with all its necessary conveniencies; and that a building of this nature, and of the most approved construction, shall be erected in each parish, in the most public place.

A frequent cause of disease arises among young infants from the misbehaviour and capriciousness of temper frequently displayed by the lower classes when hired out as wet nurses; this subject is a serious one, and well worthy the attention of the legislature. A special clause on this subject might be introduced into such act as that regulating the contracts entered into between master and servant.

SANITARY STATE AND WANTS OF TOWNS.

The Central Board now proceed to lay before the legislature an abstract of the reports which they have received on the sanitary state and on the wants of Port-Royal, Spanish-Town, and Kingston.

These three towns present nearly the same appearance as regards filth, not only in the courts and lanes inhabited by the poorer classes, but in the neglect of proper regulations every where. It seems unnecessary to enumerate the ordinary nuisances which are obvious to all; the Board would only urge the execution of existing laws, and give power for their enforcement where power is wanting.

There are, however, some local differences as regards the wants of those towns, besides those common to all.

Port-Royal is situated at the extremity of a narrow sandy spit, which forms a break-water for the harbour; its elevation is, at no point, more than four or five feet above the level of the sea; there is a swampy ground at the distance of about half a mile from the town in an E. N. E. direction, and it is only when the wind, called the "rock wind," blows, that the town is to leeward of it, the sea breeze generally coming from the south east; the land wind is north west.

In Port-Royal, there are five moderately wide streets nearly parallel to each other; they are intersected by numerous narrow lanes, between which are situated blocks of ill ventilated filthy hovels, crowded with inhabitants, and without privies, resort being had to the beach in front of the battery as the substitute, and night soil being deposited in the readiest places, so that when these happen to be in the direction of the breezes, the exhalations must be injurious. It is not astonishing, therefore, that in Port-Royal

the cholera assumed a degree of virulence unknown in more healthy localities.

It is absolutely necessary that houses be erected on the sea^s beach for the use of the inhabitants, and that penalties be inflicted on the occupants of houses, in the yards of which, nuisances are committed; a better supply of fresh water is also indispensable.

From its vicinity to the sea, being on a peninsula so narrow, Port-Royal has great facilities for being kept clean.

Spanish-Town—although the site of this town appears flat, yet the declivity of the streets is described to be sufficient for the escape of rain water, in a short time after it ceases to fall, especially in those streets in which the water courses on the sides of the streets have been paved, and the middle of them has been raised.

It is indispensable towards the reform of this town, that the inclosed lands in its vicinity be put under better management; it is in vain to expect that a population can be otherwise than demoralised, when permitted the license of occupying dilapidated houses, and lots of ground, and left entirely without police regulations. Fences should be made of durable materials and the penguin fences should be removed as being unsuited for a town.

The Board see no excuse for the existence of such evils as these, and when in reproaching the black population for the habits which offend, may it not be asked, where are the indications of our superior activity and intelligence in matters in which they are not by their position, either privileged or able to interfere? the exclusive management of them being, assumed by the municipal authorities, for the supposed benefit of all.

The suggestion to bring water from the Rio Cobre, from above the flat bridge, is very important; from this point, said to be forty or fifty feet above the highest part of Spanish-Town, there would be sufficient pressure to reach the top of the highest house, and ef-

fectual means would be obtained for extinguishing fires.

Kingston.—Here there are nuisances of the same character, but different in degree from those attributable to Spanish-Town and Port-Royal, and the means of remedying them differ. The distance of the greater proportion of the houses from the sea, besides the occupation of the shore for commercial purposes, make it necessary to propose to have recourse to the daily removal into the country of all offensive matters which cannot otherwise be disposed of. The supply of water cannot be made so plentiful, as that which can be procured for Spanish-Town.

The unoccupied ground within the town, is as the Board believes, chiefly private property; squalor, want of ventilation, and crowding of small houses, equally prevail.

There is the same supine resignation to the continuance of all kinds of nuisances, as if they were the inevitable evils of human life; some of these evils are undoubtedly difficult to combat, but there are also many for the existence of which, a state of society in utter disorganization would form the only legitimate excuse.

In carrying out the details of requirements and improvements for Port-Royal, Spanish-Town, and Kingston, the Board earnestly recommend the annexed reports, referring particularly thereto, and trust that they may receive the serious consideration of the legislature.

Report on the Sanitary State and Wants of Port-Royal.—By Dr. J. W. Johnston.

The town of Port-Royal is situated at the extremity of a narrow sandy spit, which forms a break-water for the harbour, its elevation, at no point, being more than about four or five feet above the level of the sea. It is distant from the opposite shore, which forms the left entrance to the harbour, about

two or two and a half miles ; the land is there hilly, with a dry rocky soil, if we except a small patch at Green-Bay ; however, as we extend upwards, along the harbour bank, towards Mosquito Point, we find abundance of marshy soil ; there is also to be found, in the immediate vicinity of the town of Port-Royal, a considerable extent of swampy land, at about half a mile distance, in an E.N.E. direction ; close to this swamp is situated the cemetery of Port-Royal.

One would be led to imagine that the emanations from this locality would have a deleterious effect upon new-comers, although the residents do not appear to suffer any inconvenience from it ; however, with the exception of one wind, (the rock wind,) the town is never to leeward of it, as the sea breeze generally blows about south westerly, and the land wind about north westerly.

The town of Port-Royal does not cover any great extent of ground ; it is traversed by five moderately wide streets, which run nearly parallel to each other in an E.N.E. and W.S.W. direction ; these streets are again intersected by numerous narrow lanes, which run generally at right angles from the before-mentioned streets, between which lanes are situated square blocks of ill ventilated filthy hovels, the majority of them undeserving the name of a house ; many of them contain only one apartment, in which five or six human beings are to be found huddled together in a space of little more than about double as many square feet, without any domestic conveniences ; the floors are generally earthen, dirty and damp, more like cellars than human habitations. Most of the houses have small court yards attached to them, which are generally the abode of pigs and goats and are also invariably the depositories of every species of disgusting filth, such as human as well as other excrementitious matters, stinking fish guts and putrid slops. in fact, every thing is there to be found, excepting cleanliness or pure water. The stench perceivable in the vicinity of some of these localities is at

times intolerable ; the few inhabitants that do observe any thing like decency, (there being no public privies,) generally resort to the beach facing the sea in front of the battery in the vicinity of the church ; about this spot the night soil is also generally deposited, when the sea breeze blows home, this place is directly to windward of the town, and there can be no doubt that the exhalations arising from this filthy, stinking accumulation, must have a direct effect in lowering the standard of health, and also in predisposing to epidemic attacks ; we need not therefore be at all astonished, that at the town of Port-Royal, cholera assumed a degree of virulence unknown in more cleanly localities.

I have no doubt, were small pox or any other epidemic disease now to visit Port-Royal, but that the same result would again follow, for there still exists every thing to favour the spread of disease, a dirty population, badly lodged, often breathing a highly vitiated atmosphere, and with a very defective supply of that requisite article for health, viz. fresh water.

I would therefore beg leave to suggest, to prevent the recurrence of such a like sickness again, that some of the worst of the hovels should be pulled down ; if it were possible, (with a very few exceptions) to raze the whole town to the ground, and rebuild it again, it would be so much the better.

Secondly, I would recommend the appointment of a sanitary officer, who is to be a medical man, and is at the same time to attend to the wants of the poor, so far as medical attendance is concerned ; they are at present totally unprovided for. I would vest him with authority to enforce all laws relative to ventilation, house cleansing, and the removal of all nuisances from about dwellings.

Thirdly, I would recommend the appointment of a constable to act under the direction of the sanitary officer, whose duty it should be, to see that the different court-yards were daily cleansed out, and that

the dwellings of the poor were white-washed at least twice a year.

Fourthly, I should recommend all privies that are not weekly cleaned out, to be shut up, and forbid on the pain of punishment, the committal of any nuisance on the windward shore.

Fifthly, I should recommend that privies be erected on the lee-beach for the use of the inhabitants, and that a penalty should be inflicted on persons found committing nuisances about the court-yards, lanes, or public streets, (a very common practice at the present day.)

Sixthly, I should recommend the removal of all pigs to outside of the town.

Seventhly, I should also recommend, if it were possible by any means, to grant a more liberal supply of fresh water for the use of the inhabitants of Port-Royal.*

JOHN WINGATE JOHNSTON.

* Sir Lionel Smith, when governor of the island, submitted to the home government a scheme for conveying water by a cast iron main along the palisades, from the Hope or the Fall's river into Port-Royal. The government approved of the scheme, and procured an estimate of its cost, the labour to be performed by convicts from the penitentiary. The scheme failed in consequence of the exorbitant demand made by one of the proprietors of the palisades for permission to carry the pipes through his land.

SPANISH-TOWN.

1st. Saint Jago de la Vega, or Spanish-Town, was founded by a band of frightened fugitives, escaping from among the Spanish settlers in the northern part of the island, who had located themselves there shortly after its discovery by Christopher Columbus.—These fugitives, in their wanderings, were attracted by the beauty, fertility, and advantages which the plain presented. In 1538 many of the inhabitants from other parts were led to join this original band of settlers, and the then few solitary habitations gradually increased into a town of tolerable size, which in 1543, had become of sufficient importance to induce the occupiers of the island to transfer from Seville D'oro, the then principal town, the seat of government, to this place. Around this nucleus, the scattered colonists speedily concentrated and became a large and important community.

2nd. Saint Jago was the patron saint of Columbus, and the name was given to Spanish-Town as a propitiation to that saint for the slight supposed to be cast upon him by the earlier and aboriginal title outliving the appellation given to the island by Christopher Columbus on its discovery. It was a conciliatory measure that conferred the name of St. Jago on the new town. The savannas, or verdant and grassy plains which surrounded it, lending their aid to complete its recommendation, it became St. Jago de la Vega, or St. Jago of the plains, now reduced to the more modern calling of Spanish-Town.

3rd. After the seat of government was removed to Spanish-Town, buildings rapidly arose. Regarded as a safe and convenient situation, crowds of settlers were attracted to the place, and such progress was made, that in the short period of sixteen years the

town was considered sufficiently worthy to give a second title to the grandson of the discoverer of the island.

4th. The constant alarms and attacks to which the islanders on the sea coast were from time to time subjected, compelling the colonists to confine themselves to their new town, and its immediate neighbourhood, all attention was consequently bestowed on its improvement. It soon became the residence of an abbot, and obtained the privileges of a city. An abbey was founded, and two churches of no mean pretensions and design were erected.

In 1596 this place, under the influence of increasing prosperity, assumed the position of a thriving capital, and in nine years afterwards, Sir Anthony Shirley, was induced to pay it a predatory visit.—Thirty-nine years afterwards, when the town had risen to meridian splendour, Colonel Jackson from the Windward Islands made a descent upon it, and again, at the expiration of twenty more years, that Venables, on the part of the English, took possession of the island, it was then found to be a town of some size and importance.

5th. It continued until a recent date in a prosperous and thriving condition, but of late years, the vicissitudes and changes in the fortunes of the colonists, have tended materially to its depreciation and injury. Once a flourishing capital, and commanding the influence and wealth, supposed to consist with the advantage of being the seat of government, the bulk of its inhabitants, notwithstanding, are nearly reduced to poverty and distress. Trade has gradually deserted it (more especially since the formation of the Railway) for its more fortunate and wealthier rival city, Kingston, and the benefits arising from a resident and prosperous class, have altogether forsaken it for other and more favored localities.

6th. *General description.*—Spanish-Town, as we have seen, is one of the oldest towns in the island, it

is in the parish of St. Catherine, is irregular in form, nearly approaching to a square, and occupies about one square mile; it is built at about four miles from the base of the surrounding hills, on a declivity gradually descending towards the sea, which is seven miles distant. It consists of ten streets, running nearly parallel from north to south, and eight other streets crossing at right angles, nearly from east to west, besides other lanes and roads surrounding the town, and intersecting the streets. It is situated on the south bank of the Rio Cobre, which, descending from the north, runs to the east of the town, emptying itself into the sea by two mouths; the one, natural at Hunts Bay, the other artificial, near the village of Passage-Fort, seven miles from Spanish-Town. It is thirteen miles from Kingston in a western direction, and about the same distance from Old-Harbour-Bay, in nearly an easterly line. With the former town it is connected by means of the railway. The village of Port-Henderson, or as it is now called, New Brighton, is about seven miles to the south, and Passage-Fort about the same distance to the south east; it is surrounded by the extensive grazing plain usually denominated the Salt-Pond plain or district. In a northerly and easterly direction occupying positions between Spanish-Town, Kingston, and Passage-Fort, are extensive lagoons and swamps, which at all times, but more especially after heavy rains, emit offensive miasmata, and the effluvia arising from these morasses, have not unfrequently been sensibly experienced in the town, although a space of six or seven miles intervenes; they lie, however, nearly in the direct line of the usual sea breeze. There are also several swamps situated in the immediate vicinity of the town, and on different sides of it.

7th. *Boundaries.*—Spanish-Town occupies about one square mile, and is bounded to the north by the Rio Cobre; to the south, by large grazing pastures and woody lands; to the east, the Rio Cobre again

winds its course ; and to the west, the red hills of St. John's shelter the plain closely approaching the St. Catherine mountains to the north west, and forming an area of some miles, till they unite on the north east with the St. Andrew's mountains, thus producing an amphitheatre of hills of surpassing beauty and surrounding Spanish-Town on three sides.

8th. *Geology of the plain of St. Catherine's.*—The superstratum of the plain, or as the Spaniards called it the Vega, hardly exhibits more than a trace of carbonaceous soil ; it is for the most part an earthy clay, readily cohesive and slowly receiving vegetation. The immediate substratum is generally a siliceous sand of considerable depth in some places, and occasionally approaching within two inches of the surface soil. Beneath the sand is a blue clay—overlying strata, in which are water springs. There are parts, however, and those the river banks within and about the town, which are a humid brick mould of considerable depth, a deposit from disintegrated trap rocks. The talus of the neighbouring hills is fragmentary limestone, exceedingly mingled with a red earth, a friable clay highly charged with oxide of iron. If a magnet be drawn through the dust in the streets of the town, it will be seen to have taken up a quantity of black carbonate of the same metal, having the character of a black ferruginous sand. This sand is always found thickly deposited in the water courses through the streets after rain floods. The river soil is slightly auriferous. Small particles of gold occur in the brick mould, and the pebbles within the stream, are composed of angular masses of black basalt, green serpentine, with mottlings of white, a brown grit, and pebbles of porphyry and compact limestone. The detrital washings of these rocks compose the river sand.

9th. The water sheds of the streets are all minutely traced in the accompanying plans of Mr. David D. Soares, the town surveyor. The general descent of

the surface washings is to the Rio Cobre, but they flow from the streets to all bearings of the compass; the conduits being generally the roads descending to the river, but as frequently also to the several gullies which sweep around two-thirds of the town, and form drains for the savanna waters to the stream of the Cobre. The several bridges that cross these gullies, are set down in the police law of St. Jago de la Vega, as the town boundaries. These gullies, while they afford facilities for drainage during heavy rains, are the receptacles of a great deal of feculent moisture, and being always swampy, in light showers they give rise to constant streams of miasma. The only existing artificial drain in the town is a brick sewer carried from the barracks to the river, with occasional gratings, receiving the street waters wherever the streets intersect the drain, but performing the office of a sewer, only for a very limited space, and that for the southward section of the town only.

There are two incidents that attend the superstratum clay, both producing a manifest influence on the sanitary condition of the town. These are, that in wet weather the surface soil is a sponge, holding considerable moisture, whilst in the dry seasons, it is an indurated crust, retaining and reflecting heat.

The prevalent arboreal vegetation of the plain is the cashaw, (*prosopis juliflora*) with an intermixture of the logwood (*hæmatoxylon campeachianum*.)

10th. *Population*.—By the census taken in June, 1843, the inhabitants of the town numbered between seven and eight thousand, there being an excess of females over males, of one thousand.

11th. *Occupations*.—Among the upper classes are to be found chiefly the officials of government, with some few of the learned professions; a few store and shop-keepers, but the great mass of the population, with few exceptions, are composed of trades people, mechanics, sempstresses, lodging house keepers, domestics, huxters, and idlers, the latter far exceeding

the industrial portions. These earn their living by occasional jobs, but stealing, and vagabondizing, and squatting on vacant lots through the apathy and want of attention of the parochial authorities, in allotting the parish lands, are prevailing evils.

12th. *Buildings*.—Few towns of the dimension and population of Spanish-Town possess within them edifices of the size and character of those there; this, no doubt, is principally to be attributed to its once existing wealth, as well as to the fact of its being the seat of government. It numbers among its chief buildings, one Cathedral church, one Episcopalian chapel, two Baptist chapels, one Wesleyan chapel, two Synagogues, nearly all of them capable of containing one thousand persons. A market place with three houses, for the accommodation of the traders, a railway station of some magnitude, the public buildings, as they are generally called, comprising a square, nearly in the centre of the town, consisting of the government, or queen's house, on the south side. On the north, is the house of assembly; the west is occupied by the courts of law, and on the east is the secretary's office, and the public arsenal; and extending between them is the colonnade with the temple, under which stands the statue of lord Rodney. The centre of the square is laid out in a tasteful garden, with a cistern and jet d'eau, to irrigate it. There are also extensive barracks for the accommodation of an entire regiment, a county jail, a district prison, a parochial hospital, several school houses, and a magazine.

There are at present no remains of Spanish buildings in Spanish-Town.

13th. *Government*.—Spanish-Town possesses a local act for its internal regulation, and is subjected to all the existing municipal laws besides. The fifth of William the fourth, chapter thirty-nine, gives ample powers to the justices and vestry to enable them to keep the town in a state conducive to, and befitting sanitary purposes. Although the act is deficient

in many respects, still, even in its present state, taken in conjunction with other laws applicable for the purpose, much more good might be effected. A casual review of its enactments will not fail to make this manifest, did the authorities avail themselves of that which it contains. By this law provision is made for the prevention and extinguishing of fires, and the sole controuling power is vested in seven of the inhabitants, two of whom are to be justices of the peace, to be selected by the vestry to act as firewardens; an oath is attached, and a penalty against the non-performance of duty. Filth and rubbish are prohibited from being deposited in any open or vacant yard, lot, and decayed houses are permitted to be pulled down.—Open lots are to be enclosed, under penalty of forfeiture by the owner. Retail shops for the sale of spirituous liquors, are not to be opened before six o'clock in the morning, nor after six o'clock in the evening. Gunpowder and spirituous liquors are not to be sold within one hundred yards of the public buildings. A bell is to be rung at an hour at night, to be fixed by the justices and vestry, and all drunken, idle, riotous, disorderly, and indecent persons found in the streets after that hour, are to be apprehended, and taken before two justices, who are authorized to inflict a fine, or commit them to the house of correction. A power is given for the apprehension and punishment of vagrants, and galloping horses or driving furiously through the streets, is made punishable. There are regulations how carriages of burthen and droves of cattle are to pass the town, and carriages for the transport of goods are to be licensed, and numbered. Impure food or provisions exposed for sale, are to be seized and destroyed, and penalties are fixed for persons so exposing them. A person is to be appointed to take care of the market. Fresh meats and fish, are not to be sold any where else but in the market during the hours that it is open. Places for slaughtering cattle are to be fixed by the justices and vestry, and no other places are to be used for this pur-

pose. Hawkers and pedlars are also dealt with.— Goats and hogs going at large in the town are to be taken up, sold, or destroyed. Power is given to make other market places. A tax might be assessed upon the inhabitants of £600 over and above all other taxes for the provisions of this act, until a prohibition clause in the poll tax introduced in 1847, and yearly continued since, divested the justices of any power of taxation for these purposes. The justices and vestry are empowered to make alterations and improvements, in the town. A surveyor, town clerk, and other officers, are to be appointed. Penalties are laid on justices and vestrymen for not attending vestries when summoned. The act directs how all penalties are to be recovered ; how persons aggrieved by it are to obtain redress, and within what time actions and suits are to be brought, and it gives plaintiffs, on recovering damages, full costs. Justices are to fix the clerk of the peace's fees, a provision superseded by a general enactment. Places are to be selected, and marked for bathing and washing. Produce, under fifty pounds, is to be sold only by house holders. A moiety of all penalties is to go to the informer. The boundaries of the town are fixed, and it is declared a public act. Several recent statutes, no doubt, have materially interfered with some of the clauses of this law, but certainly much remains of a very serviceable nature, which, taken conjointly with others of the general enactments, would unquestionably do much towards rendering the police of Spanish-Town, in a sanitary point of view, perfectly efficient. Under the powers granted by the fifth of William the fourth, chapter thirty-nine, and those of the twentieth George the second, chapter ten, the savannas, streets, and avenues of the town are kept clean and in repair. The means for these charges have hitherto been obtained from a tax on the inhabitants, assessed under the provisions of the annual poll-tax law.

The *custos rotulorum* is the chief functionary of the

town and parish, and is appointed under commission granted by the governor; he presides at vestry and public meetings, and is ex-officio trustee of several of the institutions of the town; in the event of vacancy or absence, the senior resident magistrate fulfils nearly all his duties; with the justices and vestry entirely rest the enforcement of all municipal regulations, whether for the care of the institutions, or the health and comfort of the inhabitants, and though they labour under many restraints, from the uncertainty or ambiguity of the laws by which they are bound to be governed, yet it cannot but be admitted that much laxity and indifference too often occur on their part, in not rigidly enforcing those laws which clearly allow of free interpretation, and are distinct and intelligible enough for all good purposes; stricter vigilance on the part of the constabulary force might be insisted on, and a determination to inflict merited punishment, without distinction of persons, for breaches of the law, would effect salutary reforms in many ways.

14th. *Pauperism*.—The eleemosynary funds provided for the poor of the parish of St. Catherine, comprehends aid afforded from several sources, but distributed almost exclusively to the people within the town. Relief is here administered from funds annually provided by parochial taxation in two ways. First, by money allowances, weekly distributed by the churchwardens to regular pensioners, approved of by the vestry; and secondly, by support afforded to persons admitted into the parochial asylum and hospital, in which institution they are both housed and fed, and attended to. Transient persons, indigent, and destitute, obtain money relief, if they are found to be deserving objects. By returns made to the house of assembly for the past year, and published under their orders, it is shewn that the sum of £1157 was assessed upon the inhabitants of the parish for the support and care of the poor. No less than twelve hundred acres of land lying unproductive on the skirts of the town, and held in trust by

the parochial authorities, under the provision of the twentieth George the second, chapter tenth, for the use of the poor, ought to be made available for the diminution of out-door reliefs, yet notwithstanding of the total £1157, £591 were expended in out-door aid, £300 being the disbursement for the poor house and hospital, besides £26 for the salary of a matron, and £240 for medical attendance and medicines to both out-door and in-door paupers. In addition to this expenditure, there were expences for coffins and interments. These means for the relief of the sick and indigent, are further aided by a weekly offertory collected at the church and chapel of ease. A fund distributed exclusively by the clergy of the establishment, and amounting annually to about £300, over and above the provision made by the Vestry.

15th. *Sewerage*.—The only sewer in the town, by which the refuse is removed, runs from the barracks. It intersects King street, White-church street, and the public buildings, and then running along the side of Canning lane, crosses Barrett street, and empties itself into the river near by the side of the magazine. This sewer was built under an act of the island, forty-seventh of George the third, chapter twenty-third, and is bricked and arched. It is frequently out of order by the iron gratings on the top and across it breaking, and giving admission to quantities of straw and stable stuffs, which choak it up and obstruct the egress of all other matter. On these occasions it emits unwholesome effluvia. The construction of this sewer is unfortunately upon the worst of all principles; its bottom is flat, and without mortar; and in various places it is crossed by iron gratings, placed apparently for the purpose of preventing persons from ascending it. Joining this is a sewer or drain, from the king's house and house of assembly. There is also a short drain passing under the vegetable and fish market-house lengthwise, but from the absence of any delivery pipe, or conduit, it frequently after heavy rain be-

comes thoroughly obstructed and most noisomely offensive to the whole neighbourhood.

16th. *Water Supply*.—Spanish-Town, supplied by the Rio Cobre plentifully with water, along its entire length, running north and south by its eastern boundary, is further aided with a supply by a company established in 1834, under the provisions of the fifth of William the fourth, chapter thirty-eight. The reservoir premises and works are at the uppermost part of the town, and the supply is procured from that part of the river immediately between Brookes' and Simpson's fords. It is raised by means of a pipe placed in the bed of the river, passing thence through a tunnel to a well. It is worked by steam power, and is sent on by force pumps through a main pipe, passing along Kent street to the reservoir, which is uncovered, situated at the highest part of the town, at the end of Kent street and between Nugent and Martin streets, from whence supply pipes traverse almost every street. The water is often thick and muddy, unfit for drinking purposes until filtered, but this only occurs after heavy rains have fallen in St. Thomas in the Vale, and caused an overflow of the river. The water is delivered three times a week, for two hours, and customers are compelled to resort to the use of cisterns or butts, and in some instances, large Spanish jars. The poorer class obtain their supply of water from carts, made for that purpose, which procure their water from the river at one of its fordings; this is sold usually at 9d. per cart, and each cart contains from forty to sixty gallons when full.—The washing of clothes is extensively carried on along the banks of the river, and it is frequently the receptacle of all the dead animals of the town, as well as stable manure, filth, and rubbish. The stream in some places is extremely rapid, and plentiful, while in others, it is perfectly shallow and sluggish, lodging on patches of land, many impurities, and occasionally a human body. As there are no pumps, and only three wells within the town, it may

be said, to the sources above mentioned, Spanish-Town is solely indebted for its supply of water.—There is stated to be a spring at the barrack yard, which, however, is at present closed in by a privy.

17th. *Manufactures*.—With the exception of three or four brick kilns, there are no manufactories in this town. The bricks made here are considered good and lasting, and are chiefly used for buildings in the town.

18th. *State of Streets*.—The report, supplied by the town warden, which is appended to this detail, will clearly and fully demonstrate the absolute necessity for immediate steps on the part of the authorities to arrest the progress of disease and death. The allotment of the parish lands, appear to be generative of almost all the nuisances which so plentifully abound here. The report referred to, points out those streets which are in good order, and those that require repairs, as well as all dilapidated buildings, and vacant or enclosed lots of land. It has been carefully and accurately drawn up under the committee's directions, and may trustingly be appended as part of this report. Many useful suggestions are made by Mr. Soares, who has taken much pains to inform himself on the subject. We recommend him to the favourable notice of the Board. He is deserving of consideration for his able information, as well as for the plans of the town, which he has supplied with his report.

19th. *The Public Health*.—The prevalence of epidemics, and their causes, particularly in reference to Spanish-Town, have had much of our consideration, and might be treated here either in detail, under various heads, or in a more general manner. As we consider that the causes and spread of zymotic diseases in Spanish-Town may be regarded as perfectly similar in features, course, treatment, and results to those which have prevailed elsewhere, it may not be necessary to dwell on these acknowledged points, suffice it to say, as incidental of this

report, that epidemic diseases have frequently visited Spanish-Town, and in no instance, within our knowledge, have their characteristics and causes differed materially from those which have existed at other places, nor, on the other hand, are we induced to the belief that this town has suffered less from those diseases than any other town in the island; for whenever diseases have appeared in epidemic form, their malignity, virulence, and consequent mortality, have never been in any diminished ratio, but it may be truthfully said that Spanish-Town has invariably contributed as large a proportion to the afflicted and dead as any community of equal size and number of inhabitants.

In the endeavour to trace, from the very imperfect records at the time, the extent of mortality which occurred during the prevalence of small pox, which disease prevailed here in 1830, at a period when slavery existed, the correctness of our information falls short of reliance, consequently the difficulty of procuring statistical facts as a basis for calculation has been exceedingly great; however, there is no doubt that it prevailed and resulted in much the same ratio, as subsequent experience has confirmed in respect to more recent epidemics.

When scarlatina appeared in Spanish-Town, in 1841, it shewed all the malignity and fatal results that experience has pointed out, as usually accompanying its course, where localizing causes rife prepared the inhabitants for its reception. It raged through the town, neither respecting rank, age, nor locality; all classes in all parts were sufferers from its effects, while the mortality may be said to have been chiefly confined to the same class of persons who so recently formed the great bulk of sufferers under the ravages of cholera.

Fevers of several types have their corresponding influences, and at various periods, within the last twenty years, have spread their desolating powers over this town. Could any other expectation have been

arrived at, than that should any epidemic appear in this part of the island, Spanish-Town was in a position fully prepared to participate in its devastating effects? Regard being had to the loose, careless, and indifferent manner in which all vigilance over the health of the people generally had been provided for, the whole town might very justly have been denominated one overwhelming heap of filth and impurities. Not a house or hut was free from contaminating influences. Swamps, spread far and wide, covered the surrounding surface. Pigsties defiled almost every yard; while unwholesome and unsound food, with deleterious and drugged spirits, were daily, publicly exposed for sale, and readily purchased and consumed by the great mass of the inhabitants. Could any place and its population be found better suited, or more congenial for the spread and fatality of epidemic diseases? Do we then wonder when cholera, with its attendant mortality, did make its appearance in Spanish-Town, in October, 1850, that at that time it was most adequately prepared for their baneful reception and developement, and that very nearly four-fifths of its inhabitants should have been afflicted with choleraic affection, and fully one-third of those should now be "inmates of the silent tomb?"

That there are numerous localizing causes of the existence and spread of diseases in Spanish-Town and its immediate neighbourhood, needs not further observation than what can be afforded by passing through the town on a day, or even two, after heavy showers of rain have fallen, when the subsoil has been thoroughly saturated. There will then be found exhalations of a most noisome nature arising from the ground; pools of stagnant water collected in all directions, uniting extensively fatal miasmata, carried through the influence of strong breezes, under the action of a powerful noonday sun on all sides; sewers and drains, few in number, totally obstructed by accumulated vegetable and animal matter, sending forth

pestiferous odours, and charging the atmosphere with pestilential materials ; buildings of all sizes, in every direction of the town, in dilapidated and dangerous states ; rank vegetation, protruding from their roofs to their foundations ; badly ventilated, unfloored, unceiled, and in every respect unfit for habitations ; yet in these horrid places are to be found crowded together men, women, and children, by day and by night, with scarcely a dry spot to lie upon, still less a covering to shelter them from cold or rain ; their sleeping places, most frequently, a door, or shutter, if procurable from the buildings, and if not, then the bare earth with their clothing for a pillow ; only one suit of clothes in their possession, and those worn until reduced to rags from dirt and filth ; then let there be added to these already sufficient predisposing causes for disease, badness and irregularity of diet ; the use of deleterious ardent spirits ; thick, impure, and unwholesome river water ; extensive exposure of stable and other refuse ; the filthy state of the streets ; the existence of pigsties in almost every yard, and often placed in contiguity with the dwellings ; privies foul, full and generally badly constructed ; the immediate proximity of grave yards, and the occasional burials of persons within the premises, exhaling putrid smells ; the existing taste and desire among the people for night orgies and revels, thus coupling fatigue with exposure ; and in addition to all these causes for the prevalence of disease, the general humidity of the atmosphere at night, arising from the land wind passing over the river, which runs to the north of the town, and bringing morbid effects into almost every house ; we then have localizing causes enough for the permanency of epidemic diseases.

20th. *Necessary measures for the removal of localizing causes.*—Having thus pointed out the many general causes for localizing epidemic diseases in Spanish-Town, it becomes expedient to offer some suggestions as to those measures which appear necessary to be adopted for their removal and abatement.

—In dealing with this subject, it will be quite unnecessary to premise, that an expenditure of money, to some amount, might be required for effecting a thorough and radical change, and that the existing laws of the island, are far from adequate for carrying out full and satisfactory sanitary reforms.

—In a town so thoroughly surrounded and enveloped in impurities and predominant causes for the prevalence of disease ; we view the importance of health to a community exceeding seven thousand people, as of supreme consideration, and therefore do not hesitate to make the following recommendations, and to urge upon the Board the absolute necessity, of again enforcing upon the local authorities, the rigid adoption of all such sanitary and public regulations as the existing laws *enable* them to carry out, and to follow up their exertions, by an appeal to the legislature, for such further salutary improvements, as will tend to place themselves, their families, and dependants, as well as the whole of the inhabitants, upon safer and more healthy security. Thus they may render Spanish-Town once more a clean, wholesome and thriving community, befitting the seat of government and the advancement of industry and civilization.

21st. *Suggested remedies.*—1st. That the swamps and ponds in the immediate vicinity of the town, be thoroughly drained and filled up, as well as all other places where water accumulates and becomes stagnant ; that there be a proper formation of all the streets, roads, and thoroughfares, by Macadamizing them efficiently, opening trenches on their sides for the free passage of the surface waters, keeping clean the gullies, by frequently burning off the rubbish deposited to them, and making viaducts to the river ; that there be made several more sewers, properly formed and bricked, giving them a graduated descent, for the purpose of carrying off, below the town, into the river, all superfluous filth and noxious matter.

2nd. That provision be made for removing daily all

sweepings, rubbish, accumulations of stable and other refuse, both from the yards and streets, and for burning all such portions as may be unfit for agricultural purposes.

3rd. That there be not allowed any vegetation of a rank, unsafe, or useless nature to remain about the roads, streets, houses, or in the neighbourhood of any dwelling.

4th. That the laws be rigidly enforced in respect to the condition and safety of dilapidated buildings, whether operating either as special or general nuisances, and that the inclosure of all open and vacant lots of land be compelled by penalties.

5th. That there be frequent and rigid inspection over all articles of food exposed or offered for sale, either in the shops or open market places; and that the instant destruction of whatever may be found either impure or unwholesome, whether animal, fish, or vegetable be attended to.

6th. That there be strict police regulations as to the state of rum, aniseed, peppermint, or other ardent spirits, and in addition to a penalty, the forfeiture of the licence of any retailer, who shall combine, or cause to be combined, any deleterious article in the mixture of these spirits.

7th. That there be established public pumps, with filterers, in convenient situations for the use of the poor, and for washing and cleansing the streets; that these pumps be regulated and kept clean, at least twice in each week.

8th. That all hogs and goats be removed from the town, all dogs found at large without collars, be destroyed, and that all pigsties be prohibited within a certain distance about towns.

9th. That there be a stated inspection of all houses, yards, privies, &c. &c. enforcing, by penalties, the cleansing and purifying of them, at least twice in every week.

10th. That the burial of the dead within one mile of the town, be prohibited and that no grave be less

than six feet in depth, and no grave be opened under a given period, say at least five years, and the permanent closing of all the present grave yards within town be required.

11th. That there be firm police regulations against wakes, and other night orgies or revels ; that all gambling be instantly put down, and the full penalties of the laws inflicted for drunkenness, noisy, or disorderly conduct in the streets, especially during the night.

12th. There should be an ample daily supply of pure and wholesome water, with drains established in connection with every house. The principal lands about the out skirts of the town belong to the parish of St. Catherine, in trust under the law to the justices, who are freeholders, and churchwardens and vestrymen, for the use of the poor ; upon these are chiefly to be found the most extensive nuisances. We would recommend that the trustees should forthwith adopt measures for resuming the leases under which they were allotted, and that all buildings which are not capable of being made in conformity with complete sanitary regulations should be removed, and that no future leases should be granted to any person whatever, except under stringent rules, in respect to the plan of erecting them and to the sanitary requisites, as to proper ventilations, drains, sewers, and privies. It is to the present state of these lands and the buildings thereon, that idleness and vagrancy are principally to be traced. The facility of finding a resting place, capable of affording a comfortless shelter through the day, with opportunities for depravity and dissipation at night ; the convenience the dilapidated buildings afford as places for secreting stolen goods are obvious evils. It is in the hovels on these lands that prostitution, with its attendant consequences, prevails in unlimited and licentious revelry, resulting finally, either in the commission of heinous crimes, or the augmentation of the already overwhelming pauper list. These remarks,

it is readily admitted, do not apply to all the occupants of the parish lands, but it may be said, that to a very great extent, these allotments are made property by the very worst of characters; the habitations ought, for the credit and safety of the whole community, to be either razed to the ground, and the lands applied to better purposes, by the controuling powers; or authority should be obtained for disposing of them to those parties who would readily render them properties of some value, objects which the present holders are either unable to effect, or are indisposed to accomplished.

REPORT OF THE TOWNWARDEN.

To the honorable the Commissioners of the Central Board of Health, Spanish-Town.

GENTLEMEN,

Agreeably to the directions received by me from a committee of your honorable Board, I beg leave to submit to your consideration the following report of the state and condition of the town of St. Jago de la Vega, viz.:—

MONK STREET,

No. 10, 15, 16, 18, 19, 22, and 26, are unenclosed lots of land, with dilapidated buildings thereon.

This street is on a stratum of red sand, and has a fair fall for the discharge of rain water. It has been lately Macadamized.

RED CHURCH STREET.

No. 17, 20, and 21, dilapidated houses, and one unenclosed lot of land, with a quantity of cashaw trees thereon. This street is on a stratum of sand and clay, with several rises and falls. It is not Macadamized.

SMITH'S LANE.

Red sand and clay.

WHITE CHURCH STREET.

No. 1, Old Jewish burial ground, which has been closed up for the last thirty-five years, it is now very foul, and requires to be cleaned. No. 4, 9, 12, 55, and 56, are unenclosed lots of land, and dilapidated houses. This street is Macadamized from the junction of Old Market street to Canning lane. The other portion is a public road. This street is on a substratum of red sand and blue clay.

KING STREET.

No. 3, 24, 30, 32, 38, 55, 56, 63, 66, 68, 69, 70, 71, and 73, are unenclosed lots of land, with old buildings thereon; upon lot No. 3, there is a goat pen, which is very offensive. This street is Macadamized from the junction of Waterloo street to Ellis street. The other portion is common road. The substratum of this street is blue clay.

BERRY LANE.

The whole of the land in this lane is unenclosed; there are several old privies and old buildings; this is a common road, which has never been repaired.—Substratum blue clay.

KENT STREET

Leading to the river. There are several old buildings and penguin fences in it, the latter very foul, require cleaning. The gully binds on this road.—Substratum brick loam. The road is impassable and much washed away.

WATERLOO ROAD.

This road leads to the river. There are several

lots of unenclosed land and old buildings with penguin fences on it; this road, with Kent street, embraces a large run of land, with a number of small buildings, portions of which are much dilapidated. A portion of the substratum of this road is red sand, and the other portion is brick loam, and on this road are three brick-kilns.

NUGENT STREET.

The land leading to the gully is very foul and requires cleaning. No. 3, 40, and 44 are dilapidated houses and unenclosed land. A portion of this road has not been repaired for a long time past. Its substratum is blue clay, except a portion at the junction of Old Market street, which is red sand.

MARTIN STREET.

No. 10, 20, 24, 33, 48, 49, and 50, are unenclosed lands, with dilapidated buildings thereon. This street, from Brunswick corner to Adelaide street, is Macadamized. Its substratum is blue clay.

HANOVER STREET.

No. 6, 17, 21, and 32, are unenclosed lots of land. This street has not been repaired; its substratum is blue clay. A foundation was dug a few weeks ago, and the depth of the blue clay was four feet six inches.

YOUNG STREET.

No. 1, 18, 20, 21, 22, 27, 36, 49, 51, 70, 71, 76, 77, 78, 79, 80, 81, 82, 84, and 86, are unenclosed lots of land, with dilapidated buildings on them. This street has been Macadamized, except that part of it immediately behind the barracks. Its substratum is blue clay.

MORRISON STREET.

No. 4, 8, 15, and 16, are unenclosed lands and old buildings. The land in this street abounds in cashaw trees, and requires much cleaning. Its substratum is blue clay.

FRENCH STREET.

No. 21, 25, 30, and 40, are unenclosed lots of land with dilapidated houses thereon, and improper fire places. This street, except that portion of it leading to the Baptist chapel, is Macadamized. The substratum is blue clay.

CUMBERLAND ROAD.

No. 2, 3, 6, 11, 18, 23, 28, 30, 31, 32, 33, 34, 35, 36, 38, 42, 44, 47, 50, 53, 54, and 56, are unenclosed lots of land, with dilapidated houses thereon, with improper fire places. This road is on a stratum of blue clay, and is not Macadamized ; it is the principal waggon road into the town from the parish of St. Thomas in the Vale.

It requires to be repaved.

JOHNSON LANE.

This is a private lane, subdividing a large run of land on which are a number of small settlers. The land appears swampy.

SILVERWOOD ALLEY.

No. 3, 4, and 5 are unenclosed lots of land, with old buildings on some of them.

RUM LANE.

No. 1 and 3 are unenclosed lots of land, with old buildings on them.

WILLIAMS' STREET.

No. 15, 16, and 18 are unenclosed lots of land, with old buildings. The substratum of this street is blue clay; from the junction of Cumberland road to the vice-chancellor's pen is Macadamized.

BELMORE LANE.

In this lane there are two burial grounds belonging to Wesleyan and Baptist congregations, and it embraces a large run of land, with a few scattered houses thereon. A portion of these houses are in a dilapidated state, and are uninhabited. The land abounds with cashaws and penguins, and is very swampy.—The substratum is a yellow clay, slightly mixed with sand.

PRINCE LANE.

There are a few scattered houses in this lane, and a large burial ground called the No. 3 burial ground, around which there are numbers of scattered graves, called "Heathen ground," at the end of which there is a large pond called "Williams' pond." The substratum of this land is yellow clay, slightly mixed with sand. It abounds with penguin fences and cashaw trees, and requires cleaning.

OLD MARKET STREET.

This street is Macadamized. A portion of the substratum is yellow sand, and the other portion of the street is blue clay.

MANCHESTER STREET.

From the junction of White-church street to the junction of King street, and from the junction of Young street to Cumberland road, is Macadamized. The substratum of this street is blue clay.

ADELAIDE STREET.

Several unenclosed lots of land. From King street to Martin street is Macadamized.

BECKFORD STREET, PEEL LANE, AND CONSTITUTION STREET.

These streets and lane require to be repaired. The substratum is blue clay.

WELLINGTON STREET.

No. 7, 10, 11, 12, 21, 23, 28, 30, 31, 34, 35, 36, and 40, are unenclosed lots of land ; dilapidated houses are on the greater number of them. The street, from the junction of White-church street, to the junction of Young street, and from the junction of Oxford road, leading to the Old Market road, is Macadamized. The substratum is blue clay.

CHAMBERS' LANE.

The No. 2 burial ground is situated at the end of this lane. Several old and uninhabited houses, with a lot of cashaw trees and penguin fences, are on this road. At No. 6, there is a large swamp which is very offensive. The substratum is of a blue clay. The land is low and very swampy.

OXFORD STREET.

Several lots of unenclosed land, with dilapidated buildings on them. A portion of the buildings are uninhabited. The substratum is of a blue clay. It has been Macadamized.

ELLIS STREET.

No. 4, 5, 7, and 8, are unenclosed lots of land, with dilapidated buildings on them. This street has several risings, and requires to be repaired. The substratum is sandy.

CONRON LANE, MELBOURNE LANE, AND NUGENT LANE.

Portions of the lands, situated in these lanes, are unenclosed, but abound in a number of old buildings. The lands are swampy and are on a blue clay bed.

CANNING LANE AND BISHOP LANE.

A lot of unenclosed land and old buildings. Substratum sandy.

BARRETT STREET.

A portion of this street is on the Kingston turnpike road. It is Macadamized.

BOURKE ROAD.

No. 5, 6, 9, 10, and 12, are unenclosed lots of land with old buildings on them. A great portion of this road, opposite the railway terminus, is in standing cashaw trees and penguin fences, and on a blue clay soil. From the junction of King street to Barrett street is on a substratum of yellow sand. This road is very swampy, and requires immediate attention.

Remarks.—The highest part of the town is Tackey's bridge, the land having a gentle fall towards the town. The rain water from the streets and lanes discharges itself into the several gullies and fordings of the river—at the race course—in Williams' pond—and in the drain leading from the barracks to the magazine. The water is discharged into the Rio Cobre. The streets and lane are free from water about half an hour after the rain ceases to fall. From the natural declivity of the water courses, to its point of discharge, I consider that surface drainage would answer all sanitary improvements in regard to the cleaning and drainage of the streets.

During the three last years, I have been employed by the parish as town surveyor; four miles of the streets and lanes have been Macadamized in the cen-

tre of the roads, leaving the sidings only shaped off as water courses. Several portions of the water courses have been paved with stones, and I find it to answer all purposes. I therefore recommend all the sidings and water courses to be paved with stones, and the streets and lanes washed with the rains would be kept more effectually clean, and remain so during dry weather.

The company of the Sligo Water Works having expressed a wish to abandon the same, and it being likely another company may be formed, I beg leave to say that if the water was taken about a half mile above the flat bridge on the St. Thomas in the Vale road, that point being forty or fifty feet above the level of the highest point of the town, a continued stream of water could be sent into the town, and water closets could take the place of privies, and if a plug was placed at the highest point of each street, as marked on the water sheds of the town plan, the streets and drains could be washed at any time necessary, which would cool the earth, and increase the health and comfort of the inhabitants.

The unenclosed lands are at present receptacles for all descriptions of filth, rubbish, &c. and are so many nuisances to the inhabitants. There is an act of the legislature to compel the owners of such lands to enclose them, but it has not been acted upon for a long time, and would be found not to answer the present state of the town. The greatest portion of the unenclosed lands is the property of the parish of St. Catherine. Adjoining the house of correction within the town, there is a vacant lot of land on which the stones broken by the convicts are deposited. The washing water from the prison is also sent out there, and forms a great nuisance.

I would recommend that the commissioners of prisons be called upon to enclose the above lot, and to have a drain built from the house of correction to the drain leading from the barracks, say one hundred and eighty feet, and small drains should be constructed in

the prison yard, attached to a main drain, for taking off rain water, which would make the prison dry. A bathing room might be erected for the use of the prisoners, which would be of great advantage, and would add to cleanliness and health.

My particular attention having been called to the parish foot lands, situate at Tackey's bridge and the race course, I feel myself constrained to pronounce them great nuisances. The greatest portion of these lands are unenclosed; the whole range of houses on them appear to be of the lowest description, being built without regard to order or comfort; they are occupied by a large population; the majority of whom are without any visible means of subsistence. I do not expect any improvement in the parish lands as long as the present law exists, as capitalists will not take leases of them, for if they should require to part with their leases they would not find any purchaser, although that portion of the land, situated near the race course, is cool and considered healthy, being open to the sea breeze.

The erection of penguin fences about the town is contrary to law, its enforcement having been neglected. These fences are attended with great danger to the town in cases of fire, and are a receptacle for reptiles and vermin. I have inspected the barrack privies, bounding on Young street, which is the principal street to the railway; they are so offensive that parties going to the terminus are compelled to take other and inferior roads; one of the privies has a spring of water, at the depth of about sixty or seventy feet; with the advantage of this spring of water I would recommend that a force pump be erected, the water cleansed, and a range of closets built with a drain leading to the race course, where a large cess-pool might be erected, and the present privies closed. The nuisance would then be removed, which would be of great benefit to that part of the town. All the privies in the town, with few exceptions, require immediate cleaning.

The town gullies and unenclosed lands should be cleared, and all the large trees trimmed, so as to keep up a free circulation of air.

The Nos. 2 and 3 burial grounds attached to the cathedral of this town, also the Baptist and Wesleyan burial grounds, are situated on a blue clay substratum, about twelve to eighteen inches in depth, and the lower substratum of a yellow clay, about six or seven feet in depth. During the rainy season in May, 1850, the No. 2 burial ground was under water, and after the water dried up or ran off, I found that several of the graves, lately dug, were washed out two and three feet below the surface of the earth, which was owing to the yellow clay dissolving itself into a puddle with the water that passed off into the sand bed below. I called the attention of the parish vestry to the same, and a grant of money was made for filling up the graves. I would recommend that drains be cut at seven feet apart, and that a more regular system of burial be established. These drains, attached to a deep cutting leading to the race course ponds, would relieve the burial grounds from being swampy, as they hitherto have been. The authorities of the military burial ground should be called upon to put up a portion of the wall which has fallen down, and the gate, which is now constantly open, should be locked up. Pigs, goats, and other animals traverse it during day and night, in consequence of its being left open.

During the prevalence of cholera, two portions of the race course were taken up as burial grounds, as will appear by the accompanying plan. Several large pits were dug, containing from forty to sixty corpses each; to prevent effluvia it will be necessary to keep up large mould banks over them.

There is but one market in the town, situated in French and Beckford streets, with three market houses. A pork market, which is in good order, and well ventilated. A beef market also in good repairs, and well ventilated. A fish and vegetable market

house, say one hundred and twelve feet long, by twenty-one feet in width; seven feet high, with two large ranges of stalls, with drainage under the bottom of the building for the discharge of rain water from the market place. This building is very low and hot, and requires the roof to be ventilated.— From the filth of the fish and the vegetable matter collected in this market, the effluvium is strong and offensive. My attention has been repeatedly called to this nuisance by the inhabitants generally in the immediate neighbourhood. The market houses should be washed out at least twice a week. The market place has been Macadamized, and a stone paved drain laid in the centre, corresponding with the market drain. The rain water discharges itself through the market drain, which occasionally gets choaked up into Oxford road, leading to the race course pond.

DAVID DAVID SOARES,

Townwarden,

Spanish-Town, 1st July, 1851.

KINGSTON.

The committee appointed to examine and report upon the sanitary state and wants of Kingston, presented, at the special meeting of this Board on the 19th of June, a list of nuisances, most prominent and easiest of removal, and without the removal of which, no series of measures for the sanitary improvement of a town can be complete. The committee recapitulate these in the report now presented, adding others, and entering into some details as to the mode of correcting them.

The situation of Kingston has several advantages in a sanitary point of view ; its site is dry—it has a gentle slope towards the sea, in the direction nearly of the sea breezes, and there is no swamp nor other deliterious matter in the direction of the north or land breeze.

Its main streets are spacious—the yards of many of the houses are open, and not overcrowded with vegetation, but the narrowness of the lanes, and the state of many of the yards belonging to them, neutralize the advantages above mentioned.

It is chiefly therefore with the lanes, as being inhabited by the poor classes, that the committee have to deal.

The slight elevation above the sea, of the lower part of the town, precludes the adoption of a system of underground drainage, unless at very great cost, but the upper part of the town partially admits of such drainage along the cross streets, at the ends of which drains might be continued down the main streets and discharged into the sea.

But it is observed, that very great objections are made to the discharge of drains into the sea at all, unless at a very great distance from the town.

It is unnecessary to do more than to advert to the

improvement by drainage, as it is connected with the operations of the recently constituted Board of Commissioners of Kingston, under the act relating to highways and bridges.

The committee resume the list of nuisances, enumerating them in the order nearly of facility of removal.

1st. The keeping of pigs in yards, and allowing them to be at large in the streets.

2nd. Dogs.

3rd. Goats.

4th. The accumulation of offal and vegetable remains.

5th. Foul water thrown into the streets and yards.

6th. The offensive state of the privies in many places.

7th. Stable manure.

8th. The sale of salted, putrid, and unwholesome provisions.

9th. Urine from stables.

10th. Cemeteries.

11th. Slaughter houses.

12th. Persons affected with yaws and other contagious or disgusting diseases.

The following cannot be classed as direct nuisances, but they are objects of sanitary improvement :—

13th. Empty houses and houses not owned.

14th. The improvement of the water which is exposed to sun and air in the reservoirs.

15th. Cleaning brushwood from the neighbourhood; the following modes are recommended for the removal of these nuisances.

1st. There is a law in existence for the removal of pigs from the streets, but not from the yards, which is much more essential.

It is suggested that an agreement should be made with their owners to sell them within a short time,

after the expiration of which they should be forfeited to the public under the sanction of a law.

2nd. Dogs may be disposed of according to an existing law, which prescribes that they should have a collar with the owner's name engraved thereon, wanting which they should be destroyed.

3rd. Goats, exceeding six in number, should not be allowed in yards, unless under the same regulation as that regarding stable manure.

4th. Offal vegetable remains and rubbish should be removed daily to sites provided for the purpose.* Each site should have one labourer at least to receive the rubbish and to cover it over as it arrives with about six inches of earth, or it may be got rid of by burning. The rubbish should be collected by the occupants of houses in baskets, or any other portable receptacle, and kept ready for the public carts when they make their rounds.

5th. The accumulation of foul water can only be prevented by the construction of drains, either covered or opened, but the amount of it may be lessened by requiring that clothes, in large quantities, should be washed outside of the town.

6th. If privies are used exclusively for their purpose, and made twelve feet deep at least, the nuisance arising from them is very much diminished, as the liquid matter is absorbed by the dry soil on which the town stands. The only complete remedy is the daily removal, but a great palliative of the evil would be the occasional covering of the soil-pit by a sprinkling of lime, or even of earth.

7th. Stable manure to be removed by the

* Since this was written, the Board of Commissioners, under the highway act, at their meeting on the 17th of July, fixed on places of deposit for the rubbish of the city; and contracts are about to be entered into for cleaning it entirely away.

owners; sites to be provided, and the same course followed as is prescribed in paragraph 4th respecting offal, &c.

8th. Salted provisions not to be permitted to be exposed for sale in the streets; putrid and unwholesome provisions to be seized if offered for sale any where, and fines imposed on the sellers.

9th. Urine from stables may be classed as a nuisance of the same kind, and requiring removal equally with privy soil; it might be collected in pits or tanks.

10th and 11th. No burials to be permitted in the town, and slaughter houses to be at a sufficient distance to avoid becoming nuisances.

12th. Persons affected with yaws and other contagious diseases to be placed in separate hospitals; one to be erected in each county.

13th. Inquiry as to the power to be given for taking possession of empty houses, and houses which have no legal owners, that they may be used for sanitary purposes, after being cleaned and whitewashed for the reception of the occupants of overcrowded houses, as soon as an epidemic threatens.

14th. It is impossible in this climate to preserve, in a state of purity, water which is exposed to sun and air, as is the case with that supplied to Kingston through the medium of the open reservoirs at the cross roads. These reservoirs should be covered by arches supported on piers built within them, and they should be converted into filtering tanks, or have filtering tanks attached to them.

15th. It would be greatly conducive to the health of the town, and cheerfulness of the neighbourhood, if it were cleared of brushwood. It is only necessary to mention as an example the effect of the open ground at the race course and Up Park camp. The labour of men from the peni-

tentiary would be well bestowed on this operation.

H. MITCHEL,
J. MAGRATH,
C. MACLEAN, M.D.
P. YULE.

I differ from the opinion of the committee, as expressed in the foregoing report, that a system of underground drainage might be adopted in the upper part of the city, or indeed in any part of the city; and even could it be adopted, I do not consider it would be advisable.

H. MITCHEL.

DWELLINGS OF THE POOR AND APPLICATION OF TOWN REFUSE TO AGRICULTURAL PURPOSES.

Having described in a previous part of this report the low condition of the dwellings of the poor, and of the peasantry, the Board may state, in general terms, that in order to improve them they have only to recommend the converse of this description as a rule to be followed.

The details of the improvements which the Board would suggest, are very few and simple, so as to be within the reach of all; if the advantages of them be ever understood, the people themselves will devise better dwellings, according to their own fancies.

The Board propose, as the first step, the offer of inducements to them, the readiest being the gift of prizes to the owners or occupiers of the best kept houses, thus, by degrees, leading them on to take a pride in them.

The Board are not entitled to regard the state of the negro houses "as a test of their advancement and progress in civilization," but rather as a proof of the people having been trained up in ignorance of what comfort is.

The huts of the slave are still in existence. The Board must look to their countrymen at home, both in the Highlands and in Ireland, before they reproach the negro for his indolence.

The practice of giving prizes has been found efficacious at home, and it is suggested to make several conditions of entering into competition for these prizes.

1st. The elevation of the floor above the natural ground.

This should be done by terrace of clay, at least one foot in height, and extending a few inches beyond

the wall, the eaves projecting over all ; the floors may be paved or not.

The elevation of framed buildings on pillars, of which there are many examples in this island, is a superior structure, which can be afforded only by those who are above the ordinary class of labourers.

2nd. Openings for ventilation under the eaves, or in the gables, also in the form called cock-rafters.

3rd. That the beds shall be raised above the ground.

It is not sufficient security for health that moisture does not actually shew itself on the floor.

The imperceptible evaporation from the ground can be prevented only by a layer of clay, or other materials, a wooden floor being too expensive.

The beds should be placed on wooden frames, or still more simply on four bamboo posts, tied by withes and interlaced by common net work, or with canvass stretchers between them.

A certain number of prizes to be given in each parish, consisting either of money, presents, or medals, a small sum to be given also to unsuccessful competitors.

The judges to be

The candidates should be ready to shew their houses for inspection at any time when it may be convenient for the judges to examine them.

With respect to villages, the Board would offer the following suggestions :—

That the houses shall be at least yards apart.

That sites should be fixed for privies at a distance from the houses of at least twenty yards to leeward.

That pigsties should be as far as possible from the houses.

That no trees, excepting cocoa-nut, should be allowed in villages, and no bushes, excepting useful plants, such as pepper plants.

The desire of privacy in dwellings is peculiar to the natives of Asia as well as to the Africans, and it is most easily secured by trees and shrubs.

Seclusion can be obtained otherwise only by requiring a certain distance between each house, say thirty yards at least.

Drains should be made through the lanes, and no stagnant water should be allowed near any village.

It may be observed generally, respecting all houses in this climate, that they should never be more than one room in breadth, so that a free current of air may be always allowed through them, and in towns, where frontage is limited, additional accommodation should be obtained by building round a court as in Spain, or round a large hall.

The subject of the application of town refuse to agricultural purposes is only connected with the object of this Board, inasmuch as it may tend to facilitate arrangements for its removal.

Whether the demand for manure for agricultural and gardening operations near the Jamaica towns is such as to pay the cost of its application, admits of considerable doubt.

It is necessary that experiments should be made and time afforded for ascertaining the results.

There are only two classes of people (and they are very different in condition) who might take advantage of town soils; planters, whose operations are on a large scale, and the labouring occupants of small patches of ground in the vicinity of the towns.

With respect to the first, they possess the knowledge and the means of calculating the benefit which they could derive from being near towns, and the Board do not consider themselves in a position to point out it to them. All that can be suggested is to recommend an arrangement with the town authorities,

by which the contractors for the removal of refuse might be bound to fill any carts sent to them for the purpose, on due notice given to them, the applicants being then held responsible for the timely attendance of their carts.

It is obvious that the towns having to get rid of refuse in the most economical and speedy manner, cannot be expected to do more than afford facilities to proprietors of land.

It may be observed on this subject generally as regards Jamaica, that there being few towns, excepting on the sea coast, the sphere of their usefulness to adjoining land is very much limited in point of space.

The other class to be considered are the cultivators of small patches of ground near towns, for fruit and vegetables, the market for which appears to be too small to make it an object for capitalists, and it is probable that the country population will be able, for a long time, to contend against competition arising from partial gardening near towns, since it pays them to come, as they do, many miles (twenty miles, if not more) to find a market.

If the object were chiefly to prove to the latter class the advantage of saving every kind of refuse, it appears to the Board that the only way in which it can be attained, is the cultivation of a piece of ground under public management. The labour to be supplied from the penitentiary.

PROVISION OF MEDICAL RELIEF.

The next subject to be considered and reported upon to the legislature, is that of "medical relief," and the better protection of properly "qualified medical practitioners in this island," a subject which has engaged the attention of the Board of Health, and has been regarded by its several members as one of peculiar interest and importance.

The want of efficient medical aid in almost every parish and district of the island, is patent to the whole community, and unquestionably demands the immediate interference of the legislature, in order that disease may be guarded against, and life preserved amongst the great mass of the people, who, without such interference, and without proper provision being made for their preservation, will not, it is feared, be the dangers that beset them ever so appalling, arise from their accustomed apathy and indifference, and provide, at their own instance, and in a spirit of becoming self-sacrifice and manly determination for the competent support of educated medical men, who might otherwise be induced to become permanent settlers and practitioners amongst them.

In dealing with this important subject of medical relief to the poor, the Board have had to encounter many difficulties; indeed it is a subject beset with intricacies in every direction, and has caused the Board no little perplexity in their endeavours to arrive at a just conclusion, and such as might satisfy the legislature that they had grappled with the difficulties referred to, although they might not have entirely succeeded in overcoming them. The great extent and irregularity of surface of many of the parishes—the thinly scattered population—the isolated position of many settlements—the general bad state of the roads, all these present obstacles of no ordinary

character to deal with, but still more formidable ones are to be met with, springing immediately from the people themselves.

Their apparent apathy as regards their own lives, and those of their kindred and friends—their total want of prevoyance—their utter neglect of all sanitary rules and regulations—their apparently wilful defiance of all the dictates of nature—their pestiferous habits—their deep rooted prejudices—the intolerance they display in being obliged to pay for regular medical advice, even when driven to it from the failure of all other means, when disease has run its life-destroying course, and the hand of death is raised to strike the fatal blow, and when the practitioner of medicine is summoned, not for the purpose of saving life, but for the purpose of saving the necessity of a coroner's inquest and its consequences—such are some of the more formidable, such many of the real and solid difficulties which encumber and surround the question of medical relief to the poor.

Some would deter us from the enquiry, from the attempt to correct these crying evils, by reminding us of the heavy expence requisite to carry out the necessary measures, and urge upon us the impoverished state of the island, and the enormous load of taxation under which it is at present groaning. As regards these latter remarks the Central Board of Health, though fully alive to their truth, and giving them their full and legitimate weight, still cannot allow them to operate too forcibly upon their minds in suggesting remedies for evils greater even than taxation, or any of the other ills, which affect an overburthened and suffering people. They will again remind the legislature, that “*salus populi est summa lex.*”

The welfare of its population is the most sacred duty of a government; the agricultural population forms the sinews and strength of a nation.

That this duty has hitherto been fearfully neglected in Jamaica is undoubted. The labouring mass of

the people have been left to take care of themselves how best they could. But little attention has been paid by the legislature to this subject. Laws may at times have been framed, but they have not been enforced. Affairs, however, have now assumed a more serious aspect; the late epidemic has drawn public attention to the subject, and every one is alive to its importance.

The legislature, during its last session, made an important step towards medical sanitary measures by the appointment of a Central Board of Health, whose duty it should be to enquire into the sanitary state of the island; to search out its defects and ascertain its wants, and to remedy certain of the evils which it appears to be labouring under, but the legislature did not clothe the Board so wisely and prudently established, with any sufficient power to remedy the evils that might present themselves. Bad and melancholy defects they have discovered in the system they were directed to enquire into, and facts, which excited their deepest commiseration, sorrow, and regret, or their astonishment and disgust; but all they had or have the power to do is to lay such facts before the legislature, with the comments of the Board upon them.

The remedies for those evils, it will be for an enlightened legislature to provide.

The cause of our population not increasing, the cause of the great mortality prevailing, the causes of the failure of all emigration schemes are traceable to one want—an organized sanitary system. As before stated, all these evils can be relieved, the unhealthiness of the climate can be mitigated, the mortality of our fellowmen can be prevented or lessened, but, in order to accomplish all this, strict and comprehensive sanitary regulations must be established.

The more immediate object in view just now, however, is to consider the providing of medical relief throughout the island, together with protection to medical practitioners.

In treating upon this subject the Board will leave the latter portion to be considered separately by itself. The former they will view under the following heads :—

First. What are the causes of the present deficiency of medical men in the island ?

Secondly. What measures can be adopted to remedy the existing evils ?

It may be added here that the Board have received a mass of very interesting and important evidence on this subject from several of the custodes, clergy, and medical gentlemen of many of the parishes, all of which will be found in the Appendix marked "G," which is attached to this report.

During the period of slavery every estate was yearly and periodically attended by a medical man. On every estate there was an hospital or "hot house," to which was attached a dispensary, or place containing a collection of necessary drugs ; besides this a person, generally known as the "hot house doctor," was selected to attend and take care of the sick, (the hot house doctor, on most estates, was an intelligent man, who had been for some time apprenticed to some regular medical practitioner,) to administer the medicines, and to perform the minor operations in surgery, such as bleeding, tooth-drawing, dressing sores, &c. &c. under the direction of the medical attendant. Besides this every estate had also its "yaw hut," or hospital, and its "grandy," an old woman who took care of the pregnant females before, during, and after their confinement. She also superintended the infants and young children on the estate.

This state of matters ceased totally, or partially, on the 1st August, 1838. This was a sorrowful day for the Jamaica medical practitioners, especially in the country parts. Many who had previously been engaged from morning till night, from day to day, in their accustomed rounds, and who received regularly and at stated periods fixed and often large amounts, suddenly found themselves without any thing to do.

The negro character, such as we have already attempted to pourtray it, could not, whatever the necessity might be, brook the thought of being attended by the "buckra doctor," who, perhaps, had often had to detect and punish the feigning of disease.—Soon after the new order of things was established, numbers of medical men left the island to seek their fortunes elsewhere; others remained, and after a longer struggle, followed the same example. Thus they have gradually disappeared, till, at this moment, whole districts and parishes are without a single medical attendant, throughout their length and breadth.

During slavery, even with medical attendance and medicines provided, still the mortality was great, nor can we wonder at this, for then also, as now, many of the necessary sanitary measures were neglected.—Still, by the provisions then in force, the evils arising were certainly modified. Surgical cases and other diseases were attended to, and frequently the sufferer was restored to health unscathed. When the epidemic disease did make its appearance, recorded facts shew us that it then even found an abundance of food. The only prevention was still wanting, a sound sanitary system. Experience has most clearly pointed out the fact, viz. :—that the causes of most epidemics are preventible, but that once in progress, though they may be mitigated, or their violence assuaged and shortened by sanitary means even then fully carried out, still that the powers of medicine have, comparatively speaking, but little influence.—This has been proved as regards all epidemics.

Dr. Hancock states, "It appears to be a universal fact that at the first rise of an epidemic pestilence, the proportional mortality is always greatest, and on the contrary at the decline, whether a few months or weeks only compose the whole career, the disease loses much of its fatal character, putting entirely out of view the interference of medical aid in either case; knowing this to be the law, though we might not be surprized that at the appearance of a new and for-

midable disease, when all is perplexity and alarm, medical men should be at a loss respecting the proper treatment, and should often witness the unequal conflict of their science; yet we can scarcely withhold a smile when we see so much self-congratulation, and the numerous cases of recovery at the decline, attributed to some improved plan of treatment."

It is not here intended, in the slightest degree, to undervalue the powers of medicine; at the same time it is right that the real truth of the matter should be laid open; the fact be fully made known that prevention is better than cure; that sanitary measures and not medicine are the true preventives of epidemic diseases. Independent of the mere providing of medical men, sanitary means are necessary.

As an instance of the lamentable loss of life, which daily occurs among the laboring classes in the country parts especially, the following case, which has come to the knowledge of the Board, may be noted. A strong healthy coolie emigrant was attacked with strangulated hernia, he lay for seven days and nights in fearful torture—at the end of that period he made an effort to go and seek medical relief in a neighbouring parish, (there not being a single practitioner in the one he was lying ill in.) It should be mentioned he had already availed himself of the aid of the druggist, but his skill did not detect the cause of suffering; writhing with pain he tottered on his way, till at length overtaken by a cart, the owner of which kindly gave him a seat in the conveyance, he reached town; his friends immediately proceeded to obtain the necessary admission into the hospital, whither they carried him a corpse. The coroner held his inquest, a post mortem examination was ordered, and a verdict duly returned. This is a simple case, one of frequent occurrence, but conveying a most instructive lesson to every legislator, to every one who maintains the expensiveness of sanitary measures. We have here an emigrant induced to leave his own home, his father land, tempted no doubt by fair promises and

representations—he comes, and as far as could be ascertained, he appears to have been an industrious hard working man—his time of emigration has expired—why then has he not been sent back to his country?—was this not a stipulated portion of the contract? Nevertheless he is here working for his daily bread—he is suddenly attacked with disease, not the effect of viciousness, but one of those to which all mankind is subject—he is unable to procure aid; there is none to be had;—he endures mortal agony, and at length dies, having suffered one of the most painful of deaths man can suffer; here then is a hard working labourer lost to the community—a victim, if not to emigration, certainly to the want of medical relief in the hour of his sore affliction. But still the mischief does not cease here; his mortal body remains after death to be disposed of—the cause of death (for no doctor saw him, even at the last gasp,) must be known—it must be ascertained that no fellowman injured him—the appointed officer holds his court, and he must be paid—the island pays him—to form a judgment the jury require a medical opinion as to the cause of death—to give a correct one a post mortem examination must be made—the country pays for this—the verdict is returned—he died from the effects of strangulated hernia. No man did injure him by commission; but then comes a serious question—“was he in any way injured by omission?” Without pretending to answer it affirmatively, or otherwise, this Board cannot too strongly express their opinion upon the absolute necessity, as well in a humane, as in a moral and political point of view, of medical relief being provided and at hand to meet all such cases, as that of this coolie emigrant. But to proceed with the fact of his death and its consequences. We have shewn that an expense to the island has been incurred of some £6 or £7, and now then his body has to be disposed of. A coffin must be provided, a grave dug at least, although he was a heathen. And now let it be asked, what did this

death arise from but a neglect of sanitary measures ; a want of medical aid ? Would this man for such purposes have cost the island £7 ? No. The Board cannot express too strongly their conviction that sanitary economy is expensive ; add up the sum total of similar cases occurring during the year, then see which is the most costly to a country, the neglect of sanitary measures, the loss of its population, or the adoption of the same measures, with these benefits for their object.

As regards the people themselves, we have, in another portion of this report, seen that they do, for various reasons assigned, prefer the irregular dabbler in physic to the regularly educated practitioner.—From their ignorance, their habits, and their love of the mysterious, they prefer the quack with his wonderful stories and dubious nostrums. For the same reason they flock to the obeah and the myal man ; they seek the aid of their dark oracles and superstitions. They compare the imaginary success of these with the mortality which occurs in cases where the medical practitioner has been called in ; for these cunning rascals, when they perceive the tyrant death advancing to take his prey, invariably manage to decamp, offering some excuse for their conduct ; a frequent one is a demand for a larger sum than the friends possess, with an assurance, on refusal, that the cure cannot be wrought for less, and so he disappears. The medical man is then called in to see the end, and too often gets the credit for having been less successful than his cunning and unprincipled opponent.

To overcome entirely these prejudices in the existing generation is almost impossible, they are too deeply rooted, too thoroughly ingrained in their very nature ; but our hope must be in the rising generation—in those that are to come.

To effect the desired end, it will be requisite, more or less, to exercise coercion. To make stringent laws which shall compel them to do what is deemed right for their own good, and the good of their posterity.

An act for the establishment of parochial dispensaries and medical officers was passed by the legislature of the island during the year 1845, (the ninth of Victoria, chapter forty-three,) but that, after a fair trial, was found to be of little real utility to the people. The opinions of numerous medical practitioners, custodes, and rectors of parishes, and other well informed persons, which will be found at length in the part of the Appendix marked "O," and annexed hereto, all tend to confirm the correctness of this conclusion, as well as that of the necessity of furnishing, by legislative enactment, aid to the poorer classes of the population in a more extended and practical scale of usefulness than that afforded by the bill above referred to. Here, however, a most serious difficulty presents itself. In order to carry out an efficient system of medical relief, how, it may be said, are the funds to be raised for supporting it, and from what source it will be asked is the money requisite for that purpose to be derived? The bill of 1845, according to the evidence adduced before the Board, and set forth in Appendix "G," would appear to have been a failure chiefly in consequence of the medical aid therein provided not having been furnished gratuitously to the people; and the Board is of opinion that any new measure which may be adopted for the purpose of providing medical relief to the poor, in order to secure its general adoption and approval by those, whom it is chiefly intended to benefit, must be based upon the principle of medical relief being furnished to the poorer classes without any direct charge to the persons requiring it. In order to accomplish this, it is obvious that a fund must be provided by the state, but how the same should be raised, or from what source derived, the Central Board have not evidence before them to determine, nor do they venture to hazard opinions or suggestions which might be considered by the legislature as beyond the fair province of their enquiry.

Taking it for granted that the legislature will pre-

pare to meet the difficulties which so obviously present themselves, the Board would urge upon the legislature the propriety of dealing with the subject as speedily as the circumstances of the country, and the pressure of other important duties will permit.

At the present time the relief afforded to the poor is very partial, and confined chiefly to those in the towns, and it is not too much to say, that that relief has long been most shamefully and scandalously abused. The parochial surgeon is often called upon to attend the strong and active man as a pauper. This is wrong, and as mischievous to the public as to the practitioner. Pauperism is already increasing at a fearful rate throughout the island, and instead of being fostered and encouraged by the public, it should be put down as much as possible. Let the really poor and needy, those who cannot work from physical infirmities, be heeded, and let their remaining days be made as comfortable as practicable; at the same time let the lazy, idle, *independent pauper*, the person who can but will not work, be held up to public scorn and contumely. Let him be deprived of all his privileges as a citizen—let him be disfranchised. If he is too proud to work for his bread, consider him too unworthy to receive parochial relief.

The Board are of opinion that it is a great mistake to do so much for the poor as to render it unnecessary for them to exert and help themselves, and of all gratuities abused, none are more so than medical relief. Every one who has had experience as a medical attendant on the poor knows well that a pauper is invariably the most troublesome patient to attend, always discontented, often hardly civil in answering questions; wasteful of medicines, and inattentive as to orders and directions; and this is generally in an exact ratio to their unfitness to receive such relief on such terms.

The almost universally expressed opinion is that in every parish there is a want of medical men. In very few, if in any, are there at present sufficient to sup-

ply the requirements of the respectable part of the community during the prevalence of any thing like an active epidemic, much less to attend upon the labouring classes and poorer portion of the community.—Some parishes, as before stated, have none at all, as St. John's and St. Dorothy's. Others have several crowded into the towns and their immediate neighbourhood, but the rural districts are without any.—All the gentlemen in their evidence allude to the terrible want of dispensaries; in fact, in many places it would appear that even if medical advice can be obtained, the medicines ordered cannot be procured, and often if the drug required can be got, it is at a high price, and of little or no value; it is adulterated, fictitious, or spoiled; its virtues, if they ever existed, are gone. There is every reason to believe that many drugs are very much adulterated before they reach the island; (quantities of worthless drugs very often are sent here on speculation;) there is no doubt also that tricks are played by some of those who profess to retail them here. As regards this latter evil, a provision exists in the act instituting a College of Physicians and Surgeons in Jamaica, which gives power to certain officers of that body to enter into any druggists, and destroy all spoiled or bad drugs. No instance of this power ever having been exercised is known to the Board. It would be well to call upon the College to perform so necessary a duty. The College has also long had the power of punishing any illegal practitioner who practices for fee or reward.—A few instances of this being enforced have occasionally occurred; were that power now more generally exercised, quackery and empiricism would soon be put down.

Another great want is the formation of hospitals into which the sick poor might be received. A few of these institutions do exist, but, with the exception of the Kingston general hospital, they all appear to be devoid of funds, and thus their utility is very much curtailed. Small hospitals, containing a few beds,

should be attached to every village, to which the sick of the place might be removed in case of sickness, or for the purpose of undergoing surgical operations. It is quite impossible, in many instances, to perform these with any thing like comfort or ease to the medical man, or with advantage to the parties within their dark and heated hovels.

It has already been hinted that the lower class exhibit a great dread or dislike to the holding of a coroner's inquest; this, properly attended to, might be used as a compulsory agent to force them to attend to such sanitary measures as may be established. With regard to the coroners, the Board think it right to remark that, in the majority of instances, the extent of their jurisdiction is too extensive; in some instances extending over seventy square miles. The Board would suggest that these districts should be subdivided, and a coroner appointed to each. The general opinion of the gentlemen referred to by the Board, appears to be that this office should be filled by a medical man. The advantages of its so being are numerous and self-evident.

The Central Board would suggest the following points for the consideration of the legislature:—

1st. That a medical relief bill should be enacted.

2nd. That the different parishes of this island should be divided into districts, and to each district a medical practitioner should be appointed, who shall reside within such district, and attend upon all persons within the same, as may come within the provisoes of the act, twice at the least in every week, and that he be also the vaccinator of the district.

3rd. That such of the medical men as are at present in this island, who choose to subscribe to the regulations of the Board in this respect, shall be selected to be district medical officers, under the appointment of the Central Board of Health, and that all vacancies shall be

filled up as medical men arrive in the island, under the directions of the said Board.

4th. That in order to fill up such vacancies as may occur, the Board shall be empowered to engage, through the agency of some competent medical gentleman in England, and have sent out to this island, a requisite number of persons to be district medical officers under the direction of the Board, when and so often as it shall appear that vacancies cannot be filled up from a deficiency of proper qualified medical practitioners in the island.

5th. That dispensaries shall be established in every district, to be placed under the superintendence of the medical officer of the district, with such a supply of medicines as the Central Board of Health may deem requisite to have furnished for the use thereof.

6th. That one or more dispensers shall be appointed by the medical officer of the district, subject to the approval of the Board. That it shall be the duty of the dispensers to make up all prescriptions, and to visit, as occasion may require, and perform any minor operations in every village and homestead in his district, which shall be more limited in extent than the district of the medical officer, by such division of the district of the medical officer as the Central Board of Health may direct. That the dispenser, previous to his election, shall produce a certificate of having diligently served an apprenticeship to some regularly qualified practitioner for the space of four years, and also a registration certificate as a druggist, from the College of Physicians and Surgeons of Jamaica.

7th. That a comfortable and effective building shall be erected, which shall contain a room for a dispensary, as also apartments for the dispenser, who shall reside on the premises.

8th. That attached to this building shall be

two well ventilated apartments or wards, consisting of separate buildings, one for males and the other for females, and attached to each a room for the residence of a nurse or attendant.

9th. That the Board shall be authorized to import from England or America supplies of such medicines as may be deemed proper, and that the same shall be distributed to the several dispensaries throughout the island, under the direction of the Board, and that the several dispensaries shall be at liberty to dispose of any medicines which may be required by the inhabitants of their respective districts, at a rate and in such manner as may be regulated by the Central Board of Health.

10th. That such district officers, beside their said appointment, shall hold that of registrar of births and deaths, in the place and stead of the present registrars, under the act seventh Victoria, chapter fifty-four.

PROTECTION TO MEDICAL PRACTITIONERS.

As closely connected with the subject of medical relief is that of protection to medical practitioners.—There is no doubt that of all debts, that of the medical attendant is the one most reluctantly paid by the generality of persons in all conditions of life. Why this should be so it is difficult to explain, but that it is a fact is almost universally allowed. In this island it exists to a greater degree than in most other places. It is the more surprising that it should be so when we consider the fearful suddenness of the invasion, the rapidity of the progress, and the fatal nature of disease in a climate of this kind, where it may truly often be said—"In the midst of life we are in death." One would suppose that the common dictates of prudence, the mere selfish love of life, the inestimable value we all place upon the lives of those we love, would have rendered the claims of the medical attendant the very first to be satisfied. He is often, under God's blessing, the immediate instrument of relief from agonizing pain; to his skill and exertions are often to be attributed the saving of the mother's life and that of her offspring; to him, very often, as the only source of human aid, do friends and relations look up. During the moment of danger he is their only human comfort, their only solace. While the pangs of threatened bereavement sink deep into the afflicted breast, his presence is often their only hope. On such occasions a species of adoration is paid. He seems like Aaron to stand between the pestilence and the grave.

The profession is one which, from time immemorial, has always been remarkable for the liberality and self devotion of its members. Seldom, if ever, has the cry of distress been raised in vain. Time and sub-

stance are daily bestowed, and life itself, by the majority of the profession, is held at a low rate, when that of a fellow-creature is in danger. No feeling of fear exists, "nor for the pestilence that walketh in darkness, nor for the destruction that wasteth at noon-day."

In spite, however, of the self devotion, in spite of the hard study and want of rest by day and of sleep by night of the medical man, there are numbers of persons who do not hesitate to call upon him for his services, to occupy his attention, to receive and make use of the remedies supplied by him, very often to trespass without limit upon his time, who, at the moment of their sending for him, are resolved, in their own minds, that they will not make any sacrifice of their accustomed luxuries, perhaps vices, to defray the expences incurred. It may appear impossible to some, but it is a fact, nevertheless, that persons do exist who act thus. They boast to their companions that they never have paid and never will pay a doctor's account. Others profanely say—"Those debts will be paid in Heaven." These instances are not hypothetical, they are not imaginary; they are solid truths; they are facts of every day's occurrence.—There is not a medical man in the island who cannot adduce instances of ingratitude and base deception on the part of persons to whom his time and substance have been freely rendered during the period of necessity. In many of the country parts it is a systematic practice for men to call in the services of a medical attendant, and as soon as the patient is sufficiently advanced to remove from the parish, to absent and attempt to conceal themselves in order to avoid the payment of their medical account. Instances have been mentioned to the Board of persons who have had the temerity to report their own deaths, when applied to by a third person for payment of this, perhaps the most just and equitable claim upon their worldly substance.

A very common practice, by no means limited to

the lower orders, is to threaten (when asked for payment) to avail themselves of the insolvent debtors act, and many it is ascertained do so. In some of the insolvents schedules, the wholesale cheating practised against members of the medical profession is too evident not to attract notice. One instance was mentioned on unquestionable authority to the Board, of a case which occurred a few years back, where no less than nineteen different medical men appeared in one insolvents schedule. Other instances frequently occur which shew how the medical man is made the dupe and the victim of designing persons.

The following may be cited as a case in point: A person, perhaps at a great distance, is taken ill; either he or his friends send for a medical attendant, perhaps at great personal inconvenience, nay privation, he attends. The sick man is very ill, and continues in a precarious and dangerous state for some days, during which the doctor, by the solicitation of sorrowing friends, is kept in close and unremitted attendance; he continues to sink until at length death puts an end to the sick man's suffering, and the doctor's attendance. Time rolls on—the necessary fees for administering upon the dead man's estate are paid; the executor performs his functions, and in the execution of them, informs the medical attendant that he regrets to say, Mr. so and so has just left sufficient worldly goods to cover the necessary funeral and testamentary expences, and a trifle over, which must *all* go to judgment creditors. This is no ideal case. It is the reality of life, and its stern outlines constantly present the medical man as the victim of his own humane feelings, and of the immoral and heartless deceits and fraud of those for whose benefit he has laboured. The medical man, it may be broadly asserted, is differently circumstanced to others in the field of professional, and indeed of almost all other labour. On an application to the lawyer to draw up a settlement, or to send out an action at law, or to file a bill in equity, there is always time to say, "the fees must

be provided for—the cash fees, at any rate, must be paid down ;” to the baker and the butcher, and the tradesmen in general, the option of refusal to serve is open—the known honesty or reputation of the person is their guide—the refusal of a piece of meat for dinner, or a loaf of bread, or a coat, or a piece of furniture may be borne without serious inconvenience ; the morrow will perhaps bring the means of procuring them ; in the meantime no one, not even the individual himself, can blame the butcher or the baker, or the tradesman, for his prudence. Why should he be expected to give away his property without remuneration ? How different are matters in the case of the doctor ?—he is sent for express—the call is urgent—the time is short—the sufferer, perhaps a perfect stranger, is in the extreme of agony. No other medical man is within call. What is the medical man to do ? perhaps he has already experienced the ingratitude of individuals under similar circumstances—he hesitates—the feelings of the man toiling like other men for his living, arise within his breast, and he pauses ere he commits himself again to the labour that finds no reward. These feelings are, however, but momentary, and are soon overcome by the dictates of humanity. He goes, he attends, and again reaps the fruit he has often gathered before. If, however, previous experience of the ingratitude of others has so steeled the heart of the medical man that he does not relent—if private matters require his time and demand his attention, so that he cannot go, then how quickly does evil report assail him. His hard-hearted cruelty is talked about ; his unnatural conduct is made the theme of conversation. The public journals teem with notices of his brutal and inhuman behaviour in refusing to afford succour to his fellow-men ; and perhaps a coroner’s inquest records his conduct as open to condemnation, and deserving of public odium and exposure.

The paucity of medical men throughout the island is too obvious not to be admitted by all candid

persons, and the causes of this have been very generally, and the Board thinks justly, attributed to the fact that no proper provision was made by the government for securing the services of a sufficient number of duly qualified practitioners when the emancipation of the slaves was accomplished. The consequence was, that whilst many of those who had practised on the different estates, and were once in possession of fair professional incomes, left the island on finding that the freed peasant would not employ them; others died broken-hearted under their reverses of fortune, or devoted themselves to other callings. Those who still remain and follow the duties of their profession, especially in the rural districts, find that they cannot subsist solely upon that, but that they must embark in the sale of drugs and other articles, or direct their attention, and give up a portion of their time, to agricultural and other pursuits. Many of those who remain it is feared, ere long, will seek their fortunes elsewhere unless the legislature wisely determines upon stepping in and enacting such laws as may induce them to remain in the country. The Board would strongly recommend the enactment of a law similar to that which obtains in Scotland, and they believe in France and Prussia, by which the medical attendant shall have a prior lien upon a deceased persons estate for the settlement of his account.

The Board would also suggest that a clause should be introduced into the insolvent debtors act, by which every medical account, for twelve months after it becomes due, shall be inadmissible into any insolvent's schedule. After that period the medical attendant would of course share equally with the other creditors. The Board consider that these two suggestions, if carried into effect by legislative enactment, would afford sufficient protection to the medical practitioners, whilst they would establish the relations between doctor and patient upon a more moral, equitable, and just foundation.

REGISTRATION OF BIRTHS AND DEATHS.

Among the several subjects which have engaged the attention of the Central Board of Health, none can be viewed as of more importance than the registration of births and deaths. The adoption of registration in England, and the strict regard and enforcement of the enactments for such purposes, prove the estimation in which the salutary regulations of those laws are held, and the no less necessity of similar enactments and regulations for the like purposes has been acknowledged by the legislature of this island. But the investigation, with reference to the British statutes and the Jamaica enactments, has left an impression that while the laws of registry at home are regarded as of the most essential use, the registry laws here have been rendered almost nugatory, in accomplishing the object of the legislature, by the ignorance or culpable negligence on the part of those who ought to have been guided by a moral obligation of observance, in the absence of any penal clause in the act, compelling the duties imposed thereby, and have ensured, from a sense of its utility, the accomplishment of a perfect registry. But while there exists such manifest indifference to some of the best regulations of our laws, as is too often proved, by the non-fulfilment of duties imposed for the general good of society, it becomes imperative upon the legislature no longer to leave, what may essentially benefit the public generally, at the hazard of continued carelessness and inattention. The registration of births, marriages, and deaths, may be considered to have been, from the earliest time, an important duty, and it will be found in several parishes of the island, that as far as possible the most anxious attention has been shewn for the preservation of the records by the clergy of the

established church. It may be remarked that the register book of the parish of St. Andrew is perfect from the time of the possession of this island by the English. That of St. Catherine is also, with a few exceptions, perfect and for a period of thirty-five years, including the station of life and cause of death. An observance most highly to be commended and deserving of general imitation. The registers of the parishes of St. John and Vere also commenced early, and the same may be presumed of the register book of Port-Royal, which unfortunately must have been lost in some calamitous visitation of the town by earthquake, or by the great fire. Quarterly returns are made by the clergy of the diocese into the bishop's registry office in Spanish-Town, in which office a general register of births, marriages, and deaths is kept, according to the provisions for that purpose made and provided in and by the clergy act. But such returns, however regularly recorded, afford but very partial information, as they include solely Christian members of the established church, and those alone who are buried in the consecrated yards of the church; thus excluding all unchristened persons, also all buried in private burial grounds, together with persons of all other denominations and creeds. Thus it is too apparent, to be more than represented, that the registers alluded to, as regards births and deaths, are insufficient for the purposes long wanted, and for what was contemplated by the act of the legislature, passed in the year 1844; which act provided for and intended a full and efficient registration of births and deaths, without excluding any class of persons whatever. A registration of births and deaths may, by many, be considered to be more a mere matter of curiosity than of fundamental importance to the welfare of the public. But if properly carried out, its various benefits, in a sanitary point, must be acknowledged as of the greatest consequence. By means of the registration of deaths, the tracing of epidemic diseases is often illustrated. Thus in accounting for the mortality of a district,

an excess of deaths may often be traced to particular circumstances, as the existence of local or personal causes. By means of proper registration of births, the cause of infertility observed among negro women is more likely to be ascertained, and the great mortality among young infants explained; and it must be obvious that from the want of a proper, full, and perfect registration of births and deaths the benefit to be derived from a census must be much diminished, if not altogether rendered inefficient. It is of use in pointing out what trades and professions are more unhealthy than others; as thus drawing attention to the causes and the remedy. It is of use in pointing out which are the unhealthy districts, so that they may be abandoned, or the remedy applied. Again, in a political view, more especially in a country like this, where emigration is considered requisite, and in which emigrants from various countries have been introduced. Further, at the present moment, it would be inattention, to say the least, not to refer to the registration of births and deaths, as valuable in connection with life assurance now established in Jamaica, with the promise of advantage to all classes of society. In this important improvement in our colonial institutions, it is of paramount use, in fact, it is the basis of life assurance; by means of it the mortality tables were originally drawn up. Through similar tables, which must progressively be provided and established, the means of ascertaining the real condition of human life out here, must lead to a steady and definite guide in fixing premiums, and, while giving confidence to the insurer, must afford the criterion by which assurance companies will have to estimate the advantages and security of continuing their branch establishments in Jamaica.

In the seventh year, (1844,) of the present reign, a bill passed the legislature entitled "An act for registering births and deaths in this island," by which it is declared necessary to provide the means for a complete register of the births and deaths of her ma-

jesty's subjects in this island, by which the island secretary's office is declared to be the general registry office, with other enactments for carrying out the intention of the legislature in reference to a general registration of births and deaths.

In the eighth year, (1845,) of the present reign another bill was introduced, entitled "An act in aid of the seventh Victoria, chapter fifty-four," declaring all ministers of religion to be assistant registrars, and requiring them to transmit returns of every birth and death happening in their respective congregations to the parochial registrars, according to a schedule to the said act annexed.

These two acts are now in force, but have hitherto failed to accomplish the objects contemplated by the legislature, and it must be acknowledged by every one, that a full and perfect registration of births and deaths is a most important subject for the many reasons and particulars hereinbefore referred to, and is the foundation of all medical statistics and sanitary improvements.

The Board of Health, in discharge of the duties to be performed, cannot but submit to the consideration of the legislature, as occasion presents itself, the revival or amendment of laws coming under their observation; and the suggestions now offered for rendering the registration acts now in force more perfect, appear to demand legislative attention, inasmuch as from the indifference and neglect of all classes of the population, in carrying out the salutary provisions made for the important purposes of those acts, and from the defective returns annually made to the registrar-general and laid before the legislature of this island, the necessity of further and penal enactments, to enforce obedience to the provisions of the acts, must appear too apparent to admit of dispute or delay.

Suggestions submitted to the legislature to make the acts for the registration of births and deaths, now in force in this island, more efficient in certain particulars.

That penalties be fixed for the non-performance of the provisions of the acts seventh Victoria, chapter fifty-four, and eighth Victoria, chapter forty-seven, extending to all parties, whether persons required to give notice of births and deaths, or persons having specific duties to fulfil under and according to the said acts.

That on the notice required to be given of the death of each and every person according to the provisions of an act, seventh Victoria, chapter fifty-four, shall be stated age, profession, or occupation, and cause of death.

If a medical relief bill shall be passed by the legislature, and district medical officers established thereunder, as suggested by the Board in a preceding part of this their report, all such medical officers shall be appointed registrars in their respective districts, in the place and stead of the present registrars, under the act seventh Victoria, chapter fifty-four.

That in any police act, every policeman to be required to ascertain and report every birth and death within his beat of duty. Every inspector of police be required to render a weekly return of such births and deaths to some one of the registrars in his district.

That the master of every vessel coming into any port in this island and landing passengers and crew, shall furnish the health officer, or custom house officer, with a list of every person on board, together with a list containing any births which may have taken place, as also any death which may have occurred during the voyage.

That the masters of any vessel leaving any port in this island, shall furnish the health officer, or custom house officer, with a list of each and every

person, crew, or passenger leaving the island in such vessel, specifying the names of such of the crew as may have died in this island during their stay.

All ships of war to be exempt from the provisions of the acts, as regards officers and crew, but all passengers shall be reported coming to, or going from the island.

That as regards all packet vessels trading at the ports of this island, the names of persons coming to, or going from the island only shall be given. Also a list of any passengers that may have died during such passage, or of any births that may have taken place.

Thus, under any medical relief bill which may be passed, the registrar-general shall be a medical man, whose duty it shall be, at stated periods, to draw up and publish bills of mortality under the superintendence of the Central Board of Health.

It is further submitted that as soon as possible, and previous to the revival and amendment of the said acts, a census shall be taken.

CONCLUSION.

In concluding this report, the Central Board consider it their duty to state briefly what has been done by them, and how the funds committed to their care, have been expended up to the present time.

At their first meeting it was unanimously agreed to, that Dr. Milroy, one of the medical inspectors sent out by her majesty's government to this island for cholera purposes, should be requested to attend the meetings of the Board. This he complied with, and the Board had the advantage of his experience and assistance up to the period of his quitting the island. Since which, different members of the Board have received communications from him relative to sanitary matters.

At the same meeting, the Board placed itself in communication with the Board of Health of England, with the inspector-general, the army medical department, as also the heads of the naval and ordnance medical department; and through his excellency the governor, with the different governments of the other West India islands. It is with great satisfaction that the Board have to report to the legislature the ready assurance of co-operation they have received from these various sources. The Board of Health of England have, besides most useful suggestions, forwarded to this Board the valuable present of many of its reports and other papers. They have also received the sanitary enactments at present in force in Barbadoes and Trinidad.

In consequence of the then recent extension of the cholera to some districts of the island, not previously visited, and also of the re-appearance of the disease in the immediate vicinity of Kingston, the Board deemed it expedient, under the fifth clause of the act, to draw up such rules and regulations as they con-

sidered requisite to be observed in affected districts. This was accordingly done, and these rules, bye-laws, and regulations, in Appendix marked A, were duly submitted to his excellency the governor on the 19th day of June, and 1st of July, 1851. At the same time the Board considering it right, previous to the issuing of these rules and regulations, to make known their views on the leading points in the history of Asiatic cholera, bearing on the subject of the public health, more especially in reference to the local and removable causes, which favor its developement and spread, and to the most effectual means of preventing or mitigating the ravages, published their first notification in Appendix marked B, No. 1, on 1st July, 1851; and, at the same time, addressed circulars to the custodes of the several parishes, calling upon them to see that any existing sanitary laws should be duly and effectually enforced. Shortly after, on the 17th day of the same month, appeared their second notification, in Appendix marked B, No. 2, containing suggestions for the treatment of malignant cholera.

On the 28th day of July the letter in the Appendix marked C, No. 1, was received from the clerk to the council, enclosing copies of proceedings of a privy council held on the 26th of July, in connection with the additional regulation of the 1st day of July, submitted on the 2d day of that month for the approval of the governor in council, together with a copy of the regulation in Appendix marked C, No. 2, as approved by the governor and privy council—which regulation was proclaimed in the Jamaica Gazette by Authority on the 23d of the said month of July.

On the 15th August the letter in Appendix marked D, No. 1, was received from the clerk to the council, enclosing copies of proceedings at a privy council, held on the 13th of that month, in connection with the rules and regulations of the 19th day of June, submitted by the Board on the 25th day of that month, for the approval of the governor in council, together with a copy of rules and regulations in Appendix

marked D, No. 2, as approved of by the governor and privy council, for districts of the island threatened or infected with any epidemic or contagious disease.

The Board having taken up the consideration of quarantine, summoned and examined Dr. Chamberlane, the health officer of Kingston and Port-Royal, as also Dr. Walshe, his acting deputy, and captain Cooper, the harbour master for the port of Kingston, their evidence is set forth in Appendix E, No. 1.— They also issued a series of questions to the health officers of the various outports. These queries, together with the answers of the respective health officers, are stated in Appendix E, No. 2.

The Board having heard it reported that small pox had appeared in certain districts of the island, took the necessary means to ascertain the correctness of such report, and having satisfied themselves of the truth of it by issuing a series of queries to the medical gentlemen of that district, which queries and answers are stated in Appendix marked F, they communicated the same to his excellency the governor, in council, who, thereupon, issued, on the 4th of September, a proclamation in the Jamaica Gazette by Authority, a copy of which is set forth in Appendix marked G.

The Board further placed themselves in communication with Mr. Dalrymple, a practising medical gentleman in the affected districts of Trelawny, whom they appointed vaccinator. They also forwarded orders to New-York for a supply of vaccine lymph; in the mean time, however, a supply was obtained in Trelawny, which Mr. Dalrymple reports was extensively used, and supplied to the different surrounding practitioners; in fact, as yet, the disease appears to have been circumscribed in its ravages and extent. On the 8th of September, the Central Board issued a circular, with a series of questions, set forth in Appendix marked H, No. 1, on the subject of medical relief, as also the sanitary state and wants of the dif-

ferent parishes of this island. These were issued to the custodes, clergy, and medical practitioners, of the several parishes, and answers received thereto are set forth in the said Appendix H, No. 2.

The Board regret here to be compelled to notice the paucity of gentlemen who have replied to these circulars. The two former classes of individuals are holding public appointments, from which they either obtain honor or remuneration, and are therefore legally and morally bound to do such service to the state. To the other class, viz.: the medical practitioners, the Board are sorry that so few have deemed it requisite to comply with the request of the circular, more especially as the object of the enquiry was to supply an evident numerical deficiency of medical men in the island, and also to better the condition of those, who are at present here, and others who might hereafter arrive here. The answers, as regards the sanitary state and wants of the different towns and villages of the several parishes, are very short, in fact this question appears to have been generally misunderstood. The report, therefore, is confined to the towns of Port-Royal, and Spanish-Town, and the city of Kingston. This, however, is of minor importance, as it may safely be said, "*Ex uno disce omnes.*" And in the section on the prevention of epidemic, endemic, and contagious diseases, a statement of their general condition has been introduced. Besides these circulars, &c. the Board have been in communication with the authorities and medical gentlemen of the following parishes: Metcalfe, Westmoreland, Hanover, and St. James; and the applications, from time to time made, received every attention, with offers of such relief as was thought within the duty of the Board to afford. Very recently, that is to say on the 28th day of October last, the Board, from the urgent representation of the reverend H. G. Lawson of the number and aggravated cases of cholera in and about the district of Green Island, in the parish of Hanover, considered it proper to send

to the relief of the suffering inhabitants a medical gentleman, Dr. Camford Smith, recently arrived in the island, with a supply of proper medicines ; and the Board, from Dr. Smith's experience and knowledge of the disease, from his attendance formerly on cholera cases in Scotland, cannot but form the strongest expectation of the best result from his services. The Board have great satisfaction in informing the legislature that their first notification has met with the approval of the colonial minister, as also of the Board of Health of England, as will be seen by the appended copies of despatches sent to the Board, by his excellency the governor, marked 1.— They deeply regret that their usefulness should have been here almost entirely destroyed, or rendered nugatory, owing to a total want of power or authority to enforce such rules and regulations as they deemed proper. These have as yet remained a dead letter. In the instance above alluded to, on which his excellency in council issued his proclamation, the magistrates of Trelawny returned for answer their total incapability of enforcing such rules and regulations beyond those respects which were already provided for by existing enactments. Had even the power existed, the Board are doubtful if the rules and regulations, drawn up by them, would have proved as useful as could have been desired. There appears to be in the law, as it at present stands, room for doubt as to who should carry these rules into operation, and who should decide when and where they should be enforced. The law, no doubt, gives to the governor in council, the right of approving of such rules and regulations as the Board may frame ; and requires, that before they can be enforced, they should be proclaimed and published by the governor in the Gazette by Authority, as fit and proper rules. This being done, the Board submit that their future execution for carrying out rests in them. The governor in council, having the power at any time to alter, amend, add to, or rescind any rule, by and with

the advice of the Central Board. Should it please the legislature to appoint another Central Board of Health, it is suggested that special care should be taken to make this point clear, as the Board are fully convinced that the issuing of these proclamations by the governor, with the advice and consent of the council, on each and every occasion that may be considered expedient to enforce them, would entail great delay, and seriously affect the usefulness of such rules and regulations.

All which, we, whose names are hereunto subscribed, being Members of the Central Board of Health, present at a special meeting of the Board, convened by public notice, and held at St. Jago de la Vega, this 29th day of November, 1851, beg leave to certify to the legislature of Jamaica.

J. GAYLEARD,

President of the Council and President of the Central Board of Health.

J. WINGATE JOHNSTON, M.D.

Deputy Inspector of Naval Hospital and Fleets, and Senior Medical Officer of the Royal Naval Hospital at Port-Royal.

LEWIS QUIER BOWERBANK, M.D.

President of the College of Physicians and Surgeons, Jamaica.

P. YULE,

Lieutenant-Colonel commanding Royal Engineers.

We, whose names are hereunder subscribed, members of the Central Board of Health, present at a general meeting of the Board, held this 1st day of December, also certify the same to the legislature.

C. M'LARTY MORALES,

Speaker.

J. M'GRATH, M.R.C.S.L.

