

no deduction of any kind can be drawn from this, considering the repeated vomitings, and the doses of purgative medicine which this man had before death.

The brother-in-law of this family was, in October last, tried before the Justiciary Court at Aberdeen, for administering poison to his four relations; and the above considerations then existed to direct the evidence of the medical witnesses, by whom such opinions were given as induced the Judge and Jury to consider the abstract act of poisoning proved. The accused afterwards confessed his guilt, and that he perpetrated the crime by means of arsenic put among the salt the Sunday morning on which the Mitchells were taken ill.

Alford, 13th December, 1821.

II.

On the Contagious Nature of the Yellow Fever. By ALEXANDER COVENTRY Esq., Surgeon, Utica, Oneida-County, New-York.

THIS article was first printed about twelve months ago, in an American paper, entitled the *Ploughboy*, published at Albany, and was there published as a communication addressed to the Editors of the *Edinburgh Medical and Surgical Journal*. We received a copy of it in this form some time ago; and, as there is reason to believe that this is the only channel through which the opinions delivered in it can be accessible to the public in this country, we have thought proper to give an early place to it, as the result of observations made on the spot by a practitioner who has been about thirty-five years resident in the regions where yellow fever is most prevalent.

To the Editors of the Edinburgh Medical and Surgical Journal.

GENTLEMEN,

HAVING observed, in your *Journal* published the 1st of January 1820, the Report of a Select Committee on the doctrine of Contagion in the Plague, I have been induced to submit to your consideration some observations, which my residence in this country, for the last thirty-five years, has enabled me to make on a disease which, from its fatality, may not unaptly be denominated the Plague of the Western Continent, or New World. I refer to that dreaded disorder, the Yellow Fever, to which, although unknown in the British Isles, no inconsiderable part of her promising youth fall victims, when pursuing their

fortunes in the Western hemisphere. I am rather induced to this, because I regret to observe, that some of the most respectable medical men in the island have lent the weight of their names to an opinion with which they would never have coincided, had their opportunities of observation been equal to that of many American practitioners, who are located in situations where this disease frequently shows itself.

Having received my medical education in Europe, and witnessed the diseases most prevalent there, I am confident that nothing occurs in the British Islands that would enable the medical man to form a correct idea on this subject. I know also that it requires a residence in particular parts of this country, and that for some time, to become thoroughly acquainted with the nature of yellow fever. Those practitioners who reside north of the 41st degree of north latitude, and within 200 miles of the seacoast, except in some unfavourable seasons, in uncommonly bad situations, will have few opportunities of studying the nature of this fever. This exemption I believe to be much more owing to the hilly or ridgy surface of the country, than to the latitude; but south and west of these lines, there are tracts of flat country abounding in stagnant water. During a residence of five years on the Hudson River, 120 miles north of New-York, I never met with a case of fever, the symptoms of which resembled the yellow fever. After my removal to the flat country, called the Lake Country, I met with fevers that bore no resemblance to those previously seen, but in which I often recognised the black vomit, and intense yellowness described in the yellow fever. Acquainted with the diseases prevailing in the cities through the medium of their newspapers, I had conceived the disorder raging there as one of a very different type, and resembling what I conceived to be the plague of the Levant, more than the epidemic that was so generally spread over the western district of the State of New-York, and with which I had become so well acquainted; having in my whole family, and subsequently myself, undergone the disease. But a visit to New-York, in the autumn of 1805, undeceived me; for in that part of the city near the wharfs, and bordering on the East River, I recognised, on the first glance, the cast of countenance with which I had been but too familiar since the 20th of July preceding. It happened also that the most intimate friend I had in the city, resided in a low situation called Pearl Street, and had remained there during the season. He had the yellow fever himself, also three of his family, two of whom were victims; while his eldest daughter, a beautiful and amiable woman, who had assiduously attended her sick parent, and dying brother and sister, had kept her ordinary health, and

still retained the blooming countenance which she brought from the healthy hills of Caledonia. It was conceded by the gentleman who attended this family, that these were genuine cases of yellow fever. I noted, from the reports of my friend, confirmed by the testimony of his physician, the symptoms of this case, and found every symptom correspond with those of many patients who had fallen under my care; none of whom had been near the seacoast, and most had never seen any thing larger than a canoe or small boat in their lives. Through my friend's politeness, I was introduced to several gentlemen who had lived through the yellow fever, having lost near relations by it; and, after the most close attention, I was as fully convinced of the identity of this disease with the epidemic that had raged along the margin of the western lakes, as I was of my own existence; but had I even doubted what I heard and saw, my nose and stomach gave me ample evidence, that the causes to which I attributed the sickness in the west had existed in this city. The principal difference appeared to me, that, in the former case, it was owing to causes not within the compass of human beings to prevent; in the latter, it was self-destruction brought on by neglecting those means within their power, and perhaps acting under a mistaken and very erroneous idea of the foreign origin of this disease, which they had nursed up, or raised in a hot-bed, themselves. The great encroachment made on the river, estimated at 90 acres, composed of perishable or perishing materials, was the evident cause of the mortality in New-York, very similar to what took place last season at Mobile. Blessed with one of the finest and most healthy situations in the known world, having no marshes of extent that can affect the health in the vicinity, and abounding on every side with the choicest materials for building and wharfing, the citizens of New-York were inexcusable for using such pernicious stuff to fill their docks, and found their streets on. No city has better opportunities to secure and preserve the health of its inhabitants, than this favoured spot; and it would be the height of madness to permit false theories, and imaginary hypotheses, to preclude the necessity of a strict attention to cleanliness, which is a surer preventive than any quarantine laws that can be devised; for if the air of the city is as pure as it ought to be kept, although a whole crew from Havannah or the coast of Africa, should gain admittance and die of the yellow fever, you would not hear of any new cases; but the disease would be arrested the same as it invariably is, when the patients are removed to the pure air of the country. Quarantine laws are useful. Every vessel that has a perishable cargo, or that has not been kept well ventilated,

whether she has such men on board or not, ought to be cleaned out, white-washed, and ventilated, before she is allowed to approach the docks. Her crew may have gradually become accustomed to the poisonous effluvia as it gained in strength, the same as a tobacco-chewer gets used to that deleterious weed; and the air of the vessel, although in a measure inoffensive to them, may prove destructive to those unaccustomed to inhale the vitiated atmosphere.

Since my first observations made on the yellow fever in 1805, whilst in the city of New-York, I have had many opportunities of marking the symptoms of fever in unhealthy situations; have collected information from gentlemen who have traversed the country, from the north of the Mississippi to St Mary's, the outlet of Lake Superior; seen gentlemen from Cuba and the other West India Islands;—and the result has been, a thorough conviction that the disease denominated yellow fever is epidemic; depends on vegetable putrefaction, and in that short stage which generally attends the fever, is not contagious; but, if protracted and assuming a typhoid state, as I believe both bilious and inflammatory fevers may and often do, the patient may generate an atmosphere around him, which, without due care, may induce an indisposition in the attendants. But, from what I have observed, I am fully of opinion that yellow fever may be pronounced not to be contagious; for, remove the patient to a healthy and elevated situation, keep him clean and well aired, and I should expect no more danger from this disease than from a tertian intermittent. Small-pox, measles, the chin-cough, and other contagious diseases, are found to prevail at all seasons. We never hear of yellow-fever before June or July, in our climate; and the first severe frost never fails to arrest its progress. Thus it commences about the time that vegetable putrefaction begins to take place, and never fails to stop when cold weather puts a stop to that process. That it is not the offspring of heat alone, we judge from its not being known in the deserts in Africa: there must be moisture and vegetables to putrify, as well as heat. The well informed practitioners who live in the south and western parts of America, who have many of them annually opportunities of examining this disease, have no doubt of its nature. I much suspect you will hardly find a dissenting voice amongst medical men, from Baltimore to New-Orleans, as to the nature of the yellow fever. The Medical Repository, published in New-York, and so ably conducted, has invariably combated the idea of foreign origin. I refer you with confidence to the Number published in June last; the Report of the Committee ap-

pointed at Mobile must be decisive to every unprejudiced mind. The official statement by the Medical Society of Maryland, gentlemen who, for practical knowledge and real science, stand at the head of their profession in this country, seems unanswerable. Were Sir James MacGregor, and Sir James Earle, placed in a similar situation with Mons. La Forte, I have not the least doubt that, with the honourable candour of that gentleman, they would have their belief in the contagious nature of it destroyed. Perfectly unintentional on their part, I fear their present opinion will be productive of much mischief in this country. Their opinions have been eagerly quoted by the contagionists. The idea of importation is more agreeable to the populace, who will always with reluctance acknowledge the insalubrity of their particular location, and, with still more reluctance, submit to the deprivations and restrictions in many cases absolutely necessary for their own preservation.

Every office depending on popular election here, we are too apt to suppress opinions not palatable to the public; and it is impossible to enact, and put in force any regulation, although their preservation depends on it, without the public sentiment in its favour: hence the great danger arising from mistaken notions in regard to our diseases. Some respectable physicians most strangely, and some men, much better acquainted with other business than with medicine, with which latter they unfortunately have a disposition to dabble, have taken into their heads to differ from the great majority of medical men on this subject, and have exultingly referred to the statements of these two honourable Baronets.

From the dirty state that I found New-York in last April, the accumulated filth of the winter still remaining in the streets, I should suspect that the idea of importation had numerous advocates in the city council; for, although the heat was intense, the mercury standing at 82 Fahr., no measures were as yet taken to secure the city from disease. But it is with reference to the new settlement making in the south and west, that this question will have its most important bearing. Much of those tracts, and especially the points most convenient for commerce, are low alluvia, and in the vicinity of marshes; yet often within a few miles, or even within one mile, very different locations in point of health may be made. In one case the settlement may become permanent, the citizens enjoy health and comfort; on the other hand, by an injudicious choice, after much property expended, the whole will have to be abandoned, or the inhabitants continue martyrs to disease and death: or, should the majority, after much suffering, become insensible to the operating poison, the

place will still prove a grave to many emigrants. Now, if we believe in the local origin of the yellow fever, of which I have no doubt, some discrimination will be made in establishing a site for a future city; but if this disease is imported and propagated only by contagion, the site is of no consequence, and the convenience for commerce will be the only consideration, as has been the case at Constantinople, New-Orleans, Mobile, and many other places that must be within the recollection of those who attend to the situation of the different cities. From having formerly entertained so erroneous ideas concerning a disease that was making such havoc in two of the principal cities of the United States, and having found it impossible to collect any true history from the public prints, I have been led to admit, with many grains of allowance, the accounts we have had of the plague. It has struck me, that a city like Constantinople, in the vicinity of 20 square miles of marsh, situated at the outlet of an immense lake, with a level country in the vicinity, must much resemble some positions in America, and be annually subject to the worst kinds of malignant fever. This, conjoined with the want of police, the dirty and lazy habits of the Turk, who, believing in predestination, takes no precautions, must give the disease a more terrible character than even the yellow fever.

If I mistake not, the plague makes its appearance at Constantinople in June and July, and generally disappears in October and November; yet some cases are found through the season. Here is a strong coincidence with the malignant fever of America. I have met with some instances of yellow fever in midwinter, even in March. The last was a young man, who, by a severe exposure, brought on the disease. An English sailor, who saw him when sick, and laid him out, said he recognised the disease, as he had performed the same office for some of his countrymen who died of that disease in the West Indies. The symptoms described by Dr A. B. Granville are exactly those I have myself experienced and marked in a hundred cases, with the exception of carbuncles. I have seen even them, although rarely. Livid spots on the body are rather common.

I think Volney describes Egypt as being overflowed at a certain season of the year. The Nile begins to rise generally in April, and is at its height about the 25th of June. Egypt is generally an alluvial soil with a flat surface. The resemblance is striking between the Delta of Egypt and the Mississippi territory in America. When the Nile rises so as to fill the ponds, and wash away the putrifying vegetables, the bazars and shops are opened in Cairo, and the Franks leave their con-

finement. They are then relieved from the terror of the contagious plague, the same as our citizens in American towns, from the contagious yellow fever, when the first severe frost takes place, after which you will see the inhabitants of the Carolinas and Georgia crowding south, after having spent the sultry months in the more elevated regions of the north and east. No wonder that the Egyptians deified the Nile; it affords them both bread and health, insuring crops and arresting contagion. It has frequently struck me, in perusing the travels of different gentlemen, that wherever a place was famous for the frequency of the plague, there were marshes or pools in the neighbourhood, which, with us in America, would be suspected for sources of malignant fever. Let us consider for a moment the situation of Syria; it is, generally speaking, a plain, bounded on one side with mountains, on the other with the sea, and interspersed with pools, and fringed with marshes; but here the plague is frequent. The French army became infected; but, when they entered the Desert, on their retreat from Jaffa, regained their health, and their wounds healed; there were no marshes in the Desert. Egypt has been long celebrated for being subject to frequent, almost annual attacks of the plague. Let us advert for a moment to the topography of this celebrated country. It is an extensive level tract of alluvial soil. Volney says, nothing more resembles its appearance than the marshes of the Lower Loire, or the plains of Flanders. Again, all this part of Egypt is so level and so low, that we are not three leagues from the coast when we discover the palm-trees, &c.; and, beyond this, nothing is seen but a boundless plain, which, at different seasons of the year, is an ocean of fresh water, a miry morass, a verdant field, or a dusty desert. Again, a flat plain intersected with canals, under water for three months, verdant and boggy for three others, and dusty and full of cracks the remainder; a sun darting his rays from azure skies, almost invariably free from clouds; and winds almost constantly blowing. For six months of the year, the water of the Nile, the only water used in Egypt, is so thick, that it must have time to settle before it can be drank; and, during the three months which precede the inundation, reduced to an inconsiderable depth, it grows heated, becomes green, fetid, and full of worms, &c. Along the coast of Egypt, which, on account of its shallowness, can only be approached with boats, at a little distance from the sea, is a string of fresh water lakes; these receive the filth brought down by the Nile in its flood. The north wind, which blows the far greater part of the year, serves to prevent the river discharging its contents into the Mediterranean, where, by dilution, deposits

might become harmless. The water is generally at its height about the last of June, at which time the whole country is submerged. When the Nile returns within its banks, every hollow or depression of the surface becomes a stagnant pool. Whether this depression is an original concavity, or has been the former course of the river, or the bed of an ancient canal, it affords a receptacle for the water, which, having no exit, is evaporated by the rays of the sun. The water has killed all vegetation, which now decays, mixes with the liquid, and gives its poisonous effluvia to the air. These tanks continue to pollute the atmosphere longer or shorter, according to their depth, some having that effect till the season of the next flood, when the waters of the Nile put a period to the agency; others, more shallow, having performed their duty, are dried up, richly covered with luxuriant vegetation, and are fully prepared for the same process next season. This infectious atmosphere becomes prevalent first in the month of November, and generally continues increasing in virulence till the inundation in June. Egypt is seldom refreshed by showers, but depends for moisture on the Nile; the overflowing of which is more regular than the transient passing of clouds.

In the account of the passage of the British or French army from the coast to Cairo, I have seen it observed by the narrator, that while the plague was raging in one village, the inhabitants of another, within a small distance, were entirely exempt, although no interruption of intercourse had taken place between them. It is also stated, that the Turkish soldiers were under no apprehension of getting the plague, but plundered the houses where it had been, and wore the clothes of those who died of this disorder. Let us now review the subject. It is agreed, that, generally, the plague begins to appear at Constantinople about the last of June; rarely more early. That city has 20 square miles of marsh in its vicinity. Although under a despotic government, the dogs and vultures enjoy as much liberty as the long-nosed quality, and perform the same duties as those do in the cities of the United States; and the streets of Constantinople regale the olfactory nerves as much as those of New York, Baltimore, Boston, or Philadelphia. Now, it seems the plague begins at Stamboul, about the time it ceases in Egypt. I do not know that we hear of a non-intercourse between the two countries, during the following months; yet it is rarely imported into Egypt till November, when the ponds and marshes of that country have prepared the atmosphere for its reception. Egypt being now prepared for it, the plague begins to abate in Constantinople, where the frosts have arrested vegetable putre-

faction. It reigns now with uncontrolled sway over the alluvion of Egypt, where frost is not known, till the water which has fallen in Nubia and Abyssinia, conveyed by the Nile, again sweeps the surface of Egypt, and destroys the source of pestilence. The Franks then leave their confinement; the bazars and shops are opened; and Egypt is again willing to part with the fell destroyer to the Porte, or some other quarter of the world. Although there may be exceptions to this rule, I believe it will be allowed to exhibit the phenomena of plague on a general scale. Constantinople is in lat. 41 deg. 27 min., Cairo, lat. 30 deg.; which shows that the probability is, that different means may produce the same effect at the two places. It is not improbable that the excessive heat of Egypt would soon exhaust the moisture necessary for vegetable putrefaction, as the deserts on each side are found to be free from plague. Is it not remarkable, that the plague makes its appearance at the Porte about the same time that the yellow fever does in our cities,—that when winter sets in, either disease is scarcely heard of at these places? In Egypt, where it may be said there is no winter, the plague is arrested by the overflowing of the Nile. Do not these circumstances lead us to suspect, that the nature of the plague is not yet fully understood by Europeans in general? Stupid and superstitious as the Turks may be, yet self-preservation has so powerful a hold on the human mind, that I strongly suspect they have experience on their side for not believing in the contagion of the plague.

The true nature of the yellow fever is every day becoming better understood. I believe that there are very few well-informed men, either in the West Indies or in America, that have any doubts on that subject. The numerous settlements making in the south and west by an industrious, intelligent, and observing people, will throw fresh light on the nature of this disease. The report of a committee similar to that of Mobile, who have no preconceived theories to support, ought to have great weight in this momentous affair. If it does not operate as a warning to those who, in future, erect conveniences for commerce, not to use perishable materials in the construction of docks; those who persist in that dangerous practice will be guilty of self-murder, as well as accessories before the act, in the destruction of their fellow-citizens. During my residence among the marshes and swamps of the west, I watched the condition of two ponds near which I had occasion frequently to pass. They were near the outlet of a lake. When the waters were high, there was a free communication between the ponds and the lake. The waves of the latter passed into the ponds, and kept the water fresh; but,

when the waters began to lower, the waves drove up the sand or shingle on the beach, forming a dam across the outlet of the pond. If the season proved dry, and the lake continued to decrease in depth, the water-ponds gradually dried up; putrefaction began; they emitted a horrible stench; the easternmost and most shallow affected the senses often by the last of June, a fortnight before the westernmost, and would dry entirely up, cease to annoy the smell, and, if no rain fell, become verdant, with a growth of vegetables; but the other, whose bottom was on a level with the shallow part of the lake, although later in polluting the air, would continue the process till arrested by autumnal frost. I have known a whole village, in which there was not a sick person on the 20th of June, or indeed later, to be laid on their beds within 48 hours, evidently from the putrid effluvia emanating from these ponds, the fact being ascertained by a shift in the wind, which brought the exhalations directly into the place; and some of these people had every symptom of yellow fever.

It has for some time been my opinion, that a distinction ought to be made between contagion and infection. Thus a disease may be contagious, and not infectious, as psora and syphilis; it may be both as the measles and small-pox. I believe, that, whatever may be the original nature of a fever, if permitted to run a protracted course, it may, under improper management, become infectious; yet I am confident that this is generally within the control of the physician. Although I have, in consultation, seen cases where infection seemed to have been communicated, I have not, in a practice of thirty-five years, had a single case where fever was propagated in this manner.

I have found much benefit from the muriatic fumes; it certainly destroys the fetor arising from fever in a remarkable degree. With all the attachment for nosological distinction which I imbibed at the school of the respectable Cullen, I must say, that I have not unfrequently seen fevers commence with highly inflammatory and bilious symptoms, and gradually fall into the typhoid state. To those who have witnessed the epidemic diseases of America, the experiment made by Dr M'Lean in the Greek pest-house, and that by the Spanish physician at Havannah, were both most unphilosophically conducted. Had these experiments been made to show their liability to the ordinary causes of disease, they might have been satisfactory; but what sensible man will decide, whether they caught it by contagion or from the air? The contagionists will support one doctrine, the anti-contagionists another; but let a patient, labouring under yellow fever, be removed to a healthy part of the country, where the disease is unknown; let him be treated as

fever patients ought to be; if he then communicates the disorder by contact, and it is disseminated over a healthy region, where it never existed before, I will then believe in the contagious nature of yellow fever; but, amongst the thousands who have been removed to the country, I have not heard of such an instance. Let a similar experiment be made with a person labouring under the plague, and the result will show itself. I am induced to believe that the plague in London originated in the filth of the city. From observations made accidentally, I am convinced that high temperature is not so necessary for the generation of yellow fever. In this I differ from some gentlemen who advocate the domestic origin. We know that heat alone will produce neither plague nor yellow fever; it must be combined with moisture; yet the water-carriers of Cairo are almost exempt from plague. Now, I believe heat and moisture are deleterious, only as promoting putrefaction. I have witnessed this going on at a low temperature, and a large family sinking under the effect, unconscious of the latent cause; indeed their sensation had gradually become insensible to the fetor, although the stench was intolerable to me, and first led to the discovering of a putrefying mass of vegetables, the exhalation from which a keen and cool west wind was forcing out of the cellar, and diffusing through the house. But I must stop, lest you should suspect me of labouring under a *cacoethes scribendi*, a malady almost as incurable as the plague or yellow fever. You will easily perceive that I am not much in the habit of committing my thoughts to paper. My hopes of recognising these observations in your excellent Journal, depend more on the novelty of your having a correspondent in the back woods of America, than in any thing new or valuable in my communications. Although I perceive some coincidence in the opinions of Dr M'Lean and mine, I can assure you, I never have perused the writings of that gentleman, which, from my remote situation, I have not been able to procure; all I know of his ideas is from the Medical Repository, published in New York, and from the pages of your Journal. If I am correct, he has lived many years in British India;—I have spent the best part of my life in the forests, and amongst the swamps and marshes of North America.

Utica, Oneida County, State of New York, }
North America, Aug. 1820. }