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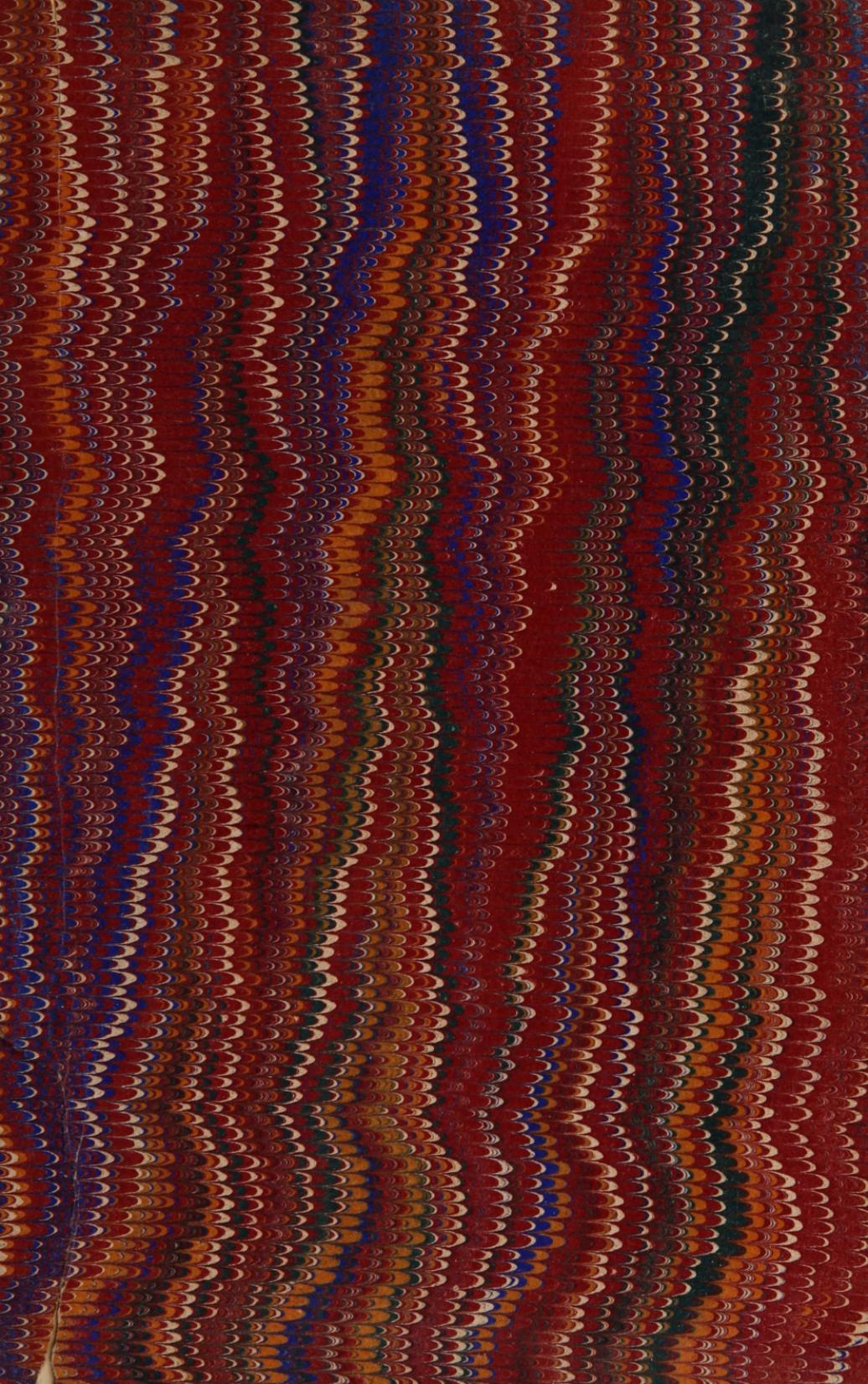
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REPORT

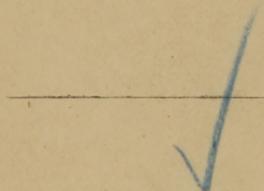
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ON

YELLOW FEVER IN OHIO

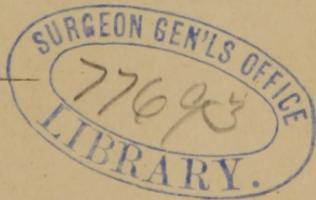
AS IT APPEARED

DURING THE SUMMER OF 1878.



783

By THOMAS C. MINOR, M.D.,
Health Officer of Cincinnati.



CINCINNATI:
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PUBLISHED BY ORDER OF THE
BOARD OF POLICE COMMISSIONERS OF CINCINNATI FOR PRESENTATION
TO THE YELLOW FEVER COMMISSION.

PREFACE.

AT a meeting of the Board of Police Commissioners of Cincinnati, held November the 4th, 1878, Mr. Sutton offered the following resolution:

“*Resolved*, That the Health Officer be instructed to prepare a report on Yellow Fever in Ohio as it appeared during the Summer of 1878—said report to be presented to the Yellow Fever Commission at their meeting in Richmond, Va., November 19th, 1878.”—Which motion was unanimously carried. Ayes, Messrs. Sutton, Dorsch, Hogan, Weber, and President Kinsinger.

In compliance with the aforesaid resolution, I have the honor to submit the following brief report. As a plain statement of facts is all that is desired by the Commission, no attempt has been made to indulge in theories regarding the causation of the disease. I am indebted to my professional confrères in the Ohio Valley for the very full and complete histories of the cases herein recorded. The shortness of time allotted for the preparation of this paper must serve as an apology for any inaccuracies or omissions in this report.

T.C.M.

HEALTH DEPARTMENT OF CINCINNATI,

November 15th, 1878.

REPORT

ON

YELLOW FEVER IN OHIO

AS IT APPEARED

DURING THE SUMMER OF 1878.

By THOMAS C. MINOR, M.D.,
Health Officer of Cincinnati.



WELL known medical author, Warren Stone, has satirically remarked, "Those know most about yellow fever who have seen the least of it." In a paper, regarding the "Epidemiology of Ohio," published in 1877, the writer, having had no personal experience with the disease, but basing his opinions on those enunciated by the celebrated Daniel Drake, expressed himself as follows:

"In the fall of 1796, yellow fever is said to have appeared at Gallipolis, on the Ohio River. In the second volume of "Drake's Disease of the Interior Valley of North America," page 285, in a note relative to this epidemic, the essay of Dr. Miller, of New York, is quoted, who gives, as authority, an extract of a private letter received from Andrew Ellicott, a non-professional observer. Volume Second, of Drake's work, was edited after the death of its illustrious author, by Dr. Hanbury Smith. It is a matter of regret that this statement in regard to yellow fever has been quoted far and wide on the authority of Dr. Drake. If reference be made to Drake's first volume, page 291, it will be seen that he

denies, in positive terms, the occurrence of an epidemic of yellow fever at Gallipolis, claiming that the outbreak was one of malignant remittent fever. Dr. Peachy Harrison and Dr. Hildreth, the two earliest medical writers in Ohio, state that epidemic remittent fever was commonly called yellow fever by the majority of settlers. The Indianapolis epidemic of malignant remittent fever, that occurred in 1821, was regarded by many persons as yellow fever. It is to be hoped that future writers on the subject will not quote Drake as authority for the statement that the disease has prevailed as an epidemic in Ohio. *Yellow fever has never appeared in this State in an epidemic form; occasionally, at rare intervals of time, sporadic cases of the disease have been noticed. These cases, in all instances, contracted the malady in Southern cities, at infected points; and in no case has yellow fever been known to propagate itself in Ohio. Within the last five years several sporadic cases have been noticed in this city (Cincinnati)."*

In the face of recent developments the writer is obliged to change the opinion held prior to 1878. The epidemic outbreak at Gallipolis, during September of the present year, is most certainly proof positive that the disease, under certain favorable conditions, may become epidemic in this State. Grave doubt is also thrown on the statement of Drake, that the Gallipolis outbreak of 1796 was not one of yellow fever. "History repeats itself;" and, in the future, many writers will be disposed to think that the form of disease, manifested at Gallipolis in 1796, was identical with that which appeared in 1878. The views of the writer have been materially modified as before stated, within the short space of one year. Some little personal experience with the disease during the summer just past has caused this radical change of opinion.

Prior to September 30, 1871, a case of yellow fever seems to have been something unknown in Cincinnati. About this period, a white man named Isaac Smith, from Natchez, Mississippi, died at a private house in this city. This death caused no little sensation at the time among the medical fraternity. The case, although imported, created some alarm in the minds of our citizens, soon

dissipated, however, as the lateness of the season and use of proper sanitary precautions, prevented any further manifestation of the disease. Three years later, on September 4th, 1873, a well known steamboat captain, Wm. S. Voris, who had contracted the fever at Memphis, died at his residence in this city. On October 12th, Nathan Swink died at the Pest-house of the disease; and, on October 15th, Wm. Beane, another patient at the Pest-house, perished from the same cause. Again, another ripple of public excitement was manifest, for a few days, but the matter was soon forgotten. All these cases were imported, and in every instance the usual sanitary precautions were taken, and no harmful results followed. The almost unanimous opinion of the medical profession, thereafter, was that Cincinnati would never be subjected to an epidemic of yellow fever, for the reason that its altitude and climate were such as to prevent the development of indigenous cases.

The Health of Cincinnati at the commencement of the summer season just past was never better. In the early part of July, however, the meteorological conditions were such as to largely increase the death rate among our population. A high temperature* combined with a high dew point was manifest during the months of July and August. Over three hundred persons were overcome or prostrated by the intense heat, and a very large number of deaths from sunstroke were reported. In the early part of July a gentleman, who had just arrived from New Orleans, was attacked by yellow fever at a prominent hotel in the city. I am indebted to Dr. T. A. Reamy, of Cincinnati, for the following history of this the first imported case of the season of 1878:

Callier

CASE FIRST.

William Himes, cotton merchant, of New Orleans, arrived at the Grand Hotel, Friday evening, August 2d. He was accompa-

* Highest daily temperature,	July 12th,	87° 50.
“ “ “	August 9th,	84° 00.
Mean monthly temperature,	July,	81° 53.
“ “ “	August,	77° 49.
Maximum temperature,	July	96° on 11th, 17th, and 18th.
“ “ “	August	93° on 19th.
Highest dew point,	July,	77° 11 a. m., on 13t.
“ “ “	August,	74° 18th and 19th.

July 27th

nied by his wife. On Saturday he was well, and he and wife visited by carriage the suburbs. Early Sunday morning (4th) he was attacked with a pronounced chill; had suffered previous evening, however, some headache, with aching in back and lower extremities. At 9.30, on Sunday morning, I saw him. Condition much agitated; thought he had yellow fever. A man had died across the street from his office, which was located in midst of the infected district, in New Orleans, the day before he left. His wife shared the excitement, and, having had considerable experience, she unequivocally pronounced her husband's case yellow fever. His eyes were suffused; his face flushed; skin hot and dry; tongue red at the tip, and edge coated, not very heavily, with a white, dirty fur. Pulse, 124—temperature, $104\frac{3}{4}^{\circ}$ F. I expressed my opinion cautiously. The symptoms could all be attributed to malaria, and I asked for further time, as the fever would soon subside if malarial. Still the history strongly justified the fear that his and his wife's diagnosis was correct.

Prescribed tr. aconite rad. gtt. iij every hour. Sponging surface with tepid water; allowed ice water as drink. 12 M.—rather more pronounced suffusion of eyes; borders quite red; pulse, 120; temperature, 104° ; heat continued.

4 P. M. No change; diagnosis yellow fever.

8 P. M. Pulse, 118; temperature, $104\frac{1}{8}^{\circ}$.

12 P. M. Pulse, 118; temperature, $104\frac{1}{8}^{\circ}$.

Sunday morning, 8 o'clock, temperature, 104° ; pulse, 116. Slight sickness at stomach; no vomiting; conjunctiva slightly tinged; countenance dark; no delirium; urine normal in quantity; not tested for albumen.

11 A. M. No change; heat continued.

2 P. M. Pulse, 120; temperature, $104\frac{1}{2}^{\circ}$.

4 P. M. Pulse, 117; temperature, $104\frac{3}{4}^{\circ}$.

10 P. M. Pulse, 122; temperature, 104° .

Monday, 8 A. M. No special change in symptoms or treatment; patient has been allowed no food, but all the ice drink wanted; sponging and aconite continued.

At 11 o'clock seen with me by Dr. Minor, Health Officer, who concurs in diagnosis and treatment.

2 P. M. Pulse, 114; temperature, $103\frac{3}{4}^{\circ}$; kidneys act well.

6 P. M. Considerable nausea; no vomiting.

12 P. M. At night moved to Hospital.

Subsequent history of case, reported by Dr. Eichberg :

July 30th:—

9.00 A. M.	Pulse 86.	Temp. 104.5° .
1.30 P. M.	“ 82.	“ 104.5° .
5.00 P. M.	“ 82.	“ 103.8° .

July 31st:—

5.30 A. M.	Pulse 88.	Temp. 103.2° .
9.00 P. M.	“ 81.	“ 102.5° .

August 2d:—Nurse came on duty at 5.30 A. M. Pulse, 66; temperature, 102° ; gave $\frac{3}{4}$ of wine immediately; at six o'clock gave beef tea—3 tablespoonfuls.

7.00 A. M.	Pulse 62, fluttering,	Temp. 102.8° .
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Gave 3 tablespoonfuls of wine.

8.00 A. M.	“ 64.	“ 102° .
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Gave 2 $\frac{3}{4}$ chicken broth; patient resting quietly.

8.30 A. M.	“ 88.	“ _____
9.30 A. M.	“ 78.	Gave nourishment.
10.00 A. M.	“ 88.	“ 103° .
11.00 A. M.	“ 80.	“ 102.5° .
12.00 M.	“ 82.	“ 102.2° .
1.00 P. M.	“ 84.	“ 103.4° .
3.00 P. M.	“ 82.	“ 103.2° .
4.00 P. M.	“ 80.	“ 102.5° .
6.00 P. M.	“ 76.	“ 103.5° .

August 3d:—

5.35 A. M.	Pulse 70.	Temp. 100.2° .
7.45 A. M.	“ 70.	“ 100.5° .
9.00 A. M.	“ 72.	“ 100.6° .
11.15 A. M.	“ 72.	“ 100.4° .
1.00 P. M.	“ 76.	“ 102.2° .
3.00 P. M.	“ 72.	“ 101.2° .
4.30 P. M.	“ 74.	“ 101.0° .
5.30 P. M.	“ 72.	“ _____

August 3d :—Continued.

7.00 P. M.	Pulse 72.	Temp. 100.6°.
9.15 P. M.	“ 68.	“ 100.0°.
11.45 P. M.	“ 70.	“ 100.0°.

August 4th :—

2.10 A. M.	Pulse 76.	Temp. 99.5°.
4.10 A. M.	“ 70.	“ 99.3°.
5.30 A. M.	“ 72.	“ 98.8°.
6.30 A. M.	“ 68.	“ 98.8°.
7.00 A. M.	“ 72.	“ 99.2°.
10.00 A. M.	“ 72.	“ 99.6°.
12.00 M.	“ 72.	“ 99.8°.
1.30 P. M.	“ 76.	“ 99.2°.
3.00 P. M.	“ 78.	“ 101.0°.
3.20 P. M.	“ 74.	“ 101.0°.
4.30 P. M.	“ 72.	“ 101.0°.
5.30 P. M.	“ 74.	“ 100.7°.
6.00 P. M.	“ 74.	“ 100.5°.
7.30 P. M.	“ 74.	“ 101.3°.
8.20 P. M.	“ 68.	“ 101. °
10.30 P. M.	“ 78.	“ 100.3°.

August 4th :—Quantity of urine passed in 24 hours, 17 oz. (2)

An analysis of same shows phosphates present in large abundance, which microscope confirms; specific gravity, 1020. Reaction alkaline; urine of a very dark, brownish yellow tinge. Biliary coloring matter present in large quantity, as shown by the nitric acid and three iodine tests. Albumen present in the proportion of about two-thirds. The microscope shows amorphous urates, phosphates, a few fatty granular casts and some kidney-corpuscles.

August 5th :—

12.30 A. M.	Pulse 66.	Temp. 100.0°.
2.30 A. M.	“ 60.	“ 100.0°.
4.30 A. M.	“ 64.	“ 99.5°.
5.30 A. M.	“ 64.	“ 99.6°.
7.00 A. M.	“ 64.	“ 100. °
8.00 A. M.	“ 66.	“ 99.5°.
9.30 A. M.	“ 72.	“ 99.4°.

August 5th:—Continued.

11.00 A. M.	Pulse 72.	Temp. 99.4°.
12.00 M.	“ 64.	“ 99.8°.
2.00 P. M.	“ 72.	“ 100.0°.
3.15 P. M.	“ 70.	“ 99.6°.
5.00 P. M.	“ 66.	“ 99.6°.
6.00 P. M.	“ 66.	“ 100.6°.
7.00 P. M.	“ 68.	“ Asleep.
8.00 P. M.	“ 64.	“ “
8.30 P. M.	“ 64.	“ “
9.00 P. M.	“ 60.	“ “
10.00 P. M.	“ 62.	“ 99. °
10.30 P. M.	“ 66.	“ Asleep.
11.00 P. M.	“ 66.	“ “
11.30 P. M.	“ 68.	“ “
12.00 P. M.	“ 68.	“ 99.3°.

In the last 24 hours passed $32\frac{1}{2}$ oz. urine, containing phosphates and biliary coloring matter in considerable quantity. Albumen in proportion of one-half. Microscope shows crystals of triple phosphates, a considerable number of yellowish corpuscles of size and shape of pus corpuscles; one granular cast; urates in abundance, sp. gr. 1.018; reaction alkaline not so murky as has been.

August 6th:—

12.30 A. M.	Pulse 64.	Temp. ———
1.30 A. M.	“ 64.	“ ———
2.00 A. M.	“ 60.	“ 99. °
2.30 A. M.	“ 60.	“ ———
3.00 A. M.	“ 64.	“ 99.2°.
3.30 A. M.	“ 60.	“ ———
4.00 A. M.	“ 70.	“ ———
4.30 A. M.	“ 68.	“ ———
5.00 A. M.	“ 64.	“ 100.0°.
5.30 A. M.	“ 62.	“ 98.8°.
6.00 A. M.	“ 60.	“ ———
7.00 A. M.	“ 60.	“ ———
7.50 A. M.	“ 60.	“ 98.8°.
9.25 A. M.	“ 56.	“ 99.4°.

August 6th :—Continued.

10.00 A. M.	“ 60.	“ 99.2°.
11.00 A. M.	“ 62.	“ 99.4°.
12.00 M.	“ 62.	“ 98.5°.
2.00 P. M.	“ 60.	“ 99.5°.
3.15 P. M.	“ 62.	“ 99.8°.
5.00 P. M.	“ 62.	“ 99.6°.
6.00 P. M.	“ 64.	“ 100. °
7.25 P. M.	“ 70.	“ 99. °
8.00 P. M.	“ 60.	“ _____
9.00 P. M.	“ 68.	“ _____
9.30 P. M.	“ 68.	“ 99.2°.
10.00 P. M.	“ 64.	“ _____
10.30 P. M.	“ 60.	“ _____
11.00 P. M.	“ 60.	“ _____
11.30 P. M.	“ 60.	“ 99. °
12.00 P. M.	“ 66.	“ _____

In last 24 hours passed 47½ oz. urine; amount of albumen diminished to one-fourth; phosphates still present in considerable quantity, and urine heavily loaded with biliary coloring matter, sp. gr. 1020; has been taking cream tartar; ʒss. every 4 hours for last 24 hours; no casts in the specimen examined.

August 7th :—

12.30 A. M.	Pulse 66.	Temp. _____
1.00 P. M.	“ 64.	“ _____
1.30 P. M.	“ 62.	“ 98.3°.
2.00 A. M.	“ 60.	“ _____
3.00 A. M.	“ 60.	“ _____
3.30 A. M.	“ 64.	“ 98.3°.
4.00 A. M.	“ 66.	“ _____
4.30 A. M.	“ 62.	“ 99.0°.
5.00 A. M.	“ 64.	“ _____
5.30 A. M.	“ 64.	“ _____

During night complained of great itching of skin all over the body, insomuch that he could not sleep. During the day he had partaken somewhat too liberally of food, and complained of some pain in epigastrium with colicky sensations; ordered for former

a weak solution of carbolic acid, 1 part to 120, and for latter a light sinapism over region of pain. Both symptoms seemed to be relieved by treatment.

6.30 A. M.	Pulse 64.	Temp. 99. °
9.00 A. M.	“ 62.	“ 99. °
11.00 A. M.	“ 68.	“ 98.5°.

Gave enema of Ojss., which resulted in a small passage of natural color and well molded.

1.30 P. M.	Pulse 64.	Temp. ———
3.00 P. M.	“ 64.	“ 98.5°.
4.00 P. M.	“ 58.	“ 98.5°.
4.30 P. M.	“ 56.	“ 98.5°.
5.30 P. M.	“ 60.	“ ———
8.30 P. M.	“ 56.	“ 98.5°.
9.10 P. M.	“ 52.	“ ———
9.30 P. M.	“ 53.	“ 99. °
10.00 P. M.	“ 58.	“ ———
10.30 P. M.	“ 60.	“ ———
11.00 P. M.	“ 63.	“ ———
11.30 P. M.	“ 53.	“ 98.3°.
12.00 P. M.	“ 60.	“ ———

The past 24 hours has taken no cream tartar; passed only 21 oz. of urine; phosphates still present in large quantity; albumen about the same as on the previous occasion; no casts; some triple phosphates under microscope; urine turbid when passed; biliary coloring matter.

August 8th:

12.30 A. M.	Pulse 60.	Temp. 98.2°.
1.00 A. M.	“ 54.	“ ———
2.00 A. M.	“ 60.	“ ———
2.30 A. M.	“ 58.	“ ———
3.00 A. M.	“ 50.	“ 98.°.
3.30 A. M.	“ 54.	“ ———
4.00 A. M.	“ 56.	“ ———
5.00 A. M.	“ 54.	“ ———
5.30 A. M.	“ 66.	“ 98.5°.

Passed 12 oz. urine.

August 8th :—Continued.

6.30 A. M.	Pulse 54.	Temp. _____
7.00 A. M.	“ 52.	“ _____
7.30 A. M.	“ 52.	“ _____
8.15 A. M.	“ 52.	“ _____
9.15 A. M.	“ 72.	“ _____
Passed 14 oz. urine.		
11.00 A. M.	“ 58.	“ _____
11.30 A. M.	“ 60.	“ _____
12.00 M.	“ 62.	“ 98.6°.
12.40 P. M.	“ 60.	“ _____
1.50 P. M.	“ 60.	“ 99. °
3.00 P. M.	“ 66.	“ _____
4.30 P. M.	“ 60.	“ _____
6.40 P. M.	“ 60.	“ _____
7.00 P. M.	“ 60.	“ _____
7.30 P. M.	Had natural stool; passed 13 oz. urine.	
8.30 P. M.	Pulse 56.	Temp. _____
9.30 P. M.	“ 54.	“ _____
10.30 P. M.	“ 54.	“ _____
11.30 P. M.	“ 46.	“ _____
12.30 A. M.	“ 62.	“ 98.8°.
1.30 P. M.	“ 56.	“ _____
2.30 P. M.	“ 56.	“ _____
3.30 P. M.	“ 48.	“ _____
4.30 P. M.	“ 59.	“ _____
5.30 P. M.	“ 60.	“ _____

August 9th :—

6.00 A. M.	Pulse 60.	Temp. 98.8°.
10.30 A. M.	“ 62.	“ _____
11.45 A. M.	“ 54.	Passed 16 oz. urine.
2.00 P. M.	“ 58.	Temp. 99. °
5.00 P. M.	“ 52.	“ _____
5.30 P. M.	“ 60.	“ 99.5°.
6.00 P. M.	“ 64.	“ _____
7.30 P. M.	“ 64.	“ _____
8.30 P. M.	“ 60.	“ 98.8°.

August 9th:—Continued.

Passed 12 oz. urine.

9.00 P. M.	Pulse 58.	Temp. ———
9.30 P. M.	“ 52.	“ ———
10.30 P. M.	“ 54.	“ ———

Gave brandy; saw patient three or four times during the night, (night nurse being unwell) and found him asleep on each occasion; pulse, 60, 52 and 56. An analysis of this and the previous day's urine shows a marked improvement. The quantity of albumen had diminished to $\frac{1}{8}$ and $\frac{1}{2}$, respectively. The turbidity is gradually passing away. The sp. gravity remains at 1020; the reaction slightly alkaline.

August 10th:

5.30 P. M. Pulse 48. Temp. 98.5°.

Passed 16 ounces urine; had an action of bowels, small and constipated; pulse feeble and intermittent.

6.00 A. M.	Pulse 46.	Temp. ———
6.30 A. M.	“ 60.	“ ———
8.00 A. M.	“ 56.	“ 99. °
8.30 A. M.	“ 58.	“ ———
10.00 A. M.	“ 62.	“ ———
10.45 A. M.	“ 56.	“ ———
12.15 P. M.	“ 60.	“ ———
1.45 P. M.	“ 56.	“ 99.4°.

Passed 14 oz. urine.

2.30 P. M. “ 64. “ ———

Removed to another room; pulse accelerated to 72; temperature 99°. After this no regular record was kept of the amount of urine passed. One analysis was made which gave the following results: Urine, normal color; no sediment; reaction, slightly acid; no phosphatic crystals; a mere trace of albumen, and a barely discoverable amount of biliary coloring matter. The pulse and temperature were taken three times daily: morning, noon and night, and remained pretty constant at the following: Pulse, 72; temperature, 99°, 98.8°.

During the whole of the attack, whenever the pulse was below 50, champagne was administered during the early part of the

attack, brandy during its later stages. The diet consisted only of broths, until the 8th of August, when some fried chicken was allowed. Since that time the diet has been gradually increased, until now ordinary diet is taken with relish and without any apparent unpleasant results. The itching of the skin still persists sufficiently to cause some annoyance; indeed, the patient says, he would be well, if it were not for the almost irresistible tendency to scratch. The yellowness of the conjunctiva has completely disappeared. The skin is only slightly tinged. Appetite is good, and patient is rapidly returning to his normal vigor.

CASE SECOND.

Silas Banks (colored, Cincinnati Hospital). This patient was a deckhand on the *Mary Houston*, a New Orleans boat, that landed at Louisville on or about July 25th. Leaving the boat at that point, Banks took the Mail Line for Cincinnati, arriving at this port on Monday, July 30th. By the time he reached the city the patient was quite ill, and, a few hours later, was transferred from Picket's boarding-house, on East Front Street, to the Cincinnati Hospital. The following extract from the *Louisville Courier-Journal*, at about this date, is proof conclusive that other cases of fever were developed on the *Mary Houston* :

"We have another case of yellow fever in New Albany, that of Tandy Carroll. Mr. Carroll arrived here (Louisville) on board the steamer *Mary Houston*, on which boat he was stricken. He was feeling unwell on the boat, being taken with the usual symptoms of yellow fever. He went home (New Albany) sick the day he arrived, and has been confined to his room ever since. Dr. Nutt has been called to attend Carroll, and reports it a well defined case of yellow fever, the patient having the black vomit, etc."

It is needless to remark that the *Mary Houston* left New Orleans some days after the outbreak of the epidemic at that port. This would seem to be sufficient evidence to settle any doubts that may have existed regarding the cause of death in the case of Silas Banks.

I am indebted for the following report to Dr. Eichberg, House Physician at the Cincinnati Hospital. The post-mortem report was made by Dr. N. P. Dandridge, pathologist to the Hospital:

Silas Banks, colored, admitted July 30th; aged, 24; American; single.

Family history unknown.

Always healthy; had syphilis a year ago; has had intermittent fever.

Present trouble commenced three weeks since with chill every day at 11 o'clock; for past five days has had fever, preceded by chill; latter has continued ever since; has been vomiting nearly all the time; has pain in the stomach and epigastric region.

Present condition: Man above average height; unusually well developed and nourished; black hair and eyes; lips dry and cracked; tongue covered with yellow coat, red at edges; appetite poor; bowels costive.

Pulse 120; temperature 104°; some tenderness in right iliac region.

July 30th: Had a general convulsion this morning; had several during the night; was unconscious during convulsions; vomited some black fluid this morning; ordered \mathcal{R} . cinchonidæ sulph. grs. x. spts. frumenti $\bar{3}$ ss.; every three hours.

Physical examination negative.

Has nausea constantly; applied mustard to stomach; vomiting still continues, almost as violently as before; ordered sinapism removed, and ordered blister, 4x6, over epigastrium; black vomit still continues; lies in an apparently stupid condition.

5.30 P. M. Has had no convulsions since morning; vomiting stopped about two hours ago; suddenly raised his head and dropped over dead; just before death had passage of clay-colored stool.

Post-mortem appearance: August 1st, P. M., 18 hours after death; rigor mortis slight.

Lungs had undergone some post-mortem changes, but presented no morbid appearance.

Heart. There were firm, old pericardial adhesions over the en-

tire surface; these with the pericardium-stained yellow; heart somewhat large and flabby, and muscular substance readily broken down; no valvular lesions.

The *peritoneal* surface of the intestines was of a dark slate color, probably from post-mortem changes; throughout small intestine solitary follicles were enlarged.

Liver rather small; gall bladder empty.

Stomach was very much distended with a dark, brownish fluid; mucous membrane softened, and of a dark slate color.

Spleen large, weight, 24 ozs.; of dark slate color, on section; consistency about normal.

Kidneys somewhat large; surface smooth; capsule readily detached, on section of decided yellow color.

Bladder was considerably thickened, and contained a considerable quantity of brownish fluid; mucous membrane stained of decided yellow hue.

We now come to the consideration of case No. 3, one about which some doubts have been expressed by parties who never saw a yellow fever patient, and know nothing regarding the particulars of the case under consideration. This case must go on record, as the first non-imported case ever developed in Cincinnati.

On the afternoon of August 7th, I was called on by Dr. George W. Haile, to visit one of his patients in consultation. This patient, a young girl named Maggie Sweeny, a resident of Cincinnati, who had not been out of the city for a number of years, was lying sick at the house of her uncle, on Water Street. This quarter of town is one largely frequented by boatmen, and fronts on the Ohio River, its sanitary condition being unusually bad. On entering the residence of Mr. Sweeny, a boatman's lodging house, I found a number of trunks and valises scattered about. Three trunks, that had been opened, were on the floor of a back room, occupied by the patient. On questioning the people in the house, it was admitted that the baggage was from New Orleans, and belonged to deck hands on the river. The patient was suffering with black vomit at the time of my visit, and the case was

unmistakably one of yellow fever. As Miss Sweeny was in an almost moribund condition, no attempt was made to remove her to the Hospital. She died a few hours later. For the early history of the case, I am indebted to Dr. George W. Haile, for the subsequent history to Dr. Wm. Carson. Both these gentlemen regarded the disease as yellow fever, an opinion in which I fully concur, and attribute the origin of the disease to the infected baggage opened in the patient's room.

Another suspicious case occurred in the same room of this house, a short account of which is appended to Dr. Haile's report. I also saw the latter case, but have never been fully satisfied that it was one of yellow fever, as convalescence was too speedily established, considering the violence of the previous symptoms.

CASE THIRD.

Maggie Sweeny (white). Reported by Drs. Haile and Carson.

A history of the case of Maggie Sweeny from the time I first saw her until the time of my discharge from attendance.

Was called to see her on August 6th, about noon; she was suffering, when first I saw her, from violent pains in the head and back; no pain in limbs; a burning fever, and frequent vomiting of a billious looking substance; bowels constipated; some tenderness over region of stomach; tongue moist and slightly coated; her eyes appeared slightly congested; countenance of a slightly livid or purple cast; answered questions, but appeared a little stupid; there was great prostration; pulse about 90 per minute; she had been taken ill the evening before; a slight chill followed by the fever; pains, etc.; vomiting; ordered a purge of 5 grs. hydrarg. sub. mur., with 10 grs. pulv. rhei; also spts. mindereri, with hydrocyanic acid dil; saw her again at 9 o'clock of same day; at this time she was in a deep stupor, but could be moved sufficiently to get her to put out her tongue, by speaking in a loud tone of voice and shaking her; bowels moved twice for purge; continued medication, with hot mustard foot-baths frequently repeated; cold cloths to head; also sponging off surface of chest and arms with tepid water; on the morning of the 7th there

appeared to be a decided remission; vomiting much better; pain much less severe; stupor gone, and fever apparently much less; still great prostration; continued medicines, and ordered, in addition, two 7 gr. doses of sulphate quinia, one at 7½ a. m., the other at 12 o'clock m.; on the evening of this day, at 5 o'clock p. m., Dr. Minor saw her with me, at which time her temperature was 103° F.; pulse 80; more marked injection about eyes, and livid appearance of countenance; great prostration, and vomiting of substance of black appearance; continued mindereri and acid; saw her again at 9 o'clock p. m.; temperature 102° F.; pulse 80; vomiting checked for past two hours; no change in condition otherwise; there had been a complete stoppage of the urinary secretion from the first; did not see the case after this time. The patient died the following day of black vomit.

The mother of this girl had a slight attack of the fever at the same time, being taken two days before the girl with pain in back and limbs; high fever; vomiting; and, after a purge, seemed much relieved, but still suffered from severe pains in back and limbs; also fever lasting several days.

Case No. 4 reported by Drs. Sittle and Falls.

I saw this, the second indigenous case, and, having examined it carefully, must say that it was of as well marked and malignant type as any case imported into this city from the South.

CASE FOURTH.

Early history of case No. 4.—Report of Dr. Sittle:

Thomas Butler, drayman.

Hauled bales of rags from a steamer that came from the South; was healthy before his present illness; he had a sudden attack of chill on Saturday morning, 2 a. m., followed by a high fever, dizziness in his head, headache and a feeling of general weakness. In the morning the fever was not quite so high as in the afternoon, and, after this, the patient wanted medical attention.

I found him with a febrile pulse; skin a little dry and com-

plaining of weakness; pain in the epigastrium; fullness of the head and thirst; tongue slightly coated but moist.

I ordered injections to move his bowels, and prescribed 2 doses of sulphate quiniæ, six grs. each, to be taken on Sunday, before the time of expecting a chill. (I at that time supposed he was going to have an attack of intermittent or remittent fever).

August 11th: No chill to-day; fever and other symptoms of yesterday continueing; gave: hydrarg-mass, grs. x, and one seidlitz powder; after this frequent operations occurred, which I arrested by one dose of pulv. opii, gr. ss. ($\frac{1}{2}$).

August 13th: Diarrhœa stopped; patient vomited a dark-greenish bilious fluid; fever continued, but not so intense; he had a great deal of pain in his stomach; complains of weakness; sensorium not disturbed, but has a stupid appearance; very thirsty; tongue a little dry; pulse normal.

I ordered a saturated solution of soda bicarbonat. et acid. citric; a sinapism to be applied over the stomach, and when removed to apply chamomile fomentations.

I gave ice, plenty of milk and beef tea.

August 14th: Did not sleep well last night; vomited every thing he would take during the night; what he vomited this morning has a dark, bloody color; a remarkable decrease in his strength is apparent; tongue coated with a dark fur and dry; bladder empty, and has passed no urine for two days; sensorium free; pulse normal; temperature 102° or probably 103° ; skin yellow; conjunctiva injected; black vomiting made it suspicious to me that it was a case of yellow fever. Dr. Minor, whom I called to see the patient with me, thought it was a very suspicious case. Butler was transferred to the hospital, and died Aug. 15th, 1878.

Later history of the case by Dr. Falls, physician in charge of Rohs Hill Hospital:

Thomas Butler, 33, Cincinnati, brunette, married, driver for Benj. Hay, S. W. corner of 2d and Broadway, residence in city since birth, admitted 5 p. m., Wednesday, August 15th, 1878.

States that he had not been absent from the city; has been en-

gaged as drayman in hauling "shoddy" from the river boats to the rag ware-house; had to load and unload the bales, and at night he was so dirty from handling them that he had to scrub off the dirt from his body before he could dress and go home; lately has been hauling only from the "Louisville Mail Line Boats," but not feeling well he stopped work last Thursday, August 8th. He states that the "shoddy" is shipped from the South and West to Louisville, and re-shipped from there to this city; he is not aware of having been near any one from the yellow fever districts.

Last Saturday (August 10th), he had headache during the day and night; the day previous he felt depressed; at 2 a. m., Saturday, August 10th, he had a severe chill for about 15 minutes, followed by fever and pain in his back; eyes, he says, were blood-shot (suffused); Sunday and Monday he had attacks of vomiting, first vomiting what he would eat or drink, but later a slimy-green fluid; headache has continued, but was worse on Tuesday, and at this time had severe aching in limbs; fever has continued unabated.

6.45 p. m., temp. $100\frac{1}{2}^{\circ}$, pulse 80, soft and feeble, resp. 28; lies on his back perfectly conscious, but expression of face denoting great anxiety; is very much prostrated, and has constant nausea and retching; icterus well marked; tongue covered with a brownish fur, very dry, edges red and glazed; no appetite; bowels moved to-day; were costive when first taken sick, but was given a cathartic by the physician who attended him before being transferred to the hospital; sleep has been very restless; skin dry and harsh to the touch; is very thirsty. As he was being brought into the ward, he vomited a dark, almost black vomit, but no great amount.

Ordered to have a sinapism applied over his stomach; to be given ice pellets, equal parts of iced milk and lime water, one tablespoonfull every hour until stomach becomes quiet, and then more frequently, cold application to the head; to be sponged often with tepid water over the entire body; to be given at 8 p. m., sulph. quinia, grs. xx. (20); also to have spts. frumenti \bar{z} i every three hours; nausea and vomiting were arrested until 9 p. m.,

when he had an attack of black vomit, which continued at intervals up to 4 a. m., when he vomited fresh blood.

Thursday, August 15th, 8½ a. m. Delirious, and lies in a semi-comatose state; at times is restless and moaning; bowels have not moved, and has passed no urine since admission; extremities cold; became delirious at 9 p. m., and has had several convulsions during the night, and up to the present time; temp. 99°, pulse 100; almost imperceptible, resp. 38, labored; after 11 a. m., had no more convulsions; became comatose, and died at 2.45 p. m.

CASE FIFTH.

On August 13th, John Welsh, a fireman on the steamer John Porter, arrived in Cincinnati by rail, having left the boat at Louisville. He was complaining of pains in the head, back and limbs, and had a high fever; eyes injected, tongue coated, and skin of a sallow hue. Dr. Vanzant, Marine Surgeon of this Port, pronounced the case to be one of yellow fever, of a mild type, an opinion in which I fully coincided. The patient was sent to the hospital and ultimately recovered.

CASE SIXTH.

On August 14th, Sanitary Inspector Dowling, discovered a suspicious case on the steamer Fleetwood, a boat plying between Cincinnati and ports on the Upper Ohio. I examined this case and found the patient to be a man named Thompson, a mate on the John Porter, who had left the infected boat at Louisville. As Thompson was apparently convalescing from the disease and refused to go to the Hospital, he was allowed to go to his home in Western Pennsylvania.

From the statements made, by Welsh and Thompson, regarding the condition of the Porter, and also from telegrams received from Southern ports, I determined to start down the river and meet her as soon as possible. As a short history of the boat might be interesting to those who have not heard of this plague stricken craft, I append the following brief statement, together with a

report subsequently made to me by Drs. Carr and Slough. As this was the boat responsible for the introduction of yellow fever at Hickman, Kentucky, and Gallipolis, Ohio, the history is a document of public value.

HISTORY OF THE STEAMER "JOHN PORTER."

THE last voyage of the illfated steamer "John Porter" will be quoted, hereafter, in the annals of medicine, by all writers who believe in the infectious character of yellow fever and in its portability. The John Porter left New Orleans bound for Pittsburg, July 18th, 1878, six days after the disease had declared itself in the former city. At the time of leaving port she had a crew of thirty-five men. One of these men, Murphy, a fireman, was feeling unwell when he first boarded the boat, and, on the day after leaving New Orleans, July 19th, was taken down with all symptoms of yellow fever. Before reaching Vicksburg two more of the crew, McCullen and O'Brien, both firemen, were attacked by the disease. The Porter reached Vicksburg on or about July 25th, where McCullen and Murphy were landed and sent to the hospital, where the latter afterward died. The remaining patient, O'Brien, was examined by a physician and his case reported to be one of malarial fever. The boat then continued on her way up the Mississippi river, until it reached a point some sixty miles above Vicksburg, when O'Brien died of black vomit, and was buried on the river's bank. This mournful task performed, the John Porter again started on her voyage northward. Shortly after passing Arkansas City three deck hands were taken sick with fever, but were all convalescing by the time the boat reached Cairo, at which point they were discharged. The Porter then left Cairo for St. Louis, where three barges were added to her already heavy tow, and the steamer started on her way to Pittsburg. Sometime before reaching Louisville fever again made its appearance, and a deckhand named Wilson died near Caseyville, Ky., and was buried on the shore. Capt. Mahan, Hugh Funk, Degleman, first mate,

Thompson and the chambermaid were suffering from yellow fever when the boat landed at Louisville. At this point, many of the crew becoming alarmed, left the boat and scattered through the city. One of them, John Welsh, a fireman, made his way to Cincinnati by rail and entered the hospital, August 13th, suffering from a mild attack of the disease. Another of the crew, Thompson, the mate, passed Cincinnati on the steamer "Fleetwood." Captain Mahan and the chambermaid were sent to their homes in Ohio and Pennsylvania by rail, and Hugh Funk, pilot, entered the Louisville hospital. All these latter parties had well developed cases of yellow fever. Such of the old crew as remained, together with men employed at this point, now manned the boat, and she started on her way up the Ohio, Capt. Bickerstaff of Pittsburg, in command, O'Neal of St. Louis, engineer, and pilots Hanlon and Woodward at the wheel. None of these latter named had as yet been exposed at any infected port. When the boat left Louisville for Cincinnati, none of the old crew, with the exception of engineer Degleman, were sick. The latter was down on his back in the officer's state room with fever. Alarming statements in regard to the Porter and her sanitary condition having been telegraphed North from Southern points, and it being understood that the steamer intended to lay up at Cincinnati for a few days to have some needed repairing done, I deemed it my duty to investigate her sanitary condition in order to see whether it would be safe to allow the boat to land at this port. This was several days before quarantine was declared. Accordingly, on the afternoon of August 14th, I boarded the Madison packet, Sherley, in company with Sanitary Inspectors Knoppe, Meehan and Dowling, and started down the Ohio to meet the Porter. Previous to my departure, I had ordered Dr. Carr, of the Nineteenth District, and Inspector Hadley to proceed to Lawrenceburg by rail, fearing the boat might not be inspected at a point far enough below Cincinnati.

When I reached Lawrenceburg in the evening the Porter had not arrived. Here Inspector Dowling was left to reinforce Dr. Carr and Inspector Hadley, and I continued my way down the Ohio in search of the dreaded steamer. I met and boarded the

“Porter” near Rising Sun, Indiana, about 48 miles below Cincinnati, at 10 o'clock, p. m. I was welcomed by Capt. Bickerstaff and to him explained the object of my visit. Bickerstaff was feeling very uneasy in regard to his crew, and informed me that they were so much demoralized by fear that he was afraid they would all desert the boat at Cincinnati. It was Capt. Bickerstaff's desire to continue on his course up the river after landing and sending the sick engineer, Degleman, to the hospital. In the course of my conversation with Bickerstaff and other officers of the boat I learned that the three of the eighteen barges in the tow were from New Orleans and had been lying for several months in the immediate neighborhood of the point first infected in that city. This alarmed me. I at once saw that, if the boat was allowed to land at Cincinnati and the crew should happen to desert, mischief would probably follow, owing to the presence of the barges. Shortly afterward Bickerstaff asked me to look at Degleman, who was lying sick in an adjoining state-room. On examining this unfortunate gentleman, I found him to be afflicted with yellow fever.

As Degleman was suffering from intense thirst, I went to the medicine chest and prepared a solution of citric acid. While engaged in mixing this preparation, several of the crew presented themselves and asked for medicine. I was struck with the appearance of these men. They all had a careworn, haggard expression and complained of suffering from malaria and constipation. I weighed out a number of five grain quinine powders, and prescribed epsom salts in several cases. Returning to the cabin I had another conversation with Capt. Bickerstaff, and informed him that, owing to the fact that of there being yellow fever on the boat, I did not wish the crew to scatter through Cincinnati and leave infected barges at the wharf, and would have to forbid his landing. Bickerstaff insisted that he must land on Degleman's account. I then went to Degleman's state-room and told him the result of my conference with Bickerstaff. He seemed disappointed at not being allowed to go ashore, but consented to remain provided I would furnish the boat with a physician. From Degleman I learned the history of the voyage.

Early on the morning of the 15th I examined the boat. The "Porter" was in a fairly good condition, having been cleaned up and disinfected with carbolic acid and fumigated with sulphur by Capt. Bickerstaff, just after leaving Louisville. The water closets aft were the only really bad feature on board, the stench arising therefrom being almost suffocating when the doors were closed. Outside of these nuisances I thought the "Porter" was as clean a boat as I ever saw. The barges surrounding the boat were in a very bad sanitary condition, being filled with foul bilge water and decaying vegetation.

We arrived at Lawrenceburg, Ind., about 6 a. m. on morning of 15th. Here Inspectors Knoppe and Meehan were sent ashore in skiffs to join Inspectors Hadley and Dowling, and were told to take the first train for Cincinnati. Dr. Carr was ordered on board the Porter, and the boat again proceeded on her way up the river. During the morning Dr. Carr discovered two more of the crew complaining, and, on examination, one patient was found to be suffering from yellow fever.

Fearing, from the general appearance of the crew, that there would be more sickness on board before Pittsburg was reached, I determined to reinforce Dr. Carr, and accordingly, on our arrival opposite Cincinnati, ordered Dr. Slough, of the Ninth District, on board. My instructions to the doctors were to see the Porter through to the end. How faithfully, nobly and manfully they carried out my orders, at the risk of their lives, is a matter of history. Young and almost unknown, professionally, they grew famous in a few days. With death dealing its blows around them on every hand, they clung to their post of duty to the end, and escaped the fell destroyer as if by a miracle. The following report speaks for itself:

DR. T. C. MINOR, HEALTH OFFICER, CINCINNATI:

The following is a copy of the log book of the trip on the "John Porter," and history of cases on the boat; also the result of the investigations made by your order at Gallipolis, September 15th, 1878:

Boarded the "John Porter" at Lawrenceburg, Indiana, at six

a. m., in obedience to your orders, you having boarded her some thirty miles down the river. The persons on the boat at that time were as follows :

Dr. T. C. Minor,	Mr. Hanlon, Pilot,
Capt. Bickerstaff,	Chas. Woodward, Pilot,
Dr. L. C. Carr,	A. Armstrong, Mate,
Tom Hutchins, Mate,	Chas. Degleman,
Lew Case, Engineer,	Dan O'Neal, Engineer,
Wm. Bunting, Texas Tender,	J. Fountain, 2d Cook.

The five following were colored :

Robert Atkins, Steward,	Mattie Fry, Chambermaid,
Dan Woodruff,	Jacob Thomas, Nurse,
First Cook.	

Making seventeen in the cabin.

The deck hands were :

Robert Kronler,	Mike Ryan,
Tom Sullivan,	Mike Kœhler,
John Crawford,	Jno. Callahan,
Mullenberg.	Wm. Briceland,
Wm. Farrell.	

The firemen were six in number and all colored :

Mose Smith,	Wm. Smith,
John Smith,	Henry Smith,
Andy Johnson, and one other.	

There were seven other deck hands who required no attention, and left the boat well ; consequently I did not take their names. The sum total on board at that time was 39. Charley Degleman had been sick two days and was considered a mild case. At 9 a. m., Koehler complained. I saw him, and telling Dr. Minor his symptoms, he pronounced it yellow fever. At 10 a. m. Dr. Minor saw him again, and was if possible more emphatic in his diagnosis.

We arrived at Cincinnati at one p. m. Dr. Minor and Mr. Hanlon left the boat. Dr. Minor had the necessary medicines

sent on board; and ordered Dr. Slough to board her. At one p. m. she started on that terrible trip up the river.

August 15th, 6 p. m., Thursday: Put to shore at New Richmond, Ohio, in a skiff to purchase some drugs and a syringe.

Friday, August 16th:—We make no stop to-day. 12 m., one man has just complained of being ill. The symptoms are the same as those of Wm. Koehler. At 7 p. m. another has complained, and the crew are growing demoralized. At nine p. m. arrived at Portsmouth. Needing some medicines and expecting some things that had been sent to us, we attempted to go ashore in a skiff; we made the landing with difficulty; all we procured was whisky and daily papers. We proceeded on up the river until 12 o'clock, when we were compelled to lay up the rest of the night on account of a heavy fog. Capt. Bickerstaff is just beginning to complain. He has undoubtedly been overworked, and is looking badly.

Saturday, August 17th: We continue our way up the river; have had no occasion to stop to-day; provisions are very low; the meat we had on board is by this time quite offensive. We were kept busy to-day looking after the well men and disinfecting the boat with carbolic acid, sulphur and lime; men are feeling very despondent on account of the spirit manifested toward us as we proceed up the river; 8.30 p. m., arrive at Gallipolis; no new cases to-day.

Sunday, August 18th, 8 a. m.: Four cases this morning; a foggy and intensely disagreeable rain has set in, and our first cases are rapidly growing worse. We attempt to proceed up the river; newspaper controversies will probably explain why we continued our way up the river in this condition. The fact is, there were no inducements offered to land at any point; could not pass the wreck of the "Brilliant," and added to this a break in the machinery; we were compelled to drop back to the old landing. The machinery was repaired that night by twelve o'clock, but the men would work no longer. C. Degleman sank rapidly when our course up the river was checked, and died at 10 p. m., Sunday, August 18th.

Monday, August 19th, 6 a. m.: Four new cases to-day; driz-

ly rain continues; have no assistance as yet; the outlook is fearful; 1 p. m., Dr. Slough and myself have induced the men to drop the boat down the river, out of sight of the town, with the understanding that the Board of Health would look after us; 11 p. m. Koehler dies.

August 20th. 3 a. m.: Briceland dies. 6 a. m., the men are in a deplorable condition. We seem to have no head, the captain having been sick for the past forty-eight hours. They do not want to move down the river, all they want is enough money to enable them to leave the boat and go some place—any place, so that it is away from the boat; but thank God, we have a few brave spirits among us. We have some more new cases to-day, making a total of fourteen—fourteen down including the three that are dead. By 12 m. we have succeeded in burying the dead, and finally raise steam and drop down the river out of sight of town.

Tuesday, August 20th, 6 a. m.: Have our hands full in preserving order as well as looking after the sick; still waiting anxiously for money to send the well off the boat; have rid ourselves of some five or six timid ones; we let Mrs. Fountain have her boy to-day; it may have been wrong, but to remain on board was sure death for him; to go home to his mother seemed like a new lease of life. 6 a. m., the money at last; and two hours after receiving it all that remained on board are—sick: Capt. Bickerstaff, Tom Hutchings, D. O'Neal, Wm. Farrell, T. Sullivan—well: Andy Armstrong, Dr. Slough and myself—eight in number. 9 p. m., Farrell dies.

Wednesday, August 21st, 1 a. m.: Dr. Slough and Tom Hutchings are sent home, as there is no use of both doctors remaining. 5 a. m., Wm. Bunting and J. Callahan return to the boat, and I make them hunt a conveyance for the purpose of taking Capt. Bickerstaff to the railroad station, twenty-five miles away. They are on their way with the captain. Farrell has just been put in the box by Armstrong and myself; the body is in a bad state of decomposition and the stench is horrible; have waited until 1 p. m. for promised help; it does not come; Armstrong and I are unable to carry the coffin. I split the top of the box; tie

grate bars to the body and throw it overboard. All that are on board are sick—D. O'Neal and T. Sullivan; well—Andy Armstrong and myself.

Thursday, August 22d, 1.30 a. m.: Sullivan has just died. The silent and deserted condition of the boat is oppressive. It is terrible beyond expression to O'Neal; he is sinking rapidly. 3 a. m., now for the first time he gives up and thinks he is going to die. 6 a. m., the sun presents a glorious appearance—dispelling somewhat the gloom of this last fearful night. O'Neal seems to have summoned up some of his vitality; has arisen and dressed himself; but his upper and lower extremities are icy cold. He walks around a few minutes, and then lies down and is dead at 6.30 a. m. They have made some arrangement to help us bury these last two. The coffins are sent; Armstrong and I put the bodies in; two colored men are sent on board and help us carry them out and bury them; by 12 m. all is over; the mate and I are the only ones left. I ordered him to remain on the bank and not go on board unless in case of absolute necessity. I started for home at 4 p. m., Thursday, August 22d.

Those who sickened and died on the board were :

- C. Degleman, of Pittsburg, engineer.
- D. O'Neal, of St. Louis, engineer.
- T. Sullivan, of Louisville, deckhand.
- Wm. Briceland, of Pittsburg, deckhand.
- Wm. Farrell, of Vermont, deckhand.
- Wm. Koehler, of Pomeroy, deckhand.

Taken sick on the boat and died after landing :

- J. Fountain, Middleport, W. Va., cook.
- Mose Smith, Pittsburg, fireman.

Leaving the boat well and dying afterward :

- J. Callahan, Pittsburg, deckhand.
- J. Crawford, deckhand.

Sick on board and leaving boat convalescent :

- Wm. Bunting, Rochester, Pa., texas tender.
 Jacob Thomas, W. Va., nurse.
 D. Woodruff, Memphis, no position.

Leaving boat very sick and recovered :

- Capt. Bickerstaff, Rochester, Pa.

Incipient cases, some afterward developed and others not :

- T. Hutchings, Louisville, mate.
 L. Case, New Albany, engineer.
 M. Ryan, Louisville, deckhand.

In many instances we were obliged to be content with what we had, and used inferior drugs for the want of better ; even baths and methods of giving them we had to improvise. The following list comprises the drugs on the boat during the first five days :

Sodæ bicarb.	Potassæ nitrate.
Cinchonidia sulph.	Magnesia sulph.
Pil. cathar. comp.	Rhei pulv.
Madeira wine.	Ol. terebinth.
Aq. ammonia.	Liq. ammonia acetat.
Tr. Opii.	Citric acid.
Gum acacia.	

This constitutes all the reliable information that has been obtained to date. The following are the histories of cases :

First Case :—Reported by Dr. Slough :

Charles Degleman, engineer, age 41, married and has a family, has worked on the boat since March.

August 15th, 1.30 p. m. : First complained two days previous ; his bowels were opened the night before ; does not complain of his back, and has but slight supra-orbital pain ; urinates regularly ; is scant and high colored ; tongue coated with a dirty white fur ; margins have the appearance of raw beef ; yellowness of sclerotic and skin well marked ; temp. $102\frac{1}{2}^{\circ}$; pulse 74. On the day previous Dr. Minor had given him a cathartic and sponge baths ; at

6 p. m., temp. $104\frac{1}{4}^{\circ}$; pulse, 74; resting easy; slight tendency to vomit; gave rhei pulv. grs. x, and sodæ bicarb. in 10-gr. doses every four hours; midnight: resting easy; has just had a large free passage from his bowels.

Friday, August 16th, 6 a. m.: Has had several passages from his bowels, and urinated freely; quantity not ascertained; temp. 101; pulse 72; appears hopeful; is sitting up while his bed is being made; gastric irritation completely relieved; drank some beef tea and ate some thoroughly boiled rice, not more than a tablespoonful of each. 1 p. m., considerable perspiration, with some appetite; says he feels better; temp. and pulse not taken; 6.30 p. m., temp. $101\frac{3}{4}^{\circ}$; pulse slow and full; gave him one-half ounce of beef tea.

August, 17th, 6.30 a. m. Saturday: Temp. $101\frac{1}{2}^{\circ}$; pulse 73; bowels, kidneys and skin acting; continued sodæ bicarb. 10-gr. doses every four hours; for breakfast rice and beef tea—tablespoonful of each; 1 p. m., skin moist; apparently no more fever than at last examination; has just eaten a small quantity of rice and beef tea; 2 p. m., has just vomited; matter vomited has the appearance of containing bile; ordered some iced milk; 6 p. m., temp. 103° ; pulse irregular and weak; seems much exhausted: ordered Madeira wine in half-ounce doses at two hour's intervals; since noon has moped and become very despondent; he did not sleep during the night; wine was continued.

August 18th, 6 a. m., with difficulty wakened to take anything; 12 m., unconscious, can't be aroused; 6 p. m., sphincters relaxed; urine has colored the linen a bright yellow; 10 p. m., he has just died without a struggle, having been unconscious for about twelve hours; there was no black vomit in this case.

Case Second, reported by Dr. Slough:

Wm. Koehler: lives in Pomeroy; has been on the boat during the round trip; deck hand; 26 years old; on August 14th felt badly all afternoon; at midnight marked symptoms supervened; had a chill; slight pain in the back, and supra-orbital pain intense.

August 15th, 2 p. m., temp. $104\frac{3}{4}^{\circ}$; pulse 112; sclerotic yellow; tongue coated with a dirty white fur, margins like raw

beef; bowels constipated; says he passed his usual quantity of urine this morning; he had had a dose of salts in the morning; no gastric symptoms; ordered a mustard bath at 90°; gave him rhei pulv. grs. 8; skin rough and dry, and conveys a peculiar sensation to the fingers that lasts for some seconds; at 8.30 p. m. gave another dose of rhei pulv. grs. 10; 5 p. m. temp. 104 $\frac{1}{4}$ °; complains of dryness of the fauces; applied cold pack and ordered an acidulated mucilaginous wash for mouth, with small pieces of ice to suck; patient drowsy; 8 p. m., temp. 104 $\frac{3}{4}$ °; pulse 98, strong and full; gave an injection of three pints of warm soap suds per rectum, and obtained a considerable passage; midnight: says he feels better since the operation; temp. 104 $\frac{1}{2}$ °; again applied cold pack.

Friday, August 16th, 6 a. m.: has urinated and had a passage from his bowels; temp. 103°; pulse 95; quite cheerful; makes no complaint; ordered him iced milk; 9.30 a. m.: ordered sponging every fifteen minutes and liq. ammon. acetat. in drachm doses every three hours; 1 p. m., slight moisture on nose and under eyes; not perceptible elsewhere; temp. 105°; pulse 95; we propose a vapor bath, but finally conclude to postpone it until night; give him sponge bath instead; 6.30 p. m., temp. 104 $\frac{1}{2}$ °; pulse 94, irregular, full and compressible; skin still dry; tongue slightly swollen, otherwise presents same appearance as at last examination; has urinated and had an operation this afternoon; quantity of urine could not be ascertained; at 7.30 p. m. improvised a vapor bath and produced a copious perspiration at the time, but at 9.30 p. m. the skin was again dry and pungent; temp 104°, a reduction of one half a degree.

August 17th, 7 a. m.: temp. 104°; pulse 110; neither bowels or kidneys have acted during the night; he is very despondent; gave cathartic; 10 a. m., complains of hallucinations; temp. 104°; pulse 96, irregular; ordered lemonade and ol. terebinth. drops 10, and applied ice to his head; he drank about half ounce of beef tea, and bled slightly from the nose; this was the first gastric symptom of the case; applied mustard plaster over stomach; gave sodæ bicarb., grs. 10, dose every three hours; objects to sponging, but is willing to take a vapor bath; at 6 p. m., temp. 106°; too prostrated for a vapor bath; instead of it a bath of 100°, which was

gradually reduced to 85° , succeeded in reducing his temperature to 103° , but it soon rose again to 104° after removing him from bath; allowed him some Madeira wine.

August 18th, Sunday 6 a. m.: temp. 102° ; pulse 30, very small weak and scarcely perceptible; continued the Madeira wine in half oz. doses every two hours; 12 m. has had a copious black vomit; 2 p. m., vomited again, and is now almost prostrated; 3 p. m., vomiting checked; continued the wine; temp. 99; can't distinguish pulse; 6 p. m. still unconscious.

August 19th, 6 a. m.: unconscious yet; laboring hard for breath; he continues this all day long; seem to be very tenacious of life; dies at night at 11 p. m., after he had been unconscious for over thirty-six hours; an hour or two before death he had copious black fetid discharges from the mouth, rectum and bladder.

Third Case, reported by Dr. Slough:

Jacob Thomas, colored, 44 years of age; born in Pennsylvania; shipped at Cairo on the up trip; has been on the boat thirteen days; for several days before he complained; he was nursing Charley Degleman.

August 16th, Friday, about noon, complained of a sensation of numbness; did not feel sick until this morning; says his arms and legs are swollen; no appearance of swelling upon examination. Temp. 103° ; pulse 95, full and strong; had a stool yesterday; gave him cinchonidia sulph. grs. 15. and magnesia sulph. half an ounce; also a cold bath; he is drowsy and seems incapacitated for any exertion; seems to have great difficulty in answering questions; 6.30 p. m., temp. $103\frac{1}{2}^{\circ}$; pulse 100; has had two passages from his bowels, and has urinated freely; skin hot and dry; tongue coated, with raw beef edges; at 7.30 p. m. gave him a vapor bath which produced a copious perspiration; he was put to bed and well wrapped; at 9.30 p. m. still perspiring; laughs and jokes; complains of being hungry; temp. 103° ; pulse 102.

August 17th, Saturday, 6 a. m., temp. 100° ; pulse 87; skin moist; is in excellent humor; gave cinchonidia sulph. grs. 10; remained the same throughout the day; in the evening gave another dose of cinchonidia.

August 18th, Sunday, 8 a. m., has slept well and ate a hearty breakfast; is up and around; gave 5 gr. doses of cinchonidia morning and evening; gave him enough powders to last several days; he left the boat apparently well; has since perfectly recovered.

Case Fourth, reported by Dr. Slough:

Wm. Bunting, age 25, lives at Rochester, Pa., has complained slightly for two days; has been on the boat during the round trip.

Friday, August 16th, 9 a. m., has had a chill; supra orbital and lumbar pains intense; soreness of the joints, and muscular pains in the legs; skin hot and dry; bowels constipated; temp. 103° ; pulse 98; gave rhei pulv. grs. 8, followed by cinchonidia grs. 10; 1 p. m., temp. $104\frac{1}{2}^{\circ}$; pulse 110; no movement of the bowels; gave cold bath; wrapped him up well; slight perspiration; no gastric irritation; 7 p. m., bowels have moved freely; temp. 105° ; pulse 112; no abatement of symptoms; perspiration has ceased; skin hot and dry; gave another bath; perspiration again started.

Saturday, August 17th, 8 a. m., has slept badly; bowels have moved during the night; not freely; urine scant and highly colored; some gastric irritation; sclerotic yellow, and all of yesterday's symptoms well marked; temp. and pulse both 105 ; bilious vomiting; gave another cold bath, which did not appear to help him; gave sodæ bicarb. in 10 gr. doses; a wash for the mouth of citric acid and gum acacia, lumps of ice to suck, and cold cloths to his head; 1 p. m., symptoms still the same; vomiting more marked; pulse 113; temp. 105° ; gave another bath and continued the treatment of the morning; 7 p. m., same symptoms; temp. $105\frac{1}{2}^{\circ}$; gave another bath, and ten drops of tinct. opii.; also a mustard plaster over stomach; urine still scant; bowels have not moved since morning.

Sunday, August 18th, 8 a. m., passed a bad night; skin has assumed a yellow tinge; temp. 105° ; treatment the same; some abatement of gastric symptoms; gave another bath and rhei pulv. grs. 8; 7 p. m., same, with temp. $105\frac{1}{2}^{\circ}$; extemporized a

vapor bath; he is well wrapped and put to bed; perspiration started 10 p. m.; perspiring freely.

Monday, August 19th, 8 a. m., boy rested fairly; gastric symptoms not bad; temp. $103\frac{1}{2}^{\circ}$; pulse 98; bowels moving freely; gave another vapor bath; tinct. of opii., 5 drops; mustard plaster over stomach followed by quinine, grs. 10, which the stomach retained; previous to this we had used cinchonidia, having no quinine on board; 1 p. m., temp. 103° ; skin moist; urine a little more free; gave quinine grs. 10; no vomiting; boy complained of hunger; gave a table-spoonful of beef tea and teaspoonful of wine; 3 p. m., allowed him out on the river bank to breathe some fresh air; 7 p. m., temp. $102\frac{1}{2}$; gave another vapor bath.

August 20th, Tuesday, 6 p. m., boy rested well; bowels opened; temp. 101° ; pulse 90; still had some slight supra-orbital pain; is weak and hungry; gave beef tea and wine; also quinine in 10 grain doses; urine is now free. We told Mr. Degleman, brother of the engineer, who came from Pittsburg, that he might take the boy home with him. The boy left the boat Aug. 21st, with Callahan, a deckhand, who has since died. He walked to Point Pleasant, a distance of five miles; came back next morning in a skiff with Callahan. The trip had apparently done him good. We started him and Callahan home with Capt. Bickerstaff in their charge. He has perfectly recovered. The result of this case is in a great measure due to his courageous and cheerful disposition.

Case Fifth, reported by Dr. Slough:

Wm. Briceland, born in Pennsylvania; home in Pittsburg; has been on the boat three weeks; is 24 years of age; reported sick.

Saturday morning, August 17th: has had a headache for the past forty-eight hours; also the diarrhœa for some time past; temp. 103° ; pulse 105; strong and full; very slight moisture; tongue presented the usual characteristics; sclerotic tinged; urinated several times during the night; gave him a mustard bath; 10 a. m. temp. 105° ; gave a vapor bath; perspiration started, but since ceased; has just had a passage from his bowels; at 12 m., temp. 104° ; skin hot and dry; vapor bath seems to have exhausted

him; gave a cold bath for about fifteen minutes, and followed it with the cold pack, after which he fell asleep; 3.30 p. m., temp. $105\frac{1}{2}^{\circ}$; had him sponged; 6 p. m., reduction of temperature; laid him up on deck; wrapped him up in a sheet and poured water over him for about twenty minutes, commencing with the water a temperature of 95° , and gradually reducing it to 70° ; he seemed to experience no inconvenience from it, but it was negative in its results; his temp. was $103\frac{1}{2}^{\circ}$ at the close of the process, but it soon rose again to 105° ; gave him iced milk in limited quantities; he complains a good deal of want of sleep.

August 18th, Sunday 6 a. m., temp. 104° ; pulse 110; gastric irritation has set in; gave sodæ bicarb. in 10-grain doses, with mustard plaster over stomach; gave him vapor bath; well wrapped and put to bed; perspiration started, but soon ceased, as in most of the other cases; 12 m., still vomiting; counter irritants seem to have no effect; temp. 105° ; pulse 130; skin hot and dry; complains of intense pain all over; continued the sodæ bicarb.; used ammonia as a counter irritant over stomach; gave another vapor bath; succeeded in starting perspiration; it again ceased; 6 p. m., bowels have not moved to-day; urine very scant; temp. 105° ; pulse 130; 7 p. m., black vomit has just set in; 9 p. m., his extremities are growing cold; he imagines he is getting better; has a copious black vomit; 1 p. m., he is unconscious; his body is quite cold; he died before 4 a. m. on Monday morning.

Case Sixth, reported by Dr. Carr:

Wm. Farrell, deckhand, 35 years of age; has been on the boat for the round trip; born in England; reported sick, Saturday 6 a. m., August 17th; the evening before he complained slightly; no fever; had given him a cathartic and about 10 grs. of cinchonidia; his bowels were regular up to the last twenty-four hours; frontal pain intense; he also complains of pain near the umbilicus; no gastric irritation; eyes congested; says he had a copious perspiration during the night; pulse 105, strong and full; temp. 103° ; he says he urinated freely during the night; is perspiring freely now; 10 p. m., temp. 103° ; profuse perspiration; allowed

him cracked ice and applied cold cloths to his head; 12 m., temp. 103°; pulse 84; bowels are not active; gave rhei pulv. grs. 10.

Sunday morning, August 18th: had an operation last night; still perspiring; complains bitterly of his back and side; applied counter irritant, temp. 104°; pulse 90; he seems anxious to hide by covering himself with the bed clothes; 6 p. m., gave tinct. of opii. drops 5, and sodæ bicarb. grs. 10; gave him half an ounce of beef tea; his stomach rejected it all in about half an hour.

August 19th, 6 a. m., he is suffering terribly; temp. 105°; pulse 130; complains of intense pain in the region of the heart; bowels very loose; gastric irritation; gave sodæ bicarb. and applied counter irritants; 12 m., temp. 104°; pulse 130; still complains of intense pain; his groans and prayers disturb all around him; move him out on the barge "Mingo;" gave him small quantities of beef tea and Madeira wine; 6 p. m. symptoms not changed.

Tuesday, August 20, 6 a. m., have seen him three times during the night; he has not rested at all; black vomit has set in; his stomach will retain nothing; temp. 103°; pulse 80; 12 m., temp. 101°; pulse 65; extremities cold; almost unconscious, but for the occasional black vomit; 6 p. m., unconscious; decomposition has set in; he is passing disintegrated blood from mouth, nose, bladder and rectum; 10 p. m., he is dead; the entire body of a mahogany black color; stench almost unendurable; this is the body that was thrown overboard.

Case Seventh, reported by Dr. Carr:

Daniel O'Neal, aged 24; St. Louis; been on board the steamer fourteen days; been feeling badly one or two days; Saturday, August 17th, has kept his bed all day; eyes flushed; complains of intense pain in lumbar region; no particular pain elsewhere; bowels constipated; cathartics have no effect.

Sunday, August 18th, bowels have not moved; gave an injection of warm soap water, which moves them quite freely; temp. 102½°; pulse 130; has had a slight perspiration; 12 m., bowels have moved again; takes a small quantity of beef tea; temp.

103°; pulse 120; 6 p. m., still in same condition; no change in temperature; no gastric irritation.

August 19th, 6 a. m., temp. 103½°; pulse 120; head symptoms have disappeared for the first time; urine is scant; takes a small quantity of beef tea, and quinine grs. 10; 12 m., temp. 103°; pulse 130; quinine, grs. 10; mustard plaster on back; no perspiration; give a mustard foot bath; he will not consent to vapor bath; is moping; 6 p. m., temp. 104°; pulse 120; gastric irritation has set in; give tinc. opii. drops v, and mustard plaster over stomach.

August 21st, have not taken temp.; pulse 120, strong and compressible; skin hot and dry; eyes and face yellow; looks frightened; pain in back and head; bowels have not moved; give another injection; give iced milk; still vomiting; 12 m., no change; allow him more iced milk and Madeira wine; 6 p. m., condition about the same as concerns his body; seems to have brightened somewhat; he says he feels better; 9 p. m., has sunk again; had a cold perspiration; black vomit has set in; 12 m., have given another injection; mustard over his stomach and ice to head; 3 a. m., extremities cold; vomit continues; 6 a. m., he got up; perfectly conscious; walks around; apparently strong; but his lips and face are blue; these with his feet show decomposition has already set in; he goes back to his bed, and is dead at 6.30 a. m.

Case Eighth, reported by Dr. Carr:

Thomas Sullivan, age 34; home, Louisville, Ky.; single; shipped on the boat August 13th, at Louisville; August 18th complains of a chill; hot flushes and general bad feeling; we had been using him as a nurse; put him to bed, and gave a cathartic which operated freely; temp. 103°; skin hot and dry; no perspiration; supra-orbital pain, and pain in lumbar region and joints. 6 p. m., temp. 103°; pulse 110; gave vapor bath; produced copious perspiration at the time, which ceased; at 9 p. m. temp. 102½°; bowels and kidneys acting freely.

August 19th, 6 a. m., has slept but little; temp. 103°; pulse 135; has a scared look and wants to hide some place; says he is

not sick; bowels and kidneys still acting; gave a vapor bath at 9 a. m., with same result as preceding bath; 12 m., temp. $103\frac{1}{2}^{\circ}$; eyes assuming a yellow appearance; no gastric irritation as yet; gave cinchonidia grs. 10, beef tea and iced milk; 6 p. m., cinchonidia has had no effect; temp. 104° ; pulse 135; gave cathartic and vapor bath; perspiration started; subsided in two hours; temp. at 9 p. m., 104° ; pulse 130; bowels moved; kidneys are acting badly; urine scant and highly colored.

August 21st, 6 a. m., temp. not taken after 9 p. m., last night; pulse 140; gastric irritation this morning; apply mustard; give sponge bath and sodæ bicarb. grs. 10; seems to be easier by noon; 12 m., violent vomiting came on; vomit is streaked with blood; mind wandering some; stomach will retain nothing; counter irritants have no effect; give sponge bath; 3 p. m., has roused a little; asked for an injection which was given; he was unable to hold it; 6 p. m., is stupid; extremities cold; decomposition already setting in; involuntary and unconscious vomiting; the typical black vomit; 12 p. m., covered with a clammy perspiration; barely breathing; pulse scarcely perceptible; 12 m., saw him just after leaving O'Neal; thought he was dead; but his heart was still beating; sphincters all relaxed; discharging the same black material from rectum that seemingly comes from the mouth. He died between this and 1.30 a. m., August 22d.

Ninth Case, reported by Drs. Carr and Slough:

Captain J. Bickerstaff, age 44; home, Rochester, Pa.; on the boat since August 13th.

Saturday, August 17th, complaining of intense headache and constipation; eyes badly congested; at 6 p. m., temp. 102° ; pulse 140; skin hot and a glowing red; in a copious perspiration.

Sunday August 18th, 6 a. m., copious perspiration still continues, but temp. still rising; it is $103\frac{1}{2}^{\circ}$; tongue has a dirty white fur; edges like raw beef; bowels have not acted; urine free; give injection and quinine sulph. grs. 15; 12 m., temp. 104° ; bowels have moved freely; give him some beef tea; 6 p. m., temp. 103° ; has been vomiting all the afternoon; the perspiration still continues free; kidneys acting well; rested fairly during the night.

August 19th, temp. 102° ; perspiration still copious; give another injection; vomiting continues; have been applying counter irritants without any seeming benefit; 12 m., temp. 103° ; some perspiration; vomiting checked; bowels loose; his stomach retains beef tea and quinine; have been giving him Madeira wine; 6 p. m., resting easy; temp. $102\frac{1}{2}^{\circ}$; pulse 120; skin still maintains a rosy color; perspiring freely; his intense headache has never left him.

August 20th, 6 a. m.; slept fairly during the night; perspiration still copious; does not seem to lower the fever; temp. 103° ; pulse 130; gave another injection; gave quinine 10 grs., with Madeira wine; kidneys still acting well; takes his beef tea and retains it; 12 m., temp. $103\frac{1}{2}^{\circ}$; pulse 130; bowels have moved; stomach quiet; head and lumbar pains as severe as ever; he understands we intend to send him home in the morning, and it has the effect of keeping him in good spirits; the perspiration has never ceased since he has been down. A letter came from the Health Officers at Gallipolis stating that it would be impossible to obtain the promised conveyance; it was not addressed to him, but Armstrong learning the contents, and being questioned by the Captain, told him what it contained; in about half an hour for the first time perspiration ceased; skin became hot and dry, and temp. went up to $105\frac{1}{2}^{\circ}$; pulse 140; put him to bed well wrapped, but no perspiration; vomiting again set in; he passed a miserable night; on the morning, August 21st, when he learned a conveyance had been provided, there was a decided change for the better; took 10 grs. quinine, and retained it; also some wine; perspiration again started, and skin became moist; he stood his journey of twenty-five miles in a spring wagon well, and arrived home safely; is now entirely recovered.

As will be seen from the above cases, every fatal case in the boat succumbed inside of five days. In every fatal case but Degleman's there was a copious black vomit. In no case but Bunting's did quinia seem to have the least effect, which doubtless had a great deal to do with the absence of perspiration, and the checking of it when started. It was next to impossible to allay the gastric irri-

tation; also a great horror of the boat was manifested in every case. Again, almost every one of the crew sought to convey the impression that they were not sick, and seemed to be anxious to escape observation. That peculiar wild, scared, hunted look was well marked in every case but Bunting's. The range of temperature varied but little in individual cases. The pulse rate and temperature were at total variance at times in almost every case, and at no time could the pulse rate be taken as a guide to the temperature, except in the Captain's case. In the five fatal cases with black vomit, decomposition set in from one to three hours before death. Degleman's differed from that of any other case—he having no black vomit. He was of a bright golden appearance before and after death. The rest all had discoloration well marked. Tom Hutchins, whom Dr. Slough took home and cared for, is now recovering from what the surgeons in charge of the Marine Hospital at Louisville call yellow fever.

In every case on the boat but Capt. Bickerstaff and Bunting, the urine was loaded with albumen. In J. Fountain's case, after he went home with his mother, we having no further use of the history, it was mislaid. In Dan Woodruff's case he was contrary, and would not allow us to take his temperature or feel his pulse, nor would he answer questions. The other three cases—two of them died after leaving the boat. Their histories correspond with those cited.

QUARANTINE.

After the developments on the John Porter it was deemed essential to resort to the strongest precautionary measures. The problem of a perfect system of quarantine for Cincinnati was one difficult of solution, not only on account of the peculiar geographical relations the city bears to the States of Kentucky and Indiana, but also for the well known objections that oppose the quarantine of any large inland community having numerous railroad connections with the outside world.

Kentucky, lying directly south of Cincinnati, on the Ohio

River, and Indiana adjoining the western boundaries of Hamilton County, are both beyond the jurisdiction of an Ohio Health Officer. All direct communication with the infected points South was by way either of the Ohio River, the Louisville Short Line Railroad, running through Kentucky, or the Ohio & Mississippi Railroad, running through Indiana. All these channels of trade passed, for the most part, through non-infected districts. To absolutely cut off traffic on any one of these public ways would be highly injurious to the business interests of the city, and an act that would not be tolerated with for a moment by the mercantile portion of the community. Even making the supposition that such a quarantine could be established, there yet remained numerous indirect ways of communication with the city. Passengers and freight could be shipped around and enter our corporate limits by means of the various Indiana railroads. Steamboats could land on the Kentucky side of the River—outside the jurisdiction of the Cincinnati Health Department. Kentucky railroads could discharge their freight and passengers on the Southern banks of the Ohio, from which point an easy ingress could be obtained through means of the numerous bridges and ferries crossing the River. The obstacles opposed to the enforcement of quarantine regulations for Cincinnati seemed to be insurmountable; it was, nevertheless, decided to make the attempt, and, as far as possible, to protect the city against an invasion of fever. Notices were accordingly served on the various railroad and steamboat corporations not to ship sick passengers or freight from infected points South to this port under penalty of the law.

The following quarantine order was issued :

NOTICE TO STEAMBOAT AND RAILROAD CORPORATIONS.

CINCINNATI, August 17, 1878.

From and after date every steamboat from a Southern port before landing at the port of Cincinnati will remain in the stream five hundred feet below Keck's Landing, on the Ohio River, until such a time as the Quarantine Physician and Sanitary Inspectors shall have visited and examined as to her sanitary condition. If

such a boat shall have on board any Yellow Fever or any sick person, whose symptoms may cause suspicion, no landing of said vessel at the Port of Cincinnati shall be allowed. If the boat is found to be in good sanitary condition a Certificate of Health will be furnished, allowing her to land at the City Wharf or proceed on her journey.

No master, charterer, owner, part owner of any vessel, or any other person, shall bring to any dock, pier, wharf or landing within the corporate limits of the City of Cincinnati any skins, hides, rags, or similar articles or material conveyed or shipped from any point South of Louisville, Ky., without a written permit from the Health Officer of the Port of Cincinnati.

No captain, officer, consignee, owner, or other person in charge of a boat (or having the right and authority to prevent the same), shall remove or aid in removing from any boat to the shore (save as legally authorized by the Health Officer of the Port of Cincinnati, and into quarantine grounds or hospital only), any person sick or having symptoms of Yellow Fever, or liable to develop said disease, nor to remove or aid in removing any articles that have been exposed to the contagion of any such disease, except on the permit of the Health Officer of the Port of Cincinnati.

That no owner, part owner, charterer, agent or consignee of any boat, nor any officer or person having charge or control of the same, shall allow to be cast therefrom, and no person shall cast therefrom, into the public waters of the city of Cincinnati, or within one thousand feet therefrom, any straw, bedding, clothing or other substance from any incoming vessel from any port South of Louisville, Ky., without a permit from the Health Officer of the Port of Cincinnati.

All railroads are forbidden to deliver at the Port of Cincinnati, during the term of quarantine, any sick passengers, or baggage, or any baled goods, such as bagging, rags, feathers, wool, moss, hair, etc., shipped or consigned from points south of Louisville, Ky. These rules do not apply to healthy parties without baggage passing North.

Any violation of these rules and regulations will render parties

so offending liable to prosecution for violation of a city ordinance to this effect, passed November 3d, 1865.

T. C. MINOR, M. D., Health Officer.

SPECIAL NOTICE TO OWNERS AND CAPTAINS OF BOATS :

All boats ascending the Ohio River from ports below Louisville, Ky., including Louisville and Madison packets, are notified to stop in mid channel at a point 500 feet below Keck's Landing and await the sanitary inspection of boat by Quarantine Officers.

Captains and owners of boats, including Louisville and Madison packets, are also notified that no rags, hair, skins, hides, baggage, or sick passengers from suspected points below Louisville shall be reshipped at that port for the port of Cincinnati.

The day signal at Quarantine Station will be an orange-colored flag waved three times from left to right.

The night signal will be the burning of a red Bengal light and a red lantern waved three times from left to right.

On receiving such signals the pilot will stop his boat in mid-channel.

Any violation of these orders will be construed as a violation of the ordinance passed by City Council November 3d, 1865.

T. C. MINOR, M. D., Health Officer.

The various Railroad and Steamboat Corporations and the Express companies received this order, and to their credit, be it said, did their utmost to assist the health authorities in its enforcement. Every facility was extended Medical Examiners and Sanitary Inspectors in carrying out my instructions. Strongly supported in the enactment of preventitive measures by the entire public press, that true indicator of popular sentiment, a portion of the undertaking, at least, was rendered comparatively easy.

No question seemed to exist as to the absolute power of the Health Department within the corporate limits of Cincinnati.

As regards the power of the Ohio Sanitary Officers in the States of Kentucky and Indiana, it was positively known that such officials had no legal rights to enforce quarantine regulations

in neighboring States; nevertheless, it was determined to make the attempt for the following reasons :

1st.—It was necessary to protect, as far as possible, the cities of Covington and Newport, Kentucky, lying on the Southern bank of the Ohio River, opposite Cincinnati, as an outbreak in either one of these places would have been the forerunner of an epidemic on this side of the Ohio.

2d.—Certain Indiana towns, on roads lying west of Cincinnati, needed watching for the same obvious reasons.

Accordingly the entire Sanitary Force of the Health Department was placed on duty and detailed as follows :

Delhi—Ohio River Station No. 1. Drs. W. M. Logan and Charles Muscroft.

Sanitary Inspectors.—Connelly, Hadley, Knoppe, Ostendarp and Meehan.

Walton, Kentucky, Louisville Short Line Railroad—Station No. 2. Drs. Orr, Marcus, Slough and Fairchild.

Little Miami Depot—Inspectors Thornton and Peters.

Lawrenceburg, Indiana, Ohio and Mississippi Railroad—Station No. 3. Drs. Culver and Knox.

Ohio and Mississippi Depot—Inspectors Daly and Helmig.

Public Landing Inspectors.—Horgan and Dowling.

At the Health Office a large reserve force of District Physicians and Sanitary Inspectors were held subject to special orders.

My officers, at the Delhi River Station, were ordered to stop and examine all boats ascending the Ohio. If anything suspicious was noticed the boats were detained until my arrival. Fumigation and disinfection were practiced when it was deemed advisable. On account of the channel being on the Kentucky side of the river, most of the boats were inspected within the boundary lines of that State.

The Railroad Quarantine Officers were sent into the States of Indiana and Kentucky on every outgoing Southern bound train and returned to the city on the incoming train over the same roads. These physicians examined the passengers on each returning train, and, if discovering any persons suffering from suspicious symptoms, such parties were notified that they must

either pass directly through Cincinnati or enter the hospital at that point. A Sanitary Policeman awaited the arrival of trains, prepared to relieve the Quarantine Physician from further duty and convey the patient to the hospital.

So far as known, no absolutely sick person entered the city without being detected, and I was enabled to locate and watch any suspicious cases that were allowed to pass the Quarantine. In a number of instances parties suffering from fever were permitted to continue on their journey, passing through the city, the Health Department having no legal right to detain them. These parties were not allowed, however, to leave the sleeping cars.

Taking it all in all the Quarantine, although incomplete, was satisfactory in its results. Carried on in three States without the shadow of law to sustain it, the Quarantine existed from the 17th of August until the 17th of October, at which time it was discontinued, there having been frost.

It was hoped that the Quarantine would fulfil the following purposes :

1st. Prevent any persons sick with the disease from entering the city, and taking up their residence in hotels or private houses.

2d. Prevent the introduction of any quantity of baggage belonging to healthy refugees arriving from infected districts.

3d. Prevent the incoming of certain kinds of objectionable merchandise, such as rags, feathers, hides, etc.

The period of incubation of the fever being so indefinite, it was expected that some at least of the refugees coming to this city would develop cases after their arrival.

It was, therefore, determined to follow to the end the stamping-out process previously resorted to in the earlier cases occurring here. The disease, in other words, was to be treated as a contagious malady.

The following was the programme to be followed by the Sanitary Force :

1st. To isolate in the Hospital any person found with the yellow fever, or suffering from suspicious symptoms.

2d. To destroy the bedding and clothing of all parties found affected.

3d. To thoroughly disinfect with carbolic acid and fumigate with sulphur the premises in which any party suffering from yellow fever might be found.

4th. To forbid the further occupation of any room or apartment in which a patient had been confined with the disease.

It is needless to remark that after this policy was once adopted it was carried out. With the exception of five patients found in a dying condition, every case of yellow fever, native or imported, was placed in a hospital. Few mistakes were made regarding suspicious cases. In seven instances only were parties sent to hospital who did not afterward develop yellow fever.

I am indebted to Dr. Denman, Resident Physician at the Good Samaritan Hospital for the notes on the following cases. These patients were Rivermen taken from boats and sent to the Marine Department of Good Samaritan Hospital after Quarantine was declared :

CASE SEVENTH.

Albert Williamson, from steamer Golden Rule, admitted Aug. 20 ; was convalescing when admitted ; temperature normal ; his improvement was continuous, and he left the Hospital Aug. 30th.

CASE EIGHTH.

Peter Baumgartner, from steamer Golden Rule, admitted Aug. 20th ; had chill on 18th of August, followed by continuous fever ; on admittance, 1.30 p. m., temp. 105° ; he complained of pain in the head, most marked in the back of head ; examination of the urine did not show albumen ; temp. in the evening fell to $100\frac{1}{2}^{\circ}$, and continuous perspiration was established ; continued from this time to improve, but still complained of pain in back of neck up to the time of his discharge, Sept. 13th. From this date to Sept. 21st he was occasionally seen by Dr. Vanzant and given medicine, on which day he was again admitted with relapse. He complained of frontal headache and pain in back of neck ; tongue heavily

coated; temperature high; urine high colored and somewhat scant, but showing no albumen; temp. reached 104° , and he became quite yellow; convalescence established in five or six days; pain in back of neck persistent; no albumen found in urine at any time. Discharged Oct. 19th.

CASE NINTH.

Lib. Waterman, from the steamer Con. Miller, admitted Aug. 20th; developed a well marked case; at 4 a. m., August 25th, was taken with black vomit, followed by convulsions, urine having been suppressed for over twenty-four hours; it had shown albumen previously, and a few drops obtained by catheter two hours before death showed it in abundance. Collapse followed vomit and convulsions, and death at 11 a. m., August 25th.

CASE TENTH.

Milton Jones, from the steamer Golden Rule, admitted August 21st, a very light attack. Discharged August 29th.

CASE ELEVENTH.

Abner Bagby, from steamer Golden Rule, of which he was engineer; admitted August 22d, with fever well advanced; temp. reached 105° on 23d, and yellow hue of skin well marked; sense of fullness and heaviness of stomach; nausea and frequent retching and occasional vomiting of bile matter; headache. On 24th of August his temp. fell to 102° ; at 7 p. m. the stage of collapse was entered; black vomit came on, of which he had two or three attacks, and he died at 9 p. m.; his urine had been suppressed for twenty-four hours.

CASE TWELFTH.

Robert Young, from the steamer Golden Rule, admitted August 23d; developed a well marked but mild case; urine showed albu-

men; had intense headache and pain in back and limbs; suffered nausea and vomiting of bile matter; convalescence slow; discharged Sept. 27th.

CASE THIRTEENTH.

Andrew Campbell, from steamer Golden Rule, admitted August 24th; complained of headache, pain in back and limbs; tongue heavily coated, dirty white and red at tip and sides; temp. was 100° on August 25th, and pulse near normal; both so on next day, and convalescence continuous. Discharged Sept. 2d.

CASE FOURTEENTH.

Reported by Dr. W. H. Falls, Physician to Rohs Hill Hospital:

Harris Haskell, age 38, Poland, brunette, widower, former residence, Memphis, Tenn., residence in city, two days.

Admitted Sunday, August 25th, 1878, 5.10 p. m.; states that his wife died of yellow fever at Memphis, on Tuesday, August 20th, and on Thursday morning, August 22d, he and his five children (one a baby eight months old) started for Cincinnati. One son, 18 years of age, was attacked with yellow fever between Memphis and Louisville, and at the latter city he was removed from the train to the hospital. (He died on Monday evening, August 26th). They arrived in this city at 9 p. m., Friday, 23d, and took accomodation at the Germania House.

He had been very much depressed at the loss of his wife and very anxious about his son. He had some headache on Friday, and at midnight he was seized with a severe chill, which continued about five minutes, followed by a high fever which has continued to the present time; did not call in a physician until this morning, when Dr. Charlton was requested to attend him; he was afterwards seen by Dr. Minor, Health Officer, and by him sent to Roh's Hill Hospital.

His headache had been constant and quite intense, and confined to the supra-orbital regions; nausea since yesterday, but no vomiting; has not had any pain in his back or in the epigastric region.

Bowels moved yesterday and to-day, and he passed urine freely, the last being at 3 p. m., to-day.

5.10 p. m. he was received at the hospital; temp. 104° ; pulse 100, soft and compressible; resp. 18; skin hot and dry, and becoming of a yellowish tinge; eyes suffused and sclerotics quite yellow; tongue dry and heavily coated with a brownish fur; edges red; lips parched; countenance anxious and indicating great suffering; nausea and retching, but no vomiting; very thirsty; no tenderness or pain over stomach.

Ordered to have a sponge bath of tepid water, and another at midnight; sinapism to be applied over stomach, and re-applied as necessary during the night; cold applications to the head; to be allowed ice pellets, iced milk and lime water equal parts, and to be given sulph. quinia, grs. xxx (30).

Monday, August 26th, 9. a. m., temp. $101\frac{1}{2}^{\circ}$; pulse 100; resp. 18; slept well during the night; has no vomiting, but at times is slightly nauseated; has passed no urine since coming into the house; passed catheter and drew off five ounces of dark brown urine; sp. gr. 1010, acid; albumen presented in a large amount; sclerotics and integument very yellow; skin dry. 11 a. m., drank some lemonade, but soon after it was vomited; to have sponge baths every four hours; treatment continued, except to omit lime water; to have R, spts. nitrous dulcis, \mathfrak{z} i every two hours. 4 p. m., temp. $101\frac{3}{4}^{\circ}$; pulse 104; resp 24; has passed no urine; catheterized, but none in bladder; vomited at 1 p. m., a dark colored fluid, and once since; inclined to stupor and refuses to take anything; has a cadaveric odor.

Tuesday, August 27th, 8.30 a. m., temp. 98° ; pulse 90, feeble; resp. 22; vomited a dark brown vomit at 12 o'clock last night; slept very little during the night; is restless and moaning; has passed no urine; introduced catheter and obtained about $\frac{3}{4}$ of an ounce of thick, dark green urine; sp. gr. 1010; neutral; albumen present; tongue dry and heavily coated with a brown fur; intense thirst; complains of great distress in his stomach, and has nausea and retching; several petechiæ have appeared over the chest, arms and shoulders; had an attack of nose bleed this morning; bowels have not moved; still conscious, but refuses nourishment and med-

icines; to have an enema of warm water and olei ricini, and to be repeated in an hour if bowels are not moved, hot hop bags to be applied to lumbar region. 4 p. m., temp. 99°; resp. 36; pulse 100 and very feeble; at 12 o'clock had an attack of black vomit; severe pain in epigastric region; conscious but restless; extremities cold; passes no urine; none in bladder; bowels have not moved; was given two enemas, but nothing was discharged from the bowels but the injections; petechiæ more numerous; several over abdomen and lower limbs; refuses to take anything offered to him, and begs that he may die and be relieved from his intense suffering. 8 p. m., black vomit again occurred, and afterward at frequent intervals until 10 p. m.; became delirious at 9 p. m.; and from 9 to 10 p. m., had several convulsions; passed into a state of coma, and died at 4 a. m.

Post-mortem, reported by Dr. N. P. Dandridge, Pathologist to Cincinnati Hospital:

Autopsy made on the body of Harris Haskell, at Roh's Hill, on August 28th, assisted by Dr. J. C. Mackenzie.

The examination was made six hours and a half after death. There was quite firm rigidity. The anterior part of the body was of a yellow color, which gradually faded out over the arms and thighs. Over the anterior portion of the neck and shoulders were numbers of small petechial spots. The subcutaneous fat was more yellow than normal, while the muscles were somewhat darker. The integument, over the dependant portions of the body, was discolored from suggillations. Lungs: over the apices of both sides, some pleuritic adhesions were found; and there was some increased consistency from an old disease. In the left apex a small calcareous concretion was found. Over the upper and posterior part of the lower lobe was a considerable subpleural extravasation. Small extravasations beneath the pleuræ were found over both lungs.

Heart was quite normal and empty. The pericardial fat was not of the yellow color of the subcutaneous fat.

The blood which flowed from the great vessels, on removing the heart and lungs, was more fluid than usual.

The stomach was not distended, but contained some ounces of a blackish fluid, quite similar in appearance to some vomited fluid which we were shown. The mucous membrane generally was not much injected or softened, but at a number of places small quantities of coagulated blood adhered, and at these points there was destruction of the mucous membrane presenting very much the appearance of a linear tear. The other parts of the stomach were quite intact.

Intestine.—The upper part of the small intestine was of a darker color than the ileum; this was, however, due to its contents, which were similar to though more consistent than the contents of the stomach. Both large and small intestine seemed normal.

Liver rather small. Its surface was of a mottled yellow, and its consistency somewhat diminished. It had undergone a slight fatty degeneration.

Spleen was slightly large, of a dark mahogany color on section; its consistency was quite normal.

Kidneys.—The cortical substance was somewhat thickened and of a rather darker color than normal. The pyramids presented the appearance found in cyanotic kidneys. The surface was smooth, and the capsule easily removed. The surface had lost the normal fawn color.

The bladder was contracted and empty.

The brain.—On the right side, covering the middle lobe and reaching somewhat over both the frontal and sphenoparietal lobe, was a quantity of soft, coagulated blood situated in the cavity of the arachnoid. This was the only lesion found in either membranes or brain.

CASE FIFTEENTH.

Blanche Offner:—On the morning of August 28th, a case of yellow fever was reported at the Keber House, on Sycamore Street. On arriving at the hotel I found a girl, Blanche Offner, aged nine years, dying in convulsions. She was bleeding from the nose, tongue and gums, and her night clothes and bedding were

covered with the characteristic black vomit. She had arrived from Memphis but a few days previous, and had been treated by her attending physician for gastric catarrh. Her skin was of a bright yellow color. She was pulseless, and died an hour or two later.

CASE SIXTEENTH.

Sophia Offner, attended by Drs. Reamy and Minor :

At the time of my visit to case No. 15, I was asked to go into an adjoining room to look at a suspicious case. The patient, the mother of the child before mentioned.

Mrs. Sophia Offner, aged 40 years, a refugee from the city of Memphis. Mrs. Offner at the time of my visit, was suffering from a slight fever, her temperature marking $100\frac{1}{2}^{\circ}$, pulse 98. Her eyes had a light yellow tinge; her complexion sallow; tongue coated at the center, and dark red at the edges. She was complaining of some pain in the head and back. There was no gastric irritation manifest, and she claimed to be suffering from malarial fever. As the case was a suspicious one the patient was removed to Robs. Hill Hospital. On my visit in the evening, in company with Dr. Reamy, whom I had called in consultation, Mrs. Offner's temperature was 102° , pulse 114.

August 29th: Patient complains of not having rested well during the previous night; temperature 103° , pulse 120; profuse uterine discharge has set in. Evening: Patient's body is spotted over with rose colored spots, which the woman attributes to mosquito bites; urine still suppressed; sweet spirits of nitre ordered and a continuance of champagne, chicken broth, milk and crushed ice; temp. 103° ; pulse 117; patient very restless.

August 30th:—Patient rested better during the night, and passed some urine this morning; urine one half albumen; sat up in bed, contrary to advice, and took several cups of tea; some epistaxis this morning; patient's tongue cleaning off in flakes; is flabby and smooth; the papillæ, at first so prominent, have seemingly disappeared; patient is in good spirits and talks of leaving the hospital in a few days; temperrtuae $102\frac{1}{2}^{\circ}$; pulse 112;

5 p. m., visited by Dr. Reamy, who finds Mrs. Offner in a precarious condition; temperature $100\frac{1}{2}^{\circ}$; pulse 119, weak and thready; ordered brandy; urine still loaded with albumen; 9. p. m., visited by Drs. Reamy and Minor; patient's condition exceedingly critical; she has commenced to have black vomit; skin assuming a bright yellow hue; patient delirious and will not take medicines, nourishment or stimulants; temperature 104° ; pulse 113, and very feeble; the rose colored spots on the skin are now of a dark purple color, and patient has occasional attacks of epistaxis. Mrs. Offner died early on the morning of August 31st, after the occurrence of a profuse black vomit. The only medicine used in the case, besides a dose or two of spirits of nitre, was ferro-phosp.elixir of Calisaya bark. Previous to the time Drs. Reamy and Minor were summoned to the case, Mrs. Offner had taken large doses of quinine, prescribed by the physician first called in attendance.

CASE SEVENTEENTH.

Maurice Dessauer, aged 10 years, from Memphis. This patient, reported as a suspicious case, was found at the Germania House, on East Court street, and sent to Rohs Hill Hospital, August 28th, where he was attended by Drs. Reamy and Minor. Temperature at the time of admission to the Hospital, $101\frac{1}{2}^{\circ}$; pulse 96; tongue heavily coated; pain in head and back; skin of a bright yellow color; eyes slightly congested. The fever gradually subsided in two or three days' time. This was a mild case, and the only medicine administered being a dose or two of castor oil, and a teaspoonful of ferro-phosp.elixir Calisaya bark three times a day; chicken broth, beef tea, champagne and cracked ice were administered from time to time as required. The patient's symptoms previous to the time that Drs. Reamy and Minor were called in attendance, pointed to a well marked but mild case of yellow fever. The child's mother died of the disease on the day prior to its departure from Memphis; convalescence was slowly established, the patient recovering in the hospital some two weeks afterward.

CASE EIGHTEENTH.

Case of Dr. Reamy's, reported by Dr. W. C. Denman, Interné to Good Samaritan Hospital.

Miss Ida Davis, aged 22; admitted Aug. 28th; for a year past has been a resident of New Orleans, where yellow fever has been raging since middle of July; states that she first noticed not being well on the 25th of August, but did not notice being feverish till morning of August 27th; on that day she left New Orleans for her home, Connersville, Indiana, and arrived in Cincinnati on afternoon of August 28th, and came to the hospital at four o'clock of the same day. At the time of admission her temperature was $104\frac{1}{2}^{\circ}$; pulse 108; tongue covered with a thick, brownish white coating, except at its tip and edges, which were red; eyes suffused, and conjunctiva highly congested; the face a very dusky hue, and having an expression of dejection and distress; intense pain in the legs, most marked in calf; did not complain of headache; she had been thoroughly purged by a dose of calomel, given by her physician before leaving New Orleans; she was stripped of all her clothing, (which was fumigated) and given a mustard bath, followed by sponging of body with whisky, and gtt. iij of tinct. aconite rad., every three hours. Evening: temp. has reached 105° ; pulse 112; pain in legs not so severe; a mustard plaster applied on calf of each leg, with hope of further relief.

August 29th: Patient had a restless night; temp. this morning 104° ; pulse 100; pain in legs has discontinued, except occasional shootings; complains of some pain over the eyes; is very restless and apprehensive; tongue continues red at tip and sides and heavily coated; tr. aconite and sponging of body with whisky continued; given nourishment in the form of soup and milk; temperature during the afternoon rose to 105° ; pulse 108; before midnight temp. fell to $104\frac{1}{4}^{\circ}$; pulse 104; complains of some fullness and burning pain in stomach and of nausea; given at nine o'clock $\frac{1}{8}$ gr. morphia hypodermic to quiet restlessness.

August 30th: Face begins to show the yellow color, character-

istic of yellow fever; still restless and in a state of dread; sense of fullness; pain of stomach and nausea continues; tr. aconite discontinued; sponging of body and nourishment continued as yesterday; given lemonade as a drink, and grs. x of soda bicarb. in water occasionally during the day to quiet the stomach; $\frac{1}{8}$ gr. morphia hypodermically in the evening; temp. this evening 104° ; pulse 104; about six o'clock temp. the same; pulse 92; before midnight temp. 103° ; pulse 100; tongue still heavily coated, but drier; an examination of the urine shows albumen in abundance.

August 31st: Yellowness more marked; has great pain in stomach; has not vomited, but made great efforts; complains of being very sore all over; same nourishment continued, with addition of champagne and $\frac{1}{8}$ gr. morphia, hypodermic, to quiet restlessness; temperature during the day has varied from 101° to 103° ; pulse 100; examination of urine to-day showed albumen in abundance; tube casts, some triple phosphates and other native crystals shown under the microscope; the menses appeared to-day prematurely.

Sept. 1: Yellowness increased; conjunctiva of eye ball very deeply tinged; tongue continues coated, but darker and drier; very restless; nausea and efforts to vomit continue, and patient has a fear of impending black vomit, and was much frightened by throwing up a small quantity of frothy mucilaginous material, containing flakes of a dark substance, resembling wetted cobweb; the effort of vomiting expelled a very small quantity of same substance from the rectum, and there was afterward an operation of the bowels, but it was not saved and the nurse could give no intelligent description of its character; champagne and nourishment same as yesterday; gave morphia hypodermically to quiet restlessness, which is very great; temp. to-day 102° ; pulse 100.

Sept. 2d: Was called to patient at 2 o'clock this morning; she was much frightened by having vomited, the character of which was same as yesterday; at 11 a. m. she again threw up the same material; is very restless and has a fear of impending evil; there is bleeding from the gums and the menstrual flow continues; champagne and nourishment the same; morphia continued to quiet; this evening she is delirious and the restlessness

amounts to frenzy; temp. this morning was 101°, but at midnight 100½°; pulse 100 and weak; extremities cold; stimulation increased; death expected before morning; in consequence of hæmorrhage from gums, the tongue has a dark, almost black appearance.

Sept. 3d: Delirium continues, but restlessness not so great as this morning; temp. 100°; pulse weak; coldness of extremities increasing; given fluid ext. ergot, with hope of checking hæmorrhage from the gums, but without perceptible effect; the bleeding from the gums and the menses spotted the bed and stained her person; her eyes heavy and expressionless, and she does not recognize those about her; at 2 p. m., the restlessness ceased, and, in this condition of stupor, the collapse rapidly advanced; respiration, gasping, and death at 5 p. m.; urine had been completely suppressed for over twenty-four hours, and shortly before death there was a slight convulsion.

CASE NINETEENTH.

Case of August Smith, reported by Dr. W. H. Falls, Physician in charge of Rohs Hill Hospital.

August Smith, age 19, Germany, blonde, single, bar-keeper, former residence, Memphis, Tenn., residence in city, two days.

Admitted Monday, Sept. 2d. On account of his being admitted late at night I did not see him until Tuesday, 7.30 a. m. Left Memphis on August 12th, on the steamboat Vint. Shinkle, and arrived in this city Saturday morning, August 31st; has been a resident of Memphis for 14 years; for several seasons has been subject to chills and fever, but has had none for 2 years; previous to leaving Memphis he visited a neighbor's house, where persons were lying sick with yellow fever.

On Saturday morning he felt very much depressed, and had aching of his limbs. About 10 a. m., he had a chill which continued for an hour and a half, followed by a high fever, which has continued ever since, and has been accompanied with supra-orbital head-ache; had some nausea yesterday; drank some beer and whisky which made him vomit; only vomited what he had drank;

had no more nausea until 3 a. m., to-day, when he was attacked with nausea and retching, and great distress in his stomach, and 4. a. m., he vomited about one pint of dark, brownish black fluid, containing particles resembling coffee grounds; was very much prostrated after this attack; passed urine twice during last night, in all about one pint; the last time was at 4 a. m., when he urinated about 4 ounces of dark brown urine; sp. gr. 1010, acid; albumen present.

8.25 a. m., Tuesday Sept. 3d: temp. 106°; pulse 96, small and feeble; resp. 32; slept very little last night; restless and moaning; eyes suffused and sclerotics tinged with yellow; countenance haggard and expressive of despair; lips dry and parched; tongue coated with a brown fur; tip red and glazed; some nausea this morning; tenderness and pain in epigastric region; bowels flaccid; Had a movement of bowels last evening; integument dry, harsh and tinged with yellow—more over chest and shoulders; ordered to have a sinapism applied over the stomach and to be reapplied as necessary; to have ice pellets, iced milk, lime water and iced champagne; to be given a sponge bath of tepid water; cold applications to the head; 3.30 p. m., temp. 106°; was given a vapor bath, which was continued for 12 minutes; about five minutes after the bath was commenced he fainted, but was supported by the attendants, and the bath continued 7 minutes longer; the cloak being removed he was rubbed dry, placed in bed and wrapped in blankets; limbs were stiffened and the attendants supposed he was dead; after lying in this condition for 10 minutes he opened his eyes for a few moments and then passed into a sleep; he slept for 15 minutes; when he awoke his skin was moist and he was perspiring very freely; at 4 p. m. I commenced the administration of the following mixture, which was suggested me by Dr. C. G. Comegys, of this city. His great success in the treatment of scarlet fever from its use, led him to think that it might also be useful in yellow fever.

R Acid, Salicylic,	ʒii.
Sodæ Bicarbonat.	ʒiiss.
Glycerin,	
Aq. Cinnamomi,	ää ʒii.
M. ft. Mist. Sg. ʒss., every three (3) hours.	

6.25 p. m., temp. 101° ; pulse 88; resp. 28; skin more moist and slight perspiration; has had no nausea or vomiting since 4 a. m., and has passed no urine since that time, and no inclination to do so; pain in lumbar region; still has tenderness over the stomach; has taken champagne freely to-day; to have sponge bath every four hours; other treatment continued.

Wednesday, Sept. 4th, 7.45 a. m.: temp. 99° ; pulse 80; resp. 18; slept very well last night; passed three ounces of turbid urine at 4 a. m.; first he has passed since 4 a. m. yesterday; sp. gr. 1010, acid, albumen. On allowing the urine to stand quite a sediment takes place, which, on examination, is found to be composed of tube casts and disintegrated renal epithelium; sclerotics and integument are more yellow; complains of some headache; ordered to have a vapor bath this morning, and a sponge bath at 12 o'clock; 4.05 p. m.: temp. 104° ; pulse 116; resp. 20; has some headache; tongue dry and glazed; passed one pint of turbid urine since 4 a. m.; to have beef essence; treatment continued and to have a vapor bath at 8 p. m.; had two stools this afternoon, clay color and very offensive; temp., after bath, $100\frac{1}{4}^{\circ}$; 11.30 p. m., temp. 102° .

Thursday, Sept. 5th, 3 a. m., temp. $101\frac{1}{2}^{\circ}$; 8 a. m., temp. $103\frac{1}{4}^{\circ}$; pulse 100; resp. 20; passed 22 ounces of urine from 7 o'clock last evening to 6 a. m. to-day; very restless up to 12 o'clock last night; remainder of the night slept tolerably well; skin was moist; this morning is very restless and very much prostrated; headache, lumbar pain, distress and pain in the epigastrium; sinapism to be applied over stomach and the kidneys, and to have a sponge bath every four hours; 4.30 p. m.: temp. 103° ; pulse 100; resp. 18; had three small stools to-day—thin and sandy, resembling a mixture of yellow sand and water; urine has been more in quantity than yesterday; 8. p. m.: head, body and arms became quite cold; some delirium; temp. $98\frac{1}{2}^{\circ}$; 11 p. m.: head and arms cold, but body warmer; temp. $98\frac{1}{2}$; lies in a stupor and gives no attention to anything, and will not respond to any questions.

Friday, Sept. 6th, 2 a. m.: temp. $101\frac{1}{2}^{\circ}$; 8 a. m.: temp. 99° ; pulse 88; resp. 20; passed no urine during the night; this morn-

ing passed about $\frac{2}{3}$ of a pint; is perfectly rational; says he feels better; no nausea; skin dry; still complains of lumbar pain; 7 p. m.: temp. $101\frac{1}{2}^{\circ}$; pulse 96; resp. 18; passes urine in larger quantity; 11 p. m.: temp. $100\frac{2}{3}^{\circ}$; had a stool this evening; has taken more nourishment to-day.

Saturday, Sept. 7th, 5 a. m.: temp. 100° ; 8 a. m., temp. 100° ; pulse 84; resp. 20; had a good night's rest; states that he is feeling much better; passing urine better, and is not so turbid; skin moist; 12 p. m.: temp. $100\frac{1}{2}^{\circ}$; pulse 88; resp. 18; 7 p. m.: temp. 99° ; had sponge bath every six hours during the day.

Sunday, Sept. 8th, 5 a. m.; temp. $98\frac{1}{2}^{\circ}$; 8 a. m.: temp. $99\frac{1}{2}^{\circ}$; pulse 88; resp. 20; doing well; skin moist, and urine is passed freely; yellowness of sclerotic gradually disappearing; tongue cleaning off; 7 p. m.: temp. 99° ; pulse 90; resp. 18.

Monday, Sept. 9th, 7 a. m.: temp. $98\frac{1}{2}^{\circ}$; convalescing; yellowness of integument fading; 2 stools to-day of yellowish brown color, semi-liquid and very offensive.

Tuesday, Sept. 10th, 6 a. m.: temp. $98\frac{1}{2}^{\circ}$; pulse 80; resp. 18; stopped giving the salicylate of soda mixture; diet to be beef essence, milk tea and toast; to be allowed champagne or whisky occasionally; sponge baths discontinued.

Sept. 15th: doing well; very anxious to be allowed to get up; appetite good; passing urine in normal quantity and bowels regular; no yellowness of sclerotics or integument for three days; is taking the following four times a day:

R. Quiniae Sulphat.	grs. iii.
Potassæ Chlorat.	grs. v.
Tinct. Ferri Chlorid.	gtts. xxx.
Syr. Simplex,	
Aq. Cinnamomi	ää zi

M. and to be given in water.

Sept. 17th, have not yet allowed him to be out of bed; doing very well.

CASE TWENTIETH.

Charles Mueller.—Early history reported by Dr. Richards; case subsequently treated by Drs. Reamy and Minor:

Charles Mueller, 23 years of age; born in this city; has acted

for the last 3 years as salesman in a jewelry store, at Brownsville, Tenn., in which place, at the end of August, cases of yellow fever had occurred. Charles left Brownsville on Monday night, Sept. 2d, and arrived in this city on Tuesday morning the 3d. When I first saw him, at the residence of his parents, at No. 142 W. Liberty Street, symptoms, as the high temperature (105°), the severe headache and backache; the pain over the epigastrium and vomiting; the injected and watery eyes; taken together with the fact that the place where the patient came from was infected with yellow fever, made the case to me a suspicious one, notwithstanding his own protest against having the disease. That day I visited him three times, and, after the first visit next morning, I reported his condition to the Health Officer, Dr. T. C. Minor, who the same morning personally visited and examined the patient and sent him to the Hospital on Rohs Hill.

At the date of his admission to Rohs Hill Hospital, Sept. 4th, the patient had a temp. of $104\frac{1}{2}^{\circ}$; pulse 116; was complaining bitterly of pain in the limbs and across the loins; his eyes were injected and his skin commencing to assume a bright orange color; he had passed no urine since the previous day; the following was prescribed:

R. Salicylic Acid,	ʒi.
Soda Bicarb.	ʒii.
Tinct. Digitalis,	gtts. xxiv.
Water,	ʒvi.

Tablespoonful every three hours.

The nurse was directed to give the patient sponge baths of tepid water, cloths wrung out in hot water were applied to the abdomen and across the loins; cracked ice, small doses of champagne, teaspoonful doses of chicken broth and beef tea were prescribed as nourishment.

Sept 5th: temp. 103° ; pulse 102; patient has passed no urine; skin of a bright yellow color; tongue heavily coated at the sides, with a dark stripe in the center; papillæ elevated; edges of tongue a bright red; patient still complains of severe pain in back, and has had no urinary secretion.

Sept. 6th: temp. $101\frac{1}{2}^{\circ}$; pulse 87; patient's mind slightly dis-

turbed; has had no passage of urine; skin of a dark yellow hue; vomited this morning; vomit of a dark brown, intermixed with bright red blood; treatment continued with an increased quantity of champagne. Afternoon.—Black vomit continues; patient insists that he has passed his urine in bed; on examination this is found to be a mistake; patient's respiration hurried; temp. 99° ; pulse 100 and thready; medicine discontinued, as patient is unable to retain anything on stomach; bowels moved this afternoon; the patient died on Sept. 7th; marked uræmic symptoms setting in, and black vomit continuing to the end.

CASE TWENTY-FIRST.

Frank Klostermeyer, reported by Dr. Underhill:

On the 5th day of September, 1878, at 5 o'clock p. m., I was summoned to a patient at No. 13 Pine Street. On responding to the call I found a family that had fled from the South on account of the yellow fever, and had taken refuge with their relatives, at the place above specified. The family's name was Latsch, and there accompanied the refugees a five-year-old boy named Frank Klostermeyer, a nephew of Mr. Latsch. They were all residents of Memphis, at which city eight of their relatives had lately died of the prevailing epidemic. I found Frank Klostermeyer quite ill, and was informed that he was sick at the time they had left Memphis. At Brownsville, a town through which they passed on their way north, a physician was consulted. In all, the little fellow had been sick five days. On the evening I saw him he was semi-comatose, though, at times, when aroused partially, he was wildly delirious. From this latter condition he would again relapse speedily into a partial coma. He was entirely unconscious. His facial expression indicated agony. I was informed that early in the attack there had been considerable gastric distress and some vomiting. Later it had entirely ceased, and at no time had there been what is commonly denominated black vomit. The skin was of a dusky earthen hue, rather than of the yellow tinge usually observed in yellow fever. The conjunctiva, however, possessed more of the color characteristic of that disease; but the entire

surface presented little more alteration in appearance from the normal than would be expected in an intense malarial fever. His temperature was 105° , and altogether his condition was such that I gave an unfavorable prognosis, and was not positive in my diagnosis, though I was tolerably well satisfied that it was a case of yellow fever. But upon my visit the next morning there was no longer room for doubt, and Dr. Slough, who at my second and last visit saw the case with me, was also positive in his diagnosis of the affection. The only treatment the patient received during the few hours he was under my care consisted of liquor ammoniæ acetatis given frequently and in the ordinary dose. The child died at 11 a. m. of the day succeeding the one upon which I was called.

CASE TWENTY-SECOND.

Mr. Latsch, reported by Dr. Underhill:

It may not be without interest to state here that, on the morning when Dr. Slough and I saw the above named case, the doctor took axillary temperature of Mr. Latsch, and found that it was four and one-half degrees above the normal. Latsch was not complaining at all, but was, on the contrary, according to his statement, feeling quite well, except that he was fatigued from his recent journey. Nevertheless, his was regarded as a "walking case" of yellow fever. He was told that an ambulance would be sent to convey him to Rohs Hill branch of the Hospital. But before the arrival of the conveyance he started out, saying that, as he knew well where the hospital was situated, he would prefer to walk. Instead of going there, however, it seems that he wandered about till nightfall, and, in his partially delirious condition imagining that he was pursued, he plunged into the canal, and, crossing it, went in his wet clothing to a third-rate hotel, where he remained all night. Next day, September 7th, he started on foot to Louisville. After having walked as far as Lawrenceburg he wrote to his wife, and then pursued his way to Louisville. By what method of travel he reached that city is not known, but it seems that, upon his arrival there, he was still sufficiently rational

to apply for admission to the hospital. He was, as was subsequently learned from the Louisville Hospital authorities, admitted in an almost moribund condition, suffering from the black vomit and all the symptoms of the last stages of yellow fever. He died September 13th, just one week from the day on which I first examined his condition. As his case was in the beginning a very mild one, and promised well in its results, there is the best reason for believing that he would have recovered had he gone to the hospital when first ordered there. Doubtless the privation and fatigue to which he subjected himself were prominent factors in causing his death.

CASE TWENTY-THIRD.

Hippolyte Rembach, reported by W. H. Falls, M. D., Attending Physician, Rohs Hill Hospital:

Was under the charge of Dr. C. G. Comegys in the Cincinnati Hospital.

I am very much indebted to Dr. Block, resident physician in the Cincinnati Hospital for the following notes on the case prior to his removal to the Rohs Hill Hospital:

Hippolyte Rembach, admitted Sept. 7th, 7.30 p. m., age 38, France, single, inkmaker, moderate drinker, had gonorrhœa and orchitis, family history good.

Had been residing in New Orleans but ten months, whence he departed for this city three days ago. While conversing with a friend yesterday afternoon suddenly became ill, experiencing a sense of weariness, languor and nausea, followed by slight muscular pains, cephalalgia and general malaise.

Went to his boarding-house; retired; sleeping from 3 p. m., to 11 a. m., next day, only awakening to suffer from slightly chilly sensations about five hours after retiring. Felt comparatively well this a. m., but at 2 p. m., to-day, again felt chilly sensations similar in character to those the day previous, followed by fever, and observed that he voided but $\frac{1}{2}$ pint urine in last 24 hours, which latter he passed while bathing, preparatory to his entrance into the ward.

P. C.: man of average height, unusually well developed and well nourished; partially bald; dark brown hair; moustache and goatee; grey eyes; tongue slightly coated in center, but red on tips and margins; conjunctiva suffused, but pupils active; naturally of florid complexion, but at present rather dusky, coppery hue; chest almost similar in color anteriorly; slight epigastric tenderness; frontal headache and deep seated orbital pain; very drowsy; patient referring to latter symptoms with great emphasis; pulse 120, full and strong; temp. $104\frac{2}{3}^{\circ}$; phy. ex. neg.; ordered solution salicylate soda ʒss . every three hours (15 grs. salicylic acid ʒss); 11 p. m., introduced catheter, withdrawing about 4 oz. urine; no albumen; ordered the following:

R. Massæ Hydrarg.	grs. xviii.
Olei Ricini	ʒiii.

M. Sig. ʒii every hour until it operates,
and ʒss . sat. tr. jaborandi every three hours.

Sept. 8th, 8 a. m., one stool; still drowsy; tongue coated with heavy white fur; still complains of frontal headache and orbital pain; restless last night; continued R, except oil, and substituted the following:

R Syr. Rhei Aromat.	ʒi.
Massæ Hydrarg.	grs. xx.

M. Sig. ʒi every two hours.

and cream tartar lemonade *ad libitum*; 10 a. m., introduced catheter, withdrawing about 3 oz. urine, high colored, acid reaction; sp. gr. 1031; uph+ and containing bile, but no albumen nor casts; had yellowish watery stool containing filamentous masses of feces and some streaks of blood, latter from hæmorrhoids; 1.30 p. m., perspiring freely, but still drowsy; 3 p. m., another stool similar in character to last, but containing greenish globules; ordered bath at 90° for 15 minutes, and douche 65° to head; pulse feebler and comp.; ordered spts. frumenti, ʒss , tr. digitalis, gtts. x, pro re nata, and ordered jaborandi stopped; 4.30 p. m., pulse feebler; 7.05 in statu quo; 8.30 p. m., passed $6\frac{1}{2}$ ozs. urine, alk. gr. 1030, loaded with earthly phosphates, but containing neither albumen, bile nor casts; 12 p. m., pulse full and strong; stopped stimulants and ordered jaborandi repeated.

Sept. 9th, 9 a. m., passed six ozs. urine, but not preserved for examination, and had two brown liquid stools; ordered wine whey wineglassful every three hours, and ζ ss. champagne every hour; 12.30 p. m., ordered bath 90° for 15 minutes, and douche 65° ; $\frac{1}{4}$ gr. morphia to check bowels, and double doses of salicylate soda; 3.30 p. m., bedewed with perspiration; vomited about 5 ozs. of matter, containing corpuscular elements and fat globules, but no blood red corpuscles; transferred to Rohs Hill; admitted to Rohs Hill Hospital 5 p. m., Monday, Sept. 9th, 1878; temp. on admission $103\frac{1}{2}^{\circ}$; 9.20 p. m., has passed one pint of urine since 5 p. m.; temp. $103\frac{1}{2}^{\circ}$; pulse 96; resp. 18; sclerotics becoming yellow; face flushed; above the eyes integument yellow; tongue moist at tip and edges; center coated with a white fur and dry; perspiring very freely; to be given salicylate of soda mixture ζ ss. every three hours; ice-pellets, iced champagne, iced milk and beef essence; to be given a sponge bath at midnight.

Tuesday, Sept. 10th, 2.15 a. m., temp. $104\frac{3}{8}^{\circ}$; 5 a. m., had a vapor bath; temp. after bath $102\frac{3}{8}^{\circ}$; vomited a small amount of mucus after he had the bath; slept moderately well during the night, and took nourishment; 8 a. m., temp. $102\frac{1}{4}^{\circ}$; pulse 80; resp. 18; perspiring freely, and passing urine in large quantities; sp. gr. 1020, acid; a slight trace of albumen; 8.40 p. m., temp. $101\frac{1}{4}^{\circ}$; pulse 72; resp. 18; restless and very irritable; skin moist; was given some lemonade at his request, but stomach soon rejected it; passed urine, and had stool twice during the night; last stool composed almost entirely of undigested casein.

Wednesday, Sept. 11th, 5.40 a. m., temp. $99\frac{3}{8}^{\circ}$; 8.30 a. m., temp. $99\frac{1}{2}^{\circ}$; pulse 92; resp. 20; slept only three hours during the night; very restless and refusing medicine and nourishment; delirious, and almost impossible to control him; 4.30 p. m., temp. $98\frac{1}{2}^{\circ}$; pulse 68; resp. 28; has passed no urine since 6 a. m., until this evening, when he passed about 12 ozs.; sp. gr. 1016, acid; no albumen; skin dry and quite yellow; attendants attempted to give him a steam bath in bed, but he was so violent that they were obliged to desist; ordered iced-claret instead of champagne.

Thursday, Sept. 12th, 5.30 a. m., temp. 98° ; passed six ounces of urine during the night; one stool—liquid, and of a dark color;

vomits the claret; to have champagne; 8.30 a. m., temp. $99\frac{1}{4}^{\circ}$; pulse 60; resp. 24; not so delirious this morning; complains of pain and tenderness over his stomach; passed eight ounces of urine this morning sp. gr. 1016, acid; no albumen; 5.30 p. m., temp. $98\frac{3}{4}^{\circ}$; pulse 64; resp. 22; had one stool to-day, of dark brown color and very offensive; passed only one pint of urine to-day; took medicine twice, and once $\bar{3}$ ss, of whisky, but has taken no nourishment all day; great distress in his stomach, but no vomiting; very much prostrated; is rational; no delirium; refuses to take anything, and says he does not want to live; extremities cold; 9.30 p. m., had an attack of hiccough, and repeated attacks up to 12 o'clock.

Friday, Sept. 13th, 2.30 a. m., vomited some clotted blood; 6 a. m., had a severe attack of black vomit; had three small stools since 12 o'clock; very black and mixed with blood; passes no urine; is in a state of collapse; temp. 98° ; pulse 60, very small and feeble; resp. 28; is having an attack of black vomit every few minutes; eyes staring; frequent twitching of the eyelids; constantly moaning; skin covered with a cold, clammy sweat; had three very hard convulsions [shortly before he died; died at 11.15 a. m.

Autopsy on body of Rembach, reported by N. P. Dandridge, M. D., Pathologist to Cincinnati Hospital:

Examination held Sept. 13th, at Rohs Hill, at 4 p. m., about five hours after death. Over both upper and lower limbs were some few, small scattered petechial spots. The skin was generally of a yellow color.

A section of the subcutaneous fat was very yellow. The appearance of the muscles was quite normal. The blood was abnormally fluid. The lungs were somewhat congested, and a few slight hæmorrhages beneath the pleura were found.

The heart:—The ventricles were dilated. The substance of the walls quite flabby and more easily torn than normal. The color was paler than it should be. The ventricles contained only fluid blood. The valves were healthy.

The Intestinal Tract:—The color of stomach was of a pinkish

hue, and a small amount of blackish substance was found in the cavity. This same substance, of a black tarry character, was found in the upper half of the small intestine. The tube of the small intestine and colon were quite normal, and neither the follicles nor the mesenteric glands showed any enlargement.

The spleen was small and firm—the section being of a mahogany color, and showing the malpighian bodies plainly. It presented much the appearance of an amyloid spleen.

The liver was small, and the color of *café-au-lait*. It was in an advanced state of fatty degeneration. The cut section showed a homogeneous surface, showing that the change had equally affected all parts of this organ at once.

The kidneys were of normal size. The stellate veins on the surface were unusually prominent. The capsule was readily removed and the surface was quite smooth. On section the entire organ presented quite a homogeneous appearance, there being scarcely any visible distinction between the pyramids and cortex. Here and there in the cortex were yellow lines, probably indicating the seat of fatty degeneration in the epithelium of the tubes.

The bladder contained about six ounces of urine. The prostate was enlarged. The brain and membrane were quite normal.

CASE TWENTY-FOURTH.

Reported by Wm. H. Falls, Physician to the Cincinnati Hospital:

Wm. Bleitz, age 42, Germany, brunette, married, gardener, residence in Cincinnati, three days, former residence, six miles from Memphis, Tenn.

Admitted at 5.30 p. m., Sunday Sept. 8th, 1878; was a patient of Dr. Fishburn, and was also seen by Drs. Comegys and Slough; Dr. Fishburn saw him on Sunday morning, and, it being decided he had the yellow fever, he was transferred from 39 Hamer street to the hospital; he arrived with his wife and child from Memphis, on Thursday morning, Sept. 5th; drank very free of beer and whisky after arriving here, and was intoxicated Thursday night; Friday morning he had a chill, followed by fever, frontal headache

and lumbar pains, which have continued to time of admission ; had some nausea yesterday, but no vomiting ; when he was sick on Friday he took of his own accord six grs. of quinia sulph. and twice of "Hamburger Drops." 5.30 p. m., temp. 106°; passed urine to-day, and bowels have moved three times ; stools small and thin ; tongue heavily coated with a white fur ; no nausea ; no lumbar pain ; no tenderness or pain in epigastric region ; very thirsty ; eyes suffused and sclerotics yellow ; integument of arms and chest also yellow ; was given a vapor bath immediately after being received, which was given to him for 15 minutes ; 8 p. m., temp. 106½° ; pulse 100 ; resp. 18 ; expresses himself as feeling much better since he had the vapor bath ; passed urine, and had a stool since admission ; ordered to have two sponge baths during the night, and salicylate of soda mixture ℥ss. every three hours ; to be allowed iced-milk, ice-pellets and iced champagne ; to have cold applications to the head.

Monday, Sept. 9th, 12.10 a. m., temp. 105¼° ; 3 a. m., had some nausea, but did not vomit ; applied sinapism, which promptly relieved it ; 5 a. m., temp. 104⅔° ; was given a vapor bath for 14 minutes ; just before bath had a stool and passed urine ; stool yellow and offensive ; from 3 to 5 a. m., slept well ; 8 a. m., temp. 104½° ; pulse 88 ; resp. 24 ; restless this morning, but states he has no pain ; passes urine ; skin dry at times, alternating with moisture ; sclerotics and integument very yellow and becoming of a darker hue ; 1.30 p. m., temp. 104½° ; 7.30 p. m., temp. 105⅔° ; had a vapor bath ; after bath temp. 103⅔° ; skin moist, and perspiring profusely ; 9.20 p. m., temp. 106½° ; pulse 100 ; resp. 20 ; urine is being passed in large quantities ; sp. gr. 1010, acid ; no albumen.

Tuesday, Sept. 10th, 2.30 a. m., temp. 105⅔° ; had a sponge bath ; has passed urine twice since 9.20 last evening ; had two stools of dark-ochre color and containing a few particles of undigested casein ; 5 a. m., temp. 105⅔° ; 7.30 a. m., had a vapor bath ; 3 a. m., temp. 102⅔° ; pulse 88 ; resp. 18 ; sclerotics and integument of a dark yellow ; skin more moist ; tongue white coating ; bitter taste in his mouth ; no headache ; no pain anywhere ; takes his medicines and nourishment very readily, and

says he feels much better; is very hopeful; thinks he is over all danger and will soon be well; treatment continued; 8.40 p. m., temp. $104\frac{1}{3}^{\circ}$; pulse 120 and feeble; resp. 45; some delirium; passes urine freely up to 6.30 p. m.; none since; no pain in his back; no nausea, retching or vomiting; takes nourishment and medicine very willingly; frequently asks for iced champagne; feet and hands cool; is in an asthenic condition; has a cadaveric odor; ordered hot bricks to be applied to his feet and legs, and to have whisky *ad libitum*; 8.30 a. m., temp. $102\frac{1}{3}^{\circ}$; pulse 100 and feeble; resp. 44; is in collapse; extremities cold; sordes on teeth; tongue dry and covered with a thick brown fur; delirious and constantly moaning; has had no vomiting or retching; had a slight convulsion at 3.55 p. m.; no black vomit; died at 4 p. m.

CASE TWENTY-FIFTH.

Good Samaritan Hospital—care of Dr. Minor;

Mrs. Margaret Wilshire, age 26 years, refugee from Holly Springs, where her husband, father and brother died of the disease. She had also nursed one of her children through an attack. On the evening of Sept. 8th, had a slight chill, followed by fever.

August 9th, temp. $103\frac{1}{3}^{\circ}$; pulse 118; eyes slightly congested; tongue heavily coated; complains of some supra-orbital pain, also of pain in the limbs; no pain in back; some epigastric tenderness and nausea; ordered:

R Hydrarg. Sub. Mur.	gr. ii.
Podophyllin,	gr. $\frac{1}{4}$.

One powder to be taken immediately; also

R. Tinct. Acon. Rad.	ʒiv.
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Sig. two drops every three hours.

Sept. 9th: patient's bowels have moved twice; kidneys acting; temp. $102\frac{1}{2}^{\circ}$; pulse 108; patient still complains of nausea; cracked ice and small doses of champagne ordered; aconite continued.

Sept. 10th: patient's eyes considerably injected; still complains of headache and nausea; temp. $101\frac{1}{2}^{\circ}$; pulse 100; quantity of

cracked ice and champagne increased; also small doses of beef tea; no albumen in urine; aconite continued.

Sept. 11th: temp. 100; pulse 87; patient's skin a little sallow; headache has disappeared; no albumen in urine; treatment continued, with addition of chicken broths and increased doses of beef tea and champagne.

Sept. 12th: temp. $98\frac{3}{4}$ °; pulse 80; nausea has completely disappeared; kidneys acting freely; bowels moved by small dose of calomel and podophyllin; treatment continued; no albumen in urine; patient's appetite increasing.

No extraordinary symptoms were manifested thereafter; patient convalescing slowly; was discharged Oct. 1st, 1878.

CASE TWENTY-SIXTH.

Edward Starks, Good Samaritan Hospital, case of Dr. Vanzant, Marine Surgeon:

Edward Starks, from steamer Batesville, admitted Sept. 11; convalescing; discharged Sept. 20th; albumen in urine.

CASE TWENTY-SEVENTH.

Mrs. Purcell, Good Samaritan Hospital, reported by Dr. G. W. Haile:

I was called to see Mrs. Purcell on the morning of Sept 16th, about 6 o'clock, at the Hummel House; she had left Memphis one week previous; stated that she had been feeling slightly indisposed for two or three days, and, at about 2 o'clock a. m., of the 16th, was taken with violent headache, intense pains in back and limbs; had nausea, but no vomiting; eyes injected; tongue moist and slightly furred; a very high grade of fever; pulse between 80 and 90; bowels not moved for 16 hours; ordered a purge of calomel and rhubarb, also a mixture of tr. aconite and hydrocyanic acid dil. and hot mustard foot-baths frequently repeated; saw her again at noon; no change, save some vomiting of yellowish matter; ordered in addition bottles of hot water to feet and limbs; saw her again in evening; bowels purged, and in

a slight perspiration for a short time; headache some better; kidneys acting moderately; on morning of 17th, headache relieved; also nausea; pains in limbs and back intense; pulse 86; fever about the same; continued along in about this condition for next twenty-four hours, when we had her removed to the Good Samaritan Hospital; her temp. at this time was 102°; pulse 84; urine loaded with albumen, and not secreted as fully as should be; fever gradually became less during the next three days, until the morning of the fifth day of disease, when temp. was normal, with pulse 72; albumen in urine much less; secretion a little more than one pint in 24 hours; gave her once or twice during fever stage some quinine, which seemed to aggravate trouble, and was stopped; was medicated then with aconite and acid mixture; foot-baths and mustard to loins; lemonade as a drink; diet, toast water and light broth; ice to suck *ad libitum*; after fever stage was put upon 1 gr. dose of quinine sulphate every 4 hours; much better for thirty-six hours, when some slight uræmic symptoms appeared; the amount of albumen largely increased; pulse slow at 64; temp. 97 $\frac{3}{4}$ °; quinine stopped, and dry cups freely applied over kidneys, followed by hot poultices; given internally 15 gts. *Fld. Ext. Jaborandi*; the amount of urine doubled during the next 24 hours under this treatment, the *Jaborandi* acting some on skin as well as kidneys, and the albumen continuing for several days; her pulse keeping down; her condition has since gradually improved on this the 30th; consider her all right.

Dr. J. B. Orr was associated with me in the treatment of this case after the first 24 hours.

CASE TWENTY-EIGHTH.

Reported by W. H. Falls, M. D., Attending Physician to Rohs Hill Hospital:

Adam Detzel, age 19, Cincinnati, single, deck-sweeper on the "J. W. Gaff;" admitted Sept. 16th, 1878, 8.15 p. m.; died Sept. 16th, 10 p. m.

Moribund on admission.

From his father I learned that he was taken sick at Cairo, Ill.,

seven days ago, this being the eighth day of his disease. He received no medical attention while on the boat, and only such nursing as the deckhands would associably give him. The boat arrived in this city at 4 p. m., to-day, when his father was sent for to remove him home. He found him lying on the deck between two sacks of coffee, unconscious and cold. He had him taken home and his family physician, Dr. J. H. Tate, was called. The case being diagnosed yellow fever, he was sent to Rohs Hill Hospital. I saw him on his arrival there, but he was moribund, and died in $1\frac{3}{4}$ hours after being admitted.

CASE TWENTY-NINTH.

Miss Emma Vogeide, refugee from Memphis, Good Samaritan Hospital, care of Dr. Forcheimer. No report.

CASE THIRTIETH.

Wm. Pillman, Good Samaritan Hospital, care of Dr. Minor:

Wm. Pillman, volunteer druggist to Memphis; returned from that city after about two weeks service; was attacked on the evening of the 17th of September with a slight chill, followed by a high fever; prescribed for himself, taking a large quantity of water-melon seed tea.

Sept. 18th, temp. $103\frac{1}{2}^{\circ}$; pulse 110; eyes injected; tongue coated; complains of some pains in the head; kidneys acting well; ordered:

R. Hydrarg. Sub. Mur.	gr. ii.
Podophyllin.	gr. $\frac{1}{4}$.

One powder to be taken immediately; also

R. Tinct. Acon. Rad.	\bar{z} i.
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Sig. Two drops every three hours.

Cracked ice, chicken broth and small doses of champagne.

Sept. 19th, temp. $101\frac{1}{2}^{\circ}$; pulse 104; bowels acted freely during the night; passed his urine freely; no albumen; treatment continued.

Sept. 20th, temp. 100; pulse 88; treatment continued, with increased quantity of champagne and beef tea.

Subsequent notes on temperature and pulse rate were unfortunately mislaid at Hospital. Patient convalesced, and was discharged October 5th, 1878.

CASE THIRTY-FIRST.

Charles Gallagher, reported by Dr. Carr:

Age 28; single; home, Memphis; in business with his brother, whom he had nursed and who died of yellow fever, Sept. 21st. Charles left Memphis on the same day; arrived here on Sunday morning Sept 22d; was taken with a chill Sunday night; on Monday morning Dr. Brown was called, and found the patient with a temperature of $101\frac{1}{2}^{\circ}$; skin hot and dry; bowels constipated.

Tuesday, Sept. 24th, saw the patient in consultation with Dr. Brown; he presented the following symptoms: temp. $101\frac{1}{2}^{\circ}$; pulse 98; skin hot and dry; eyes congested; tongue coated with a a dirty white fur; edges and tip red; bowels constipated; urine free; getting worried about himself; Dr. Brown had given him the previous day quinine, grs. v., every two hours; had him removed to the Good Samaritan Hospital, where we saw him in consultation for the next eight days.

Sept. 24th, 5 a. m., temp. $101\frac{1}{4}^{\circ}$; pulse 98; a slight operation from the bowels; ordered more castor oil; seed water and sweet milk in small quantities oft repeated.

Wednesday, Sept. 25th, 9 a. m., temp. 102; pulse 102; skin hot and dry; bowels have not moved freely; sclerotic badly congested; supra-orbital pain severe; has been so ever since he has been sick; pains in the small of his back; ordered: aconite, drop doses every two hours; 6 p. m., temp. $102\frac{1}{2}^{\circ}$; pulse 96; slight perspiration; bowels have moved freely.

Thursday, Sept. 26th, 7 a. m., temp. $102\frac{1}{2}^{\circ}$; pulse 74; 9. a. m., he is very much frightened and worried this morning; has a scared look; wants to know why we do not give him nitre (we had given Oil Terebinth with the castor oil); his urine is quite

free; bowels have moved freely; perspiration copious; 5 p. m., temp. $102\frac{3}{8}^{\circ}$; pulse 74; continued same treatment and ordered nitre, drachm doses, every three hours.

Friday Sept. 27th, 9 a. m., temp. $102\frac{3}{8}^{\circ}$; pulse 72; bowels and kidneys acting; has gastric pain, and has had it for the the past two days, but no signs of vomiting; 5 p. m., temp. $103\frac{1}{8}^{\circ}$; pulse 80.

Saturday, Sept. 28th, 9 a. m., temp. $102\frac{1}{8}^{\circ}$; pulse 76; still perspiring; verat virida and aconite discontinued; doses of quinine reduced to two grains; 5 p. m., temp. 102; pulse 78.

Sunday, Sept. 29, 9 a. m., temp. 99; pulse 74; skin moist; perspiring slightly; complaining of hunger; ordered beef tea, milk and small doses of sherry wine; bowels and kidneys acting freely; sclerotic has a yellow tinge; features also yellow; 5 p. m., temp. $98\frac{1}{2}^{\circ}$; pulse 72; complains of nothing but hunger.

Monday, Sept. 30th, 9 a. m., temp. $98\frac{1}{2}^{\circ}$; pulse 74; has nothing to complain of but hunger; continue sweet milk, beef tea and sherry wine in small and oft repeated doses; 5 p. m., temp. $98\frac{1}{2}^{\circ}$; pulse 72; this was the last day I saw him; he remained in the hospital some six days longer under Dr. Brown's care. The doctor says his temp. and pulse remained normal up to the time of his discharge; he received no solid food until the 12th day after he was first attacked; although he was fully under the effects of quinine it did not seem to have any effect on him. On the third day of his attack he had that expression which is so hard to describe but when once seen is not soon forgotten, it did not leave until the sixth day. He came to my office Oct. 22d, thirty days after the first symptoms. He had been around some eight or ten days. He looked well, and said he never felt better in his life.

CASE THIRTY-SECOND.

Reported by Dr. Keyt:

Mr. Leopold Iglauer, aged 36 years, merchant from Memphis, Tenn., came to the house of his brother, Mr. Arnold Iglauer, on Walnut Hills, about Sept. 16th, 1878. He had resided in Memphis several years, and passed unharmed through the yellow fever

epidemic of 1873, though assisting and mingling freely with the sick. He was a strict vegetarian and felt fortified against the disease by adherence to the system. On the 3d of Sept. he sickened, and passed through what was considered a light attack of yellow fever. He was treated by the Creole method, and kept his bed for ten days. Recovering so as to be able to travel he came to this city to recruit. During his convalescence he had a ravenous appetite, and indulged it freely, especially in meats. A week after his arrival here he began to feel badly—lost his appetite and became feverish. I saw him first Sept. 27th, 10 a. m. He was sitting up and complained of want of appetite and sleep. Pulse 72, full and strong; temp. 103° ; resp. 24; urine free, and rather high colored, 1023; no albumen; tongue moist and coated with a white fur; directed him to go to bed, and prescribed dilute muriatic acid, ten drops every three hours, and tict. of hyoscyamus at bed time; 8 p. m., pulse 68; temp. $103\frac{1}{2}^{\circ}$; other symptoms as in the morning.

Sept. 28th, 9.30 a. m., pulse 76; temp. $102\frac{1}{4}^{\circ}$; resp. 16; 7.30 p. m., pulse 88; temp. $102\frac{1}{4}^{\circ}$; resp. 25; urine free; lighter colored; turbid with urates; no albumen; feels comfortable; mind clear; has slept sufficiently; has taken milk and beef tea; has experienced no nausea; bowels moved with castor oil.

Sept. 29th. 9.30 a. m., pulse 100, less strong; temp. $101\frac{2}{3}^{\circ}$; resp. 24; urine as at last report; conjunctiva injected; tongue heavily coated and moist; bowels opened in night; inclined to sleep; lies very quiet; makes no complaint; takes nourishment; 7.30 p. m., pulse 104; temp. $102\frac{1}{3}^{\circ}$; resp. 26; skin moist; urine less free; feels comfortable.

Sept. 30th, 7.30 a. m., pulse 124, small and weak; temp. $101\frac{1}{2}^{\circ}$; resp. 36; tongue moist; urine, three ounces in last twelve hours and contains albumen; conjunctiva much injected; face and hands dusky; skin moist; betrays some confusion of mind; prescribed brandy, \bar{z} ss. every two hours; also spts. nit. dulc. \bar{z} i. every two hours; 5 p. m., pulse 112 and fuller; temp. 103° ; resp. 40; conjunctiva and skin decidedly yellow; tongue heavily coated and dry; urine $1\frac{1}{2}$ ounces since morning and albu-

minous; decidedly delirious; 9.30 p. m., pulseless; died 10.40 p. m.; Dr. T. A. Reamy saw the case in consultation.

CASE THIRTY-THIRD.

John Jumper, from steamer Cons Miller, Good Samaritan Hospital:

Admitted Sept. 30th; had a chill before admission; was suffering intense headache and pains in back and limbs; tongue heavily coated; temp. on Oct. 1st reached 104°, and next day fell to 99°, from which time convalescence continued; urine free and showed no albumen; eyes became quite yellow; for two months previous to this attack he had occasionally been treated for secondary syphilis, which again asserted itself as the fever declined, and from which he is still suffering in the hospital.

CASE THIRTY-FOURTH.

Mrs. Jane Amberg, care of Dr. Minor, reported by Dr. DeSteiger, Interné Cincinnati Hospital:

Admitted Sept. 30th; residence, Hickman, Ky., where she had been residing for the past thirty-five years; left there five days since, after losing two daughters; had a chill just before noon, which was followed by pain in supra-orbital, lumbar regions and calves of legs; tongue slightly coated; temp. at 1 p. m., 100 $\frac{1}{2}$ °; pulse 108; no nausea, nor epigastric tenderness; at 6 p. m., temp. 100 $\frac{1}{2}$ °; pulse 96; complains some of nausea, but there is no tenderness in epigastric region.

Oct. 1st, is complaining of epigastric tenderness and irritability of stomach; pain in back, head and lower limbs not so marked; tongue coated, but moist; cathartic given yesterday; has operated three times; kidneys acting fairly, and no albumen; temp. at 8 a. m., 99 $\frac{1}{2}$ °; pulse 76; 12 m., temp. 101 $\frac{1}{2}$ °; pulse 82; 6 p. m., temp. 101°; pulse 88; as patient slept so poorly last night, 15 grs. of bromide of potash was ordered to be taken at bed-time.

Oct. 2d. patient slept but little last night; pain has completely passed away; bowels have not acted since yesterday; kidneys act-

ing fairly, with some albumen in urine; patient feels dull and drowsy; gastric irritability passed away, but she has no appetite; tongue dry with white coating upon sides and a brown stripe in center; temp. at 8 a. m., 101° ; pulse 87; noon, temp. 101° ; pulse 87; 1 p. m., patient has been suffering from nausea since noon and has vomited twice; temp. $102\frac{3}{4}^{\circ}$; pulse 87; 8 a. m. temp. $102\frac{1}{2}^{\circ}$; pulse 78.

Oct. 3d, was very restless all night; has been vomiting again, but the matter vomited seems to be only the medicine and food; tongue dry and brown as yesterday; tr. aconite stopped; since noon she says she feels better than for some time before being taken sick; at 7 and 9 p. m., is to take 15 grs. bromide of potash; at 10 p. m., 3 grains of calomel; 6 a. m. temp. 100° ; pulse 70; noon, temp. $98\frac{1}{2}^{\circ}$; pulse 64; 4 p. m., temp. 99° ; pulse 54; 6.30 p. m., temp. $100\frac{3}{4}^{\circ}$; pulse 70; was ordered to take a small glass of champagne every hour or so.

Oct. 4th, has vomited twice to-day, and in both instances just after having taken some nourishment; tongue is becoming moist, and color more natural; 8 a. m., temp. 98° ; pulse 72; noon, temp. 98° ; pulse 80; 6 p. m., temp. 98° ; pulse 88.

Oct. 5th, being restless last night was given 20 grs. of bromide of potash; bowels not having moved for three days a seidlitz powder was given, but this was immediately vomited; was not repeated as stomach was very irritable; bowels moved three times during the night; tongue moist and heavily coated; urine free, with an abundance of albumen; is quiet to-night, so no bromide is ordered; 6 a. m., temp. 99° ; pulse 80; noon, temp. 99° ; pulse 88; 6 p. m., temp. 99° ; pulse 81.

Oct. 6th, rested well last night; this morning looks bright and says she feels much better; urine free, but albumen is still found plentiful; was given champagne and beef tea as nourishment; temp. $98\frac{3}{4}^{\circ}$, 99° and 100° ; pulse 80, 84 and 88.

Oct. 7th, rested well all night; tongue is much cleaner, but still has the brown stripe down center, and the sides are somewhat raw looking; eyes look more natural, and color of face better; appetite improving, but still taking nothing but wine and liquid nourishment; temp. 99° , 99° , 99° ; pulse 72, 76, 78.

Oct. 8th, improvement more marked; tongue has still the beef steak appearance; urine free, but still containing a large amount of albumen; temp. 98° , 99° , 99° ; pulse 76, 76, 78.

Oct. 9th, bowels acted freely to-day; tongue looks better than upon yesterday; resting and sleeping well; appetite good; albumen still continues; temp. 98° , $98\frac{3}{4}^{\circ}$; pulse 80, 76.

Oct 10th, no change; albumen not so plentiful; temp. 98° , 99° , $99\frac{3}{4}^{\circ}$; pulse 76, 76 and 78.

Oct. 11th, doing very well; albumen still more decreased; temp. 98° , 99° , 99° ; pulse 76, 64, 65.

Oct. 12th, tongue still some raw; albumen still continues, though in smaller amounts; temp. 98° , $98\frac{2}{3}^{\circ}$, $98\frac{2}{3}^{\circ}$; pulse 68, 76, 65.

Oct. 13th, vomiting renewed this morning; after taking milk followed by wine bowels moved twice; there is now only a trace of albumen; temp. $97\frac{2}{3}^{\circ}$, 98° , 99° ; pulse 64, 66, 65.

Oct. 14th, everything looks favorable to-day; resting well; temp. 98° , $98\frac{1}{2}^{\circ}$; pulse 72, 78.

Oct. 15th, tongue large and flabby, with very raw edges; appetite good and digestion fair; has been no albumen for two days; slept poorly last night; temp. 98° , $97\frac{3}{4}^{\circ}$, 98° ; pulse 72, 78, 80.

Oct. 16th, slept poorly last night again; sat up while having her bed made, but was soon forced to lie down by weakness; temp 98° , $97\frac{3}{4}^{\circ}$, $98\frac{1}{2}^{\circ}$; pulse 78, 72, 80.

Oct. 17th, very little sleep last night; sat up in bed a while to-day; kidneys acting well and urine normal; temp. 98° , 98° , $98\frac{1}{2}^{\circ}$; pulse 80, 84, 80.

Oct. 18th, had a good night's rest; sat up an hour or so to-day; temp. $98\frac{1}{2}^{\circ}$, $98\frac{1}{2}^{\circ}$, $98\frac{3}{4}^{\circ}$; pulse 72, 72, 84.

Oct. 22d, patient is now setting up each day; temp. and pulse now normal; the yellowness of skin and eyes, which appeared about the fifth day, has almost disappeared; is gaining flesh and looking better each day.

CASE THIRTY-FIFTH.

Mrs. Halliday, reported by Dr. Nelson :

Mrs. M. Halliday, age 28 ; left Gallipolis, Ohio, on the evening of Oct. 7th, 1878, feeling well and to all appearances in good health, except that she was suffering from the effects of a severe cold, which she had contracted about a week previous.

Oct. 8th, had a slight chill this morning, followed by fever and free perspiration in the evening.

Oct. 9th, arrived in Cincinnati ; no chill, but fever during the day, and was very nervous and restless ; a cathartic was administered during the day, and produced free catharsis ; perspired freely during the night ; had been nursing yellow fever cases below Gallipolis.

Oct. 10th, was quite sick all day, keeping the bed, and vomited frequently dark, greenish fluid, nausea being almost constant ; I was called to see the case about 6 p. m. ; she was making frequent attempts to vomit, with but little success—only now and then ejecting a mouthful of dark, greenish-looking fluid ; she was very restless, and complained only of slight headache, pain in epigastric region and a constant feeling of nausea ; tongue slightly coated with a whitish fur ; epigastric region very tender, even on slight pressure ; complained of some pain in the effort to pass water, but said she had been passing her water up to present time quite freely ; consciousness perfect, but was evidently laboring under some excitement, which she was endeavoring to suppress ; temp. 104° ; pulse 96, soft and compressible.

Oct. 11, rested tolerably well during the forepart of the night ; towards morning the vomiting again returned, the matter vomited being some nourishment she had taken earlier in the morning, and toward the last of a dark colored fluid ; was still very restless ; nausea almost constant ; tongue cleaner ; less tenderness at epigastrium ; passed urine tolerably freely ; bowels not moved since yesterday ; no headache ; temp. 103° ; pulse 96 ; 6 p. m., slept some this morning ; vomiting has ceased ; suffering no pain, but

complained of great thirst; had passed urine; temp. 104°; pulse 96.

Oct. 12th, passed a bad night; was quite restless; vomiting a small amount of dark, greenish fluid occasionally; nausea almost constant; passed urine tolerably freely; 6 p. m., temp. 100°; pulse 96; rested during the day tolerably well; nausea and vomiting had greatly diminished; urine had passed during the night for the first time since this morning, the quantity being tolerably fair; but it was of a very dark greenish color, and quite viscid, staining the vessel of a greenish hue; temp. 101½°; pulse 104 and feeble.

Oct. 13th, had grown gradually worse between 11 and 12 p. m.; was completely unconscious; very restless—rolling around in bed; continually moaning, and, every five or ten minutes, screaming as though in great pain; making frequent efforts at vomiting, but ejecting nothing except what water was given her to drink; the urine was withdrawn by catheter, none having been passed since the previous evening; upon examination with nitric acid or heat it became almost solid; convulsions set in about 6 p. m., and continued until death, which took place about 10 p. m.

HISTORY OF THE SECOND TRIP OF THE JOHN PORTER.

I am indebted to Dr. Reuben A. Vance, of Gallipolis, Ohio, for the following history regarding the second trip of the John Porter. Dr. Vance was surgeon in charge of the boat, and contracted the fever from exposure to the infected barge "Mingo:"

GALLIPOLIS, OHIO, Oct. 20th, 1878.

DR. T. C. MINOR, Health Officer, Cincinnati, Ohio.

My Dear Sir:—In response to your letter of inquiry of recent date I have to say that the steamer John Porter, with her float of

18 barges, was cast loose from her moorings by the flood which resulted from the heavy rains of Sept. 11th, 12th and 13th. The steamer was landed but a short distance from where she had been tied up, but the barges kept on down the river. Capt. John Porter, one of the owners of the steamer, after vainly endeavoring to procure a steamer with which to follow up and land the barges, finally determined to raise steam on the Porter, ship a crew and start after his property on his own boat. I had just concluded my labors (having previously contracted with Capt. Porter to disinfect "and place in good sanitary condition" both boat and barges) of disinfecting the Porter and three of the barges, when the flood which set them adrift came upon us. Dr. W. C. H. Needham, the Health Officer of this town, was with me at the time. The Board of Health of this place, having ordered him to superintend and report upon the measures I adopted for cleansing the Porter and barges, it was mainly owing to his exertions that the steamboat was landed so speedily. As I have already mentioned, the Porter had been thoroughly disinfected, and Dr. Needham and I joined together in certifying to the good sanitary condition of the boat on the 13th of Sept. Owing to the excitement prevailing here, Capt. Porter was compelled to telegraph to Middleport for pilots and engineers, and valuable time was lost before the steamer Porter was ready for her trip down the river. Finally, on the morning of Sept. 14th, the Porter came to the wharf-boat here and shipped crew and stores. The following extract, from a local paper, the *Gallipolis Bulletin*, of Sept. 28th, 1878, which was compiled from a copy of the boat's log in my possession, will furnish you with all the material incidents of our trip.

Left Gallipolis, at 10 a. m.; three barges left at Blazer's and a fuel boat directly opposite; first barge found at Campbell's Furnace and removed across the river; model barge "Coal Hill" passed at Millersport; a square barge found at Reed's Landing; took coal flat at Ashland and another at Hanging Rock, and left them with barge "Silver Dollar" opposite Turkey Creek; barge "15" and model barge "Mingo" left at Ripley, and landed them opposite; landed for fog at Ripley; 3 a. m., Sunday: left Ripley at 8 a. m.; found barge "E. S. McLain" at Foster's Landing; arrived in

Cincinnati at 12 m., Sunday, Sept. 15th, and found barge "Sligo" mashed against the bridge pier; No. "13" found at Willow Run; Dr. Vance interviewed the Health Officer, while boat went to the bridge to remove wreck; written notice served on boat not to touch the Ohio shore; just as boat was on eve of leaving, the Health Officer of Covington came on board and said that Mayor Moore, of Cincinnati, and Mayor Athey, of Covington, were on the bank to see Capt. Porter. It was agreed between the latter and Mayor Moore that the steamer Porter should go outside the city limits and remain all night, and that he, the Mayor, would meet Capt. Porter on the Miami bridge next morning at 10 o'clock.

At daybreak Dr. Vance started for Cincinnati in a carriage to procure legal advice for John Porter, for, while the authorities of Cincinnati and Covington were ordering him beyond their corporate limits, on the one hand, on the other they refused either to let him come and care for such of his property as was within their bounds, or to take proper charge of it themselves. Securing the services of Fayette Smith, the Republican candidate for Judge, Dr. Vance returned to the Miami bridge, but arrived too late to find the Mayor and Capt. Porter. After taking Mr. Smith to the railroad depot, Dr. Vance found Mayor Moore and Dr. Minor on the bank, near where the Porter was moored, and, at his invitation, both gentlemen went aboard the boat to judge of her sanitary state. The fact should have been noted before, that at midnight the model barge "Mingo," was seen floating by, together with the other barge left at Ripley—they having been cut loose by the residents of the neighborhood—and both were landed at Parker's Grove, just beyond the limits of the city of Cincinnati. While these barges were lying at Ripley, the "Mingo" was partially pumped out, and Dr. Vance inspected one of her two compartments, and he took occasion to speak very highly of the courageous and manly qualities of the second mate, "Dock" Fields, of Middleport, who took a lantern and lighted him through her dark and ill-smelling hold. When Dr. Minor came aboard with Mayor Moore he gave Dr. Vance such information that both physicians agreed to join together in urging upon Capt. Porter an inspection of the remaining compartments of the "Mingo." Capt. Porter

returned from Cincinnati about 5 p. m., and Mayor Moore disembarked; the Porter then left for Parker's Grove and landed just outside the "Mingo." An attempt was made to investigate the condition of the "Mingo," but the odor emanating from her was so stifling for human endurance it was abandoned. Drs. Minor and Vance then joined together, in a written request, urging Capt. Porter to apply the torch to the "Mingo," and rid humanity of a source of contagion, that, under the circumstances, could be controlled in no other way. To this request Capt. Porter at once acceded, Capt. Porter himself applying the torch. From this time forward the cruise of the Porter was uneventful; the newspapers having disseminated information of the "Mingo," and with it the destruction of the last of the contagion, that has made the name of "steamer John Porter" synonymous with all that is terrible. All the barges were recovered, except the "Sligo," "Mingo" and one square barge.

The crew consisted of twenty-seven persons in all. One man, a deckhand, named Hill, who recklessly exposed himself at Foster's Landing and on the "Mingo," by remaining in the water that filled one of the submerged barges for a length of time at the former place, and by needlessly descending into the hull of the latter barge, was attacked with yellow fever within a week after leaving the boat at this point, on the evening of Sept. 22d. On the morning of the 3d of October I received a letter from the Health Officer of Pomeroy, Ohio, Dr. Wells, informing me of the illness of the two engineers, Messrs. Dong and Cooper, and of one or two others of the Porter's crew, who lived in that place or in the vicinity. Another letter came from Dr. Wells on the morning following, but by that time I was unable to give attention to its contents, having become suddenly and alarmingly ill myself in the meantime. Violent headache, and backache, preceded by a decided chill, came on the morning of the 3d. In a short time my temperature reached 102°, and with it every moment the intensity of the cephalalgia seemed to increase. Thanks to the kind and skillful attention of my friend Dr. Needham, when my fever subsided at 2 a. m. of the 4th. It passed away to return no more;

and, although my convalescence was tedious and protracted, yet my progress toward health has been steady and uninterrupted.

One word more, and I am done. You say in your letter that the last trip of the Porter "was very fatal to her crew." Now I know of but two deaths—Hill and Long—and I also know that both these men were exposed to the "Mingo." The same is true of two others of the crew, who were sick about Oct. 3d, and were said to have yellow fever. In reference to my own case (if I suffered from poison imbibed from the Porter and her barges, and of that I think there is little doubt) you know how much I was exposed on the "Mingo. So here are five cases (with two deaths) on which the influence of the "Mingo" was clear. In regard to Mr. Cooper, I don't know how much he was exposed;—he can answer for himself. On the other hand there are twenty of the crew of the Porter who were on the boat for more than a week and who were not exposed to the poison of the "Mingo," who also as I know, have remained well. You will observe that I omit Field from my calculation. Rumor says he has had the fever, but I have no means for knowing the truth of the matter. One thing, however, is very apparent, and that is: had not the "Mingo" been destroyed as she was, the second upward trip of the Porter and barges would have been attended by such a spread of yellow fever along the banks of the Ohio River as to dwarf into insignificance the destruction of life and property which marked her desolate march from New Orleans to Gallipolis.

Thanking you once more for the generous assistance you rendered me on the Porter, I am, my dear Doctor, very sincerely,

Your friend,

REUBEN A. VANCE.

YELLOW FEVER NEAR GALLIPOLIS O.

The out-break of Yellow Fever below Gallipolis, O. has been traced directly to the infected tow-boat John Porter. The following extract from the Gallipolis Ledger, (Sept. 16th 1878), is a plain statement of the facts in the case.

The tow-boat John Porter arrived opposite Gallipolis Saturday evening Aug. 17th., in trying to pass the wreck of the Brilliant, she broke some of her machinery and was unable to proceed any farther. Dropping down, just below the Docks, the damage was repaired by Mess. Enos, Hill and Co., of this place, and the boat proceeded up the river Sunday morning but meeting with another accident again dropped down to her former landing place. Though the accident was repaired the boat did not again try to proceed. On Monday the 19th the boat was ordered farther down the river by the Board of Health and she was dropped down to the Ohio side, opposite Mr. Joseph Blazer's residence. Coming up the Mississippi and Ohio rivers, from New Orleans, a number of the crew died, of what was undoubtedly yellow fever. When she arrived at Gallipolis several of the crew were sick, all of whom, as near as we can ascertain, died. The physicians in charge were Doctors Carr and Slough of Cincinnati. At this point all the crew, who did not die, finally deserted the boat. The Board of Health placed a guard over her and had boat and barges disinfected several times. A number of men and boys, some residing in the surrounding country and some in the city, went on the boat and barges at different times; some were employed to guard and disinfect the boat and barges, and some went from curiosity or other motives. Shepard Sheldon residing in the upper part of town and James T. Meyers living on 2nd street were among those engaged in cleaning the boat up. Sheldon was the first man to be taken sick. The physicians in attendance pronounced it yellow fever. He died Monday night Sept, 2nd, and was immediately buried: his bed, clothing, &c., destroyed, the house disinfected and closed and the

family removed to a house above town. Meyers was taken sick shortly after Sheldon was and died Thursday morning Sept. 5th. His case was also pronounced to be yellow fever, and the same precautions that were taken in Sheldon's case were taken in his. Those two cases are all that have appeared in Gallipolis, and all our physicians unite in saying that they believe no further spread of the disease is to be apprehended in the town. In fact it never did spread in the town itself, the two cases, being isolated ones, and both the victims having no doubt caught the fever directly from the boat or barges.

Below town there have been a number of cases and deaths. The infected district comprises an area, beginning at Joseph Martin's house just inside the corporation limits and running to about one mile below Clipper Mill, which is called four miles from Gallipolis. No cases have as yet appeared back of the hills, which are at an average distance of probably a quarter of a mile from the river. The first one to be taken sick was Grant Walker, aged about 16, son of William Walker, Esq. He was taken sick about Thursday Sept. 5, and died Sunday, Sept. 8. There is a difference of opinion among the physicians in regard to his case. While some pronounce it yellow fever, some pronounce it malignant billious fever accompanied with congestion of the brain; and some of our physicians yet declare that there is, and has been no yellow fever below town.

If it is the yellow fever, it has undoubtedly been caught from, or disseminated by the John Porter or barges. The physicians who say it is not yellow fever, do say that the foul water in the barges aided in spreading and rendering more malignant, the fever. We have spoken to nearly every physician in town and find they do not argue as to the nature or treatment of the epidemic. All that could be done to prevent the spread of the fever has been done, and it seems to be the prevailing opinion that no further spread of the fever may be apprehended.

That it has proven terribly fatal cannot be denied. So far as we can find from authentic sources, there have been as near as can be got at, about 28 cases and 15 deaths. The death roll is as follows:

Sheppard Sheldon and James T. Myers, who resided in Gallipolis; Joseph Martin who lived just inside the corporation limits; Mr. William Walker, Grant Walker, Lang Walker and Miss Alice Walker, W. H. ("Bub") Blazer, Mrs. Morton, J. C. Brothers, Mrs. J. C. Brothers, Jas. Brown, Clayton Coffman, who all lived on the river road below town, and William Buck living near Porter.

On the 14th of September, I detailed Drs. Carr and Slough to visit Gallipolis and investigate the cases occurring in that vicinity. The following brief abstract is made from the report presented to the Health Department of Cincinnati, by these gentlemen:

Started for Gallipolis Sept. 12. Arrived Sept. 14. at 6 p. m. Nothing was accomplished until Sunday Sept. 15. at 8 p. m., when in defiance of the Board of Health Dr. Cromley took me to see Wm. Buck, who lived ten miles back of Gallipolis. This patient was in a comatose state when I saw him, and decomposition had already set in, though he did not die for two hours after. He had a copious black vomit. Sclerotic a marked yellow hue. This was the fourth day of his attack; it was undoubtedly such another case as that of Wm. Koehler—Case No. 2. He had been wearing clothes that were on the John Porter, and I have no doubt but that he had been aboard of the boat.

On Monday Sept. 15 visited the infected district with Dr. Cromley. The first case I saw was that of Hugh Plymole, age 72. He had been on board of the boat; temp. 103. supraorbital pain; pain in the back and joints, all intense; no gastric irritation. Bowels moving freely under Dr. Cromley's treatment. Sclerotic yellow. Urine scant—no tests for albumen had been made. This was his third day. I saw him Sept. 17, 3 p. m. He was collapsed, pulse 60, temp. 100. He died that night, being the fourth day of his attack. No vomit.

The next was Miss. Alice Walker. This was a post-mortem visit; she presented the same post mortem appearance as the cases on the 'John Porter.' Had black vomit; she was the fourth death in this family. All had the black vomit. They boarded the crew that had charge of the boat—engaged in painting and cleaning it. Three had undoubtedly been on board. The next

two were typical convalescent cases, patients of Dr. Fred. Cromley ; Miss Ada Brown and Master Chevely. The best description I can give of these is to refer to Bunting's case. Chevely had been on board of the boat ; Miss Brown had been in direct contact—in what way I am not at liberty to state. Dr. Slough made the same visits the next morning and we agreed in every particular. These five cases are all that we are prepared to pass opinion upon, the rest having been dead some time before we arrived.

Here follows a list of deaths: the following had been on board the 'John Porter' took sick and died inside of five days, and also had the black vomit with all the other symptoms.

Sheldon Sheppard,	Joseph Martin,
Wm. Walker,	Grant Walker,
Lang Walker,	W. H. Blazer,
Mrs. Joseph Blazer,	J. C. Brothers,
James Brown,	Clayton Coffman.

Mrs. Joe Blazer had been on board to get some birds that were starving, and lost her life through her kindness. Mrs. Morten died with black vomit ; had not been on board, but had had clothing that come off the boat.

Drs. Newton and Sands state they have three convalescents which would make a total of twenty cases with five recovering, but as near as we could ascertain there were seventeen cases with two recoveries, and in every case direct contact can be traced to the John Porter or her barges.

I am indebted to Dr. F. A. Cromley for the following information relative to the number of yellow fever cases developed at or near Gallipolis. The clinical histories of these cases (so I am informed by Dr. John M. Woodworth, U. S. Marine-Service) will be presented to the Yellow Fever Commission, by Dr. Long, U. S. Marine Surgeon, Louisville, Ky.

GALLIPOLIS, OHIO, Oct. 18th, 1878.

THOS. C. MINOR, M.D., Cin. O.,

Dear Dr.:—Yours of the 17th inst. received and in reply to request send you the following particulars. Of the accompanying

list Miss Ada Brown, Mr. Bailey Walker, Mr. Chas. Sheviliér white, and — Anderson, colored; are the only recovered patients. There have been several cases of reported yellow-fever, in and about the city but from personal observation, and from the observations of Dr. Long of Louisville Ky. who visited some of the reported cases with me, we pronounce them *not* yellow-fever, but a type of malarial fever bordering on yellow-fever.

None of the Porter's second crew are sick at this place. Wm. Hull the last mentioned on the accompanying list, was one of the Porters second crew, and the only one that died. I will be pleased to give you any further information required.

List of Cases developed in or about Gallipolis, Ohio:

- | | |
|-------------------------------|-------------------------|
| 1. Sheppard Sheldon. | 19. Caroline Davis. |
| 2. James T. Meyers. | 20. Hugh Plymale, Sr. |
| 3. Wellington Blazer. | 21. Miss Sarah Kerns. |
| 4. Willjam Walker. | 22. Mrs. E. Brothers. |
| 5. Grant Walker. | 23. Mrs. Clod. Roberts. |
| 6. Alice Walker. | 24. Mrs. M. M. Beard. |
| 7. Laing Walker. | 25. Mrs. John Kerns. |
| 8. Clodius Brothers. | 26. Mr. Wm. Holcomb. |
| 9. Mrs. Clodius Brothers. | 27. Miss Ada Brown. |
| 10. Jas. Brown. | 28. Baily Walker. |
| 11. Mrs. Chas. Fourth. | 29. — Anderson. (Col'd) |
| 12. Mrs. Sam'l H. Morton. | 30. Chas. Sheviliér. |
| 13. Clayton Coffman. (Col'd.) | 31. Max Hargar. |
| 14. Chas. Dehlman. | 32. Mrs. Max Hargar. |
| 15. Wm. Buck. | 33. Simon Gibson. |
| 16. Joseph Martin. | 34. Thomas Gibson. |
| 17. Mrs. J. J. Blazer. | 35. Wm. Hull. |
| 18. Miss Maggie Brown. | |

Dr. Vance of Gallipolis, is so well known to the profession throughout the country, that his opinion, in regard to the etiology of Yellow Fever, is entitled to due consideration. I therefore append a private letter containing much of value and interest.

GALLIPOLIS OHIO, Oct. 30th, 1878.

Dr. T. C. Minor, Health Officer, Cin. O.,

My Dear Sir:—In response to your letter of inquiry I can only say that my time is so fully taken up with engagements that can no longer be postponed that I cannot recite the facts upon which my views of certain of the phenomena of yellow fever are based. Neither am I possessed of any ideas on the subject which are either new, or novel. Furthermore, my experience has not been such as to furnish me with the data necessary for answering all your inquiries.

In the first place, I will cite the well known fact that Yellow Fever is indigenous in certain parts of the world; for instance, Havana, and Vera Cruz, the West India Islands and different points on the coast of Central and South America.

That this disease is not indigenous in the United States will be denied but by few. On the contrary, it seems necessary not only to bring it here, but, so to speak, to care for it, in its incipiency, and afford it the congenial soil of bad hygienic surroundings in order to develop it into an epidemic form.

Once imported and so situated as to increase, it propagates itself through certain definite avenues. The disease cannot be directly transmitted from the sick to the well—it requires a series of intermediate agencies and without these agencies, yellow fever cannot spread. These intermediate agencies, upon which the spread of yellow fever depends, are the excreta from patients with the disease. The cutaneous exhalations, the urine and feces, but preminently, those excretions and voided secretions which contain blood—the black vomit and bloody intestinal evacuations—communicate the disease both directly, and indirectly. Despite all reasonable care—and only those who have had personal experience can form an idea of the care ordinarily accorded yellow fever patients—there are but too many avenues through which the well are brought into direct contact with the excreta of the sick. Yet the important means of communication is indirect. These organic excreta generate a miasm which arises from bedding and clothing, from vessels privies and drains—in fact from every spot where these excreta are

deposited, unless they are rendered harmless by disinfection—and, when the disease reaches a certain degree of intensity, each new case where proper sanitary measures are not adopted, becomes a new center from which the epidemic spreads.

The course pursued by yellow fever here afforded additional illustration of these truths.

As to our local quarantine that it accomplished some good, there can be no doubt; its evils and short comings were incident to the system. When the strong arm of the General Government seizes a city or village in which yellow fever prevails and remorselessly isolates that community until all danger is past, *then* Quarantine will save human life, but so long as Quarantine Regulations are to a certain extent voluntary, they will be enforced just so long as the predominant mercantile interests fear death more than they love money—a period of time which never exceeds the first few weeks of a yellow fever scare.

I look forward with great hope to the results of the yellow fever commission, feeling confident that Dr. Bemiss and his able co-laborers will accumulate such a wealth of facts that in the future, Preventive Medicine will no longer be at such a disadvantage in coping with this great enemy of the Human Race.

Yours Sincerely,

Reuben A. Vance, M.D.,

YELLOW FEVER AT POMEROY, O.

I am under obligations to Dr. W. P. Wells, Health Officer of Pomeroy, Ohio, for notes on the yellow fever cases developed on the Porter during her second voyage. The two following, of several letters received, are appended :

POMEROY, OHIO, Oct., 15th, 1878.

DR. T. C. MINOR, Cincinnati, Ohio.

Dear Sir:—I herewith send you a tabulated statement of the case of W. Cooper, 2d engineer of the steamer John Porter. I will have to give you the history of the case up to the time I seen it, as related by Mr. Cooper, which is as follows :

Went on the steamer John Porter at Gallipolis, and started down the river to pick up her barges, which had broken loose on the up trip from Cincinnati; when two days out was taken sick while on watch, and had to send for Mr. Hull to help handle the engine; diagnosis of yellow fever, but concluded to wait next day, when I confirmed diagnosis of preceding day, and placed guards around the house and allowed no one to enter or come from the house; used carbolic acid in house and yard freely; after 9th day made rapid convalescence; yesterday, the 15th day, was able to walk around in house and set up three or four hours at a time; found traces of albumen in urine up to the 15th day—yesterday; burned all bedding and clothes and provided new ones; ordered guards from the house; he still looks sallow, and very much thinner in flesh. Yours, respectfully,

W. P. WELLS, M. D., Health Officer.

POMEROY, Ohio, Oct. 22d, 1878.

DR. T. C. MINOR.

Dear Sir:—Yours received a few days ago, and would have been answered sooner only for my absence from home. Of the crew of Porter sick of fever on the second trip, as far as I know, are as follows :

CLINICAL RECORD IN THE CASE OF W. COOPER.
Reported by Dr. W. P. WELLER, Pomeroy, Ohio.

	Pulse.	Tongue.	Conjunctiva.	Temperature.	Urine.	Skin.	Pains.	Remarks.
2d day.	140 Irregular. Wiry.	White fur in centre, edge inclined to redness.	Slight Congestion.	Hot— burning.	Scanty, and very high colored.	Covered with perspiration.	Intense in head, back, and extremities.	No tympanitis about bowels; moved this morning from cathartic.
3d day.	130 More regular. More volume.	Centre more inclined to redness.	Congestion more marked.	Hot— burning.	Same as yesterday.	Same as yesterday.	Pains not so bad as yesterday.	Bowels moved; no tympanitis.
4th day.	90 Regular. Heavy.	Brown centre.	Same as yesterday.	Skin hot but no burning sensation.	Same as yesterday.	Same as yesterday.	No pains but slight headache.	Bowels moved.
5th day.	55 Regular. Heavy.	Cleaning.	Showing yellow.	Skin cool, if anything, be- low normal.	More, not so high colored.	Moist, yellow about face.	No pain.	Bowels moved; much prostrated; feels like fainting when raised in bed.
6th day.	55 Regular. Heavy.	Cleaning.	Quite yellow.	About natural.	Same as yesterday.	Same as yesterday.	No pain.	No movement of bowels; prostra- tion same as yesterday.
7th day.	60 Regular and natural.	Clean.	Yellow fading.	Natural.	Same as yesterday.	Moist, yellow about face.	No pain.	Bowels moved; not so weak; eat a little soup, tasted good.
8th day.	65 Natural.	Clean.	Milky.	Natural.	Nearly normal in quantity, still yellow.	Natural, some yellow, but fading.	No pain.	Bowels moved; is gaining; wants more soup; feels great deal bet- ter; sat up a little.
9th day.	Normal.	Clean.	Milky.	Natural.	Found albumen.	Sallow.	No pain.	Gaining strength.

- A. Long, 1st engineer, died.*
 W. Cooper, 2d engineer, recovered.
 W. Hull, fireman, died. *
 R. A. Vance, M. D., who made trip from Gallipolis to Cincinnati and return, recovered.
 Two colored firemen, names unknown, recovered.
 P. Rupert, deckhand, slight symptoms.

YELLOW FEVER IN BROWN CO., OHIO.

Reported by Dr. Carr, of Cincinnati Hospital D'p't:

Columbus Vacaro, 27 years of age; home, Memphis, Tenn.; left the suburbs of Memphis, Monday, Oct, 7th, an aunt having died in his house of yellow fever a day or so before he left. He arrived in Cincinnati, Ohio, Tuesday, Oct. 8th, at 7 a. m.; lodged at the hotel Emery; Friday, Oct. 11th, at noon, started with his wife for St. Martins, Brown Co., Ohio; after leaving the train and taking the 'bus for a five mile ride to his destination, he was taken with a chill, followed by hot flashes and fever. He arrived at St. Martins at 7 p. m.; he vomited all night; there was a heavy frost the next morning; he arose, went down stairs, but had to retire to his bed; we seen him Saturday, Oct. 12th, at one p. m.; he then presented the following symptoms: a flushed condition of the skin, which was dry and parched; eyes slightly congested; bowels were and had been constipated; has had no trouble with his urine; he has a scared worried look, and suspiciously watches our actions and listens eagerly to our conversation; severe pains in his joints (says he has breakbone fever); tongue pointed, and covered with a dirty white fur; edges have the appearance of raw beef; he has severe supra-orbital pain; temp. 103°; pulse 110; 3 p. m. temp. 103½°; pulse 112; he is complaining of pain in the small of his back; he is still vomiting; has pain in the epigas-

*Hull died at Gallipolis. Long, the first engineer, died at Middleport.

trium; his urine is scant; at 1 p. m., had given him *ol. ricini*, $\bar{z}ii$; it has acted on his bowels very favorably, producing three operations; also gave him bismuth sub. nit. grs. x and repeat; allowed him small pieces of ice to suck; 6 p. m., temp. $103\frac{1}{4}^{\circ}$; pulse 114; has had three more stools; the pain in his head still intense; eyes are now badly congested; that look of impending evil is now well marked; he wants to know if he has yellow fever; skin hot and dry; no perspiration; 11 p. m., temp. $103\frac{1}{2}^{\circ}$; pulse 120; kidneys acting badly; very little urine; it has not been tested yet; have given spts. nitre $\bar{z}i$ and aconite tr. gttss. *iii* since 6 p. m.; from 2 to 11 p. m., his tongue had this peculiar marking: from its root down the center to its apex was a line one-eighth of an inch in width, having the appearance of coagulated blood.

Sunday, Oct 13th, 5 a. m., temp. 103° ; pulse 76; the lowering of the pulse was undoubtedly due to the aconite; symptoms continue the same; bowels have moved twice since last observation; he sleeps but little; takes short naps, lasting from two to five minutes; continue the nitre and weak lemonade; made first test of urine, spec. gr. 1010 with 33 per cent. albumen; urine very scant; 1 p. m., temp. $102\frac{4}{8}^{\circ}$; pulse 74; still same symptoms; have been applying ice to his head for some time past; gave a mustard foot bath, which relieved the head symptoms somewhat; continue weak lemonade and pieces of ice; also nitre and aconite; ordered fly blister for the nape of his neck; kidneys acting a little better; urine passably free and light colored, containing 25 per cent. albumen; 4 p. m., temp. $104\frac{1}{4}^{\circ}$; pulse 88; he has been exposed to some exciting cause about 2 p. m.; skin has assumed a blueish appearance; congestion of sclerotic well marked; gastric irritation has subsided; no pain now but supra-orbital pain, and that he describes as simply unbearable; continue cold cloths and previous treatment; bowels have moved; has passed a considerable quantity of urine, light colored, and containing 25 per cent. albumen; 9 p. m., temp. $103\frac{1}{4}^{\circ}$; pulse 84; symptoms about the same; the excitement he has been subjected to seems to have passed away; continue same treatment, as his kidneys are now acting well; give him morph. sulph. grs. $\frac{1}{8}$ to relieve his intense restlessness and give him some sleep; passed about $8\bar{z}$ urine, con-

taining 33 per cent. albumen; the morphine has a good effect; he goes to sleep (we disinfect the clothing out on the porches with chlorine gas).

Monday Oct 14th, 3 a. m., temp. $102\frac{1}{2}^{\circ}$; pulse not taken; he has not been resting; 6 a. m., temp. 102° ; pulse 78; he has commenced perspiring; a decided change for the better is taking place; the fever continued in this case for over sixty hours uninterrupted; continue the nitre with occasional doses of aconite; no epigastric trouble; skin has assumed a mahogany dark color; 9 a. m., temp. $101\frac{1}{2}^{\circ}$; pulse 72; says he is feeling decidedly better, and is sure he is going to recover; he talks about his case, showing without a doubt, that he has known it was yellow fever; 12 m., temp. $101\frac{1}{6}^{\circ}$; pulse 84; tested urine; it contains 25 per cent. of albumen; bowels have not moved since yesterday evening; give ol. ricini ζ ii. 3 p. m., temp. 102° ; pulse 88; urine still contains 25 per cent. albumen; still perspiring freely; pain in the head greatly relieved; he laughs and jokes; 10 p. m., temp. 102° ; pulse 88; during the entire day the pulse and temp. have traveled in unison; the oil given has acted nicely.

Tuesday, Oct. 15th, 2 a. m., temp. $101\frac{1}{2}^{\circ}$; pulse 84; he has been sleeping well with an occasional start in his sleep; 9 a. m., temp. $101\frac{1}{4}^{\circ}$; pulse 84; he rested well the preceeding night; still perspiring freely; the only nourishment he has taken was three or four ozs. of milk; continue the weak lemonade, which he relishes; and it also agrees with his stomach; 3 p. m., temp. 101° ; pulse 85; still perspiring; kidneys acting freely; continue the nitre, and also give 15 gr. doses of potass. chlorate; urine now contains 15 per cent. albumen; 9 p. m., temp. 101° ; pulse 74.

Wednesday, Oct. 16th, 2 a. m., temp. $100\frac{1}{2}^{\circ}$; pulse 85; begins to be fretful and worried again; 9 a. m., temp. $100\frac{1}{2}^{\circ}$; pulse 84; complains of hunger; commence giving beef tea; during the night he has spit two clots of blood, which evidently came from his nose which he had been picking to-day; 12 m., temp. $100\frac{1}{2}^{\circ}$; pulse 84; since 11 p. m. (last eve), he has passed urine about eight times in very small quantities, ranging from one-half to two ounces; last specimen contains about ten per cent. of albumen; he seems brighter this morning; gave an injection per rectum of about two

pints of warm soap-soads, which produced a small quantity of fecal matter and mucous; continue treatment as heretofore; 6 p. m., temp. 100°; pulse 84; have been giving tepid water and whisky sponge baths every hour; skin moist and cool; have given about two \bar{z} iced milk; and also, a little later, some beef tea, which is continued; he has passed urine three times since 12 m.; quantity increasing; albumen diminishing; he appears cheerful and contented; the weather is changing with prospects of rain, which will be serious for our patient; 9 p. m., temp. 99 $\frac{1}{2}$ °; pulse 82; the wind has increased to a gale; the patient is restless and flighty; his pulse is weak.

Thursday, Oct. 17th, 2 a. m., temp. 99°; pulse 82; a cold drizzling rain has set in; his restlessness is now delirium; he gives up all hope when he heard the rain beat on the windows; says now he can not get better; he has been passing small quantities of urine every few minutes, from which the albumen has entirely disappeared; the pulse is very weak and fluctuating; he is aimlessly picking at the bed clothes; 7 a. m., temp. 98°; pulse 80; pulse very weak and hard to distinguish; it looks like a collapse; still delirious; hands clammy, but are warm; stomach not troubling him; have been using beef tea and stimulants; gave warm water-mellon seed tea; attempt to introduce catheter; could not pass the sphincter of bladder; quite a flow of urine followed its removal; he complains of pain in the head of penis; suspect retention, but not suppression as the quantity passed is all we expect; 9 a. m., temp. 97 $\frac{1}{2}$ °; pulse 100; introduce catheter and obtain about \bar{z} vi of urine; he is delirious; he is laboring under some family troubles, which has aggravated the symptoms ever since the inception of the disease; 12 m., temp. 98°; pulse 110; pulse very weak; he is still restless; feet still keep warm, but his hands are clammy; he manifest no signs by which we would judge he was in pain; he has just passed 4 or 5 ozs. of urine; he moans and cries; we have kept the temp. of the room from 80 to 83; 5 p. m., temp. 96; pulse 120; pulse very weak; continue tepid water and whisky baths; patient is very unmanageable; delirium high; 8 p. m., pulse 120; temp. could not be taken; in about the same condition as at last observation; but still takes his medicines; 10 p. m.,

has just had a convulsion; he died in four or five minutes; had made efforts to but passed no urine since 12 m.; on introducing the catheter found no urine. The urine showed, on microscopical examination, as passed and dried. Disintegrated red blood corpuscles in quantity; tube casts and white, or pus corpuscles. Urine after precipitation of albumen shows oil globules in quantity. In the precipitated albumen was found epithelial cells, red blood corpuscles, tube casts and pigment.

YELLOW FEVER AT ABERDEEN, O.

I am under obligations to Dr. Thomas E. Pickett, for the following complete reports regarding the outbreak of fever at Aberdeen, Ohio.

MAYSVILLE, Ky., Oct. 20th, 1878.

My Dear Sir:—You ask if I can give you “any of the particulars regarding four cases of yellow fever said to have been developed at Aberdeen from infected bedding of Steamer John Porter.” In response to this inquiry I submit the following statement:

I was neither the attending nor the consulting physician in the Aberdeen cases, my *personal* knowledge of the facts being derived solely from the autopsy of the last cases, in which Dr. Adamson and myself were requested to assist. At the same time, I have been greatly interested in developing a correct history of these cases, and have succeeded by dint of careful and persistent inquiry in collecting and verifying certain facts, outside of my immediate knowledge, upon which I am satisfied you may implicitly rely.

The town of Aberdeen, as you are aware, is situated on the right or north bank of the Ohio river, at the foot of a range of lofty hills, and near the eastern extremity of a broad alluvial “bottom.” On the front street of the town, which runs parallel with the river, stands the residence of Mr. Shelby Campbell, a substantial brick

house resting on a stone foundation, and two stories in height; on the right of the dwelling a garden runs close to the line of the streets in front, and extends quite to the limits of the premises in the rear; on the left, at a distance of six feet from the main, or brick building, stands a detached frame building two stories high, which forms part of the same residence.

The family of Mr. Shelby Campbell consisted of seven members—himself, his wife, Miss Lizzie Campbell, Miss Luella Campbell, his grand daughter—Miss Emma Aitson, and his two sons, Henry and William. The female members of the family occupied as their sleeping apartment, a room in the *second story* of the brick house which over-looks the garden upon one side, and commands a full view of the river upon the other. The bed-room of the male members of their family were in the detached frame. Both houses are dry, well ventilated and scrupulously neat: the general premises are cleanly and well kept; and the surface drainage of the locality noticeably good when compared with that of other localities in the same town.

On Monday morning, the 2nd day of last September, at a time when the mercury was within a few degrees of 100° F. Dr. Guthrie of Aberdeen, was called to see Mrs. Shelby Campbell. She had been complaining for several days, but was not supposed to be seriously ill; was still able to "get about," and when the Doctor called to see her, descended the stairs to receive him in the family sitting-room. She grew rapidly worse, however, and on the following day, two other members of the family were similarly affected. On Wednesday morning, September 4th. near the hours of noon, Mrs. Campbell died; Emma Wilson, her grand-daughter, died one hour later; and Luella Campbell died on Thursday at 3 o'clock p. m. Finally, Miss Lizzie Campbell, who was seized with similar symptoms on Wednesday, died about 4 o'clock on Saturday afternoon.

A brief summary of the characteristic symptoms in these cases will doubtless suffice: At the beginning a sudden but slight chill, accompanied by pains in the back and limbs and followed by all the indications of a high fever—a flushed face, a hot skin, a quiet pulse, and an injected eye; the bowels constipated, the tongue

slightly furred; headache; restlessness; anxiety; thirst; epigastric tenderness; irritable stomach; "coffee grounds" vomit, with gradual subsidence of the fever accompanied by intense and universal (icteroid) discoloration of the skin, succeeded by rapid prostration, convulsions, coma, and death. In two of the cases the menstrual function which had been suspended for some time was suddenly restored, with a profuse flow of dark disintegrated blood. There were no disorders of intellection until near the close. Unfortunately the body temperature was not accurately noted in these cases, nor was there any chemical, or microscopic examination of the renal secretion. The *treatment* was judicious throughout, not perturbing, nor meddling; but chiefly *sustaining*, quinine being given in full doses, partly to support the system and partly for its "specific" effect, though, as far as any amelioration of the symptoms was concerned, without any appreciable influence upon the course of the disease.

The examination *post mortem* having been unavoidably postponed until the arrangements for the funeral were completed, was necessarily hurried and imperfect—being limited to an inspection of the external surface of the body and a portion of the abdominal viscera. The results, however, were not altogether without interest. The autopsy was made twelve hours after death; there was a marked absence of cadaveric rigidity; the body exhaled a strong cadaveric odor; the cutaneous tissue was deeply "jaundiced"; the body and limbs were profusely spotted with points and patches of hemorrhagic discoloration (*petechiæ* and *silicæ*); the stomach was of a pale ashen hue, softened, congested in patches, and *filled with blackened disintegrated blood**; the liver was shrunken, bloodless, and of a light brown color—presenting very much the appearance of fresh "bacon rind"; the duodenum was softened and congested; there was marked congestion of the kidney; and a deep yellowish discoloration of the areolar and adipose tissues.

Present at the autopsy—Drs. Guthrie, Duke, Martin, Adamson, and Pickett.

Concerning the etiology, or origin, of this malignant disorder, I scarcely know what to say or suggest, since I imagine it would re-

*She had vomited *nothing* during her illness.

quire the full powers of a medico-legal commission, armed with authority to send for "persons and papers," to ascertain and establish the facts upon which a satisfactory decision, or conclusion, should rest. Allow me, however, to suggest that the question as it stands involves a very delicate line of inquiry. The report, for example, that the Campbells, who are active and enterprising river men, picked up "infected bedding" or other articles dropped by the John Porter, though still a *questio vexata* in unprofessional circles, is met by the Campbells themselves with an absolute and unqualified denial. This much, however, may be confidently affirmed: The infected tow-boat John Porter passed the town of Aberdeen about five o'clock on the morning of the 16th of August; the *earliest* symptoms of indisposition were manifested by Mrs. Campbell on the 31st of August. And this is all that is *positively known* upon that point.

If the disease originated in local conditions, it is simply impossible for *me* to indicate or describe them. The town is pleasantly situated and has always been remarkably healthy, having enjoyed a singular immunity from visitations of epidemic diseases, and an almost complete and constant exception from the annual prevalence of the autumnal fevers of this region, even in their lighter forms. The present season has furnished no exception to this rule; the cases of malarial fever of the types common to this latitude have been few, light and readily amenable to the ordinary therapeutic methods. Nothing of a "malarial" type could fairly be said to resemble the formidable disorder described in the foregoing statement has ever fallen under popular or professional observation in the latitude of the Ohio Valley; and, so far as I have been able to discover, there is absolutely nothing in the situation or the surroundings of the town of *Aberdeen* to suggest even a possible origin for so malignant a form of miasmatic or malarial disease. There are no filthy or defective sewers; no offensive or overflowing privy vaults; no swamps or stagnant pools; no accumulations of garbage or "refuse"; no contaminated water supply; and if the disease be a possible product of indefinable local conditions, originating spontaneously and in defiance of all established etiological laws, our conclusions in the premises may be summed up in the simple ob-

ervation that the morbid principle seems, in this instance, to have spent its force upon a single family, and to have limited its operations to a single house situated in a peculiarly salubrious portion of an exceptionally healthy town.

Apropos of this question of "origin," it may be worth while to state that the *Evergreen*, a small steamboat owned by Mr. John Campbell, has been plying in the southern trade during the recent summer, carrying cotton seed from port to port along the Yazoo river and its tributaries. It left the city of Vicksburg on the 18th of last June, and landed at the town of Aberdeen on the 25th of July, where it remained during the months of August and September, lying within a few hundred yards of Mr. Shelby Campbell's house where it was repeatedly visited during the summer months by Wm. Campbell, a member of Mr. Shelby Campbell's family. These facts form the basis of the current suggestion that the disease originated from a mass of decaying vegetable matter in the hold of the steamer *Evergreen*.

If any other facts should transpire in connection with these cases, it will give me great pleasure to lay them before you in a supplementary report.

Very Respectfully Yours,

T. C. Minor, M.D.,
Health Officer, Cin. O.,

Thomas E. Pickett, M. D.,

MAYSVILLE, Oct. 19th, 1878.

DR. THOS. C. MINOR.

Dear Sir:—I take pleasure in fully corroborating the above statements of Dr. Pickett in regard to the foregoing cases.

H. K. Adamson, M. D.,

[P. S.—Dr. Adamson and myself were the committee named to report the results of the autopsy. Thomas E. Pickett.]

Having read the foregoing statement to Dr. Thomas Moore of Aberdeen and to Dr. G. W. Martin of this city, they called my attention to the case of Mrs. Matilda Harding a near neighbor of the Campbells, who was taken sick on the 6th day of September,

and died on the morning of the 12th, her case exhibiting almost identically the symptoms that were noted in the preceding cases; a slight chill, headache, lumbar pains, a hot skin, a quick pulse, continued fever, irritable stomach, constant retching; "black vomit," blackened stools, suppressed urine, intense jaundice, profound prostration, coma, and death.

Mrs. Harding, who was a widow, occupied a pleasant frame dwelling three doors from the residence of Mr. Shelby Campbell. Her bed-chamber was in the *second story front* and looked out upon the river. She had visited the Campbells during their illness but once.

This completes the list of peculiar cases that have occurred in the town of Aberdeen. No other cases have been observed either there, or in the vicinity, that resembled them in any essential respect.

I have no *theories* to offer; I simply submit the facts. Begging pardon for my prolixity, I am

Very Truly Yours,

Dr. T. C. Minor. Cin, O.,

Thomas E. Pickett.

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REMARKS REGARDING THE SYMPTOM—
AETIOLOGY OF YELLOW FEVER
CASES OBSERVED
IN OHIO:

Period of Incubation.—No entirely satisfactory evidence on this point can be adduced. As regards the imported cases, parties were usually attacked in from three days to a week after their arrival from infected points—*i. e.* New Orleans, Memphis, Brownsville, Holly Springs, Gallipolis and Hickman. For how long a period prior to their departure from home they had been exposed to the germs of the disease will never be definitely known. Taking the histories of the new crew of the Porter, shipped at Louisville, and

attacked between that point and Gallipolis, the histories of the second crew of the Porter, shipped from Gallipolis and Middleport, and the histories of cases of occurring below Gallipolis, it would seem that the period of incubation ranges from twelve to fourteen days.

Primary Symptoms of the Disease.—It was my good fortune to see the gradual development of the disease from the period of its inception to its termination in several instances.

A general feeling of *malaise* generally preceded the attack, which was usually ushered in by a chill of a variable degree of intensity. The chill was followed by a rapidly rising temperature, that reached its acme in from twenty-four to thirty-six hours. The pulse rate at first corresponded with the temperature curve, the pulsation increasing in direct ratio with the rise of the mercury. The tongue was heavily coated in most instances, the papillæ elevated, and the edges of the organ of a bright scarlet color. The bowels were constipated, and the kidneys acted as well as could be expected, considering the degree of pyrexia established. The skin was hot, burning and pungent, leaving a tingling sensation at the end of one's fingers after contact. There was a *peculiar odor* exhaled from the body of the patient, an odor which was maintained, in most instances, as late as the 10th day of the attack. The nervous symptoms were: intense headache, usually supra-orbital, although in a few instances occipital, severe muscular pains extending down the back to the buttocks, and from thence to the lower extremities. In those cases which were subsequently followed by severe renal symptoms, an acute pain across the loins and small of the back was manifest. The eyes were congested in almost every instance. This congestion was most marked in those cases exhibiting the highest temperatures. There was usually epigastric tenderness and nausea in from twelve to fourteen hours from the commencement of the attack.

Subsequent Progress of the Fever.—The pyrexia more fully established, the temperature maintained its maximum from forty-eight to sixty hours, there being no deviation from this general rule,

unless hot drinks, vapor baths or cold water sponging were resorted to. under these latter circumstances a fall of temperature was noticeable, the decline, however, being only momentary, the temperature rapidly rising and reaching its former elevation within a short period after hydropathic treatment was discontinued. The pulse, after the acme of the fever was reached, commenced to grow slower, and, in the course of from thirty-six to sixty hours, afforded no certain index to the amount of body heat. The tongue, after the disease was fully established, became dry, heavily coated at the sides, and had a dark, yellow band running down its center. Renal symptoms were often manifest within the first forty-eight hours, albumen and tube casts being present in the urine in the great majority of cases about the third or fourth day. As the disease progressed, the cephalalgia usually diminished, but the lumbar pain, in most cases, was more or less persistent. The eyes took on a yellowish tinge as the fever declined. Gastric irritability and epigastric tenderness were usually lessened about the same period in favorable cases. As the temperature fell, the tongue became moist and exhibited a tendency to clear off large whiteish flakes, the denuded organ presenting a raw, and red appearance, the prominent papillæ disappearing.

In fatal cases the usually forerunners of black vomit were epistaxis, bleeding from the tongue or gums; and in the cases of at least two women coming under my notice of a profuse menorrhagia, their usual monthly climax having arrived during the period of fever. In every case, so far as my observation extends, the least hemorrhagic tendency evinced by the patient was the certain indication of black vomit within the following thirty-six hours. The cases in which the hemorrhagic tendency was most marked were those suffering from uræmic poisoning, following suppression of urine—patients dying in uræmic convulsions.

In all cases in which yellowness of the skin was a prominent feature, renal complications were present.

As regards treatment, the reader is referred to the histories of the histories of the various cases recorded. In my own private practice, I used aconite and small doses of calomel in the earlier

stage, and subsequently gave little or no medicine, relying on good nursing and the supporting treatment, *i. e.*—ice, champagne, broth, beef tea and milk.

IS YELLOW FEVER A CONTAGIOUS DISEASE?

One of the most important questions to be settled by the Yellow Fever Commission is whether the disease is contagious.

At the present time medical opinion seems to be entirely unsettled on this point. Two parties contest the field for supremacy, the contagionist and non-contagionist. Both parties will advance excellent points to prove their respective theories. The writer may, perhaps, be pardoned for briefly discussing the mooted question, the final settlement of which must be left in the hands of those who have had a larger experience and greater opportunities to study the disease.

Is yellow fever dependent on a special atmospheric miasm of a non-contagious nature, or is it dependent on a special germ poison of a contagious nature?

Taking the evidence offered by a study of the disease as it appeared on the Upper Mississippi and Ohio Rivers, we can easily imagine the objections and counter objections offered by the contending parties.

Proposition.—*Yellow fever is a contagious disease dependent on a specific poison, which may be transported from place to place by the patient, infected clothing, bedding, rags, etc., in the same manner as small-pox, scarlatina and measles.*

Facts quoted to maintain this proposition.—The origin of the epidemic at Hickman, Kentucky, is directly traceable to the steamer John Porter. Previous, and for some time subsequent, to the arrival of the Porter and her barges, no boats were allowed to land at Hickman, not even the Mail Boats, so strict was

quarantine maintained. The Porter being a tow-boat was permitted to coal at the wharf, and, during the time she was taking on coal, two young lads named Hendricks visited the vessel for the purpose of peddling apples. They were aboard only a short time. The bakery of Edward Mayle, of Hickman, was visited by some of the crew of the Porter, who were seeking a supply of fresh bread. The infected boat only remained at the wharf a few hours. About nine days after the departure of the Porter the two boys who had been aboard peddling apples and the baker whose shop had been visited by one or two of the crew were attacked by the yellow fever, so pronounced by their attending physician, Dr. Catlett. These three patients died. The next party attacked was W. P. Harness, a hardware merchant, whose store was situated directly opposite the bakery of Edward Mangle. Mr. Harness died. W. W. Hancock, Dan Bright, T. D. Morton and John Dunevant, parties living in the immediate vicinity were next attacked. Shortly afterward the disease was declared epidemic.

Objections to this proposition by parties who believe yellow fever is dependent to a peculiar miasm generated in the atmosphere of the boat, and not in any directly contagious morbid element.

It is necessary to exclude the cases of the two boys; they were on board the boat and absorbed the poisonous ~~nuisance~~ *miasm*.

*Query, by parties believing in contagion:—*Admitting the above objection, why was the baker, who did not visit the boat and was not exposed to its atmospheric influence, attacked?

1st. Proposition.—*Yellow fever is a contagious disease dependent on a specific poison. Facts quoted to sustain this proposition:*

Thos. Butler, one of the indigenous cases occurring at Cincinnati, unloaded rags from an infected boat, supposed to be the Golden Crown, was attacked by yellow fever and died. Maggie Sweeny, another indigenous case occurring in the same city, was exposed to the baggage of boatmen coming from an infected port and died of black vomit.

Objections by parties who believe yellow fever is dependent on a peculiar atmospheric miasm, and is not contagious. Thomas Butler was on board the boat and absorbed the poisonous miasm.

Query, by parties believing in contagion: Why was Maggie Sweeny, who did not visit a boat and was not exposed to any atmospheric miasm, attacked?

2d. Proposition.—*Yellow fever is a contagious disease dependent on a specific poison. Facts quoted to sustain the proposition:* Four members of the Campbell family, at Aberdeen, Ohio, it is claimed, picked up infected bedding thrown overboard from the steamer John Porter, contracted yellow fever and died. A near neighbor who visited these sick parties also died of the disease.

Objection to the proposition by parties who believe yellow fever is dependent on a peculiar atmospheric miasm, and is not contagious.

It is denied that the Campbells ever picked up or used the infected bedding. The John Porter never landed at Aberdeen, passing that port early in the morning. The houses of all the parties affected fronted on the Ohio River and were exposed to the baneful atmospheric influence of the infected boat.

Query, by parties believing in contagion: Why were numerous other people, whose houses fronted on the Ohio River, and who were equally exposed to the atmosphere of the Porter, not attacked?

1st Proposition. *Yellow fever is a contagious disease dependent on a specific poison. Facts quoted to maintain this proposition:*

Shepard Sheldon and James Myers, of Gallipolis, Ohio, two men employed in cleaning up the infected boat John Porter, died of yellow fever. William Buck, Miss Brown and Mrs. Morton residing below Gallipolis, contracted yellow fever from infected clothing taken from the boat, and died of the disease.

Objection to the propositions by parties who believe that yellow fever is dependent on peculiar atmospheric miasm, and is not contagious.

Shepard Sheldon and James Myers must be excluded, as they were both on board the boat and exposed to the poisonous miasm. In the other cases, admitting that the parties did not visit the boat, the clothing with which they were thrown in contact, carried the poisonous miasm in its meshes.

Query, by parties believing in contagion: Why were people residing in Gallipolis and its vicinity, who avoided all contact with the Porter and persons sick with the yellow fever, not attacked?

Certainly, if the disease was dependent on atmospheric influence or a miasm conveyed through such a medium, the parties escaping were almost equally exposed with those attacked. Does it not seem strange that only those who were thrown in direct contact with the infected Porter and sick patients contracted the disease?

It will be seen that both parties agree upon two important points, *i. e.:* that the disease is portable, and that it may be contracted by exposure to germs of a special miasm. *miasm*

General conclusions adopted by those believing in the miasmatic origin of the disease, and that it is not contagious: Yellow fever is caused by a certain miasm, engendered by a high temperature, high dew point and filth. The presence of a high temperature and moisture are absolute necessities. The damp holds of ships and the bilge water contained therein, the near proximity of marshy land and decaying vegetation, all tend to promote the development of the disease. The disease is not contagious, as witness over thirty cases discovered in Cincinnati, notwithstanding the enforcement of quarantine, and no physician or nurse in attendance of any of these cases contracted the disease, and in no instance did it exhibit a tendency to spread.

At Hickman, Ky., and Gallipolis, Ohio, the first parties attacked by yellow fever were exposed to the miasm arising from an infected boat. This miasm was carried ashore in the clothing of patients, and the meteorological and local conditions being favorable to the further development of the aforesaid miasm, an epi-

demic outbreak occurred. It is apparent, therefore, that the disease is not dependent on germs reproduced in the body of a sick person, but on special miasmatic causes. Yellow fever must, therefore, be regarded as a non-contagious disease.

General conclusions adopted by those believing the germinal origin of the disease and that it is contagious.

We admit that a high temperature and high dew point favorize the epidemic tendency of yellow fever; also, that, to a certain extent, the presence of filth and moisture, such as contained in the damp holds of ships and marshes may increase the epidemic tendency. We believe yellow fever to be dependent on a specific germ poison, capable of being reproduced and propagated by parties suffering from the disease, in the same manner as that of small-pox, scarlatina, measles and other contagious diseases are propagated.

The fact that parties developing yellow fever at Cincinnati failed to give the disease to either physicians or nurses is no argument that the disease is not contagious. The patients found in Cincinnati were, in almost every instance, immediately isolated in Hospitals, their clothing and bedding burned, the premises used vacated and thoroughly fumigated and disinfected, in fact, all the precautionary sanitary measures were used that are usually resorted to in the case of acknowledged contagious diseases.

It is a notorious fact, that physicians and hospital nurses, owing to their constant exposure to all varieties of contagious diseases, are less susceptible to such influences than those parties who are seldom or never exposed. The escape of the physicians and hospital nurses at Cincinnati is, therefore, not remarkable.

The physicians at Gallipolis and Aberdeen also escaped; but families who nursed their own sick, and neighbors who visited afflicted families were attacked. Small-pox, an admitted contagious disease, has often been completely stamped out in cities by isolating patients, destroying bedding, fumigation, disinfection, etc., this, too, without any extensive resort to vaccination.

That the atmosphere of an infected city may be carried in the baggage and clothing of healthy persons is not impossible, and

that disease germs may be contained in such an atmosphere is highly probable. Nevertheless, it is a fact that hundreds of refugees, flying from infected districts, entered Cincinnati and St. Louis, carrying their baggage and wearing their usual clothing, and in no instance, so far as known, did such healthy persons propagate the disease. Clothing and rags shipped in boats on which cases of yellow fever occurred can hardly be classed with the household effects derived from non-infected sources.

If the disease is dependent on peculiar atmospheric conditions and only needs the introduction of certain specific miasm to create the epidemic tendency, why was such a tendency not manifested in St. Louis and Cincinnati, where numerous cases slipped in, notwithstanding that the quarantines established, at a time when the meteorological and local conditions were entirely favorable? Did those cities not escape owing to the stringent sanitary measures resorted to in each suspected case? Was not the enforcement of all such sanitary and quarantine measures based on the supposition that the disease was contagious?

Taking the evidence submitted by those believing that the disease is dependent on a specific germinal poison, and those believing it to be dependent on a peculiar morbid miasm, it would seem that the preponderance of evidence is in favor of the former party.

The following propositions adopted to partially suit the views of both parties are submitted:

1st. The individual attacked by yellow fever has an inherent susceptibility to the poison. This susceptibility is increased by certain well defined causes, as, for instance: direct exposure to infection, mental anxiety, physical exhaustion, excesses in diet, bad sanitary surroundings, a continued high temperature, combined with a humid atmosphere.

2d. The disease is dependent on a specific contagious poison, not definitely known to be either miasmatic or germinal, capable under certain favorable conditions of being propagated.

3d. The specific poison causing the disease may be carried in

the body of a patient or in his clothing and bedding. It may be carried in the bilge water or effects of a boat, or in sleeping cars on which cases of yellow fever have been developed.

4th. The disease flourishes best in the neighborhood of moisture, as, for instance : in the immediate vicinity of marshy ground, near the holds of vessels containing bilge water, near infected sewers and badly drained houses. The disease flourishes best when the temperature is above 80° F., and disappearing at a temperature of 30° F.

SUPPLEMENT.

“THE YELLOW FEVER AS I SAW IT IN MEMPHIS.”

A Paper read before the Cincinnati Medical Society, Tuesday evening, October 1st.

BY S. H. COLLINS, M.D., Cincinnati.

[Dr. Collins was one of the party of physicians first sent to Memphis by the Health Officer of Cincinnati. He remained at his post until prostrated with a severe attack of yellow fever. During his convalescence he spent a week in Cincinnati and returned to Memphis, October 2d.]

Gentlemen of the Society:

Before giving any account of the fever, as I saw it in Memphis, it seems fitting that I speak of the position, surroundings and general condition of the city.

Memphis is situated, as you all know, upon the east bank of the Mississippi, upon a bluff varying from fifteen to fifty feet in height. Upon the crest of this bluff runs Front St.; from this street, the ground slopes eastwardly away from the river, so that all rain, surface-gutter washings, slop, and whatever of floatable filth there may be, is drained into the bayou, which winds about through the heart of the city. Of this bayou more bye-and-bye. Across the river the Arkansas shore stretches low and flat, a vast marsh, notorious for its malaria; north and east of Memphis upon the Tennessee side, the land is low and swampy; the soil in and about the city, clay.

The bayou, of which so much has been said, runs through the most thickly populated parts of Memphis; into this elongated cess-pool, is collected all the floating filth of a city of fifty-five thousand inhabitants; garbage, the drainings from privy vaults, gutter and

street-washings, dead animal matter, all and everything is poured or thrown into this receptacle, there to decay, and fester under the broiling sun of that southern climate; consider it if possible, ten miles of reeking rottenness! Not a yard of it covered except where crossed by the bridges of the various streets. During a rise of the Mississippi the back-water fills this bayou bank-full, its accumulated filth then soaking into the clay of its banks. When the river falls the current of the bayou is not of sufficient strength to empty its contents into the river.

The streets of the city of Memphis are beyond description, filthy and completely out of repair; the wooden pavement is the one in use, or rather was the pavement originally put down. The streets and yards are heavily shaded—the magnolia being the tree mostly used.

It would be impossible, uninteresting and of no special value, for me to attempt to give you individual histories of the two-hundred and eighty cases, that, before being myself taken with the fever, I had under treatment. These cases while presenting some symptoms in common, may be divided into four classes; a history of each, will be sufficient for illustration. The first class is the one most commonly met with, (in citing examples, I copy from my notes, and make use of cases that terminated fatally).

J. R., 35, single, fire-man, white. Taken with a slight chill on the morning of Sept. 3rd, saw him about three hours after the chill, complained of intense head and back-ache, eyes injected, lids slightly everted and highly congested, skin hot, dry and scaly, imparting a slight sensation of prickling to the fingers, tongue swollen, heavily coated with a brownish yellow fur, edges of the tongue clean, and very red. Bowels had been freely moved the night before. Kidneys acting freely. Pulse 92, strong, temp. 106° (prescribed). Sept. 4th, skin moist, sclerotic markedly yellow, kidneys acting. Pulse 92, good volume, temp. 105.5°. Sept. 5th, condition externally about the same as upon the 4th., kidneys not acting so freely, urine albuminous, pulse 86, fair, temp. 103°. Sept. 6th, very restless, skin moist, decidedly yellow. Complains of no pain. Kidneys have not acted since the night before.

Pulse 56, weak, temp. 98.5°. Sept. 7th. Patient in convulsions, no urine since the evening of the 5th, has had four spells of vomiting, matter vomited black, of the appearance of coffee-grounds. Temp. 96°, pulse imperceptible, hemorrhages from the mouth and nose. Died at 9.30 a. m. Skin of a deep bronze.

Class 2nd., V. D., white, 25, female, chamber-maid. Was taken with severe chill, on the evening of Sept. 5th. Saw her upon the morning of the 6th. Bowels had been freely moved. Did not complain of much pain, skin moist, lids congested, pulse feeble, 54, temp. 101.5°, kidneys acting normally. Sept. 7th. Lies upon the bed apparently asleep, rouses easily, conscious, pulse feeble, irregular, 48 to 52, temp. 98.5°, skin, cool and moist, passes urine in about the usual amount, slightly albuminous. Sept. 8th. Died at 6 a. m. while asleep. Nurse said that she was conscious during the night, had an action from both bowels and kidneys. There was no vomiting, or irritable stomach in the attack.

Class 3d.—V. S., white, 30, undertaker. Saw Mr. S. at 12.30 p. m., Sept. 6th. Had been at work night and day ever since the fever broke out; complained of a slight feeling of fullness about the head, asked what he should do; not wishing to alarm him, as he was about his work, I took no temperature, pulse full, 76, skin dry, only moderately warm, advised him to go home and take a rest, said he would get a cup of hot coffee, and if he then felt no better would follow my advice. Saw him fifteen minutes later, as I was driving off to my district; said that he felt all right, had had a cup of coffee, and would work until four o'clock. I returned in the evening about 7.30, and found a message asking me to accompany the body to Elmwood. He was taken about an hour after I left him, with violent pain, and died about 7 p. m. In this case there was no vomiting or hemorrhages. (These cases are called "congestive.")

The last or fourth class is rarest. These cases are called "walking cases," and are always fatal. The patient for a day or two feels "a little under the weather," complains of headache, and disincli-

nation to hard work—though he or she generally keep at whatever occupation they may be engaged in; the first intimation the patient or his friends have of his serious illness is the occurrence of the black vomit, which is invariably followed in a few hours by death.

These are the types that this fever has taken during the present epidemic in and about Memphis, and graded from the sudden congestive form to the quiet form known as the cases of nervous prostration, will be found all the cases of yellow fever that have occurred in Shelby county. With the exception of the cases known as "walking cases." the attack comes suddenly, the patient being apparently in health up to the time of the chill and initial headache. The period of incubation is variable, ranging from 72 hours to 25 days. The chill is sometimes exceedingly violent, in other cases, so light, as not to be especially noticed, this chill is immediately followed by fever, the thermometer marking from 101° (the lowest I observed) to 110° . (The highest temperature among any of my cases was 108°). This stage of fever is always accompanied by the most intense pain in the head, back and limbs, runs its course in from twenty-four to seventy-two hours, to be followed by the stage of calm, without pain; or a condition of great nervous excitement, also without pain; suppression of urine may occur during the first or fever stage, though it generally occurs in the second stage about the fourth day. Irritability of the stomach is also a symptom, the occurrence of which varies, it may be present from the beginning, though is more frequent in the second stage. The tendency of the bowels is to constipation; though the great majority of the cases in Memphis were accustomed to dose themselves with calomel and castor-oil, daily. Hemorrhages are frequent in the second stage; the "black vomit" also occurs in this stage. Suppression of urine, hemorrhages from the mouth, nose, and the vomit are indicative of the gravity of the attack, and are generally the fore-runners of death.

The internal appearances after death, of those cases examined, presented a set of conditions of very remarkable uniformity. These post mortems were made almost immediately after the death of the patient, in no case later than six hours. The uniformity of

the internal appearances was so great, that I give as one case, the result of thirty-five examinations. Skin deeply stained, in color ranging from a lemon yellow to an orange black, in one or two cases the skin presented a curiously mottled appearance, the spots being of a deep red or purple, intestinal and stomach walls in some of the cases somewhat softened, otherwise normal; the stomach generally contained a variable quantity of dark colored fluid; the kidneys appeared to be of about the normal size, upon section and examination they were invariably found to be more or less completely filled with tube-casts, the supra-renal corpuscles congested; the liver presented the peculiar appearance known as the "box-wood liver," the cells being filled with oil globules; the spleen in every case was found to be enormously enlarged, (one spleen measuring eighteen inches in length), texture softened, the finger very easily breaking down its structure. Lungs normal, fatty degeneration of the heart was noted in every case. Softening of the pneumo-gastric nerve was observed in every case, also softening at the base of the brain, and throughout the spinal cord, hemorrhagic spots in the brain substance were not found. (Urine by the usual tests contained albumen). The internal organs and tissues were all more or less stained with the yellow coloring matter.

This hasty *resumé* of the post mortems, presents the more important features. The most remarkable feature being perhaps that these conditions were found in almost every case. The type of fever seemingly to make no difference.

As regards treatment, I am now stepping upon debatable ground, and yet the grounds for debate are gradually giving way, and there is now practiced in and about Memphis, about the same treatment by all the physicians. Before speaking of the treatment used by myself and one or two others, allow me to present a copy of what is known as the "Creole Treatment of Yellow Fever." A treatment generally adopted by the physicians of the far south, and their nurses:

1. If the patient be taken with fever immediately (one or two hours) after a meal, give an emetic of mustard, salt and warm water, one teaspoonful each of former to tumbler of last.

2. If the patient has eaten more than three hours previously, give a dose of castor oil. If the attack commences with irritable stomach, substitute a dose of calomel and soda for oil, five grains each for children, ten grains each for adults.

3. If the skin is dry, give hot foot bath repeatedly, until perspiration is induced.

4. If the skin is very hot, whether dry or moist, sponge the arms, breast and legs under the covering with whisky and water frequently.

5. The first night of attack, give an injection of twenty drops of laudanum or Battley's sedative should there be much restlessness.

6. If the stomach remain irritable, apply mustard plaster; if the irritability continues apply fly blister.

7. If the urine is scanty give watermelon-seed tea freely—half a teacupful every hour. It can be taken iced if preferred.

8. Keep a cool cloth on head, if hot or painful.

9. Nothing but warm or cold tea—green orange leaf or sage—allowed sparingly, with small pellets of ice occasionally or a mouthful of cool water, for the first three days.

10. After the fever has entirely disappeared, chicken broth, beef tea, milk, to be given in small quantities, gradually increasing as convalescence advances.

11. The patient must not be allowed to sit up for a week, (use bed-pan) nor take any solid food whatsoever for ten days after the attack.

12. No one should be allowed to enter the room while sick but the physician and nurses.

While many features in the foregoing treatment are worth using, there were others of doubtful value; the giving of an emetic is of no benefit, as very few patients are so exhausted at the outset that the stomach is unable to digest its contents; the act of vomiting only tends to exhaust. On the other hand in a case whose first stage is accompanied with an irritable stomach, the viscus is emptied without an emetic. A large dose of castor oil, or ten grains of calomel, should be given to every adult patient, when

there has been no motion from the bowels for twelve hours previous to the attack. I followed, with, of course variations, to suit each particular case as necessary, the following line of treatment: If the bowels had not been moved, castor oil, two ounces, or calomel ten grains. Put the patient immediately into bed, and administer *under cover*, a hot mustard foot-bath, this bath to be continued for fifteen minutes, and to be repeated every twenty minutes until free perspiration was established, the patient to be kept, with the exception of the head, completely covered with woolen blankets. If the stomach was irritable, a mustard plaster was applied over this organ, cold cloths constantly kept to the head, mustard plaster to the spine and over the region of the kidneys, if the patient was suffering much pain. If the amount of urine passed was scanty, or contained albumen, I ordered a nit. mixt.

R Spts. Æther, nit.
 Spts. Minder, ää ʒj.
 Syr. Simp.
 Aq. Destillat, ää ʒss.

M. et Sig. teaspoonful every hour.

Allowing half a tea cup of hot watermelon seed, or orange-leaf tea every hour, or, and I found it to be of much more benefit, instead of the melon-seed, or orange-leaf tea, the same amount of hot lemonade, to which was added ʒj cream of tartar. Of the superiority of this latter drink over the before mentioned tea I have no ground whatever to doubt. In those cases where there was no irritability of the stomach in the fever stages, I also used with a view to its action as an antipyretic, and for its diuretic properties, the salicylate of soda,

R Salicylic Acid, ʒij.
 Sodæ Bi-Carb. ʒiss.
 Glycerine.
 Aq. Cinnamon. ää ʒiij.

M. et Sig. tablespoonful every three to four hours as directed.

And in *no case*, of the two hundred and eighty—have I *any reason to regret its use*, especially did I find it of benefit in those cases

where there was a tendency for the fever to return, after the first paroxysm. After the temperature came down to the normal, I discontinued the salicylate of soda, continuing the lemonade and cream of tartar as the only drink, alternately with the nitre mixture. In those cases where the second stage was one of great exhaustion, I gave brandy in teaspoonful doses every two hours, kept every patient covered, and as absolutely quiet as was possible, allowing during the first four days, nothing whatever to eat; and no drink, other than the lemonade or hot teas; in great dryness of the mouth, small pieces of ice may be sparingly allowed; after the first action of the bowels, nothing more is required in that line until the fourth or fifth day when the bowels should be moved by an enema of warm water and castile soap suds and molasses. After the fifth day, beef-tea, chicken-broth, and brandy, may be sparingly, at first administered, upon the tenth day solid food may be carefully given, the patient should not be allowed to sit up before the sixth or seventh day, and should after getting up, be especially careful until after the twentieth day.

The history of the first one hundred cases I (after my return to Memphis) traced up, and am able to make the following record: (these cases include all ages, both sexes and races). Deaths from primary attack 12, death from relapse 2, total 14, recorded 86. The remaining one hundred and eighty cases upon the same book, were of later date, and not sufficiently advanced to draw conclusions or results from, and after my return I could not follow them up, owing to the change in my work, and the fact that after I was taken with the fever, most of them received other medical attention and presumably a changed treatment.

Dr. Hunter, of Kansas City, Mo., using the same line of treatment, shows upon his reports, nearly the same result. The average mortality, black and white included, in the corporation was about 52 per cent. the treatment was the old-fashioned Creole treatment; quinine seemed absolutely thrown away.

One word in reference to the administration of laudanum, as recommended in the Creole treatment. Any form of opium in this fever, is most unsafe; where the very object of the attending physician is to keep the skin, bowels and kidneys open, and where

the tendency of the disease is to lock up the system, the danger of an opiate is at once seen; if a sedative is needed, chloral hydrate is the most valuable.

In reference to the effect of a change of weather, I have only to say that, a change is very generally fatal for all cases at all severe; it aggravates mild cases and develops a very large list of "new cases."

These statements can be fully proven by reference to the Howard report, (these reports until recently owing to a difficulty with the board of health were not published).

As regards the malignancy of the disease; it was about as fatal in one part of the city as the other, those families living in houses running back to the bank of the bayou, producing no more severe cases, and no more deaths, than those living away from the stream; in point of fact, Front street, the highest ground in Memphis, and longest removed from the bayou has from the terrible mortality, gained the name of "Golgotha."

In reference to the probable influence of the bayou, allow me in conclusion to cite an instance: 76 Vance street, and the building (tenement shanties) in the rear, all taking the St. number, is situated upon the bank of the bayou. In this house and its out buildings was a perfect nest of fever showing eighteen cases all taken between the 30th of Aug. and the 4th of Sept. two of the eighteen whites; all of these cases either were fully recovered or safely convalescent except one, upon the 19th of Sept. The one fatal case being probably brought to its termination by an indiscretion during convalescence.

HISTORY OF THE YELLOW FEVER AT
LA GRANGE, TENN.

By S. H. COLLINS, M. D., Cincinnati.

La Grange, Fayette, Co., Tenn., is situated on the line of the Memphis and Charleston R. R., fifty miles from Memphis and about two miles from the Mississippi line. The soil is sandy, elevation high, being nearly 400 feet above the Mississippi River. The town is well laid out upon a series of hills or bluffs, rising from the Wolf River, from a half to two miles distant. The situation of the town and nature of the soil is such that it is naturally drained. The streets are broad, and there is none of the crowding incident to a city. The population, white and black, is about nine hundred, though, during the presence of the fever in the place, the population was diminished to 320, 140 of this number being whites. The water is "deep-water," that is: a well is sunk, from ten to thirty feet, and boarded up with planks. The rain "seeps" through the sandy soil into this well. For a country town, owing to its natural advantages and non-crowding of buildings, the sanitary condition of La Grange might be called very good. The first case terminated fatally upon Sept. 6th, 1878, a resident of the town, who had not been to Memphis or to any other infected point. This man lived near the depot, and was in the habit of being in and about the trains from Memphis. The next case occurred in a house just north of the C. & M. R. R. In these two houses occurred all the cases in the village, and all natives, until a Mrs. W., a refugee from Memphis, and later from Williston, Tenn., came to La Grange with a boy sick with the fever. This child died after a few days. The physician attending him (Franklin) left the town on business upon the day of the child's death and ordered that his clothes and bedding be burned. This order was only partially obeyed. The clothes were taken and

thrown in a pile upon an open lot, and left there. A rain fell during the night, and the succeeding week was very hot. The wind was blowing toward the East and blew in that direction for three days, when the first case, away from the depot, occurred in the *first house*, east of the clothes. The next case was in the *second house* east, the next in the *third house* east. The wind then changed and blew to the South, and the fourth case was taken in the first house south of third house east of the infected clothes. As an offset to this statement it is a matter of record that the nurses who were on duty in the houses about the depot after they were through went to their respective homes in distant parts of the town and never had a case of fever. The first cases were, as seemed to be the case at other points, exceedingly malignant, nearly every case of those occurring between the 4th and 16th of Sept. terminating fatally. A depot of supplies was established, and the work of treating and nursing those cases which were taken later were systemized and a proportionate decrease in the death rate immediately took place. A total death list of thirty-four out of seventy cases is the final of this brief history of the yellow fever at La Grange. I leave the questions of whether it was introduced in the first place by the passing trains or whether those cases at the depot were sporadic; also why in a town so situated and in so very fair a sanitary condition the fever should have been so widespread and malignant?



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MINOR'S REPORT

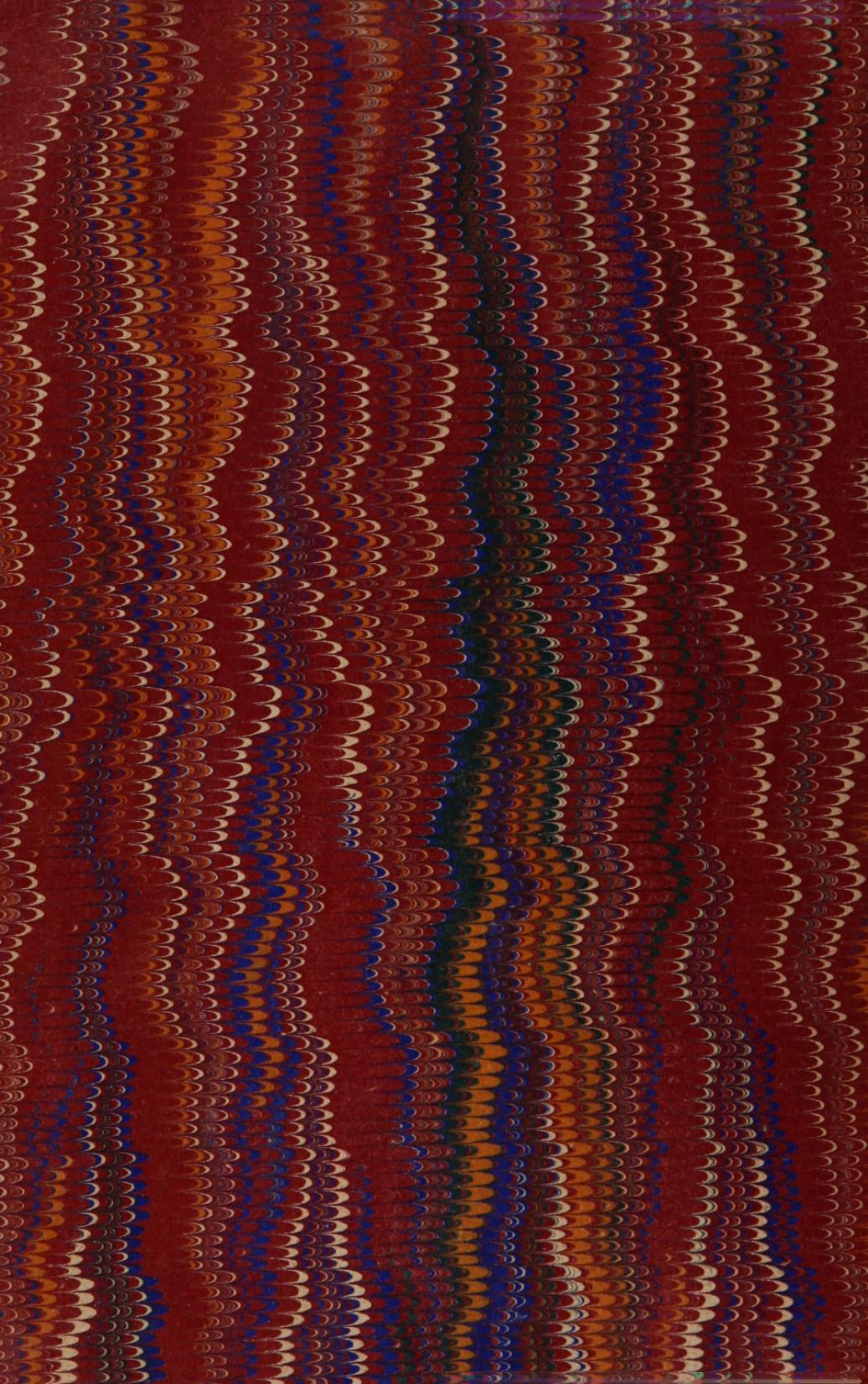
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YELLOW ⁷³³
FEVER

IN OHIO

DURING SUMMER OF 1878.







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