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PHYSICIAN'S REPORT

ON

CLOSING THE ROPER HOSPITAL

AFTER THE

YELLOW FEVER EPIDEMIC OF 1854,

MADE TO THE

TRUSTEES OF THE INSTITUTION.

BY

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MDCCCLV.

REPORT.

To the Trustees of the Roper Hospital:

GENTLEMEN:—The termination of the epidemic of yellow fever having made it, for the present, unnecessary to keep the Hospital open, it becomes my duty to make you a report of the operations of the institution during the time I have had charge of it.

The doors of the Hospital were thrown open on Friday, the 9th of September, and by the evening of that day 14 patients were under treatment. On the evening of the 10th, there were 25 patients in the Wards, and the daily number of admissions continued rapidly to increase till the 20th, on which day 21 patients were admitted.

The greatest number in the Hospital at one time was about 70. This was on the 20th September, and on that day the influx of patients was so rapid, that, for a time, it was impossible to provide beds fast enough.

The total number of patients treated was 254. Of these 198 were males and 56 females.

131 were from Ireland; 51 from Germany; 29 from the United States; 15 from England; 4 from Scotland; 3 from British America; 3 from Poland; 2 from France; 1 from Spain; 1 from Switzerland; 1 from Denmark; 1 from Norway; 1 from Sweden; and 11 unknown.

The ages of these patients were as follows:—3 were under 10 years of age; 40 between 10 and 20; 142 between 20 and 30; 46 be-

tween 30 and 40; 18 between 40 and 50; 2 between 50 and 60; 1 between 60 and 70; and one was 96 years old.

The length of time these patients had been in Charleston was as follows:—2 of them had been but 2 days; 1 but 5 days; 3 but 1 week; 23 between 1 and 2 weeks; 21 between 2 and 3 weeks; 4 between 3 and 4 weeks; 28 under 6 months; 45 between 6 months and 1 year; 36 between 1 and 2 years; 21 between 2 and 3 years; 9 between 3 and 4 years; 14 between 4 and 5 years; 6 between 5 and 6 years; 6 between 6 and 7 years; 3 between 7 and 8 years; 2 between 8 and 9 years; 1 between 9 and 12 years; 1 between 12 and 14 years; 1 between 14 and 15 years; 1 between 15 and 16 years; and 1 had been 35 years in the city; he was not, however, a yellow fever patient.

In 15 cases the length of residence was not ascertained.

Their occupations were as follows:—50 labourers; 46 servants; 37 sailors; 18 painters; 17 clerks; 8 carpenters; 8 bakers; 6 seamstresses; 6 coachmen, 5 bricklayers; 5 shoemakers; 4 washerwomen; 3 coach-makers; 3 cabinet-makers; 2 guardmen; 2 machinists; 2 blacksmiths, 2 paper-hangers; 2 pedlars; 1 cook; 1 gasfitter; 1 tailor; 1 cooper; 1 dyer; 1 watch-maker; 1 nurse; 1 merchant; 1 segar-maker; 1 farmer; 1 fireman; 1 sausage-maker; 1 butcher; 1 plumber; 1 stewardess; 1 tanner; and 12 unknown.

The part of the city in which the patients resided was accurately noted, but this was found to cover so large a portion of the entire area inhabited by our population, that I can only give a general idea of the divisions of the city most severely scourged. Much the larger number were from the eastern section; and in this section the greatest number occurred along the wharves, in Tradd-street, Bedon's Alley, Elliott-street, East Bay, Church-street, Linguard street, and Market-street.

It may not be without interest, to note the fact that cases were brought in from parts of the city which have heretofore been but sparingly touched by the disease, and some from places in which it had never been known before. Thus many were from the extreme northern and western parts of the city, and not a few from Cannonsborough. The locations from which these came were uniformly low sections, in which the *modern* process of filling up marsh lots with offal and garbage has been lately introduced.

It was not possible, in every case, to discover the exact length of time the patients had been sick before coming into the Hospital. Many of them were too ill to give any account of themselves, and the desired information could not be obtained from those who brought them in.

In 182 cases its stands as follows:

Ad. on 1st day of illness	19	of these	4	died and	14	recov'd; unk'n.	1
" 2d "	44	"	8	"	31	" "	5
" 3d "	34	"	12	"	20	" "	2
" 4th "	16	"	5	"	8	" "	3
" 5th "	24	"	13	"	10	" "	1
" 6th "	14	"	10	"	3	" "	1
" 7th "	14	"	6	"	7	" "	1
" 8th "	1	"	0	"	1	" "	0
" 9th "	6	"	1	"	5	" "	0
" 10th "	3	"	2	"	1	" "	0
" 11th "	2	"	0	"	2	" "	0
" 14th "	1	"	1	"	0	" "	0
" 15th "	3	"	0	"	3	" "	0
" Unknown,	1	"	0	"	1	" "	0
Totals,	182		62		106		14

It has not been possible to make this table out with the accuracy that is desirable. By it only 62 deaths are accounted for, while of the whole number treated in the Hospital there died 92. This inaccuracy is owing to the fact that in a considerable number of cases resulting fatally, no information could be obtained from the patients as to the length of time they were ill; but some interesting results are deducible from what we do know. Thus of the 19 admitted on the 1st day of illness, 4 died and 14 recovered, 1 being unknown—giving a mortality of about one-fifth. Of the 44 on the 2d day, 8 died and 31 recovered, 5 being unknown—giving a mortality between one-fifth and one-sixth. Of the 34 on the 3d day, 12 died and 20 recovered, 2 being unknown—giving a mortality of about one-third. Of the 16 on the 4th day, 5 died and 8 recovered, 3 being unknown—giving a mortality of about one-third. Of the 24 on the 5th day, 13 died and 10 recovered, 1 being unknown—giving a mortality of over one-half; and of the 14 on the 6th day, 10 died and 3 recovered, 1 being unknown—giving a mortality of over 3 to 1. While of the 14 on the 7th day, only 6 died, 7 recovering and 1 being unknown—giving again a diminishing mortality of less than one half, which we find continuing—for of the 1 on the 8th, there was no death. Of the 6 on the 9th, there was 1 death to 5 recoveries—giving a mortality of one-sixth. Of the 3 on the 10th, there were 2 deaths to 1 recovery—giving a mortality of two-thirds. Of the 2 on the 11th, both recovered. Of the 1 on the 14th, 1 died; and of the 3 on the 15th, none died.

From these figures, I think, we may fairly infer that the prospective advantages of medical treatment are very decidedly lessened after the disease has progressed beyond the first day, and that the unfavourable prognosis continues till the sixth day. After this it again becomes favourable, and continues so even to the fifteenth day; or, in other words, to the end of the disease. From this I would draw the conclusion that the sixth day is the turning point in the disease, and that all those who are fortunate enough to pass that period are comparatively safe. I say comparatively, because there is yet danger for the patient from a new set of symptoms, the deaths which occur after this period being always from secondary diseases attacking important organs as sequelæ of the fever, or from relapses which are in every case attributable to imprudence on the part of the patient.

The congestions or secondary diseases may take various forms. There has been a death from abscess of the kidney, two from pneumonia and one from dysentery. The determinations to the head, liver and kidnies, continued for a varying length of time. Those to the liver were often most tedious in their protraction, and those to the head presented some remarkable features to which I shall have occasion to recur.

I have thought it important to ascertain the duration of the several stages of the disease. This was, in 201 cases, for the first stage as follows:—

In	1	case the	1st stage lasted	8	hours.
"	2	"	"	12	"
"	12	"	"	24	"
"	3	"	"	36	"
"	52	"	"	48	"
"	102	"	"	72	"
"	24	"	"	96	"
"	2	"	"	5	days.
"	2	"	"	6	"
"	1	"	"	7	"
Total,	201	cases.			

From this table it will be seen that the duration of the 1st, or febrile stage of the fever, was 3 days, in by far the largest number of cases (102); 2 days in the next largest (52); and 4 days in the next (24) and that in quite a considerable number (12) it was only 1 day, while in 2 cases it was prolonged to 5 days; in 2 to 6 days; and in 1 even to 7.

Similar observations with regard to the 2d stage show the following results in 155 cases :—

In	1	case	the 2d stage	lasted 15	hours.
"	80	"	"	24	"
"	2	"	"	36	"
"	67	"	"	48	"
"	4	"	"	72	"
"	1	"	"	96	"
Total,	155	cases.			

Thus it will appear that in rather the largest number of cases (80) the duration of the 2d stage was 1 day; and that in a number not much less (67) it lasted 2 days; and, further, we will see that this latter term was the extent of duration for this stage in 150 out of the 155 cases collated. We may, also, remark that 4 days was the extreme prolongation of this phase of the disease.

With regard to the duration of the 3d stage, it would be difficult to assign a limit, since into this fall all the cases which run on to local congestions, and these congestions are not unfrequently most tediously protracted.

The manner in which the disease invaded was strictly enquired into in all practicable cases. It was noted in 225 that out of this number 92 attacks were sudden—32 came on insidiously, the patients complaining of malaise, &c. for a considerable time, and then gradually becoming feverish—and that 101 offered the usual symptoms characterizing the approach of fever.

Examined with a view to ascertain how often chill was the incipent symptom the following figures are made out. In 232 cases it was ascertained that 104 commenced with chill and 128 without.

It will not probably be expected by the Trustees that I should go fully into the history of the symptoms of a disease which has so often been described with minuteness, and which did not, on this occasion, deviate in its general features from the common type. Yet a brief reference to some of its most striking characters may not prove uninteresting.

The symptom to which I will first refer is pain in the back. It was present in *every single* case that came into the Hospital; was one of the most distressing to the patient, and often persisted with little or no abatement till convalescence was far advanced. This may strictly be said to be the only symptom that was never wanting. It was intense in

degree and extended around the loins and flanks towards the lower portion of the abdomen, occasioning great distress in the space between the umbilicus and pubis. The invariable presence of this symptom, its severity, duration, and evident correspondence with the most serious derangements of all the glandular and secretory functions of the abdominal viscera, induced me to assign it an important place among those from which the nature of the disease in question may be inferred. To this point I will again have occasion to refer.

Headache must be placed next, as least often absent, though in rare instances it was wanting, or was but slight in degree throughout the disease. Accompanying the headache there was generally pain in the eye-balls, which, in many cases, was severe and sensibly increased both by touch with the finger and on motion in the orbits. But it is to be noticed that there was never any increased sensativeness of these organs by the stimulus of light.

The degree of intensity which the headache attained in some cases was appalling. In these instances it seemed to presage the approach of congestion, or other deterioration of the brain, which occurred in some of our cases within a very few hours after the first invasion of the fever. The cases of this kind were characterized by a train of symptoms, and by results peculiar to themselves, as I shall have occasion to point out further on.

The next symptom in point of frequency and importance, was pain and weariness in the limbs—a sensation which sometimes extended to the whole muscular system, giving an indescribable sensation of fatigue, which was often less endurable than actual pain. This symptom, when connected with pain in the head of the violent degree above alluded to, often went on to a sensation of numbness or tingling of the flesh, which always, and with good reason, excited the utmost fears of the patient. It was invariably the precursor of early dissolution.

Next to this symptom, in frequency, came nausea and vomiting, and where these existed it generally, though by no means always, happened that later in the disease tenderness of the epigastrium came on. The cases thus characterized (as was remarked above of those in which headache predominated,) formed a group with peculiar symptoms and results.

The flushed eye was seldom absent, and the congested skin generally accompanied this symptom, but not always. The flush of the eye sometimes became an actual and permanent echemosis, and the congestion of the skin often extended from the face and neck downwards till it covered the whole body, rendering it so discoloured, particularly in the

latter stage when jaundice had come on, as totally to change the original hue of the skin, causing the fairest to be as dark as mahogany.

The temperature of the skin, and the other deviations from the healthy standard, are worthy of note. It is not possible to indicate any invariable condition of this organ as belonging to yellow fever. In some cases it was scarcely changed from the natural standard of heat and moisture. In some it was hotter than usual, and in a few rare cases below the healthy standard from the very beginning of the disease. I have endeavoured to prepare a tabular statement of the condition of the skin, marking its temperature and moisture in each of the three stages of the disease. An unavoidable difficulty, however, in the way of making such a table, consists in the fact that some of the cases continued to retain their peculiarities in these respects throughout the different stages of the fever; and, therefore, in order to make the statement accurate, must be allowed to figure in more than one column. This will account for the line of totals footing up higher than the whole number of patients treated.

The skin in the	1st stage.	2d stage.	3d stage—was	
Hot and dry in	120	22	9	151
Hot and moist in	60	14	1	75
Cool and dry in	00	1	44	45
Cool and moist in	00	34	30	64
Natural temp. and dry in	1	18	45	64
Natural temp. and moist in	11	37	00	48
Total number of observations,	-	-	-	447

I remarked above, that in a few rare cases the temperature was below the natural standard. I have not separated these from the 12 cases grouped under the two heads of natural temperature in the first column of the table, because the deficiency of heat was not so decided as to be very easily distinguished.

Among those who were hotter than is common, even in fever, the thermometer went up to 108° when placed in the arm-pit, and 105° on the cheek of a few of the hottest.

It will be seen by reference to the table just given, that heat of skin was not always accompanied with dryness. Perspiration poured from the surface most profusely in some of those who were the hottest. Though this moist state of the surface was, as a general indication, considered favourable, it was by no means sufficient to decide the prognosis. In a later stage of the disease, however, when at the termination

of the febrile paroxysm the skin was moist and warm, the indication was decidedly favourable. Even the cold and moist skin was, at this stage, more favourable than the cold and dry surface.

The pulse admits of no more accurate classification, as a diagnostic symptom of the yellow fever, than the temperature. In some cases it was not perceptibly altered from the healthy rate. In some it was strong, bounding, full and quick. In some it was frequent, small and weak; and in others it was large, soft, and soap-bubbly; occasionally it was slower than usual.

These remarks apply to the first stage especially. As the fever went off the pulse invariably lost its force and volume, though it sometimes remained frequent.

I have constructed the following table, with view of showing the comparative frequency of some of the more important characteristics of the pulse in each of the three stages of the fever.

The pulse was in the	1st.	2d	and 3d stages, viz:	
Full in	114	53	26	193
Small	50	94	119	263
Quick	169	106	116	391
Slow	12	49	36	97
Weak	72	133	135	340
Strong	63	9	7	79
Frequent	130	35	53	218
Infrequent	1	95	77	173
Natural	17	00	00	17

Total number of observations, - - - 1771

An inspection of the last column of this table, will show the important fact that want of energy and vigour were the most frequent characteristics of the circulation. Thus it was quick, weak, small and frequent, in the order in which these conditions are here named. It may also be remarked, that the pulse was full in 26 and strong in 7 cases in the 3d stage; this is to be accounted for by the violence of the local determinations resulting after the yellow fever symptoms, proper, had passed off. Again, in the 2d stage, it was full in 53 and strong in 9; this was also the result of local determination.

The tongue afforded the same variety as the pulse. In a few cases it seemed not to be changed from its natural appearance. Generally, however, it was altered. Sometimes it was clean, moist, swollen and tremulous. It would be difficult, I conceive, for any one not conver-

sant with yellow fever, to discriminate this tongue from that of the habitual inebriate. And if the watery eye, the nervous pulse, the stupid face and stammering speech did not suffice to complete the delusion, the observer must be gifted with uncommon perspicacity.

In another state of the tongue this organ was moist and brown; sometimes it was dry and brown; and several cases presented a very remarkable appearance, the whole surface of the tongue seeming to be overlaid with a snow-white velvety coating. Sometimes it was red at the tip and edges and sometimes dry, red, and cracked to such a depth that blood would ooze from the creases. Occasionally it was glossy, dry and red, and sometimes so swollen that it was utterly impossible for the patient to speak, or even to put it out of his mouth.

The following table will show the frequency with which each of the most peculiar symptoms presented by the tongue was met with. As in the table of the pulse given above, it must also be borne in mind for this, that the same tongue gave many different symptoms. I have thought it best to construct the tables in this way, rather than to attempt to characterize each tongue by its most striking symptom, because by such a course many very remarkable peculiarities of this important organ would have been lost.

The tongue in the	1st	2d	and	3d	stages,
was swollen in	4	29		31	64
Dry	52	23		14	89
Bloody	00	3		31	34
Whitish	44	33		18	95
Brownish	94	53		39	186
Moist	109	109		110	328
Red	43	26		33	102
Velvety and white	23	2		3	28
Black	1	1		19	21
Natural	26	10		7	43
Glazed	4	2		00	6
Cracked	00	3		00	3
Total number of observations,			-	-	999

Thus it will be seen that the tongue was moist in the greatest number of cases, and what is particularly worthy of note, is that it was so in each of the three stages, and in about the same absolute numbers in each state. This indicates, further, that the cases which commenced with moist tongue preserved this state to the last. The peculiarity

next in point of frequency was the brownish fur. This was usually found along with the moisture, but did not, like it, continue throughout the other stages. It cleared away in those cases in which convalescence was setting in, and gave place, in the more violent instances, to a black, hamorrhagic, glazed or cracked condition. The red tongue was next in frequency, being most common in the first and third stages. In the first stage it was coincident with tenderness of the epigastrium, and was always the precursor of serious gastric trouble. The whitish tongue was next in frequency. It was met with in those cases where the fever was ushered in with rather a mild train of symptoms, but was not always without danger, as some of the most insidious cases originated so. The dry tongue came next, and after it the swollen. These symptoms generally went together, but not always, for often the swollen tongue was moist, giving occasion to the term flabby, which has been used to discriminate these cases. The swollen tongue was always recognized as a dangerous symptom, for when accompanied with moisture it announced the advent of serious gastric disorder, and when dry, glazed and cracked, the approach of a no less dangerous train of nervous derangements.

The tongue was natural in 43 cases, in 7 of which it continued so to the third stage. In 34 it was bloody, 31 being in the 3d stage, and it is important to remark, that in many of these the coming on of hamorrhage was synchronous with the setting in of convalescence.

As it does not come within the scope of this report to go fully into the history of the disease, I will here leave, for the present, the description of the symptoms of the fever, and go on to bring to the view of the Trustees some facts with regard to the organic and secretory changes produced, which will, perhaps, be found to possess some interest.

As introductory to the remarks I wish to make relative to the matters thrown off from the body, I would observe that though the symptom, so much dwelt on formerly, of tenderness at the epigastrium, was often totally absent throughout the entire duration of the disease, yet nausea and vomiting were seldom wanting; and it is of the matters thrown up that I would first speak.

The fluids thrown up in the early hours of the disease were occasionally tinged with bile. But this was by no means general. Often there was no colour perceptible, or the tinge was bluish. But, generally, the taste to the patient of this fluid was acid and not bitter. The substance to which this acid taste was owing, was found to be an excess of free hydro-chloric acid, and to the presence of this acid in such large quantities was, doubtless, owing the blue colour which the vomited fluids so

often presented, as well as the darker hue of these matters when the fearful black vomit made its appearance. To the early presence of a superabundance of this acid was, probably, owing the undigested state of the last meal eaten by the patient previous to his attack, which was generally thrown up pretty much as it had been swallowed, even many hours after it had been in the stomach. To it was, doubtless, also owing the existence of the black vomit, the appearance of which will be earlier or later in the disease, according as the hæmorhagic tendency takes place. That black vomit is, in fact, extravasated blood changed in appearance by mixture and trituration with an acid, and gathered into flakes and shreds by mucus, now seems hardly to admit of a doubt.

This view of the nature of black vomit is perfectly reconcilable with a fact often noticed before, and constantly seen in our cases this season, viz: that it appears during the first stage of the disease, and even early in that stage leaving no ground for attributing it to ulcerative, putrefactive, or any other action of disease upon the solids of the body, and throwing us altogether upon the fluids for an explanation of all the remarkable phenomena connected with this part of the disease.

And I may, perhaps, not be going beyond the sphere of my duty on this occasion, in suggesting a connexion between this vitiated state of the fluids of the stomach and a diseased condition of the great sympathetic nerve, indicated by that symptom which was shown above to have been the only *invariable* attendant of the disease, viz:—Pain in the back. I am of opinion that if ever we arrive at such perfection in our means of examining the nervous system, as to be able to detect the existence of disease with certainty as well as accuracy in these tissues, we will find that in yellow fever the sympathetic system is in that state, and, as a consequence, deranges all the secretory actions of the digestive apparatus. Such a view enables us to account for all the symptoms. The deep seated pain along the dorsal region, most violent at the points corresponding with the plexuses of the nerve in question, and the radiations of this pain from these points to the distributions of the nerve, in some cases involving the entire area of its ramifications; the intense nausea and obstinate vomiting, which are found to begin long before any traces can be discovered of lesion in any other of the tissues of the stomach; the entire alteration of all the secretions and consequent arrest of the functions of digestion, assimilation, &c.; the tendency to early solution, and even dissolution of the blood; and, finally, the heavy, dull and painful oppression in the whole abdominal region, including the space from the umbilicus to the pubis, are strongly inferential if not positive proofs of the diseased condition of this great system. By reflex

action from this important nerve the whole spino-cerebral system is brought into disordered action, and hence the train of general symptoms familiar to all.

This, however, is not the place to elaborate such views. I have only referred to them as explanatory of other derangements of the general system which I must now proceed to touch briefly upon.

Before leaving the Intestinal Canal and its disordered functions, I will refer to one other appearance as corroborative of the ideas suggested in relation to the existence of Muriatic Acid. As the blue or ocean-green colour of the vomited fluid is seemingly due to this acid mixed with bile, or saliva in the upper part of the canal, so the grass-green hue of the stools appears to depend on a mixture of bile, with the same acid in the parts of that tube below the stomach. It is easy for any one to satisfy himself of these effects from such mixtures by experiments out of the body.

A symptom which was noted as of fearful consequence, was suppression of Urine. It was present temporarily in a large number of the cases during the early part of the first stage, and in 15 it was persistent, continuing to three days. Of the 15 thus effected 12 died and but 3 recovered. This condition must be carefully distinguishable from retention of urine, which was also common even when it could not be referred to strangury. The latter was easily overcome, the former seldom yielded.

It may be as well for me to finish what I wish to say on the subject of the urine in this place. Thongh scanty in quantity, yet often but slightly altered, in the early stage of the fever, it offered deviations from the healthy standard in the second and third stages of great importance.

First: It was found to eliminate from the system an immense quantity of bile in those cases in which jaundice succeeded as one of the secondary symptoms.

Second: It carried off free hydrochloric acid in a considerable number of cases as was shown when the tests for that substance were used, and I am disposed to believe from the frequent presence of this acid in the stomach and intestines, during the early stage of the fever that its existence in the urine takes place earlier and is more freqent than we are yet aware of. It has not been possible for me to institute a comparison between the number of deaths and recoveries in cases where this state of the urine was made out. It appears to have been coincident with great danger to the patient, but it will be a point of much interest to be investigated hereafter, whether its presence in the urine at this stage

of the disease is not, as in the case of bile under the same circumstances, proof of the existence of an eliminative action.

Third: There were, in a few cases red sedementary deposits consisting of urate of ammonia, colored with purpurine.

Fourth: Large quantities of organic débris, apparently epithelial scales, cells, &c., were found in a few cases.

For these results of chemical anaysis of the urine, I am indebted to Dr. Ford, whose careful researches though not sufficiently corroborated by repetition, will, I am disposed to believe, when completed and given to the public, be found to open some new views of this disease.

In further reference to those symptoms which were of most importance in the disease, I will now direct the attention of the Trustees to the frequent occurrence of hemorrhage. It was noted in 86 cases. I say 86, but although I have set down only 10 cases of Epistaxis as occurring in the first stage of the fever, it is proper to state that it was reported to have existed in several others, before they came in; which, if taken into the account, would considerably increase the per centage of hemorrhage. I have thought best, however, only to tabulate those in which I was myself witnesses of the existence of this symptom.

Of the 86 cases there was hemorrhage in the

	1st.	2d.	and 3d,	stages from the
Stomach	0	1	3	4
Lungs	0	1	0	1
Nose	10	18	11	39
Tongue	0	21	19	40
Urethra	0	2	0	2
				—
				Total 86

showing an average, with the figures given, of about $\frac{1}{3}$ hemorrhagic cases (in some one of the stages,) out of the whole number of patients treated. Though the numbers given make the frequency of this symptom the same from the nose and mouth, it is probable (for the reason just stated above) that the former is rather more frequent than the latter. The value to be attached to these symptoms varied accordingly as they come on earlier or later in the disease. Thus epistaxis in the beginning of the febrile paroxism often relieved the violence of the head ache, and ceasing with the arterial excitement, was found to have acted beneficially. While the bleeding from the mouth, coming on at the point of disappearance of the fever, and unaccompanied with any other unfavorable symptoms, seemed to perform the part of a critical evacua-

tion, and thus to relieve the oppressed functions of the system. The appearances that indicated danger in either of these hemorrhages were the profuseness of the discharge, the offensive smell accompanying it and the setting in of that train of nervous symptoms which was so frequently found to terminate the disease.

In constructing the above table I have deviated from the plan adopted for those of the skin, pulse and tongue, taking in this only the actual number of cases in which hemorrhage was observed, and classing them according to the part from which it was most profuse. It, therefore, is proper that I should state that when the hemorrhagic tendency existed no part was safe from its invasion. Thus, in addition to those mentioned in the table, blood was seen to issue from the gums, intestines, ears and from cuts, bruises and blistered surfaces. In one case the small incission made for evacuating the contents of a thoroughly matured boil continued to bleed so profusely as to weaken the patient seriously, and it could only be arrested by an ingenious application of adhesive plaster coated over with collodion.

In 149 cases there was jaundice. This symptom commenced in the first stage very frequently, the yellow eye being its first indication In these cases the yellow suffusion generally spread over the face, neck and body. But, in a much larger proportion it did not become well marked till the febrile stage was passing off. In the greater number of cases it was of short duration, yielding readily and quickly to the advance of convalescence, but in a few it was intense in degree, general in extent and tedious in duration. In some of the protracted cases it cleared away slowly and gradually, so that the patients were still affected with it when they left the hospital. In these cases the bile seemed to be passing off entirely by the kidneys. In others it disappeared in a few hours; the skin of the patients becoming changed in hue between the morning and afternoon visits, so as to leave them scarcely recognizable. In these cases I remarked that this sudden change was synchronous with the discharge from the bowels of a black tenacious inodorous matter in greater or smaller quantity. This matter sometimes resembled pluff mud and sometimes was moulded into the form of the intestine, passing away in long ribbon-like lengths. I was not able to ascertain, positively, the composition of this matter by analysis, but believe it to be bile mixed with thick mucus. I may add that the appearance of this matter in the stools was hailed as a sure augury of convalescence.

Reference was made above to the various local determinations observed as sequelæ or results of the disease. I would now invite attention to two, which I have already adverted to while speaking of the

early symptoms, and which, being observable from the beginning, gave peculiar characteristics to the train of phenomena about to follow.—From these I was early enabled to prognosticate the fate of the patient with some approach to certainty. These determinations were marked by very different symptoms throughout, and the fatal termination (when this occurred) was characterized by equally different phenomena. In one set of these cases the determination was to the *stomach*, in the other to the *head*.

In order to characterize these distinctions, it may be proper to remark that in the first category, I have placed all those cases in which nausea, vomiting and epigastric tenderness prevailed: in the second, those in which delirium, phrensy, mental alienation or coma existed. Though it must be remarked that there were cases in which the two types were blended.

Out of 187, cases gastric determination predominated in 128, and cerebral determination in 59.

Let us see the results in these different cases.

Out of the 128 with gastric symptoms, 54 died and 74 recovered.

Of the 59 with head symptoms, 50 died and 9 recovered.

These figures speak for themselves.

The prognosis and the termination of the cases arranged under these two categories presented characteristics peculiar to each. In the gastric cases the nausea, vomiting and epigastric tenderness presaged black vomit, hemorrhage, glandular or pulmonary determinations, collapse, capillary stagnation, and that remarkable condition peculiar to yellow fever in which the dying man walks, talks, eats and dies.

In the cephalic cases the delirium, phrensy, mental alienation and coma continue and increase till the strait jacket alone can restrain the violence of the maniac, or till the oppressed brain can no longer supply the nervous prolongations with the required amount of irritability.

In 37 of these cases death was ushered in by delirium. In 19 by coma. In 17 by subsultus tendinum. In 3 by convulsions. These symptoms were of very varying duration. In some commencing even before the expiration of the febrile stage, and with regard to the delirium it may be observed that its commencement often dated from a few hours after the inception of the disease. Of the cases terminating in convulsions it should be remarked that I have enumerated those only in which that symptom preceded death by some hours. In quite a large number the death agony was made unutterably frightful by convulsions and distortions of the most hideous kind. Of the three cases enumerated, one lasted 36 hours.

In 23 cases, principally among those characterized by gastric symptoms, the passing away of the febrile stage was followed by cold, wet skin. In several of these cases this state proceeded so far as to assimilate the appearance of the patients exactly to the cyanosed cholera patient. I have never seen yellow fever present this bluish, collapsed condition to anything like this extent before. I do not hesitate to assert that any one familiar with cholera, would, if ignorant of the facts of the case, have pronounced these, positively, cholera patients. These cases were not necessarily fatal. Under the unlimited use of stimulants, both externally and internally, a small proportion of them recovered.

In 23 cases there was some form of eruption on the skin. In two of the children treated in the Hospital, an erethematous eruption ushered in the fever and remained distinct till this stage was over. In the remaining cases the eruption came on late in the disease. In 4 it was Lichenoid. In 2 Vesicular and Pustular. In 12 Petechial. In 1 there was Parotitis. In a large number of the patients, boils existed either during the diseases, or after convalescence commenced. Sudamina existed in almost all the sweating cases. There were 2 cases of Herpes, and single cases of each of the following, viz:—Mentagra, Prurigo, Rosiola, Purpura, Erysipelas and Scabies.

The case of Parotitis was remarkable. The patient had thrown up black vomit abundantly, had bled profusely from the tongue, had laboured under mental aberration, had suffered severely from subsultus tendinum, and finally succumbed under the added horrors of an immense parotid inflammation which caused hemorrhage from the ear.

Another of these cases was remarkable for a symptom which I never saw before in any form of the disease. The patient presented the combined features of the two forms of gastric and cephalic determination. He did not retain a dose of medicine or a particle of food, and was laboring under a strange form of mental hallucination, imagining the most impossible things, when, three days before his death, priapism came on and persisted to the last hour of his existence.

Of the 254 cases treated in the Hospital, black vomit occurred in 74. It was found in the stomach and intestines in 3 additional cases on post mortem examination. In many cases the patients entered the Hospital throwing it up, and, in a very considerable number, it occurred within a few hours of their admission.

9 recovered after throwing it up, and 63 died.

The period of the disease at which it appeared varied considerably. In some cases it occurred within 36 hours after the first invasion of the fever. In others not until the 5th day.

The persistance of this symptom also varied. In some it was thrown up for the first time immediately before death, in others it continued for several days. One of the patients, who ultimately recovered, ejected it, with one interval of 12 hours, during 6 days. The arrest seemed to have been owing to the use of turpentine, but the medicine lost its effect, and the vomiting at length yielded spontaneously, when the stomach no longer furnished the supply.

I noticed some complications worthy of remark. There were several cases of distinct intercurrence of the two types of yellow and intermittent fevers. These cases wore the blended livery of the two diseases, and it was not possible to confound them with those in which yellow fever ran its course, continuous, from first to last, and absolutely uncomplicated with the intermittent element. They all resulted favourably under the vigorous use of quinine except one. This case had been exposed to the influences which are known to produce both forms of the fever in the most dangerous degree. The patient had contracted his intermittent fever in Georgetown, and his yellow fever in the most infected part of our city.

Several cases also were complicated with dysentery. There were six of these, and, as was stated above, one died. In the stomach of this patient black vomit was found on post mortem examination. This fact is extremely interesting, proving, as it does, most satisfactorily that genuine yellow fever is met with in combination with dysentery. For upon the possibility of such a blending of these two sets of symptoms rests the decision of the question as to whether the epidemic of yellow fever in Philadelphia, in 1853, was imported or indigenous, a case of this kind having occurred in that city previous to the arrival of the famous barque Mandarin.

I cannot conclude this portion of my report, without recording the important fact that several of our most undoubted cases of yellow fever this year, occurred in individuals who had already suffered an attack of the disease. Six of these were so well proved as to admit of no doubt on the subject. Some of the patients were identified as having gone through the fever in this Hospital in 1852, throwing up black vomit on both occasions. Others claimed to have had it in New-Orleans, the West Indies or South America; and two asserted most positively that they had already had it twice.

Of the treatment pursued in the Hospital I have but little to say. I depended on no specifics, but endeavoured to treat the symptom a they arose. A mild mercurial aperient at first, where the patient had not already been purged; calomel and quinine in medium doses; neu-

tral mixtures with paregoric to act on the skin, and allay irritability of the stomach; very moderate doses of snake-root and salts, if further aperient effect seemed indicated after the treatment just mentioned had been continued two or three days, or castor oil in small quantity in lieu of the snake-root and salts; tonics early administered and made more stimulating as the stage of debility came on; blisters to the epigastrium when tenderness or vomiting indicated their use, and to other parts when debility or local determination seemed to indicate them; nutrition as soon as it could be borne, and in addition to these substances stimulants of the most active, as well as the most inviting kind; and some one, or in turn all, of the mixtures and preparations usually relied on in such cases when obstinate nausea and vomiting existed—such, in a few words, were the means I relied on for combating this fearful disease. I never used calomel with the intention of producing salivation, and when I discovered symptoms of the setting in of this condition, I at once discontinued the medicine. My experience this season tended to confirm the views I have previously entertained in opposition to the ultra calomel plan of treatment, for though salivation occurred in a certain number of our cases, it was particularly remarked that no indication of benefit resulted, and several of the fatal cases were from among those who gave unmistakeable evidence of mercurial impression. Quinine was very freely used; at first, in combination with calomel, for its anti-febrile qualities, and afterwards with brandy, camphor, porter, &c., for its tonic effects. Dovers' powder, carbonate of potash, James' powder and paregoric, were chiefly relied on for cutaneous action. The general warm bath, mustard pedeluvia, cold douche, ice applications, &c., were freely employed and gave us the most valuable results. Packing in wet sheets was tried in some of the hot, dry cases, but I am not prepared to say that any very marked advantage was obtained, beyond the decided comfort the patient experienced during their employment. For the arrest of hemorrhage, creosote was the most effectual article I employed. I cannot say that my experience in the use of any of the articles recommended for the arrest of black vomit, resulted in establishing confidence in their use. In occasional cases good results seemed to follow the use of some of them, but these were so often found to fail in others that I cannot say that any one of them deserves the reputation of a general or certain remedy for this symptom. Creosote, turpentine, morphine, prussic acid, mustard, musk, &c. were tried, and though all seemed to give relief in occasional instances, yet they failed far oftener than they succeeded.

But I will not pursue this part of my subject further. I repeat that

no reliance was placed on any specific, and though I tried all that I conscientiously thought I might use with safety or a hope of success, my chief dependance was on the application of such general principles as seemed to find their required conditions in the symptoms before me.

The result was that of the 254 cases treated, 92 died and 162 recovered—giving a mortality of 2.70-92, or a little over one-third.

In terminating this, the concluding part of my duties as physician of the Hospital, my task would be but imperfectly performed if I did not avail myself of the opportunity it affords me of publicly expressing my high appreciation of the services rendered the institution by the young gentlemen who so kindly aided me. To Drs. Ford and Chisolm, I am indebted for the most valuable assistance, the former having had charge of the male wards from the opening of the Hospital to the present hour; and the latter having taken the same position in the female wards, and occupied it as long as there were any patients there. These gentlemen voluntarily assumed these duties, and arduous as they were unflinchingly fulfilled them, thus rendering the most valuable services without hope or expectation of any remuneration. To Drs. J. Ford Prioleau, Girardeau and Miles, who during the period of greatest pressure had temporary charge of a ward each, I am also indebted for most important assistance.