ART. XV.—*Medical Notes on the Wreck of the San Francisco.*

By WM. P. BUEL, M. D., Surgeon of the Steamer.

THE San Francisco was one of the largest class of sea steamers, falling very little short of the largest of the Collins steamers. She had accommodations which would have enabled her, when numbered by freight, to berth 1,400 passengers, besides the necessary accommodations for her officers and crew. When she proceeded to sea, on the 22d of December, she had, all told, but 750 souls on board, divided as follows:—

Officers and soldiers of the 3d Artillery	550
Females and children connected with the above	100
Officers and employees of the steamer in different departments, sailors, engineers, firemen, coal-passers, stewards, cooks, and waiters	100
Total	<hr/> 750

The steamer was so filled with freight of different kinds, the coal necessary to carry her to Rio (of course, a very large amount), provisions for such a number of troops, military stores, baggage, &c., that, of this small number, small in comparison with the capacity of the vessel, less than one-half could be accommodated below; 400 of the soldiers had to be berthed on the main deck of the steamer, in temporary standee berths.

With some trifling exceptions, all on board were in good health at the time of departure. There was one case of varioloid among the troops, but, as they had all been vaccinated previous to the embarkation, the disease was communicated to only a single individual. The children of one of the officers were affected with measles. There were among the troops some slight cases of venereal affections. All the rest were in excellent health. About one-half the command were recruits, but they had been selected from the whole number at the recruiting depot on Governor's Island, as possessing the best *physique*, and perhaps the best *morale* of the entire number.

I presume most of the persons on board took their departure with higher hopes and more pleasurable anticipations, than is usual for those who bid adieu for the first time to their homes and native land. Embarked on a splendid steamer, fitted with every convenience, and supplied with every kind of stores necessary for their comfort; surrounded with gay and light-hearted companions; bound for a land which fancy had painted in golden colours; they anticipated a voyage of pleasure.

After the wreck, which took place on the night of the 23d and morning of the 24th of December, the total number of souls on board was reduced to 620. About 130 were at that time washed overboard, and found a watery grave. The condition of the survivors, morally and physically, was such as might naturally be expected to terminate in disease and death. Numerous causes

were in operation pregnant with such results. Among some of them were the following:—

1. MORAL CAUSES. *The Depressing Passions—Fear, Anxiety, and Suspense.*—For the first three or four days after the wreck, the probability that the ship would go to the bottom at any moment, was sufficiently strong and imminent to intimidate even the coolest and most courageous. The timid and faint-hearted were completely panic-stricken. Many of this class abandoned themselves to despair. They fell easy victims to the pestilence which invaded us after a brief interval.

2. PHYSICAL CAUSES. *Over-crowding and Want of Ventilation.*—Of the 400 soldiers who, previous to the wreck, had been quartered on the main deck, all those who survived the storm were driven below. Including those previously berthed there, they made up an aggregate of 500 men, women, and children, crowded into quarters never designed for more than 200 to 250, and barely sufficient for that number. The ship was amply provided with the means of ventilation in good weather. Numerous airports, of an unusual size, opened along the sides of the vessel, which, in ordinary weather, would have admitted abundant supplies of pure air to every part of it. But, with the heavy and tempestuous sea that prevailed almost constantly, these could not have been opened a moment without endangering the vessel. The lower second cabin, occupied by the wives and children of the non-commissioned officers and soldiers, was more completely cut off from the external atmosphere than any other portion of the ship, and it was here the pestilence commenced and was most destructive.

Cold and Wet.—From and after the storm, the ship was continually wet; the beds and bedding were never dry. The cold was at no time intense, but it was sufficiently severe, with the dampness, to act as a cause of disease.

Insufficient and Unwholesome Diet.—The roll of the ship, caused by the tremendous sea that prevailed for several days after the wreck, was such that fires could not be kept up in the galleys, nor could provisions or water be retained in the boilers. In consequence, little hot uncooked food could be issued. Cold water, hard biscuit, and raw pork, were all that could be furnished to the majority of those on board. In addition to these, some of the soldiers, and perhaps others, gained access to the preserved meats, vegetables, and fruit laid in for the cabin passengers, and probably indulged to excess. This exciting cause was, however, confined to a limited number, as I ascertained, by careful inquiry, that those first attacked had taken no food but hard biscuit, and no drink but water, except that some had mingled with it vinegar or molasses, under the impression that it would thereby be rendered less hurtful. Thus it appears that, on board the *San Francisco*, there were in active operation all those influences which everywhere, and under all circumstances, tend invariably to the production and development of disease in the human system. Either of them singly is often sufficient, and, where all were combined, malignant and fatal disease was the unavoidable consequence.

In camps and in military hospitals, in prisons and in crowded emigrant vessels, in our own and in other lands, these pestiferous agencies have written their own history in mournful characters.

The exact character of the disease which shall be produced, varies with the varying circumstances of the case, and with the particular character of that inscrutable agency, which, to cloak our ignorance, we invest with the name of "*epidemic influence*." Sometimes it has been erysipelas; sometimes, dysentery; more frequently, in other years, it has been typhus; recently, it has been apt to assume the livery of that fearful pestilence which decimates cities, and wraps the nations in mourning—Asiatic cholera.

On board those crowded emigrant ships which daily land on our wharves, by hundreds and thousands, the redundant population of European countries, malignant cholera has prevailed extensively and fatally during the past year. Precisely the same agencies which, in previous years, filled these ships with fever patients, have, during the last, in many instances, decimated the whole ship's company by cholera. No reason can be assigned for this, save the one alluded to above—the prevalence of an influence favouring the one result rather than the other.

It has been observed that, with much regularity, disease begins to manifest itself in these vessels about five or six days after leaving port. This has been the case to such an extent, that it has been imagined that, about the distance from land which would be run over in that length of time, these unfortunate vessels enter upon a zone or cycle of the ocean, the atmosphere of which, poisoned by a pestiferous influence, hatches into existence this brood of disease and death. This is an hypothesis too fanciful to need serious refutation. It is obvious that the human system is endued with a certain power of resistance against those morbid agencies which generate disease. There is to all diseases a period of incubation; distinct and definite in the exanthemata, less so, but still well marked, in fevers and other diseases. This period of incubation sufficiently defines the period of the development of disease in emigrant vessels.

I have been led into these remarks by the fact that, when the cholera manifested its existence on board the *San Francisco*, that vessel had been about seven days out of port, between five and six of them subsequent to the wreck. Thus, the incubation period corresponds almost exactly with that of the emigrant ships.

The SYMPTOMS were identically the same with those, unfortunately, too well known as everywhere accompanying malignant cholera. Serious diarrhœa and vomiting, spasms, collapse—death. What need of further description?

The first cases appeared in the lower forward cabin. This was the part of the ship most crowded with inmates, and most completely deprived of ventilation. It was occupied by the wives and children of the non-commissioned officers and privates of the regiment. Long narrow state-rooms, twelve feet in depth, ran athwart ships on either side. Each state-room had in it twelve

berths, and the floors were covered with the sick. Each of these rooms formed a perfect *cul-de-sac*. The air-ports opening into them on the vessel's side were of no avail; the violence of the sea forbade their being open for a moment. The atmosphere in these long, narrow rooms, crowded with sick and dying—where all ventilation was entirely impossible, was pestilential in the highest degree.

Just forward of the forward cabin, there was an apartment smaller in size, but similar in plan, which was designed, in the arrangements of the voyage, for the military hospital. By knocking away the bulkhead, which separated them, the two had been thrown into one, and were so, to all intents and purposes. Here was the focus of intensity, and here the maximum of mortality of the disease.

Still further forward lay the steerage, occupied by privates of the regiment in open berths. It communicated with the external air by a large hatch opening immediately upon the main deck. It was, consequently, to a certain extent, ventilated. The sickness and mortality here were great, but considerably less than in the forward cabin.

The main saloon, or after cabin of the ship, was a large, spacious, open apartment. It was occupied, after the wreck, in part as a sleeping apartment for the officers of the army and of the ship, and in part as a guard-room for the soldiers. It was less densely crowded than the forward parts of the ship, and there were here comparatively few cases of severe disease.

Treatment and its Results.—As nearly all the medicines on board, both those belonging to the ship and those composing the Army Medical Stores, were either destroyed by the storm or thrown overboard, in the attempt to lighten the ship after the wreck, the extent of medical agents which could be brought to bear upon the disease was exceedingly limited. Opium, brandy, capsicum and mustard, and these in limited quantities, were all. They were successful, in many cases, in controlling the preliminary diarrhœa; but after cholera was freely established, they were for the most part wholly powerless.

The forward cabin, already described, constituted the focal point of the pestilence. Almost every case which occurred here, went straight on to a fatal termination, entirely unbecked by remedies. Those occurring in the saloon, and in the steerage, were less malignant, and many of them recovered.

Mortality.—The wreck of the San Francisco occurred on the night of Friday, the 23d, and morning of Saturday, 24th December. On Wednesday the 29th December, about one hundred of those who survived the storm and wreck were taken off by the *harque Kilby*. It is somewhat remarkable that, among the rescued of this company, though they suffered many hardships, and were on short allowance, both of food and water, no death occurred. There were some cases of diarrhœa, but none fatal.

On Thursday, Dec. 30, the first cases of cholera occurred. During the six or seven days, which intervened between this date and the transfer of all the survivors to the ships *Three Bells* and *Antarctic*, on Wednesday the 5th and

Thursday the 6th Jan., the deaths in the San Francisco amounted to about sixty. At the time of the transfer, from thirty to thirty-five were in a dying condition, or very low. Of this number, fifteen perished on board the *Three Bells*; sixteen or seventeen on board the *Antarctic*.

Of the seven hundred and fifty persons who embarked on the *San Francisco*, full of life and hope, about one hundred and thirty were washed overboard and drowned on Saturday morning, December 24; ninety perished with malignant cholera; the survivors, about five hundred and thirty in number, after many perils and vicissitudes, extreme hardships and privations, a portion of them after two winter voyages across the Atlantic, succeeded in reaching New York in safety.

ART. XVI.—*Vaginal Discharges examined with the Aid of the Microscope.*
By LUTHER PARKS, JR., M. D., of Boston. (With two wood-cuts.)

I HAVE had two opportunities of inspecting, microscopically, vaginal discharges in the living subject, the results of which I here give.

In an inconsiderable quantity of sero-mucous secretion from the vagina of a patient, immediately after the close of menstruation, Nov. 3, 1853, were

Fig. 1.

seen mucous, or pus-globules, like A, Fig. 1, and epithelium scales, like B, Fig. 1. A few months previously I had removed a glandular polypus, of small