A probationary essay on tropical fever, as observed in the island of Trinidad, during uninterrupted practice there, from the year 1816 up to 1838 : submitted, by authority of the President and his Council, to the examination of the Royal College of Surgeons of Edinburgh, when candidate for admission into their body, in conformity to their regulations respecting the admission of ordinary fellows / by Thomas Anderson.

(4.)

A

PROBATIONARY ESSAY

ON

TROPICAL FEVER,

AS OBSERVED IN THE ISLAND OF TRINIDAD, DURING UNINTERRUPTED PRACTICE THERE, FROM THE YEAR 1816 UP TO 1838;

SUBMITTED,

BY AUTHORITY OF THE PRESIDENT AND HIS COUNCIL,

TO THE EXAMINATION OF

The Royal College of Surgeons of Edinburgh,

WHEN CANDIDATE FOR ADMISSION INTO THEIR BODY,

IN CONFORMITY TO THEIR REGULATIONS RESPECTING
THE ADMISSION OF ORDINARY FELLOWS.

BY

THOMAS ANDERSON, M.D.,

INSPECTOR OF HEALTH OF SHIPPING AT TRINIDAD; CORRESPONDING MEMBER OF THE MEDICO-CHIRURGICAL, AND EXTRAORDINARY MEMBER OF THE ROYAL MEDICAL SOCIETIES OF EDINBURGH.

FEBRUARY 1, 1839.

EDINBURGH:
PRINTED BY THE EDINBURGH PRINTING COMPANY,
12, SOUTH ST DAVID STREET.
M.DCCC.XXXIX.

ON

TROPICAL FEVER.

INTRODUCTION.

In acquitting myself of my probationary task as a proposed candidate for the high honour of a Fellowship in the Royal College of Surgeons of this city, I shall best discharge my duty, however imperfectly it may be performed, in treating of a subject on which my opportunities of observation have been most varied and extensive, more especially as there are many points connected with the history of the fevers of warm climates, (notwithstanding the wide field for investigation possessed by British practitioners in our territories abroad, and the voluminous writings of able men,) which are still *res agitatæ* among the members of our profession.

In this humble attempt in so important a design, I am willing to believe beneficial ends will be best promoted by describing the nature of fever *solely* as witnessed under my own observation, and abstaining from the discussion of the merits of particular opinions, a method not only most congenial to my own taste, but, I

would fain believe, best adapted to interest those who have not visited intertropical regions. The book of Nature, carefully studied, is acknowledged by all to afford the most instructive lessons; and I can only regret, on the present occasion, the incapacity, I am conscious of, to delineate, in an accurate and faithful manner, the information my opportunities of studying her pages should have instilled.

As the prescribed limits necessarily preclude a wide range of discussion, I will, at once, proceed to consider the subject of Tropical Fever, under the heads of *Endemial Fever*, in its forms of Common Bilious Remittent, and of Marsh Fever, of various types, as they occur respectively, in the unacclimated and acclimated European, and in the native, whether of European or African origin; and of *Epidemic* or *Yellow Fever*, properly so called, with reference to the periods of its appearance in Trinidad since the year 1816, the subjects most liable to its attack, the question of its contagious or non-contagious property, the most successful mode of treatment, mortality attending it, &c.

ENDEMIAL FEVER.

The term *Endemial*, I would be understood to apply to all the varieties of fever (not a long catalogue)

which usually prevail in the island, or indeed within the tropics ; as I shall hereafter endeavour to prove that, fortunately for the sake of suffering humanity, the Epidemic Black Vomit Fever, Vomito Prieto of the Spaniards, or Yellow Fever, is not a constant resident, but only an occasional visitant of the West Indies, and is essentially a disease *sui generis*.

As some preliminary explanation with respect to the geography, topography, and statistics of Trinidad, and more particularly of its capital town, Port of Spain, and adjacent country, where I have practised, will perchance assist the medical reader, the following brief statement is afforded.

The island is situated near the tenth degree of north latitude, at the southern extremity of the Carribbean range, and is the largest of the British West India islands, except Jamaica, as which, however, it is supposed to contain an equal quantity of land capable of cultivation.

Two ranges of mountains traverse the island on its northern and southern sides. The former is the most considerable, and rises in many places to a height of 3000 feet above the level of the sea. This northern range is intersected by valleys, which are well watered by clear streams. The greater part of the island is flat or undulating in its physical aspect, occasionally rising into hills. The soil is alluvial, and in many places of the most fertile description;

but the greater part of the lands are unappropriated, and covered with timber of gigantic growth. Saline marshes occur, in some places along the coast, on both leeward and windward sides of the island, one of which, called the Great Lagoon, extends ten or twelve miles inland. Such localities, sources of Malarious Fever, render their vicinity unhealthy; but the island in general, particularly its northern and central districts, equals, in salubrity, any other tropical country.

Port of Spain, the capital, is situated on the leeward side of the island, in a central position, within the Gulf of Paria, a land-locked sheet of water of great extent. Its site is on level ground, with a gradual ascent from the sea, in a plain bounded by hills to the north and north-east, from one to two miles distant. The buildings are mostly of stone, the streets at right angles, and the town is perfectly well drained and watered. The frontage to the sea consists of excellent wharves, faced with granite,* where there is, at all times of tide, sufficient water for boats to land. The seasons are divided into wet and dry. The rains generally set in about the end of May, and continue till October, when there intervenes about a month of fine dry weather, known by the name of the Indian Summer, or, as the French

* Imported from Aberdeen.

planters call it, L'Eté de Saint Michel. The rains recommence in November, and continue till the 10th or 15th of January.* From January to the end of May, the weather is almost invariably fair and dry, nearly without a shower, and is the season employed in taking off the sugar crop, for which continuous dry weather is indispensable.

PALUDAL OR MARSH FEVER.

The seasons, when established, whether wet or dry, are not unhealthy; but the changes incidental to the transitions from dry to wet, or from wet to dry, particularly the latter, affect the constitution, and especially the native inhabitant. The northern constitution, more habituated to atmospherical variation, seems less susceptible in this respect; but in a direct ratio with his term of residence he becomes more so. The relaxing effects of a warm atmosphere produce this effect on the system, and cause that change on the blood which assimilates its condition to that of the native. Without entering into the theory of these changes at length, I may remark

* These rains temper the air, diffusing a soft coolness. They also carry down much electrical matter, as it is remarked, that in those seasons, when they are not so regular or abundant as usual, lightning and earthquakes are most prevalent.

that the physical qualities of this fluid, as drawn from a newly arrived European, and an acclimated one in the West Indies, are remarkably different. From the former it flows thick and consistent from the arm, and is highly glutinous to the feel; that of the latter possesses more tenuity, the serous proportion appearing more to abound. At the commencement of the dry season, the low flat districts, where water stagnates, furnish cases of *Paludal* Fever. During the rains, the ground, in such localities saturated with moisture, or overflowed, is not acted upon in any great degree by the solar heat, which accounts for the comparative immunity experienced from disease during the wet season. But this exemption ceases when continuous dry weather commences, and the terrestrial emanations then act in full intensity, from the evaporation on the surface. Fevers of Marsh Type, in the shape of Remittents, Double Tertian, and Tertian Intermittents, then prevail. Those who have resided long in such districts acquire a leucophlegmatic appearance, particularly the children, and almost invariably contract visceral disease. Engorgement of the spleen is almost always the result of these attacks, if unarrested by timely remedial means. This can be only effectually done by removal from the source of the original exciting cause. Deobstruent medicines, in which mercurials, cautiously administered, should form a part, are

highly useful in such cases, but salivation should always be avoided. The periodical returns of Intermittents, which, in Trinidad, are invariably governed by the lunar phases, should, at the same time, be checked by cinchona and its preparations, and the cure followed up by chalybeates and tonics.

The diurnal, or trade-wind, does not blow with the same regularity in Trinidad, at least within the Gulf of Paria, as in the more northern islands. This is owing to two causes; from the position of the island at the extremity of the archipelago, and its proximity to the American continent; and from the breeze having to traverse the whole breadth of the island from the eastern coast, and having its regularity and strength modified in its course by the obstructions of mountains and forests. It is, however, more regular in the dry than in the wet season of the year.

From many years of thermometrical observations, I can state the average range throughout the year to be from sixty-eight to eighty-eight degrees of Fahrenheit in Port of Spain. I have seen it as low as sixty-six, and as high as ninety-one, but rarely. The temperature in the country is somewhat cooler, and in the mountain elevations considerably so.

The total number of inhabitants in the island is from 40,000 to 50,000, of which number some 4000 are Europeans, or descendants of Europeans, the rest

are Africans, or of African descent. Since the emancipation of the slaves, emigration has been taking place to Trinidad, from the older colonies, to a considerable extent, and, from the advantages now held out by the local government, may be expected to continue and increase. The population of Port of Spain is from 12,000 to 14,000. The computation of mortality, taken on an average of some years, not long since, from the sexton's returns, among all classes of persons in the town, was one in forty-nine. The mortality in the island, generally, probably exceeds this considerably.

I arrived in Trinidad in the beginning of the year 1816, and was immediately introduced into practice.

A population, such as that of Port of Spain, however healthy for a West India town, will, at all times, furnish a good many cases of febrile disease; so that I had speedy opportunities of witnessing those forms of it, modified, as they appeared, by the habits and constitution of the various classes of persons obnoxious to its aggression.

BILIOUS REMITTENT FEVER.

The prevailing type at that time, whether in the acclimated or newly arrived European, was the disease known and described as the Bilious Remittent

Fever. As observed in the town, it did not then appear to me to be a very intractable malady, as it yielded, in a large majority of cases, to the ordinary means of treatment, even in the most severe ones which occurred among the sailors in the shipping. It was not fixed in its duration; the mortality was small, and no such symptom as black vomit was observed in any case. The cases of fever I saw among the native or Creole inhabitants, as well white as coloured, were still more mild, generally speaking, so as to be almost ephemeral in their progress. The disease, in this class, did not so often terminate in assuming the intermittent form, as was very often the case with the European; or if it did, was much less tenacious in its hold on the constitution, and yielded more readily to suitable remedies. The disease, in the more seasoned European, was more liable to relapse into intermittent, owing to such cases being more generally complicated with hepatic derangement; and as many of the streets of Port of Spain were then unpaved, local emanations combined with the habit in the constitution to protract such cases to a degree latterly not met with in practice.

This state of things continued till the following year, when there appeared in the island a disease of a much more aggravated character.

EPIDEMIC OR YELLOW FEVER.

In the course of the years 1816 and 1817, a malignant epidemic fever, the fatal cases generally terminating in black vomit, devastated the Island of Barbadoes, affecting, in particular, the troops in garrison. The Second, or Queen's Regiment, suffered much, losing a large proportion of the men, and nearly the whole of the officers, from its ravages. Any one acquainted with the medical topography of that island will know, that local malaria could have no share in the production of the disease. This I mention incidentally, with reference to the abnormal influences to which I shall, in the sequel, have occasion to advert, which govern the invasion of the Yellow Fever epidemics in West India latitudes.

In the month of June 1817, it was my lot to witness the first case of the Epidemic Yellow Fever, which ravaged Trinidad during that and the following year, in the person of a young gentleman of the name of G——, a native of this city, who had shortly before arrived in the colony.—He died on the fifth day of the disease, with black vomit. Without entering upon the question of contagion in this place, it is my duty to state that the next case was a young clerk in a mercantile store in the town, who

had been very attentive to G—— during his illness, and had taken an inventory of the effects of the deceased. He was taken ill almost immediately after performing this office, and his case was also a fatal one, and about the same period of the disease, and also attended with the distinctive symptom. After this case the disease rapidly spread throughout the town, and shortly after all over the island, selecting, with remarkable uniformity, the unacclimated as its victims, and sparing almost invariably the resident over six or eight years standing, and the Creole or native of every denomination; nor was its progress arrested until it had attacked, almost without exception, every individual liable to its aggression. A large proportion died,—it is difficult to estimate with accuracy the exact amount, but I am disposed to believe not more than one in three of the severer cases were saved. By early attention, many cases were, however, rendered mild, and in all cases of recovery the convalescence was rapid. The disease was particularly fatal among the European shipping of the port. The Inspector of Health of Shipping, Dr Safe, having died of the Fever, I was appointed by the Governor, Sir Ralph Woodford, whom it was my good fortune to save from an attack of the Epidemic, to the vacant office, and it became my duty to ascertain officially the amount of mortality. Among the seamen it was found frightfully great;—some ves-

sels had lost the whole of their original, and part of their substituted crews; but the captains, from being for the most part seasoned men, had generally escaped the attack.

Within four months from the first appearance of the disease in the island, it had ceased its ravages, having exhausted the subjects liable to it; but it still continued to lurk among the shipping throughout the year 1818, after which it entirely disappeared from the island. It is important to observe, that within a few years, from 1815 to 1818, Yellow Fever appeared all over the Antilles, in an Epidemic form, obeying no fixed laws, and resembling, in its capricious movements, those characterizing the progress of Asiatic Cholera, and leaving the places which it had devastated entirely for many years.

Thus, in Trinidad, nothing of the kind was again seen till the year 1828, when Black Vomit Fever appeared, with its usual fatality, in the harbour of Port of Spain among the seamen, and in the garrison at St James' Barracks, among the 1st Royals; but fortunately did not affect the town or the inhabitants.

This formidable scourge again visited Trinidad last year, and, by late accounts, had not terminated its ravages.

During the intervals between the visits of Epidemic Yellow Fever, the Common Bilious Remittent Fever, and in the districts subject to malarious in-

fluences, fevers of Marsh Type at all times existed in the island; but the former was by no means a frequent or common disease, and the inhabitants of the island generally enjoyed a remarkable immunity from fever, at least in Port of Spain. It is at the same time not to be denied, that the ordinary Fevers of the country were sometimes fatal, and that the unacclimated, especially the sailors and soldiers, and such persons as were exposed to hardships, in an undue degree, were peculiarly the subjects of illness in the common course of events; but the mortality thence resulting bore no sort of comparison to that occasioned by Black Vomit Fever.

BLACK VOMIT FEVER.

In 1837, a malignant fever broke out in the island of St Vincent, which was peculiarly fatal, and towards the end of the same year an Epidemic Black Vomit Fever was so extensively prevalent in Demerara as for some time to suspend all business. So fatal were its ravages, that the newspapers of the island were interdicted noticing the subject, to avoid the sanitary restrictions imposed on the trade of the colony at other ports. This Epidemic corresponded, in every respect, as I ascertained by personal communication with the arrivals from Demerara in the

course of my official duties as Health Officer of Port of Spain, with the Fever prevalent in Trinidad in 1817 and 1828.

An Epidemic, analogous in its prominent features to that which had just before so severely affected Demerara, made its appearance in Port of Spain in April last year. Its first victims were the seamen of the shipping, and the constables of the Police Force. These persons were exposed, from the nature of their duties, to be the earliest affected by the exciting causes of the malady. It proved dreadfully fatal among those classes of individuals, more than two-thirds of the seized dying, and, before the end of June, with true Epidemic character, the disease had rapidly attacked, almost without exception, every individual in the town obnoxious to its influence ;— but, with respect to the European inhabitants, especially the better class, the mortality was by no means so great. The connections of those attacked, as well as the medical practitioners, were on the alert, aware of the enemy they had to contend against ; and the earliest and most energetic means were promptly employed in prevention and cure. Still, with every care, there was a considerable loss, the fatal cases for the most part ending in black vomit. This fever differed nowise in its prominent symptoms or manner of attack from that of 1817.—As in that year it spared the Creoles of all descriptions, and

the old stagers,* confining its attack to the unacclimated. While it was so prevalent in Port of Spain, it is worthy of remark, that the 89th Regiment, quartered at St James' Barracks, about a mile and a half from the town, and composed, for the most part, of young and unacclimated men, remained remarkably healthy. This exemption, however, I am sorry to say, did not continue. Since my leaving the island in June last, the disease has appeared among the troops, and with the usual fatal consequences. The country districts in Trinidad also suffered from the Epidemic, but, from their more widely scattered population, in a minor degree.

CONTAGIOUS OR NON-CONTAGIOUS NATURE OF YELLOW FEVER.

I shall now approach the question as to the contagious or non-contagious properties of Black Vomit Fever, and detail what I consider to be the distinctive marks it possesses, from the ordinary fevers of those countries, so as to establish its claim to be considered a fever *sui generis*, with the conciseness and brevity to which I am here restricted.

About the year 1823, a French physician, Cher-

* The term applied in the island to old European residents.

vin by name, visited Trinidad for the express purpose of taking the opinions of the local practitioners as to the contagious or non-contagious nature of Yellow Fever. He had visited a great many stations within the tropics on this mission, and I understood from him that the majority of those he had consulted inclined to the non-contagious side of the question. The opinion I then gave from my observation in the extensive experience I had had in 1817, is the same I maintain at the present day, that in Yellow Fever I have not been able to trace positive proofs of contagion, as it has invaded the island always at distinct intervals, and in an Epidemic form, just as I have seen Small Pox, Measles, and Scarlatina, and other Epidemics, do, during the twenty-three years I have resided in Trinidad. But there is this to be remarked, that in our treatment of Fever, the utmost care is taken to promote a free ventilation in the chambers of the sick; and it is a doubt, whether, in other circumstances, a malady truly contagious or infectious might not be generated; and this view of the case is rather confirmed, by my having witnessed in ships, where the air in the sleeping berths is necessarily confined, facts strengthening this opinion. I have seen this disease propagated throughout whole crews, and even in dwelling-houses on shore. It was remarkable, that when once it appeared in a house, all the susceptible inmates

were attacked. Some melancholy examples of this occurred—one in a mercantile establishment, during the late Epidemic in Trinidad, where the whole number of Europeans in the house, seven, were attacked, one after the other, with the prevailing disease, which carried off three of the number.*

There is no positive reason to believe that Yellow Fever has ever been imported into Trinidad from other places, although sanitary precautions have always been taken, by way of erring, if unnecessary, on the safe side. By recent accounts from Barbadoes, Yellow Fever is now decimating the troops and inhabitants in that island,—a locality, as already remarked, entirely free from malarious influences.

SYMPTOMS.

The symptoms which I consider to be distinctive of Yellow or Black Vomit Fever are, the extreme suddenness of the attack. The person will rise well in the morning, and in an hour after be taken ill; the extreme nervous depression simultaneous with the onset of the disease; the intense headach, and the seat of it just over the eye-brows, and feeling

* And in the premises occupied by one of the stipendiary magistrates, and on board the steamer Paria.

like a bar across the forehead; the blood-shot eye in the early stage of the disease; the little comparative derangement of the chylopoetic, intestinal, and cerebral functions; the peculiar yellowish brick-dust appearance of the skin; and the black vomit in the last stage of the disease, and its almost invariable termination in death or convalescence, about the fifth day.

In the Bilious Remittent there is not the same regularity, or intensity, or uniformity, in the symptoms, and there is generally observed in it more of functional derangement, particularly of the biliary system.

TREATMENT.

An early application of remedial means is of the greatest importance in the cure of Yellow Fever; and if the patient is seen in the formative stage of the disease, much may be done towards moderating the severity of it. Should the febrile symptoms of high vascular action, headach, and cutaneous heat, not be fully developed in the early stage of the disease, it will be best not to detract blood until reaction shall have been fully established, which almost always takes place within a few hours from its onset. Meanwhile, it will be proper to remove all causes

of irritation, to place the patient in the most unrestrained situation, in a well ventilated apartment, and to remove the contents of the stomach and bowels as quickly as possible. If there be nausea present, let it be encouraged by the administration of tepid water, and if not, a gentle emetic of infusion of radix ipecacuanhæ should be given; an aperient enema should also be administered to empty the rectum; and, as soon as the stomach ceases to be irritable, an effectual purgative should be given, at divided doses. That which I have found to answer best is Chloride of mercury, with extract of jalap, or compound essence of colocynth, in equal proportions; ten grains of the compound mass to be given hourly till the bowels are acted upon. As soon as reaction is established, a vein should be opened, and from thirty to forty ounces of blood taken from a large orifice. If unable to bear the erect posture, it should be taken in the recumbent, as it is important to unload the vessels to a certain extent, to produce the necessary relaxation of the system. This usually follows the blood-letting, and is evidenced by removal of the headach, diminution of cutaneous heat and perspiration, and not uncommonly by alvine evacuations; and when such effects are produced, it may be taken as a favourable prognostic sign. Within a few hours after the venesection, the headach commonly returns, and then a question will arise if it should be repeated. If the

pulse beats strong and full, without hollowness or softness, it should be done, but to a more moderate extent than in the first instance. In this respect, much will depend on the case, and on the judgment of the practitioner. These directions are intended to apply to the generality of cases; but there are others which affect peculiarly the nervous system, and where the disease assumes the congestive adynamic character; in such cases the febrile heat is not great; there is great nervous depression, and disposition to internal congestion. The advantage of blood-letting in such cases is uncertain. Such cases are the most intractable, and generally fatal; and to treat them with success requires careful watching, and the avoidance of every thing that may weaken or depress the vital powers. They not unfrequently occur in those who have suffered from the depressing passions, such as distress of mind, or the influence of panic.

The same general rules that are practised with respect to fevers in general, are applicable as regards the general treatment of Yellow Fever. It may be at the same time held in view, that the transition from the condition of excitement to that of depression is occasionally very rapid in this disease, more so than in other descriptions of fever, and demands proportionate attention on the part of the physician, so as to obviate those symptoms in their initiatory

stage. And with respect to particular systems, without following to extremes the doctrines of Broussais, the state of the gastro-intestinal mucous membrane is not to be overlooked in the indications of cure. I may, however, hazard the remark, that the system inculcated in the British schools of medicine appears to me to be that best founded, as avoiding equally the extremes of the *medecine expectante*, and the *medecine perturbatrice*.

Excessive doses of Chloride of mercury, my experience would lead me to oppose; particularly, if given uncombined, when exhibited in such large doses, as from 20, even as far as 60 grains, which I have seen practised. There is reason to believe it exerts an injurious effect on the gastro-intestinal mucous membrane, as it has the effect, in such doses, of occasioning dark tarry dejections; when given so as to affect the system, it is equally objectionable; when ptyalism does ensue in cases of recovery, there is no proof that the favourable termination has been the result of mercurial action; and in such cases, the cure is always protracted, and relapses are more frequent and fatal.

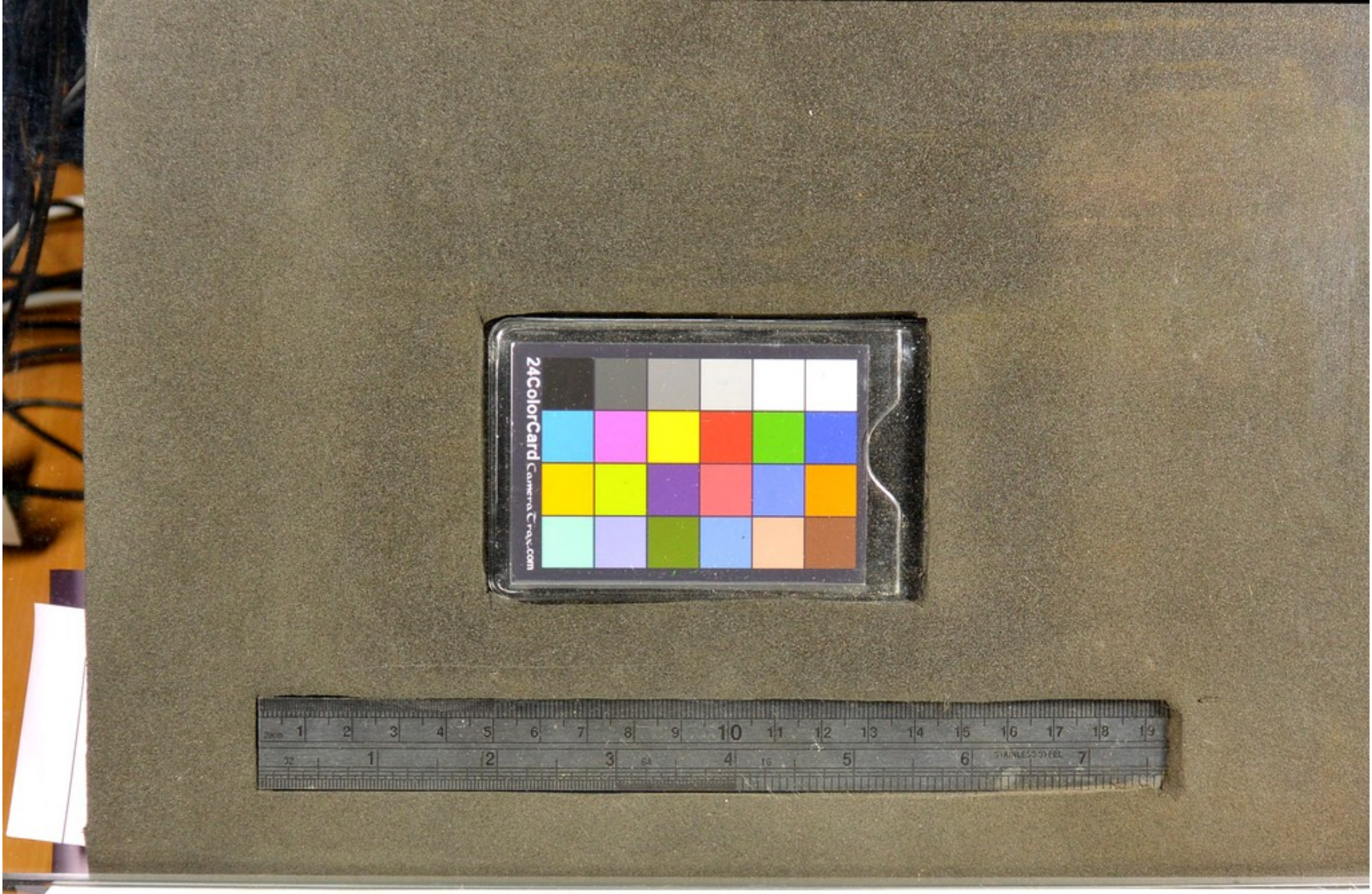
POST MORTEM EXAMINATIONS.

I have been present at many *post mortem* exa-

minations of cases of Yellow Fever, and have had occasion to observe that the appearances do not materially vary. There have always been signs of vascular determination to the chylopoetic viscera, and of organic lesion, to a greater or less degree, in the stomach and primæ viæ, and considerable distension of the great vessels supplying these viscera. In cases where black vomit had preceded death, and had been ejected, in the latter stage of the disease, in great quantities, I have found this fluid in the stomach, and have squeezed from the radical, or extreme vessels of its internal coat, a fluid corresponding to the vomit. The coats of the viscus have, at the same time, been firm in texture, while abraded portions were also observable. I have even observed flocculi floating in the vomit before death, corresponding to the abraded portions of surface afterwards discovered in the autopsy.

The black vomit I believe to consist of blood in an altered or vitiated state, and to be poured out from the extreme vessels of the stomach. In its mode of rejection there is this peculiarity—it is ejected with ease, without apparent effort, and is discharged in great quantity. It is regarded as invariably a fatal symptom, although there are, notwithstanding, a few cases of recovery on record.

EDINBURGH PRINTING COMPANY.


24ColorCard
CameraCraze.com