immediate relief, the pain has not recurred, and the child has attended school regularly.

Compound comminuted fracture over the superior longitudinal sinus.—M. S., aged thirty years. The bone was driven into the brain to the depth of an inch. On elevating it there was furious hemorrhage, the sinus having been torn completely across. The hemorrhage was checked by iodoform packing, and the patient made an uninterrupted recovery, returning to his work in six weeks.

(To be continued.)

THE CHOLERA OF 1892 IN NEW YORK: ITS PROPHYLAXIS AND TREATMENT.

By REYNOLD W. WILCOX, M.D., LL.D.,

PROFESSOR OF CLINICAL MEDICINE AT THE NEW YORK POST-GRADUATE MEDICAL SCHOOL AND HOSPITAL.

THE record of the cholera in New York Harbor during the present year will be handed down as a memorable one. The lessons which it teaches are important; it is to be hoped that they will not be received in inattentive ears. The prophylaxis of cholera demands attention to certain details; had these been observed there would not have been any cholera in New York Harbor. The present Health Officer had been in office but four days, after his appointment last spring, when typhus fever broke out in the city of New York, being brought in by the *Massilia*, a steamer passed by his predecessor after inspection by his (predecessor's) deputy. This experience was sufficient to put the entire *personnel* of the office to their best efforts that a similar misfortune should not again befall the largest *entrepôt* of the Western continent. Systematic disinfection of the baggage of immigrants from the Continent and Russia, and later of that from Poland, was begun. At the first report of cholera, knowing full well its predilection for beaten routes of travel, the steamship companies were requested to disinfect baggage and to make special medical inspections at the point of embarkation. On August 19th, on information that the disease was suspiciously near the German frontier, the Department of State was requested to make inquiries through consuls to ascertain if cholera existed in Germany. On the 23d, having received reports from Bremen, Hamburg, and Stettin, the two latter being unsatisfactory, the Hamburg-American Steamship Company was notified by the Health Officer to use great caution, to disinfect baggage and clothing, and detain passengers at Hamburg for five days. How far these orders were carried out was ascertained on the arrival of the *Moravia* on the 30th, when it was learned that the immigrants had embarked immediately upon the arrival of the train, and that there had been twenty-two deaths among twenty-four patients, the first case occurring on the first day after leaving Hamburg. It is evident that cholera

gained its entrance into New York Harbor solely by the negligence of the steamship company. The disease can be stamped out on shipboard in five days by competent medical officers, and should be done at sea. Under the direction of the Health Officer it was done in every case after the steamships came under his jurisdiction in New York Harbor. The sick and dead were removed. The immigrants received baths, having been previously rubbed with a bountiful supply of green soap. A sail, suspended by the four corners, the water being constantly renewed, was an excellent, though an improvised bath-tub. The crew's quarters and the steerage were scrubbed and washed out with a 1 : 500 solution of corrosive sublimate. The fumigation with sulphur was carried out. The baggage and clothing were disinfected by sulphur, superheated steam, and, when injury would not be done, by corrosive sublimate solution. Soiled bedding and clothing were wrapped in sheets wetted in corrosive sublimate solution and burned in the furnaces. Lastly, fresh water was supplied and only used after boiling. Proper regard for the lives of passengers demands that this work shall be done at sea. It only requires competent medical officers to carry it out.

The observation station is Hoffman Island. Although much of the plant bears evidence of niggardly legislation and ancient notions of disinfection, on the whole it is in good condition and suitable for the purposes for which it is designed. The island accommodates about eight hundred persons, in eight divisions. There is no soil upon the island, asphalt covering the entire space, thus affording opportunity for thorough flushing with disinfectants. A high fence prevents forbidden ingress or egress, and even the passage of contagious material into the sea. The *latrines* are provided with pans containing disinfectants, so that untreated *dejecta* cannot have access to the sea. There are ample arrangements for the disinfection of clothing and effects by superheated steam, or by exposure to burning sulphur for six hours, being loosely unfolded in bins; and for the use of bichloride solutions upon trunks, bags, boots, etc. All improvements which have been recommended by the different advisory boards before this epidemic have been in the main and essential part carried out. The work done at Hoffman Island is shown by the following table:

Steamer.	Quarantined.	Discharged.	Number of passengers.	Pieces of clothing and effects disinfected by		
				Sulphur.	Superheated steam.	Corrosive sublimate.
Normanville . . .	Sept. 4	Sept. 19	566	850	2800	1850
Rugla	Sept. 9	Sept. 19	419	520	1850	1360
Scandia	Sept. 19	Sept. 28	928	1600	3500	1200
Bohemia	Sept. 30	Oct. 8	605	1150	2200	1600

On admission to the island all were bathed; the total number of baths was 2634. There were 111 cases of illness and 2 deaths. Fifty cases were transferred to Swinburne Island for treatment, including about thirty cases of measles from the Scandia.

The thoroughness of the work done on board the vessels and at Hoffman Island is shown by the result—the absolute prevention of the entrance of cholera into the United States. The imposition of the twenty-day limit by President Harrison, on September 1st, had nothing to do with the result, although it somewhat lightened the labors of the Health Officer by its practical restriction of immigration. The magnitude of the work at the Quarantine Station in New York Harbor is shown by the following table:

Inspections at Quarantine, August 31 to October 14, 1892.

Crews	34,612 .
First cabin	17,330
Second cabin	13,054
Steerage	15,081
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Total	80,077

When it is borne in mind that no case of this disease escaped the vigilance of Quarantine, the care, skill, and systematic thoroughness are apparent and should receive due acknowledgment.

The problem presented by the *Normannia* was a peculiar one. There had been deaths in both the first and second cabins during the voyage. It was impossible to definitely ascertain the cause of these deaths; besides, there were in the steerage American citizens entitled to the same protection as that afforded to the cabin passengers. No advisory board, nor quarantine commission, nor legislature had contemplated the necessity of keeping cabin passengers under observation. Unfortunately, legislatures are not in session when epidemics are imminent. On September 8th a case of cholera was found in the person of a member of the crew, which necessitated the isolation and disinfection of the kitchen force. The difficulty of procuring vessels to remove the passengers was almost insurmountable, but the timely generosity of a private citizen solved the problem. The prompt acquisition of Fire Island secured a site, hitherto unneeded, suitable and ample for all requirements. The prompt action of Governor Flower in meeting this emergency was no less notable than his decision in calling upon the military forces in the interest of law, order, and humanity, to disperse the howling mob of Southside barbarians who sought to defy his authority. The prophylaxis was efficient, yet simple and thoroughly carried out.

Whether we can ever rely upon internal hygiene, as does Great

Britain, is an open question. We have no cholera-breeding dependency against which we dare not quarantine; nor, indeed, do we believe the British idea to be practicable for this country. Commerce must be as little interfered with as is possible, for this means commercial loss. Marine detention is alone effective, and for this islands or vessels are necessary. Every land *cordon sanitaire* has been broken through even when instituted under the most favorable circumstances. On the other hand, when one considers that nearly six thousand vessels from foreign ports, besides several thousand engaged in coastwise commerce, are inspected each year at the port of New York, the impossibility of finding safe and suitable anchorage during their detention is obvious. Besides, it is a fundamental tenet of maritime law that an infected vessel shall have its passengers and crew removed at the earliest possible moment. Whether the work of prophylaxis can be better accomplished under National supervision is, at the present time, largely discussed. New York, to day, with few and insignificant exceptions, has nothing but praise for the brilliant success of the present conduct of affairs. Every argument for National supervision applies equally well to the present *régime*, and we believe that the centralization of authority would in this case, as in other instances, result in a less efficient *personnel* and a less direct responsibility than exists at present. The interests of the city of New York are greater than of all the rest of the country. These interests demand and will secure competent and skilful officers, faithfully and fearlessly conducting, in the light of the latest and best scientific knowledge, the affairs of Quarantine. The plant is established, is sufficient for present necessities, and can be increased to meet the demands of the future. Past experience has taught the officers the necessity of keeping watch of the epidemics in foreign lands, and the information possessed by the Health Officers of the port of New York in the past, as it was in the present instance, has been very accurate and of earlier date than that possessed by the Department of State at Washington. If argument were needed, the brilliant success attained this year should be a conclusive one.

At Swinburne Island there are ten wards, accommodating about three hundred persons. The buildings are old, but in good repair and well adapted to all requirements. The treatment here carried out was essentially surgical in bearing, especially in the stage of asphyxia. In the premonitory diarrhoea, if there was no collapse, the first step was to clear the bowels, which was done by the administration of ten grains of calomel by the mouth, and this was repeated every hour until three doses were taken, or thorough evacuation secured. Afterward, one half grain was administered every two hours. Stimulants were used as required, preferably brandy, and generally administered hypodermatically. In the stage of asphyxia the stomach and bowels were thoroughly washed

out. For the stomach the Faucher tube was used for the purpose of introducing the 1 : 1000 solution of hydrochloric acid. The procedure was repeated every two hours. The intestines were washed out with a two per cent. aqueous solution of tannic acid, half a gallon being used at a time, at a temperature of 108.9° F., and repeated every two hours. A long (two feet) rectal tube was employed, the patient lying upon the back, and gentle massage was indicated if there was any difficulty in the passage of the fluid beyond the ileo-cæcal valve. The purpose of this procedure was—(1) to wash out the intestines; (2) to precipitate the ptomaines; (3) to warm the body. After each injection the bodily temperature rose from one to three degrees F.

When the pulse began to disappear and respiration became shallow, then hypodermoclysis was resorted to. The solution employed was sodium chloride, 3 parts; brandy, 10 parts, to 1000 parts of sterilized water kept at a temperature of 104° F. One quart was used for an adult, and it was injected into the flanks at about the eighth rib, and was repeated every second to fifth hour, according to the necessities of the case. The largest amount used in any one case was eleven quarts. In several cases inhalations of oxygen at the rate of a gallon every hour, watching the heart, were resorted to. No nourishment was administered while vomiting persisted. At other times peptonized beef, champagne, and milk with carbonated water—three parts of the former to one of the latter—were employed. The distressing cramps were avoided in all but two cases by placing the patients in a warm atmosphere, in their beds, near the steam-radiators, and building a tent over them, so that they would be in a current of hot air. During convalescence a simple and nourishing diet was insisted upon. The work done at Swinburne Island can be summed up as follows: Fifty-six suspected cases were received, all of which, ten being excepted, presented marked premonitory symptoms. All cases entered at the Island received a hot bath on admission, and were kept in bed. All suspicious cases drank freely of hydrochloric acid lemonade, of the strength of 1 : 1000. Seventy-two cases of Asiatic cholera were treated, eight of them being light cases. Of these cases twenty died, six of them within two hours after admission. Of these twenty deaths three can be attributed to other causes, because they had recovered from the stage of asphyxia; two of these died from a pneumonia of the right lower lobe, one died from nephritis. So that but seventeen deaths are justly attributable to the cholera—dying in the period of asphyxia. The duration of convalescence was about fourteen days. It is especially notable that opium had no place in the treatment, the laboratory experiments of Koch showing conclusively that the administration of this drug favors the development and progress of the disease. The virulence of the epidemic of 1892 was shown by the fact that a large number of cases became fatal within four hours after admis-

sion, thus rendering the time of efficient service a brief one. The bodies of all persons dying from cholera were cremated, as well as those of twenty-four persons who died upon the steamships while in New York Harbor.

The writer would express his appreciation of the courtesies extended to him by the Hon. Charles F. Allen, State Commissioner of Quarantine; William T. Jenkins, M.D., Health Officer, and his personal staff; and by J. M. Byron, M.D., Physician at Swinburne Island, in their placing at his disposal every opportunity afforded by the service to facilitate the study of this subject.

HISTORY OF THE RECENT OUTBREAK OF EPIDEMIC CHOLERA IN NEW YORK.

BY HERMANN M. BIGGS, M.D.,

PROFESSOR OF MATERIA MEDICA, THERAPEUTICS, AND CLINICAL MEDICINE, BELLEVUE HOSPITAL
MEDICAL COLLEGE; CHIEF INSPECTOR, DIVISION OF PATHOLOGY, BACTERIOLOGY,
AND DISINFECTION, NEW YORK CITY HEALTH DEPARTMENT.

THE *Moravia*, the first vessel infected with cholera to arrive in New York, reached Quarantine on August 31st, having sailed from Hamburg on August 16th. She reported twenty-two deaths during the voyage from gastro-intestinal disorders. The official cholera statistics of Hamburg now show that cholera was recognized as existing there on August 11th. On September 3d, three days after the arrival of the *Moravia*, the *Normannia* and the *Rugia* reached New York. Each of these vessels reported a number of deaths at sea from cholera, and on their arrival in New York there were four cases of cholera (so called) on the *Normannia* and five cases on the *Rugia*.

In addition to these three vessels, later came the *Scandia*, *Heligoland*, and *Bohemia*, all from Hamburg, which, on their arrival, reported deaths at sea from gastro-intestinal diseases. These six vessels were detained at the lower quarantine station. The *Wyoming*, from Liverpool, arrived with apparently a clean bill of health, but before her discharge from quarantine, while she was lying at the upper quarantine station, several cases of cholera appeared among her passengers, and she was sent back to join the cholera fleet in the lower bay.

One case occurred on the *State of Nevada*, from Glasgow, after she had been cleared at quarantine and while she was lying at her dock. Whether this case was infected in the city or on board the vessel is not known. There had been no suspicious cases on board during the voyage. The vessel, however, was ordered back to quarantine for disinfection.

I am indebted to Dr. J. M. Byron for the following table, showing the ports of departure and dates of arrival in New York of the infected