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THE

HYGIENE OF EMIGRANT SHIPS.

BY

THOMAS J. TURNER, A.M., M.D., PH.D.,
MEDICAL DIRECTOR U. S. NAVY.

1880.

*READ BEFORE THE
AMERICAN PUBLIC HEALTH ASSOCIATION,
DECEMBER, 1880,
AT ITS ANNUAL SESSION IN THE CITY OF NEW ORLEANS, LA.*

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ON THE HYGIENE OF EMIGRANT SHIPS.

By T. J. TURNER, M.D., Etc., *U.S.N.*

THE existing statutes regulating the carriage of persons by sea are interesting to the student of sanitary science from the fact that they present to observation the marks of progress in that direction more decided than those attendant upon an abrupt innovation, or departure from the rut of old custom.

The advance of civilization can be measured by the increased comfort in the means of transportation of travellers. A glance at the earlier laws enacted for the purpose of protecting those travelling by sea, ranged in the order of time, will exhibit this; and from this view, also, it may be assumed that ship sanitation can be taken as the exponent of the general sanitary advance of a country. Slowly and silently, like the erosion of a river's bank by the stream, have the much-needed improvements in nautical hygiene been made; the rush and whirl have been in mid-current; the quiet waters near the shore have done their work; the bank has been, and still will be, eaten away. The end, however, is not yet of our time. Scurvy is rapidly becoming one of the diseases that were, under improved sanitary conditions; and the knowledge of the circumstances of its causation is so positive, that it can be reproduced upon brief notice. Ship-fever is even now a curiosity to the pathologist.

The days of the "Centurion" have passed away; the "horrors of the middle passage" grow apocryphal; and the ghosts of the "Leibnitz," let us hope, are forever laid. Just so long, however, as the integrity of the tripod of life of ships—cleanliness, dryness, and ventilation—is impaired, or even unrecognized as an essential to both the health of the ship and the sailor, just so long will these floating habitations be the carriers of pestilence and death to our shores, and cripple commerce instead of aiding it. Every foul ship carries her unseen black flag of raw head and bloody bones: somewhere the mark of Cain is upon her.

It is proposed to consider cursorily the early legislation upon the subject of the transportation of persons by sea; to cite existing statutes; to quote the latest suggested legislation upon this matter; and, with these as a theme, invite attention to the general hygiene of ships, more especially those engaged in the carriage of emigrants. The earliest legislation in the United States involving any principle of sanitary science applicable to the emigrant, is to be found in the Act approved March 20, 1819. (See Appendix I.) This

Act determined the carrying capacity of a vessel, so far as it concerned the passenger, according to the tonnage (custom-house measurement), to be two passengers to every five tons. The penalty for exceeding the limit of carrying capacity upon this basis was a forfeit of one hundred and fifty dollars for each and every passenger carried in excess. If this limit was exceeded by twenty, the vessel became forfeited to the United States. In the estimate for the number of passengers, the crew were not included.

For a cruise across the Atlantic, sixty gallons of water (I take it for granted fresh water was meant), one hundred pounds of salt provisions, one gallon of vinegar, and one hundred pounds of wholesome ship-bread, for each and every passenger was to be provided.

The master of the vessel was allowed his discretion in the carriage of live-stock, etc. It provided for the delivery of a register of the age, sex, nationality, occupation, and the country of which it was the intention of the passenger to "become an inhabitant," as well as a register of deaths occurring during the voyage. The passenger was considered as dead freight: no note is made of cleanliness, ventilation, the daily allowance of food, its cooking, the sleeping apartments, discipline, or any thing that exhibits the least trace of care for the health of the emigrant, beyond a supply of water, not even, as I have said, described as fresh, and a monotonous diet. This state of things existed, I am led to believe, until the approval of the Act of Feb. 22, 1847, a period of twenty-eight years, when a marked advance is evident. (See Appendix II.) The emigrant is discovered to be a living and a moving being. One passenger is now given fourteen clear superficial feet of deck-surface if outside the tropics, and twenty clear superficial feet if the voyage is within the tropics; and, if carried on an orlop, thirty clear superficial feet. Here, too, the increase in area is but the faint expression of the idea that more space is needed in hot climates, and that such area must be increased if the passenger is to be carried on the dark and damp orlop deck. It was no doubt considered, that, with increased area, somehow or other increased cubic space necessarily followed. If the limit of passenger-carrying capacity was exceeded under this measurement, the penalty was the forfeiture of fifty dollars for each and every passenger, and "also imprisonment for a term not exceeding one year." If the limit was exceeded by twenty, the vessel became forfeited to the United States. If the vessel had *more* than two tiers of berths, "at least six feet in length, and eighteen inches in width, well constructed," the interval between the floor and deck was directed to be not less than six inches. Two children under eight years of age were to be considered, in estimating the number of passengers, as equal to one adult; and children under one year were not to be computed.

Here is the first evidence that sanitary legislation is needed for the protection of even a child as a passenger.

The Act approved March 2, 1847 (see Appendix III.), was a retrograde movement, as it repealed that section of the previous statute which recognized the estimate of two children under eight years of age as one passenger. It is,

however, in the Act approved May 17, 1848 (see Appendix IV.), that the greatest sanitary advance is made in a period of nearly thirty years. The passenger is now considered to be not only a living and moving, but a breathing, being.

Houses over all the hatchways leading to the occupied apartments, with doors and windows, are directed for ventilation.

Ventilators for the occupied apartments are ordered, their number, size, form, location, and capacity, in proportion to every two hundred passengers; and a proviso is made, that if other means for securing fresh air to the inhabited apartments are provided, equally efficient as those proposed in the statute, then the provisions of the law are to be considered as complied with. It is evident that sanitary appliances had already been demanded, and were in use very much in advance of the legislation. A cooking-range is directed to be placed on board for use, and its dimensions are to be proportioned to the number of passengers.

The character, variety, and quantity of food are increased, and fuel is to be furnished the cook; substitutes for the various items of the ration are suggested, and the daily amount of food to be served out is directed. There is the recognition that the passenger may, with the consent of the master, supply himself with the same food as described in the statute, or with its equivalent.

The necessity for discipline, and the maintenance of "such habits of cleanliness" amongst the passengers as will "tend to the preservation and promotion of health," is enjoined upon the captain. The apartments occupied by the passengers are to be kept clean and healthy, and water-closets in number proportioned to the number of passengers are directed to be provided for their use. In good weather the passengers are to be mustered on deck with their bedding, and the bedding is to be aired. The use of disinfectants, a notable makeshift for cleanliness always, has come to be noticed by the law-maker.

The superficial area is increased from fourteen to sixteen feet; and for the first time appears a faint recognition of the essential in all estimates for passenger-carrying capacity, cubic air-space; the height between decks is considered; and the "two for every five tons" section of the Act of 1819 is repealed. This stride — for it was not a step — was immense.

The Act approved March 3, 1849, directed (see Appendix V.) that the master or owners of vessels engaged in the carriage of passengers should "furnish in all cases to each passenger the daily supply of water," and "shall furnish, or cause passengers to furnish for themselves, a sufficient supply of good and wholesome food." This was a halting step, but none the less a step forward, and in the right direction. The improvident would take advantage, and those first venturing

"to dare an unknown sea"

would be but little calculated to determine as to the quality or quantity of food necessary for their use. The greatest advance, however, was made in the approval of the Act of March 3, 1855 (see Appendix VI.), which con-

solidated the good of all the antecedent legislation, and repealed at the same time all that was obnoxious. It reduced the tonnage for each passenger, modified the superficial space allowed, and foreshadows the distribution of passengers according to cubic air-space; the cooking of food is to be done by the vessel; the food is to be distributed at stated intervals and in definite quantities; there is a division of passengers into messes; the orlop is abandoned (let it be forever) as a passenger-carrying deck; a small hospital is provided for such as may be sick. The arrangement of berths in tiers; an inspection that the requirements of the law are complied with; a more liberal supply and variety of food; a registration of passengers as well as the deaths; the causes of, and exemption from, disease; and the application of this law to vessels propelled in whole or in part by steam,—are part of the provisions of the statute.

It also provided penalties for overcrowding. This Act is now in force, with the exception of the 13th section, which was repealed May 7, 1874 (see Appendix VII.); but, from causes beyond the ken of the writer, is utterly inoperative, as I shall show, in regard to all that relates to nautical sanitation.

The next Act in order of time to promote the welfare of the emigrant was approved March 24, 1860, and was made for the better protection of female emigrants, and is creditable to the chivalry of the framer. (See Appendix VIII.)

A bill (see Appendix IX.) regulating the carriage of persons by sea, to be known as the "Passenger Act of 1880," was presented to the House of Representatives on the 8th of April, 1880, by the Hon. Peter V. Deuster, M.C., of Milwaukee, Wis., and is the latest proposed legislation that the writer has been able to obtain. It is proposed to examine the provisions of this bill, which has for its object the amelioration of the conditions surrounding the emigrant during his passage over the ocean, from a sanitary position, leaving those points involving the jurisprudence and commercial interests affected by the carriage of living human freight for the consideration of the merchant and the legislator.

This Act proposed will of course repeal the Act of 1855, and, as stated in the outset, marks the progress in nautical sanitation, and, in consequence, is an index of the general sanitary advance of the country. Apart from the dangers to public health that may occur from the introduction of contagious or infectious diseases into the United States by the avenue of immigration, it is a matter of serious interest to the prosperity of the country that the health and lives of emigrants should be protected during their transportation by sea.

The magnitude of the interests involved may here be presented: thus, there arrived at the port of New York during the last ten years (from 1870 to 1879 inclusive) 1,561,126 emigrants, with 2,518 deaths, with a mean sea-voyage of thirteen and one-half days.

YEAR.	Number.	Deaths.	YEAR.	Number.	Deaths.
1870	212,170	450	1876	68,264	98
1871	229,639	524	1877	54,536	57
1872	294,581	597	1878	75,347	54
1873	266,818	567	1879	135,070	81
1874	140,141	238	Total . . .	1,561,126	2,518
1875	84,560	122			

For the nine months ending September, 1880, there arrived at the same port 258,926 emigrants, with 172 deaths, with a mean exposure at sea of 12.7+ days.

MONTH.	Number of Emigrants.	Deaths.	MONTH.	Number of Emigrants.	Deaths.
January	5,839	6	June	43,638	19
February	8,328	7	July	25,528	10
March	21,658	18	August	25,025	11
April	46,821	51	September . . .	26,839	20
May	55,250	30	Total	258,926	172

I leave the sanitary questions of their carriage by land to those whose attention may be turned in that direction; premising this much, that there is a hygiene for emigrant trains, etc., which needs examination. The path to the better protection of health and life being made known, the work of the law-maker, when not impeded by commercial cupidity, becomes comparatively easy, and is well defined. This bill, therefore, will be considered especially in its relation to the hygiene of emigrant ships.

SECTION I.

It is proposed to allot each passenger on a *steamship*—if such passenger is carried on the first deck, next below the uppermost deck, or in a poop or deck-house on the main deck—one hundred cubic feet; if on the second deck, below the uppermost deck, one hundred and twenty cubic feet; and that it shall not be lawful to carry passengers on any other than the two decks and poop or deck-houses mentioned. In *sailing-vessels*, such passenger shall be carried on a deck, not being an orlop deck, that is, next below the uppermost deck, or in a poop or deck-house built on the main deck, and is allotted one hundred and twenty cubic feet; and that the clear height between decks shall not be less than seven feet.

In computing the number of passengers that may be carried in the vessel, children under one year are not to be included; and two children between one and eight years of age are to be counted as one passenger.

These spaces are to be unobstructed by cargo, stores, or goods. For the berthing of passengers, no more than two tiers of berths shall be constructed, each berth for a single passenger to be two feet wide, six feet long; the lower tier of berths to be not less than six inches from the deck, and the interval between the tiers to be two feet six inches. Double berths are also provided, of twice the width mentioned, for married persons, females, and others specially designated. The berths are to be numbered, and are not to be taken down or removed until after an inspection. Unmarried females are to be berthed in a compartment by themselves. It is also suggested that the vessel shall have *adequate* provision for affording light and air to the passenger-decks, and to the spaces and compartments occupied by passengers, and also with adequate means and appliances for ventilating such occupied apartments. Thus, for a compartment with fifty passengers, two ventilators, each twelve inches in diameter, extending six feet above the deck, are to be provided. One ventilator is to be placed forward, and the other aft, and so constructed as to ventilate the compartment. For every fifty additional passengers occupying a compartment, two additional ventilators are to be provided.

In any steamship, the ventilating apparatus provided, or mode of ventilation adopted, which has received the approval of the "proper emigration officer" at the port or place from which the vessel clears, shall be deemed as complying with the provisions of the law in respect to ventilation.

Hatchways are to be provided for passengers, to be covered with houses or booby-hatches, so as to give as much light as possible, and to protect the passenger from rain and wet; the hatch-coamings to be one foot high.

Three methods have been used to determine the passenger-carrying capacity of vessels. The first method gave a certain number of superficial feet of deck-surface to each passenger. It is surmised that such an allotment of area may have had for its basis some vague idea of the law of density of population, — so many people inhabiting a square mile.

The second method gauged the ship's passenger-carrying capacity by the tonnage, determining the number to be carried by a varying proportion to such tonnage, examples of which have already been noticed. It has no intelligible basis whatever.

The third method — the only sanitary and scientific mode — is that of determining the cubic air-space of all the habitable compartments (excluding the orlop, for I do not consider it a habitable apartment) of a vessel, and upon this base determining with some degree of precision her berthing and passenger-carrying capacity.

The record of the cubic air-space in all the habitable compartments of vessels engaged in the transportation of passengers should, like the tonnage, become part of the vessel's register.

A fourth method of determining the passenger capacity is constantly in use

at the present time, and is based on the avarice of owners of vessels and steamship companies. This method recognizes nothing else but to carry as many as can be put on board. It has no regard for the health or comfort of the emigrant, views him only as supplying so many dollars to the bank account, and is a marine inheritance from the slave-trade, with the horrors of the "middle passage." Although carrying an excess of passengers over that allowed by law renders a vessel liable to a penalty, official reports do not show that any prosecution has resulted in the recovery of such penalty from vessels reported as violating the provisions of any Act to secure the emigrant from the evils of overcrowding. That such overcrowding, with its usual associations, takes place now, is to be seen from the following abstract from official records. At the port of New York during the nine months of 1880, from January to September inclusive, the following vessels arriving were reported for overcrowding:—

MONTH.	VESSEL.	Nationality.	Tonnage.	Superficial Area.	Passengers by Law.	Carried.	Excess.	Deaths.	Time of Passage.
March .	Main	German .	3,342	8,602	601	764	163	..	13
April .	City of Richmond .	British .	4,623	18,380	1,148½	1,257	108½	1	10
" .	Donau	German .	3,442	8,776	614	858	244	..	15
" .	Amsterdam	Dutch .	2,909	6,160	440	575	135	..	16
" .	Rhein	German .	3,342	8,796	629	869	240	1	14
" .	Celtic	British .	3,893	13,178	778	867	89	1	10
" .	Devonia	" .	4,270	13,186	907	1,016	109	..	11
" .	Herder	German .	3,418	13,066	933	1,272	339	4	11
" .	Ohio	" .	2,400	12,508	857	1,331	474	13	16
" .	Hevelius	British .	2,611	4,484	274	495	221	1	14
" .	Suevia	German .	3,626	10,766	757½	1,149	391½	..	12
" .	Baltimore	" .	2,316	13,088	818	1,192	374	2	16
May .	Oder	" .	3,158	10,758	751	786½	35½	..	14
" .	City of Berlin	British .	5,490	19,808	1,350	1,373½	23½	..	9
" .	Republic	" .	3,723	13,234	775	852	77	1	9
" .	Frisia	German .	3,448	11,388	803	925	122	..	13
" .	Hapsburg	" .	3,100	11,791	822½	1,000	177½	3	15
" .	Main	" .	3,342	10,329	706	747½	41½	..	11
" .	City of Montreal . . .	British .	4,489	20,240	1,265	1,451	186	..	9½
" .	Helvetia	German .	4,588	20,070	1,194½	1,263	68½	..	12
" .	Weser	" .	3,251	10,626	743	888½	145½	..	11½
" .	Westphalia	" .	3,395	11,012	839	975	136	..	13
" .	Salier	" .	3,088	12,495	830½	1,089½	259	1	13
" .	Gellert	" .	3,465	13,239	907	1,075	168	3	14
" .	Canada	British .	4,275	16,723	1,003½	1,083	79½	1	13
" .	Silesia	German .	3,395	10,858	768	839½	71½	2	11
" .	Donau	" .	3,342	10,538	734½	815	80½	1	14
" .	Egypt	British .	5,089	21,421	1,279	1,386½	107½	..	10
" .	Saragossa	" .	2,166	7,056	441	468½	27½	..	12
June .	City of Montreal . . .	" .	4,489	20,240	1,265	1,382½	117½	..	9
" .	City of Richmond . . .	" .	4,623	15,520	970	1,042½	72½	..	9
" .	Mosel	German .	3,306	6,251	446½	593	146½	..	13
July .	Cimbria	" .	3,937	9,748	686½	747½	61	..	13
" .	Suevia	" .	3,609	10,686	752½	837	84½	2	13

In September the British steamship "Hecla," 2,421 tons, superficial area 5,320 square feet, with accommodations, according to law, for three hundred

and eighty passengers, carried three hundred and seventy passengers, of which number one hundred and fifty-nine were females, during a trip of twelve days. There were no compartments for the separation of the sexes on the steerage deck, and the steerage passengers were indiscriminately berthed without regard to sex.

Five hundred and seventy-five vessels arrived during these nine months, with one hundred and seventy-two deaths, as previously mentioned. Thirty-four of the vessels were overcrowded, with thirty-seven deaths. The mean duration of the passage across the Atlantic was 12.7+ days.

The following provisions from the statute are supposed to be in force, and regulating the carriage of passengers at the present time : —

[Revised Statutes, sect. 4252.]

“The number of such passengers shall not be greater than in the proportion of one to every two tons of such vessel, not including children under the age of one year in the computation, and computing two children over one and under eight years of age as one passenger. The spaces appropriated for the use of such passengers, and which shall not be occupied by stores or other goods, not the personal baggage of such passengers, shall be in the following proportions : —

“On the main and poop decks or platforms, and in the deck-houses, if there be any, one passenger for each sixteen clear superficial feet of deck, if the height or distance between the decks or platforms shall not be less than six feet; and on the lower deck, not being an orlop deck, if any, one passenger for eighteen such clear superficial feet, if the height or distance between the decks or platforms shall not be less than six feet; but so as that no passenger shall be carried on any other deck or platform, nor upon any deck where the height or distance between decks is less than six feet. But on board two-deck ships, where the height between the decks is seven and one-half feet or more, fourteen clear superficial feet of deck shall be the proportion required for each passenger.”

By what method of reasoning, observation, or experiment, the allowance of from a hundred to a hundred and twenty cubic feet has been obtained, is unknown.

That such a space occupied by a living being is utterly insufficient for the maintenance of average health, has been demonstrated over and over again, both by experiment and physiological observation. With such an allowance of cubic space, there is but one result, — *overcrowding*.

SECTION II.

“The very word ‘overcrowding,’” says Guy, “is an evidence of the frequency of its occurrence.”

Overcrowding is fatal to all living beings. In the case of an emigrant ship, the overcrowded are exposed to the poisonous influences of the excrementitious matters from their lungs and skin, and from a want of an ample supply of fresh air. Under such circumstances there is an immensely increased liability to the reception and spread of contagious and infectious diseases; and it is in overcrowded ships that cholera, relapsing fever, small-pox, and

more especially typhus or ship fever, has most frequently occurred. Of the other diseases produced by ochlesis, or crowd-poisoning, continued fevers, boils, erysipelas, malignant ulcer, ophthalmia, pyæmia, septicæmia, bronchitis, consumption, and a general impairment of the health must be mentioned.

Of the hundred and seventy-two deaths in the nine months of 1880, from January to September inclusive, seventy-three were from affections of the respiratory apparatus.

There is no more well-determined sanitary law than that which recognizes the relation between density of population—i.e., the number of persons inhabiting a certain area—as a cause, and disease and death as a consequence.

“The nearer people live to each other, the shorter their lives are,” says Farr. “Thus, in round numbers, when we stand on an average four hundred feet from each other, we live on an average fifty years; when we come within sixty feet of each other, we live but thirty years; and, when we are but twenty feet off, we live but twenty-five years.” It is not likely, that, by increasing the interspace over four hundred feet, we could prolong our lives; but it is easily seen, that, if we reduce such interspace, we can readily reduce the mean of years of life to even minutes, and to nothing. Soldiers have been suffocated in the ranks when massed together in the open air, not from the physical pressure, but from overcrowding, preventing free access of air. It is not the crowd that kills; it is, in the case of a ship, the accumulation of vaporous and other excreta that sickens, and increases the mortality.¹

The Black Hole of Calcutta gave twenty-two cubic feet.² Pacific mail-steamers give to a cooly in his transit of the ocean fifty-five cubic feet; and even some naval vessels approach these small figures, which are the indices of overcrowding. The wonder is, that emigrants do live under the circumstances. It is fortunate that this troglodyte existence between decks has become much shortened by steam-vessels; for, taking the death-rate as the exponent of the influence of such unsanitary surroundings, it is evident that vessels making the shortest passages, other things being equal, have the smallest death-rate; and this rate does not as yet appear to have any relation to the materials of construction of the vessel as to being of wood or iron.

Dr. J. M. Woodworth, in his paper on “Some Defects in the Immigration Service,” exhibits this fact statistically—

	1867.	1872.
On sailing-vessels	1.167	.542
On steamships . . . . .	.103	.045

as the respective percentages of mortality, and for the classes of vessels named.

Rapidity of transit, therefore, has this sanitary value, that the shorter the

¹ It may be safely said that overcrowding on shore has less hazards than the same degree of overcrowding on ship-board.

² The regulations of the Ottoman Empire give to a pilgrim to Mecca, when transported in a steam-vessel, fifty-four cubic feet of space; and in sailing-vessels seventy-two cubic feet is the minimum allowance.

time of exposure to the overcrowding, the less is the acute danger to the health of the emigrant.

The report of the Hon. Hamilton Fish to the United States Senate in 1854, upon the causes of sickness and mortality on emigrant vessels, is mainly devoted to demonstrating the fact of overcrowding as the most prominent of the causes for such sickness and mortality. This evil exists, as has been shown, even to the present day. Mr. Fish, in the report, states that the opinions furnished the committee as to space were in a high degree conflicting; some of them being in favor of the sufficiency of the provisions contained in the laws then in existence, and others proving them totally inadequate: the antagonism of opinion being founded on opposing interests.

In the calculation of the air-space for each passenger, it should be remembered that an adult displaces 2.26 cubic feet, and also that an allowance should be made for the cubic space occupied by the wood or material used in the construction of the berths. For example, a vessel carrying one thousand persons has 2,260 cubic feet of air-space displaced by their bodies alone, equal to the amount under existing law to the space allotted to nearly twenty-three people.

The Fourth National Quarantine Convention, which met at Boston in 1860, formulated the sanitary law that should guide legislation upon the passenger capacity of all vessels in the following words:—

“But in no case should the number of individuals to be accommodated on any vessel, or in any apartment provided for the accommodation of crew or passengers, exceed in ratio one individual to every four hundred cubic feet of air-space, together with provision for effectual ventilation in all weathers.”

Upon experimental data, Tidy gives his opinion that “three hundred cubic feet is the very minimum per head in sleeping-rooms, and with this minimum thorough ventilation is implied.”

There is an overcrowding in existence on emigrant vessels at present; and unless the existing passenger Act is enforced, and is not a mass of words in the statute book, a recurrence of the horrors of the “Larch,” the “Avon,” the “Virginus,” the “Leibnitz,” and other vessels, may awaken the dormant and spasmodic philanthropy which now permits human beings to be huddled together with less care than is given to our brethren the brutes. From a sanitary and physiological outlook the law is defective in assigning one hundred to one hundred and twenty cubic feet for each passenger.

It rests on the cupidity that rents a pen of one hundred cubic feet for a few days at a set price, such as no farmer doles out to his cattle.

As the minimum, four hundred cubic feet should be allotted to each passenger, with thorough ventilation.

Two children under eight years of age, it will be observed, are to be enumerated as one passenger. It is hardly necessary to state, that, in the young, tissue metamorphosis is exceedingly great and rapid, and that to these changes must be added the influence of growth; for adult organs in a child would be pathological in character. When it is evident that there is a physiological necessity for pure blood and necessarily pure air, the cell-building needs to be

perfect in character, else the structure is defective. In addition to this, the causes of the enormous mortality of children under five years of age on shore must be considered as more than increased by the conditions under which they are placed in a crowded steerage at sea. These facts are sufficient for the sanitarian to ask the abolition of this clause. All children, no matter what the age, should be counted in the enumeration for the division of cubic air-space. There should be no limitation for the little ones: fresh air is essential to their lives and proper development.

SECTION III.

The air, as is well known, is composed of two gases, oxygen and nitrogen, mechanically mixed with an appreciable quantity of carbonic acid gas, and varying amounts of watery vapor and organic matter. This is the food of the blood, conveyed to it by the lungs at the rate of twenty cubic inches from sixteen to twenty times per minute.

By this air also the whole integumentary system is constantly bathed. Cut off the supply for a few minutes to either lungs or skin, and the person perishes. Now, these organs, the skin and the lungs, return to the air as excrementitious matters, carbonic acid gas, watery vapor, and organic matter, to the respective average amounts in twenty-four hours, from the lungs 12,146.15 + grains Troy. This amount of excrementitious matter exceeds that from the kidneys and alimentary canal, the average amount of such matters from the kidneys being in twenty-four hours 20,039.80 + grains; that from the alimentary canal 2,337.33 grains, — a total of 22,377.19 + grains, or 50.76 + ounces Troy. These excreted matters are alike in character. In one group the excreta are in mass, in the other vaporous. How far this subdivision in a state of vapor renders them less noxious or hastens their destructive metamorphosis by the ordinary process of oxidation, is yet to be accurately determined. The mere fact of aggregation, however, does not render them less offensive or toxic in their effects upon the economy.

Defective ventilation is slow blood-poisoning: poisoned blood is defective nutrition, mal-assimilation, and all the evils that follow. It has been determined by experiment that an adult vitiates, by the respiratory act *alone*, fifty cubic feet of air per minute; that is, renders fifty cubic feet of air unfit for respiration: and it can readily be seen how quickly the one hundred or one hundred and twenty cubic feet to each passenger in a compartment becomes totally unfit for respiration, from its filthy, poisonous, disgusting character.

The interval of time becomes very materially reduced when the action of the skin is added to that of the respiratory system.

Such a food for the blood is alike in character to the stercoraceous meal wherewith Rabshakeh is said to have appeased his hunger.

I have elsewhere given the facts of physiological experiment, upon which is founded the opinion that the lungs can only fulfil their function to the blood by an unlimited supply of pure air.¹ To furnish this supply, or even a fair

¹ The following factors should be borne in mind in this connection: The average number of respirations is from sixteen to twenty per minute, and about twenty cubic inches

average, to the passenger compartments of a vessel, appears to be beyond the mechanical skill of the ship-constructor to secure; and, even accepting the provisional amount of cubic space as given by Tidy,—i.e., three hundred cubic feet,—it seems as yet an unsolved mechanical problem to thoroughly ventilate such space on ship-board.

Men have been asphyxiated in the holds of vessels by the accumulation of CO_2 . Thus Dr. D. B. Reid quotes the following incident, occurring in H.M. ship "Minden," at Trincomalee, in 1819–20: "A boatswain's mate was ordered to see the pump-well swabbed out. A man went down with bucket and swab; but as he neither filled the bucket, nor answered when called to, a second man went to see what he was about. He refused to answer. Three more ventured, and they also remained silent. A light lowered went out about six feet above the men. They were extricated, and none recovered their usual health."

Presuming the ventilators to be air-shafts, it is easily demonstrated how utterly inefficient such means are for the ventilation of a compartment inhabited by fifty human beings. Two ventilators, each twelve inches in diameter, and extending six feet above the deck, have each a cubic capacity of $4.712 +$ feet, or 9.424 cubic feet in the aggregate.

Grant that the hatch has a much larger area for the ingress of air, consider both ventilators as educts, and assume the temperature of the compartment and that on deck to be the same, and let us see how soon these ventilators will remove the air.

Fifty passengers, with one hundred cubic feet, give five thousand cubic feet. This air is vitiated at the rate of twenty-five hundred cubic feet (50×50) per minute, or in two minutes the whole mass is rendered unfit for respiratory purposes by the respiratory act alone. Now, the capacity of both ventilators is 9.7214 cubic feet,—say ten cubic feet; and they must deliver their contents five hundred times in two minutes, two hundred and fifty times in one minute. Now, ten cubic feet moving at the rate of six linear feet two hundred and fifty times in one minute of time, omitting the element of friction, equals a rapidity of movement of the air of seventeen miles the hour. This simply relates to the change in the quantity of air.

The experiments of De Chaumont demonstrate the great difficulty of securing in any enclosed space purity of air at the normal of .04 per cent of CO_2 . He found, that, placing the respiratory impurity by CO_2 at six cubic feet per hour, a man placed in a room of one thousand cubic feet of air must receive there one million cubic feet of outside air in an hour, to reduce the CO_2 impurity to the normal of fresh air.

How little these ventilators would effect the necessary changes in the quality of the air in a space of five thousand cubic feet, with fifty passengers, is very

of air are taken in at each inspiration. The average pulsation of the heart is from seventy to seventy-five per minute, and about two ounces of blood are propelled from the heart at each beat. In other words, twenty-four thousand cubic inches of air are necessary, other things being equal, for five hundred pounds of blood circulating through the lungs in one hour of time.

readily determined. Besides, it must not be forgotten that the aggregation of persons also increases the respiratory impurity in a degree as yet undetermined. It is not to be expected, therefore, that the air of between-decks can be as pure as the external air. But the statement of such a fact is no argument for abandoning all effort to secure as liberal a supply of fresh air as is possible.

Considering all the circumstances presented, this is a physical impossibility in the proposed apparatus, and can only be obtained by the intervention of other mechanical means.

In steamers, the approval of the apparatus provided or made, adopted by the "proper emigration officer," is not of much weight in a sanitary point of view, unless it is known that such officer has more knowledge of the means of ventilation and its purposes, or presents the evidence of the rate of flow of the air by the anemometer, or its purity as measured by the CO_2 test. Life, however, as Southwood Smith said, is a more delicate test than chemistry of the purity of air.

I may here remark that the inspection of the sanitary arrangements supposed to exist under the law rests in no one's particular province; and, whilst I do not for a moment arrogate all sanitary knowledge to the exclusive use and behoof of my profession, I do ask, in all instances, that medical men be consulted upon such matters, as they rightfully belong to the most important division of the science of medicine made in modern times, — i.e., that of preventive, as distinguished from curative, medicine. In this demonstration of the physical inability of the proposed means of ventilation, the emigrant has been considered in a state of rest; if at work, — say performing work equivalent to walking one mile an hour, — the respiratory impurity, as measured by the amount of CO_2 expired, is doubled, and the necessity for pure air is more than doubled.

Craig, taking the amount of CO_2 as the exponent of the filthiness of the air, and considering that sea-air has a normal of three parts CO_2 in ten thousand, found on steamers with artificial means of ventilation, carrying emigrants, from 6.69 to 13 parts in ten thousand in the air between decks. The external air, examined at the same time for comparison, gave from 2.5 to 2.73 parts in the ten thousand. He gives, as the limit, six parts carbon dioxide in ten thousand.

Ventilation should not only extend to the passenger compartments, it should be effective in every enclosed space on a ship. The hold, bilges, and limbers call for such ventilation. More particularly, however, is intercostal ventilation demanded; that is to say, ventilation between the frame-timbers. These spaces become long tubes closed at one end by the keelson; two sides formed by the timbers, the outer side by the planking, and the inner by the ceiling. These tubes are considered by many to ventilate the bilges having the upper aperture in vessels of war opening under the hammock-rail, or more frequently opening into the ward-room state-rooms by slots cut in the shelf-piece. Their principal use has been and still is to conduct foul gases arising from the bilges into the sleeping apartments; or more frequently they become the receptacles of all sorts of unimaginable filth, and consequently the cause of the frequent

outbreaks of filth-diseases on ship-board. As ventilators, they belong to the uncorked bottle genera, and are of no value save for harm.

To secure this essential to life to the emigrant, I know of no more efficient apparatus than a modified Napierian plan of ventilation, — a system of tubes connecting every enclosed space, and extracting the air by exhaust-fans driven by steam. It is the only system known that will furnish, to those living in enclosed spaces, air approximating at least to the same degree of purity as that external to the apartment.¹

Reid utilized these intercostal spaces in his method of ventilating vessels, and to-day the hints of that far-seeing observer are accomplished facts in the ventilation of ships. The passenger spaces of a vessel with an open hatch alone are about as well ventilated, as previously remarked concerning the intercostal spaces, as an uncorked bottle or a deep well.

Griffiths states that we cannot have natural ventilation on ship-board, or a healthy vessel, where the limbers are eleven feet below the water-line; and he fixes, on physical data, eleven feet draught as the health limit. He also states that no vessel in which human beings are to dwell should have a depth of hold of over sixteen feet. At sea the motion of the vessel does not move the air much beyond the hydraulic action of the waves.

Some observations of my own lead me to consider, that, in a vessel at sea, with only one hatch open, the influence of the oscillations of the vessel upon the movement of the mass of the air in the hold is not felt much beyond fifteen feet in any direction from the hatch. Even if the vessel is at rest, the air blowing over the hatch has but little aspiratory power. The same effect is observed in winds blowing over wells, not affecting the accumulations of CO₂ at certain depths.

I am informed by Lieut. Z. L. Tanner, U.S.N., that on the large steamers on the Pacific, with their cargoes of one thousand Chinese, a perfect ventilation is maintained by a steam-exhausting ventilating apparatus.

All vessels engaged in the carriage of passengers should be fitted with some form of ventilating apparatus of the exhaust-plan, worked by steam. It would simply be cumulative work to note the practical and judicious opinion of every sanitary observer upon the necessity for the better ventilation of ships, and more cubic space to prevent overcrowding.

It is difficult, perhaps impossible, to discriminate between the etiology of the production of disease by overcrowding and that by foul air.

All writers upon the subject, however, are agreed upon their disease-producing effects.

At the port of New York from Sept. 1 to Dec. 31, 1853, a period of four months, there arrived 312 vessels from European ports, carrying 96,950 emigrants; the average passage was 41 days. Of this number of passengers 2,158 died, and 457 were landed sick. The death-rate for that period was 22.2+ per thousand.

¹ Any system of ventilation, however, that does not get rid of bilge-air is worthless, from a sanitary point of view.

Bell's figures are as follows: In ten years, from 1863 to 1874 inclusive, there arrived at the port of New York 6,733 vessels, carrying 2,321,557 steerage passengers. The total deaths were 6,241; the ratio of deaths of steerage passengers being at the rate of 27.8 per thousand.

In the "Ohio" (2,400 tons) in April of this year, 1,331 passengers were carried. The deaths 16, at the rate of 12 per thousand for the 16 days of the passage.

It may not be out of place to call the attention of the merchant from his living freight to the inanimate cargo consigned to him, and to state the fact, that in ventilated vessels the cargo is preserved more effectually from damage than in the unventilated. I have it from good authority that the cost of an automatic ventilating apparatus placed in a sailing vessel was more than repaid by the saving made in preventing the "sweating" of a cargo of coffee from Rio de Janeiro to Baltimore.

SECTION IV.

The proposed statute directs a properly located caboose or cooking-range or other cooking apparatus, the dimensions and capacity of which shall be sufficient to provide for properly preparing and cooking the food of passengers. This is an advance in sanitation that cannot be readily estimated when it is considered, that, but a few years ago, emigrants had to cook their food themselves. In steam-vessels, cooking is now done by steam; and there is no objection to the preparation of food by this means. The food to be supplied is to be equal in quality and quantity to the naval ration. It would be better to direct that the naval ration should be the same in emigrant vessels, — one ration to each person per diem.¹ Several reasons can be cited for the adoption of the naval ration. By government inspection the full quantity and good quality of its components are secured, and its nutritive value has been determined. A good ship's cook should be allotted to each vessel as part of the "official," who should arrange a daily bill of fare for the passengers. The direction that the meals be served on tables, and three times a day at regular and stated hours, is also an advance in the care for the comfort and health of the emigrant. The allowance of water — three quarts per diem — is too small. At the lowest estimate, one gallon per diem of fresh water to each passenger should be provided.

In steamers with a distilling apparatus, the supply should not be limited, and no waste of water permitted. An apparatus for the distillation of fresh from sea water should be placed on all passenger-carrying vessels, either propelled by sails, steam, or both combined; and the water should be carried exclusively in iron tanks.

Mothers with infants and young children are to be furnished with wholesome

¹ It is to be stated, however, that the full amount of the naval allowance of food is more than sufficient for a single passenger. In the naval service the messes of a ship's crew can commute their allowance at a rate not exceeding two rations for every ten persons.

milk, or condensed milk, for the sustenance of the children. Now that meal-hours are to be fixed, a ration established, and the cooking done for the emigrant, it requires but a slight advance to group the passengers into messes, with a mess-man, to have a stated time for serving out provisions, and to secure a discipline that is sanitary in character.

The daily distribution of the naval ration for a week is as follows :—

	Biscuit.	Beef.	Pork.	Preserved Meat.	Flour.	Rice.	Dried Fruit.	Pickles.	Sugar.	EITHER —		Butter.	Canned Tomatoes. ¹	Beans.	Molasses.	Vinegar.
	Oz.									Tea.	Coffee or Cocoa.					
		POUNDS.				OUNCES.						FRACTION OF PINT.				
Sunday	14	.. ..	.. ..	3 1/2	.. ..	1 1/2	.. ..	.. ..	4	1 1/2	2	2	6	.. ..	.. ..	.. ..
Monday	14	.. ..	I	.. ..	.. ..	.. ..	.. ..	.. ..	4	1 1/2	2	.. ..	.. ..	1 1/2	.. ..	.. ..
Tuesday	14	I	.. ..	.. ..	1 1/2	.. ..	2	.. ..	4	1 1/2	2	.. ..	.. ..	.. ..	.. ..	.. ..
Wednesday	14	.. ..	I	.. ..	.. ..	.. ..	.. ..	.. ..	4	1 1/2	2	.. ..	.. ..	1 1/2	.. ..	.. ..
Thursday	14	.. ..	.. ..	4 3/4	.. ..	.. ..	.. ..	.. ..	4	1 1/2	2	2	6	.. ..	1 1/2	.. ..
Friday	14	I	.. ..	.. ..	1 1/2	.. ..	2	.. ..	4	1 1/2	2	.. ..	.. ..	.. ..	.. ..	.. ..
Saturday	14	.. ..	I	.. ..	.. ..	.. ..	.. ..	.. ..	4	1 1/2	2	.. ..	.. ..	.. ..	.. ..	1 1/2
Weekly quantity,	98	2	3	1 1/2	1	1 1/2	4	8	28	3 1/2	14	4	12	1 1/2	1 1/2	1 1/2

Fresh or preserved meat may be substituted for salt-beef or pork, and vegetables for the other articles usually issued with the salted meats; allowing one and a quarter pounds of fresh or three-quarters of a pound of preserved meat for one pound of salted beef or pork, and regulating the quantity of vegetables so as to equal the value of the articles for which they may be substituted.

For long voyages the naval ration is well fitted, as I have elsewhere stated when giving its histogenetic and thermogenetic value. Potatoes, cabbage, beets, carrots, onions, and other fresh vegetables, as well as fresh meats in cases packed in ice, can be carried in sufficient quantities on steamers to last at least during an average passage across the Atlantic. Eggs, fowls, and condensed milk should also be carried for the use of children and the sick. Dried fruits can also be added to the ration.

SECTION V.

Two compartments for hospital uses are provided for: one for males, the other for females, to be located on the main deck, or deck next below the uppermost deck; to have eighteen superficial feet in the clear of the deck for every fifty passengers carried; to be furnished with proper beds, bedding, and utensils, and kept filled and supplied during the voyage.

This allowance of space for hospital accommodation is too small, and is founded upon random guesswork. Observation has taught me that the proper

¹ Desiccated potatoes abolished by Act approved May 3, 1880, and canned tomatoes substituted.

method of arranging hospital areas, and perhaps the determination of medical supplies on ship-board, is to be attained by an inspection of the sick-rates in passenger-carrying vessels, under the varying influences of the character of vessel, locality, number of persons carried, season, length of voyage, etc. Accepting such a standard as the sick-rate, and bearing in mind that the cubic air-space for a well person must be multiplied many times for the sick, I do not think that less hospital accommodation than in the proportion of three beds for every hundred passengers carried should be permitted. The writer is fully aware of the nature and extent of the demand thus made, and that it may be by many considered impracticable; but the history of epidemic outbreaks of disease on ship-board exhibits the fact that Dame Nature, when driven to extremes in this direction, is apt to assert herself, and solve the alleged impracticability by a wholesale slaughter, in which, upon her own terms, she secures in some degree indemnity for the past, as well as a certain amount of security for the future.

Every vessel carrying over fifty passengers, other than cabin passengers, shall carry a duly qualified and competent medical practitioner or surgeon, who is to be provided with surgical instruments and medicines proper and necessary for the diseases and accidents incident to sea-voyages, and "for the proper medical treatment of such passengers, and with articles of food and nourishment as may be proper and necessary for the preservation of the health and lives of young children."

Whilst giving a qualified assent to all the means mentioned for the care of the sick, exceptions must be taken to the *rôle* proposed for the medical officer on board. His services are to be, and there can be no question but that they would be, promptly given in any case of sickness or disease occurring on ship-board.

Evidence should be presented by a person applying for the position of medical officer that he is a graduate of some reputable college of medicine. The medical officer of any vessel should be the sanitary officer by law, and not upon sufferance. Preventive medicine is the greatest part of his vocation, and curative medicine involves but a fraction of the professional responsibility. The responsible duty of caring for the sick when disease has shown itself, clothes him with the authority to prescribe a remedy, to arrest the hemorrhage from a wounded artery, to bind up a broken arm, or amputate a shattered leg; but when it comes to intrust him with the like responsible duty of observing and guarding against the causes of diseases, both within and without the vessel, in all latitudes, seasons, and climates, not the shadow of authority is allowed him to enforce a sanitary law.

Even suggestions as to cleanliness, dryness, ventilation, water-supply, clothing, food, etc., are considered as affecting that unknown quantity called the discipline of the vessel, as derogating from lawful authority or prerogative, and are more frequently ignored and utterly disregarded than accepted and executed.

The sanitary suggestions of the medical officer should be carried into effect

by legal authorization. The responsibility for his acts in these respects is professional, and a part of the jurisprudence of medicine.

By decided legislation the medical officer of every vessel should be in charge of its sanitation and sanitary police. To prevent him exercising this most important part of his calling, is to maim him professionally. I speak of that which I know, when stating that I have met, in the course of my sea-going, adamantine ignorance of the results of the violation of simple sanitary laws, coupled with a mule-like obstinacy toward the arrest of such results, even when the benefits to be obtained were demonstrated by the plainest facts of physical science. I cannot place this matter too strongly.

Ironically speaking, a naval pronunciamiento states that the lives and health of men are not to be intrusted to incompetent medical hands, as a reason for a severe and exhaustive examination into the qualifications of a candidate for so-called medical honors.

But no matter how great the skill, how extensive the knowledge, how accurate in suggested means for preventing disease, he is at present powerless to execute, still less enforce, the plainest teachings of preventive medicine on ship-board. *Every tyro in maritime sanitation soon learns to recognize the fact, that most of the causes of the morbidity and mortality to which his professional attention is called are to be found in the condition of the ship, rather than that of the passengers and crew.*

It is to be hoped, that, with the advent of a medical officer on merchant passenger vessels, he may be clothed with authority to have executed a thorough system of sanitary police; that the medicine-chest, with its small volume of the "Principles and Practice of Medicine," with short and easy rules for prescribing, usually found in the care of the mate, will be placed in the proper hands; and also the overcrowding, filth, wet decks, bad food, worse ventilation, etc., that rendered the chest a part of the necessary outfit, may be numbered "amongst the things that were."

Those who are sick should be cared for with more than ordinary attention. Stewardesses employed by the vessel, and made part of the complement, should be directed to look after sick women and children. The sick in hospital should be visited at nine A.M. and five P.M. daily, and as much more frequently as is necessary, by the medical officer, and removed to upper deck if it be deemed advisable. A list of the names of the sick and their diseases should be given to the captain at a daily morning inspection, and the number of sick entered upon the ship's log, as well as the name, sex, nationality, etc., of any deceased.

It should be remembered, that, for most of the voyage, the steerage is a hospital filled with sea-sick people.

In the event of the occurrence of any contagious disease, isolate the case, and use such other means to arrest the spread as the nature of the disease may require; for example: vaccinating all hands if small-pox breaks out; place under observation all diarrhœal cases in the event of cholera making its appearance; disinfecting dejecta, with the destruction of clothing, bedding, etc.

As the sanitary officer of the vessel, the medical officer must be eternally vigilant and active, arresting at once, as far as possible by preventive measures, the approach of disease by any avenue. All such measures should be well considered before sailing, and not postponed to "a more convenient season."

"He who walks in the street of by and by will stop in the house of never," reads a Spanish proverb. He must be a patient man; for much of opprobrium and contumely will be heaped upon him for all his work. It savors of interference; yet it must be remembered, that, in the time of no danger, danger is imminent. More than likely he will be regarded as an alarmist, and he will be sorely tried; for, if no need of his service appears, his functions are valueless. If, perchance, such need does occur, then his sanitary precautions were useless.

Such has been, and still is, the reasoning of ignorance.

SECTION VI.

In every vessel carrying passengers, there is to be two water-closets or privies, and an additional one for every one hundred male passengers on board, for their exclusive use; and an additional one for every fifty female passengers on board, for the exclusive use of themselves and children. These are to be properly enclosed, and located on each side of the vessel, separated from the passenger compartments by substantial bulkheads, and kept in a cleanly and serviceable condition throughout the voyage.

There is but one sanitary law for all such modern conveniences, — cleanliness, with an unlimited supply of water for flushing. This provision in the Act for the health and comfort of emigrants might, with great propriety, be added to the naval constructor's stock of knowledge, and add to the health and comfort of the crews of government vessels. It would remove, however, another nuisance, handed down from the good old times, — the present location of "the head."

These necessities should be placed under the fore-castle, freely ventilated, and made accessible at all hours. At present they are dangerous to life and health, subjecting men to exposure in all weathers, are unenclosed, unsightly, and unhealthy.

The hygiene of all such places may be summed up in a word, — cleanliness.

SECTION VII.

The master of the vessel is authorized to maintain good discipline, and such habits of cleanliness among the passengers as will tend to the preservation and promotion of health. Such regulations as he may adopt are to be posted and kept up in places accessible to the passengers. The compartments and spaces are to be kept at all times in a clean and healthy condition, and are to be disinfected with chloride of lime at the discretion of the captain.

Elsewhere an opinion, based upon some observation, has been expressed upon "the usages and customs of the sea-service," which now rejoices under the name of — discipline.

Not a day passes but the press reports some outrage committed upon the

crew or passengers of merchant vessels. Of their brutal nature, one has but to refer to the facts published by Jewell, Dana, Roche, and others. That they are growing less frequent, I have every reason to believe; but that they exist to a much greater extent than is supposed, is also true. In the hurry and excitement of landing in the New World, the remembrances of wrongs committed upon him are apt to fade in the heart of the new-comer. In finer natures than that possessed by the average emigrant, even the injuries and asperities of a cruise grow dim and softened as the flag comes down, the vessel goes out of commission, or passengers wend their way to their respective homes; and so no note is taken of suffering, privation, insult, or injury.

To aid the captain of every passenger-carrying vessel, he should have authority by law to enforce the bathing of the bodies of all emigrants, weather permitting; and he should also see that they should remain on deck, in spaces allotted for them, during as much of daylight as possible. More especially is this desirable on the part of mothers with young children, a growing child demanding for its proper growth all the fresh air and light possible. The hair and beards of the male passengers should be kept cleanly cut. Each emigrant should have a change of under-clothes, and facilities afforded him for washing and drying them during the voyage.

The captain having his share of duties, the passenger should be made to do his part by a ready obedience to all the orders issued for the preservation of his life and health.

Concerning the cleanliness of the compartments, there is an absolute necessity for their being scrupulously clean.

Dr. Griscom thus portrays the steerage of the "Ceylon" in 1847: "The indescribable filth, broken utensils, and *débris* of food scattered recklessly about. Some were just rising from their berths for the first time since leaving Liverpool, having been suffered to lie there all the voyage, wallowing in their own filth, . . . a picture of which neither pen nor pencil can convey the full idea." Or, at a later date, Judson, in 1870, in his report: "It is difficult to convey in words an idea of the filthy condition of the passenger decks on some of the finest emigrant steamers arriving at New York. The best moment for inspection is, when the passengers have departed with their baggage. All the unclean material which neglect has allowed to accumulate in and under and around the berths is then brought to light. The berths and bulkheads are then seen to be dirty and greasy; the air is foul and offensive; the deck is black and slippery with muck, and encumbered with fragments of food, soiled bedding, discarded utensils, and filthy, cast-off garments." Or the following pen-picture from "Blackwood's Magazine:" "Part of the 'Highlander's' cargo was five hundred emigrants, to accommodate whom the between-decks were fitted up with bunks, rapidly constructed of coarse deal, and having something of the appearance of dog-kennels. Graphic indeed is the picture of the steerage when the malignant epidemic breaks out, and it becomes a lazaretto, frightful with filth and fever; until, at last, favorable breezes came, and fair, mild days, and fever-feed and the human stable (for it was no better) was cleansed."

Still later, a writer in 1874 characterizes the steerage as "a foul-smelling dungeon."

Yet the Act of 1855 remains unexecuted on the statute-books. Ships in the above condition are disgraceful alike to captains and owners. Judson's opinion, that "neglect" is a cause for this condition of affairs, is indorsed by Sanders (1874), who characterizes the disposition of the officers of these ships as marked by indifference, rather than by any more active feeling. It is a wonder that the emigrant lives at all under such conditions.

Place such as a question, and the only answer is, that such subjects take on for the time a degraded type of being, which is compatible with existence under such circumstances.

Lamport (*Soc. Sc. Trans.*, 1860) says that deficient sanitary conditions become innocuous to the lower physical development. Besides, living under such circumstances is not conducive to long life. Perhaps the antecedent surroundings of the life of the emigrant have not been far removed from that into which he is thrust in his exodus to the new world. Indeed, much of the discomfort amongst emigrants arises from their ignorance and previous modes of life. Many of them have left hovels, and the relief for even a few days from care plunges them at once into a state of indifference.

The manner and time of securing this proposed cleanliness of the decks, however, are important. It is usually performed in the morning watch by sluicing the decks with water, without regard to any other circumstances whatever. The passenger-carrying decks should be kept, as stated, clean and dry. The decks should be scraped, rather than holystoned, but kept dry.

The instructions for the medical officer in charge of convict ships, when such vessels were in existence, read as follows:—

"As it is very essential that damps should be prevented by every practicable means, he is to cause the swinging stoves to be frequently used in different parts of the ship for the purpose of promoting warmth, dryness, and a circulation of air." And it is to be remarked, that, in these vessels, where "the greatest cleanliness" was to be observed, it was obtained by scraping the deck, wiping it up with hot water, swabbing, etc.,—never by the thoughtless use of an unlimited amount of water. Certainly, it is not too much to ask the same consideration for sailor and emigrant.

"At all times the utmost attention should be paid to keep the ship between decks as dry as possible, by means of stoves properly fitted, . . . by frequent swabbing, by keeping up a free circulation of air, and every other possible means." And, in a general summary upon the rules and medical discipline on board the Honorable East India Company's ships, Stewart says, "The utmost possible attention, in every respect, should be paid to cleanliness, dryness, and ventilation."¹

¹ Gordon, in calling attention to the rules to be observed for the protection of the health of troops on voyages, states that "the pernicious custom of washing the lower decks should be restricted according to the state of the weather, and scraping and dry rubbing be almost invariably adopted instead;" and further states, that "washing between the decks should

Sir Gilbert Blane, in 1781, in a memorial to the British Board of Admiralty upon the causes of diseases in ships, placed, as first in importance, "the neglect of cleanliness, ventilation, and dryness in the interior economy of ships;" and, in commenting upon the causes of the improvement in the health of the navy from 1793 to 1811, assigns "the better observance of cleanliness, ventilation, and dryness."

Elsewhere I have expressed opinions, founded upon observation and experience, upon the humidity of vessels as an etiological factor in the production of disease, and shown how much excessive dampness on ship-board is due to the indiscriminate sluicing of the decks with water for the asserted purposes of cleanliness. Cleanliness can be secured without the constant drenching of the decks.

There is but one opinion, founded upon the recorded observations of over a century, that "a damp ship is an unhealthy ship;" and the evidence accumulates, that the deep has fewer perils compared to this peril of the ship. The practice of *daily washing down of decks* is held to at this day with a tenacity that exceeds belief. It has been stated that the cleanliness asked for cannot be obtained without water. The answer to that statement is, and it is made from record, that either there is too much dirt to the water, or too much water to the dirt. Indeed, all the devices that ingenuity can conceive of, or twaddle uphold, have been successfully used to maintain this nuisance intact to this day. Physical demonstrations, deductions from clinical observation, and the accumulated experience of centuries have been all alike powerless to place within sanitary limits this daily deluge on the decks of vessels.

It may not be possible to fix in advance the time for inundating the decks, which "should be restricted to the demands of necessity," as Wilson (R. Navy) has stated. It should be determined upon, however, by the most favorable circumstances for securing afterwards their dryness, as a clear, warm, dry day; and to accelerate the drying, hot water, hot sand, and the drying-stove, with free access of the air, should all be called into requisition. In the daily attempt to render the decks clean by the excessive use of water, ships have been rendered more unhealthy than they are from their construction. Dry cleaning should be preferred to cleaning by any means in which water is employed.

In the distribution of that traditional peck of dirt said to be allotted to every human being, I ask for the sailor, the emigrant, and myself, permission to take the share — dry.

When water is added to filth or decaying organic particles, the mixture is prepared for fermentation.

Simon says that "moisture is the normal condition of all ferments." Hun states that "there is probably no more prevalent cause for disease than dampness under such circumstances." "It is not surprising," says the same writer,

take place only once a week, and then only when the weather is dry. Scraping and dry rubbing should be sufficient to maintain the decks in a state of cleanliness, and be strictly enforced every day."

“that the question, both from scientific and clinical observation, has of late pressed itself upon us, whether consumption and other lung affections, rheumatism, diphtheria, and zymotic diseases in general, do not owe their incubation and propagation more to superabundant moisture than to superabundance of filth.” Coincident with the resumption of the holystoning is the rise in the sick-list of the U. S. S. “Richmond,” as stated in the report of the Surgeon-General of the Navy for 1879.¹

In wooden ships the decaying vegetable matter or rot of the ship, a temperature of 80° Fahrenheit, and moisture, produce a veritable “*air-marécageux*,” — marsh-air, malaria; and, in this connection, dry rot may be considered as a cause of disease on ship-board. It is a demonstrated fact, that the constant wetting of the decks, and the excess of carbon dioxide in the air of the holds of ships, promotes the decay and rot of the timbers. It is also known that the excess of carbon dioxide in the air influences very much the forms of fungus growth; for it promotes the development of certain spores which will not grow except in the presence of an acid solution, or such excess of carbon dioxide in the air.

“Dry rot,” says Denton, “which owes its name rather to the effect produced than to its cause, — a dreaded enemy, generated in a damp, close, and dark atmosphere, — when once in existence, seems to rise with extraordinary rapidity from its bed, and to spread vigorously through timber in all situations, dry or damp, dark or light.”

The spores that are present in woody matters develop as soon as these circumstances obtain; and, as they increase by their growth the amount of carbon dioxide in the air, they thus increase their tendency to grow, and also accelerate at the same time, in a rapidly increasing ratio, the tendency to rot and decay. Wood kept always wet or always dry has a prolonged life; but the same wood alternately exposed to damp and warmth is rapidly affected by dry rot.

In June, 1879, I imitated these conditions partially in an improvised culture-cell, and studied the changes under low powers of the microscope. Some of the spores seem to grow very rapidly when moistened at normal temperature with the ordinary carbonic-acid water of the drug-stores. The subject, however, deserves to be studied by an expert microscopist and mycologist, and one who has given attention also to the development as well as the generic differences of the fungi.

Dry rot will also proceed with astonishing rapidity in any close confined situation where the air is filled with aqueous vapor, and without currents.

¹ Confirmatory of the opinions, founded upon physical observation, concerning the disease-producing effects of humidity, expressed in my report upon the hygiene of the U. S. S. “Tennessee” in 1875, and also in a pamphlet on “Air and Moisture on Ship-board” published in 1879, are the results of the observations published under the direction of the Surgeon-General of the Navy, in the report of the honorable Secretary of the Navy for 1880, and which are based upon the records of meteorological observations on ship-board, which I had the honor to inaugurate during the term of office of ex-Surgeon-General W. Grier U.S.N.

This dry rot is a fungus known as *Merulius lachrymans*, and is described by Greville as follows: "Large, fleshy, but spongy, moist, ferruginous yellow, arachnoid and velvety beneath, margin tormentose, white; folds ample, porous, and gyrosodentate."

Another fungus which attacks oak-built vessels is the *Polyporus hybridus*, and is thus described by the same authority: "White, mycelium thick, forming a dense membrane or creeping branched strings, hymenium breaking into areæ, pores long, slender, minute." A well-preserved specimen of this fungus can be seen in the museum of the Department of Agriculture at Washington. Large fungus-growths have been known to grow in the holds of ships, giving rise to marked febrile movements in the greater part of the crews. The only works upon this interesting subject to which I have had access are those of Bowden, Knowles, Brittan, and Brewer.¹

Now, this decay of organic matter under the influences of heat and moisture results, as has been stated, in the production of malaria; and it needs no suggestion to any physician of the results in malarial blood-poisoning.

To prevent the decay of wood used in ship-building, and thus remove a source of malarial poisoning on ship-board, demands alike the attention of the ship-builder and the sanitarian. The attempts to arrest the decay of ship-timber have a very ancient origin, and have been also very varied, the earliest noticed method being in the Ark; for we read that that vessel was "pitched within and without with pitch."

In historic times oil and tar are the earliest mentioned methods of preservation; later, the use of salt. A word just here as to salted ships, as they are or were called, from the packing of the intercostal spaces with salt, and which practice has left its imprint on the technology of a ship in the "salt heads." The practice of salting ships with common salt had its origin about the years 1768-73; but it was soon found that such practice caused the rapid corrosion of the iron bolts, and maintained an air between decks constantly saturated with aqueous vapor. Salt belongs to the deliquescents; and, whilst attracting and absorbing moisture from the air, renders a vessel constantly damp. It also renders wood after such exposure, and then allowed to become dry, brittle. It should never be used in ship-building as an antidote to dry rot. In the year 1796 Hales proposed the creasoting of wood as a preservative; in 1832 Kyan patented his process for the prevention of decay in wood by the use of corrosive sublimate; in 1838 Bethell perfected his patent for creasoting timber, and in about the same years (1838-40) Sir William Burnett received letters-patent for his process of preserving wood by the use of zinc chloride. The most successful of all these patents are those of Kyan, Bethell, and Burnett. Some personal observation of creasoted wood used as piles, leads me

¹ The principal fungi, other than those mentioned, causing the more or less rapid deterioration of wood, are the *Thetophora domestica*, *Xylostroma giganteum*, *Cerulius vastator*, *Auricularia pulverulenta*, *Boletus hybridus*, *B. medullæ panis*, *B. lachrymans*, *B. destructor*, and some species of *Helminthosporium*. Perhaps some of these names are but synonymes of the same fungus.

to think favorably of that process. I am not aware, however, of a vessel ever being built of creasoted timber. Since the last period named, patents for the preservation of timber are numerous. Some late methods for the conservation of wood deserve to be mentioned. The method of Lapparent (1862), by which wood is subjected to a hot gas-flame, so that it is charred on the surface to the depth of from one-quarter to one-third of a millimeter, whilst to a certain depth the albumen beneath this layer is coagulated. Jarry has proposed the impregnation of fabrics so as to render them water-proof by the use of aluminium soap (oleate and stearate); and Wagner, in 1862, suggested the use of this same soap, made by mixing aluminium acetate with a solution of ordinary soap, for the purpose of preserving wood from dampness, in fact water-proofing wood, or rendering it impervious to moisture. The latest method is the impregnation of wood by oils of the Terbene Series, raised to high temperatures. Time can only measure their success.

Dry rot in timber (which, as has been stated, derives its name from its effects rather than its cause) differs from wet rot in this, that dry rot takes place in dead wood; wet rot may take place in both living and dead wood. Wood in damp situations deprived of air is liable to wet rot. The permanent arrest of decay in wood may be an impossibility in the order of nature; but the limitation by chemical means of the baleful and disease-producing effects of such decay are within the province of the sanitarian, when he adds to such measures — dryness and fresh air. The cleanliness of the hold of the vessel should be also insisted upon by law. Previous to the reception of cargo or passengers at the port of departure, the hold and decks should be cleaned: the remnants of former cargoes and the vestiges of former diseases cling tenaciously to vessels. The hold should be lime-washed, — dried. One or two strakes from the keelson outwards should be removed for cleanliness, and the intercostal spaces should always be kept clean and free from dirt. I think that these strakes should be removable at all times, and not bolted permanently to the frame-timbers. It has been advised that vessels be built without permanent inner ceiling. Certainly it is within the capability of the naval constructor to build a vessel without such spaces between the timbers for the accumulation of decaying matter. Let the vessel be built solid. These remarks appertain, as will be observed, to wooden vessels. Of the conditions in iron vessels the exact information is too scant at present for a generalization.

In these vessels, however, although the hull is of iron, and in many cases the floors filled with cement, wood is principally used in their internal fittings, especially in the spaces to be inhabited. Iron hulls, being good conductors of heat, are said to be always of the temperature of the water in which they float.

The statement needs physical confirmation.

Bilge-Water.

This seems to have been just as much of a nuisance to the early voyager as it is to the present sea-traveller. In the earliest sea-ballads known, about the time of Henry VI., it is thus growled at: —

“ For when that we shall go to bedde,
 The pompe was nygh our bedde’s head.
 A man were as good to be dede,
 As smell thereof the stynk.”

Bilge-water should be pumped out every watch, and a solution of ordinary sulphate of iron freely used daily in the bilges and limbers. Some experiments of my own upon the composition of bilge-water, which opportunity has not permitted me to confirm, lead me to state that it differs very decidedly in all its characteristics from the sea-water examined at the same time and in the same locality. It is of greater specific gravity, strongly alkaline, contains free ammonium and other alkaline sulphides, with some excess of the sulphates and chlorides. That there is also free ammonia and also albumenoid ammonia, is readily detected by Wanklyn’s process. MacDonald of Netley has figured an anguillula, and I have in my possession the photo-micrograph of a spirillum found in bilge-water by my friend Dr. George M. Sternberg, U.S.A. Now, according to Pasteur, the varieties of spirillum are classed amongst the most active agents of putrid fermentation: their presence, therefore, in bilge-water, may be considered evidence that it is the vehicle for substances which undergo such fermentations, and bilge-water must be placed in the list of putrescent fluids.

There is here an opportunity for an extended physical, chemical, and microscopic investigation; and especially is this desirable in regard to the temperatures of bilge-water and surrounding sea-water, when uninfluenced by other causes, as may be readily conceived of as existing in steamships when cruising within the tropics.

The warming of the passenger compartments of a vessel during an autumn or winter’s voyage, or at any time, is readily secured by the introduction of steam-heating coils on the decks so occupied, and supplied with steam from the boilers.

A word here concerning disinfectants. The British Merchant Shipping Act directs that chloralum be used whenever a disinfectant becomes necessary. Chloride of lime, as suggested in the statute, is efficient only from the chlorine evolved, and is, from that fact, apt to prove troublesome to the lungs of the passengers: besides, sprinkled on the decks, it increases the humidity.

The writer, from chemical reasons alone, prefers the use of the impure chlorides of zinc or iron as a disinfectant in the bilges.

Chloride of lime is, however, a useful addition in small quantities to the ordinary whitewash with which the sides and ceilings of passenger decks should be covered. As to the use of sulphurous acid, produced by burning sulphur in these apartments, the writer is of the opinion that the quantity of sulphur to be used for such purposes should be measured by the permanent acidity produced in the strongly alkaline bilge-water, after exposure for a time to the gas thus generated.

Baxter of London found that bacteria were destroyed in solutions rendered permanently acid by this gas. If the bilge-water has been removed, it is

suggested that a standard alkaline solution of either potassa or soda be made as the measure of the extent of the disinfection; the alkalinity of the solution being determined before and after exposure during a given time for the absorption of the gas, and its neutralizing the alkali, then titrated, and the alkalinity expressed in terms of normal solution of sulphuric acid required to saturate.

However, it is to cleanliness, dryness, ventilation, proper food, and the use of pure drinking-water, that the sanitary officer of every vessel should look for safety from nuisances and infection. Artificial disinfection cannot properly supply the place of the three essentials, — cleanliness, dryness, and ventilation.

SECTION IX.

The proposed statute also provides for the mustering of the passengers and the airing of bedding whenever the weather permits, and grants the use of sufficient space on the spar-deck for exercise. It is also provided that neither officers nor crew shall visit the apartments provided for the passengers, except by direction or permission of the master of the vessel, and then only for the purpose of performing some act of duty.

This part of the statute is meant for the protection of female emigrants, and needs no comment save unqualified indorsement.

It is also provided that nitro-glycerine, dynamite, or any other explosive material, nor vitriol or like acids, or gunpowder, save for ship's use, are to be carried, nor articles as cargo or ballast, which, by reason of the nature or quantity or mode of storage, are likely to endanger the lives or health of the passenger. Horses or cattle, or other animals, are not to be carried on decks below those on which passengers are berthed, nor in their apartments, nor in adjoining compartments. Animals may be carried, however, in iron vessels with water-tight bulkheads extending to the upper deck. These are wise provisions in the proposed law. Vessels laden with guano, poudrette, green hides, ballasted with street-sweepings, decaying porous rock, or coal-screenings, etc., are more or less dangerous to the health of the passengers and crew, as well as to the ports to which destined. A correct list, in duplicate, verified under the oath of the master, of all passengers, giving name, age, sex, nativity, and occupation, with the amount of baggage, intended destination or location, compartment occupied during the voyage, together with a record of the name, age, sex, and cause of death, in the event of such occurrence during the voyage, must be delivered to the collector of customs at the port of entry. In the event of the death from natural causes of every passenger over eight years of age, the master or consignee shall pay to the collector of customs, within twenty-four hours after entry, the sum of ten dollars. It would be well to have inserted a clause, that, in the event of the appearance of any contagious or infectious disease on board, notice of such occurrence should be made public at once, upon the arrival of the vessel at the port of destination, by competent authority, under a penalty for non-compliance with such a statute. It has come within my cognizance this year, that emigrants arriving at a

port on a vessel with small-pox on board have carried the disease to our inland cities, travelling over a thousand miles in railroad-cars during the period of incubation.

It is directed that an inspector or customs officer shall examine the vessel, and measure the compartments occupied by emigrants, the measurements to be as prescribed for determining the tonnage (see Appendix X.) ; and the number of passengers on the list furnished the collector is to be compared with these measurements. The inspector is to make to the collector or surveyor of the port a report, in which is to be stated the port of departure ; the time of sailing ; the length of the voyage ; the ventilation ; the number of passengers and their nativity ; the cubic space in compartments, with the number of berths and passengers in each space ; the kind and quantity of food furnished ; the age, sex, and disease, if any have died ; and, in case of any unusual sickness or mortality during the voyage, to report whether the same was caused by any neglect or violation of the provisions of the Act, or by want of proper care against disease by the master or owner ; and these reports are to be forwarded to the Secretary of the Treasury.¹ The provisions of the Act to apply to vessels leaving the United States for foreign ports, or ports on the Pacific. The various penalties imposed to be liens upon the vessel.²

The terms of this provision in the statute leave much to be desired. The inspection report should also contain condition of cooking apparatus ; quantity and quality of water-supply ; extent, location, and condition of hospitals ; location and condition of the water-closets ; the condition of the hold as to cleanliness ; the presence of decaying wood ; and the number of passengers in excess of the law, as well as the number of sick, on arrival and on the voyage, with their diseases.

This inspection should be made previous to sailing, at the port of departure, as well as at the end of the voyage, at the final port of entry. Bell says, "The only means for the prevention of disease on ships are a searching inspection, and consequent cleansing and disinfection, of all vessels at the port of departure, at all ports, at all seasons, before being allowed to take cargo or passengers on board. Of the absolute necessity for a thorough sanitary inspection and cleansing of vessels, there can be no question either from a commercial or sanitary stand-point. That a foul ship is a carrier of disease, is a sanitary axiom. All sanitarians are aware of the facts that cholera, small-pox, diphtheria, relapsing, typhus, and yellow fever have again and again been carried by filthy passenger vessels. The evidence almost amounts to a demonstration, that typhus (ship-fever, an ochletic disease) can originate *de novo* in an overcrowded passenger vessel ; and there is a daily increasing belief that yellow

¹ The form of report of such examination in use at the port of New York is appended. (See Appendix XI.)

² The consular regulations of the Department of State (1874) make it the duty of all consular officers to report to the department all violations by masters of vessels bound to any port of the United States, or any territory thereof, of the statute regulating the transportation of emigrants between Europe and the United States.

fever is a disease of ship origin. The establishment and maintenance, as well as support, of costly and expensive quarantines, rest solely upon filthy ships, — the carriers of pests. It is difficult, if not impossible, to disassociate from quarantine the idea of a foul ship. As to a sanitary inspection of the passengers, Woodworth has placed the correct estimate upon such examination in these words: ‘To wait until the potential or active germs of disease in the poorly fed, badly lodged, etiolated, anoxemiated, and generally demoralized emigrants actually arrive within the jurisdiction of the port, before enforcing preventive and preservative measures, is hardly the highest sanitary wisdom.’ To secure all that is required seems so plain, so evident, so easy and practical, the advantages so great, — and, if measured by commercial rather than sanitary standards, so valuable to the community, — that one stands in wonder, and questions the civilization of the century that fails to recognize the benefits to be obtained by the sanitary inspection of vessels, their cargoes, passengers, and crews.” A bill of health from the port of departure, such as that directed by law in accordance with the Act of June 2, 1879, should accompany each vessel. (See Appendix XII.)

Such bill of health, truthfully made out, is an official guide to the health officer of the port to which the vessel is destined. It does not for an instant relieve that officer from the responsibility which rests upon him of guarding the lives of his community from loathsome infection or contagion; but it gives him the facts upon which an intelligent opinion could be based in an event calling for his judgment upon the sanitary condition of the vessel, her cargo, passengers, and crew. I have remarked that these bills should be made out truthfully; for it is within my experience to know that clean bills of health have been given to foul ships. The usual addition to a bill of health, that the vessel clears in “free *pratique*,” is of no consequence at the present time. The sanitary history of the vessel, cargo, passengers, and crew, with the prevailing diseases of the port of departure when the vessel leaves, are all the facts necessary to be recorded upon such a document.

Vexatious detentions to passengers and cargoes occur because the antecedent sanitary history of a vessel is unknown at quarantine stations. Both in a sanitary and commercial point of view, it is cheaper to have a clean vessel than a foul one. Dr. S. O. Vanderpool has stated that the few clean vessels from Havana to New York never became infected with yellow fever, some even after twenty years’ service. The expenses incident to quarantine were thus saved to their owners.

It is suggested, that for every passenger over and above the number permitted to be carried by law, according to the cubic air-space of the passenger-carrying decks in the vessel, the owners shall forfeit to the commissioners of emigration of New York, or like boards or authorities at the port of entry, for the use and behoof of the duties imposed upon such authorities, the sum of one hundred dollars for each and every passenger above the complement allowed by law, such sum to be recovered in courts having jurisdiction, and that the same be a lien upon the vessel.

It may not be out of place here to notice the report of the Board of Commissioners of Emigration at New York for 1879. This board was called into existence in 1847 "for the care and protection of immigrant passengers;" and the present administration was organized in 1873. It had its origin in the desire to arrest the abuses, wrongs, and careless indifference which the emigrant met from the moment his footsteps turned westward.

Their report for 1879 is an exhibit of the humane work in which they are engaged; the simple story of a great good, managed quietly, and told unostentatiously.

The writer respectfully submits the following suggestive outline of a code, with a daily routine, which he considers will do much toward reducing to order the chaos that prevails in a crowded emigrant vessel:—

The emigrant to be inspected at the port of departure as to his physical cleanness and freedom from disease; the blind, insane, idiotic, infirm, and sick returned to the shore, as well as the maimed and lame, unless under restrictions that they will not become burdens to the community to which they are destined: the like inspection to take place upon landing at our own ports, and the above-mentioned persons returned to the ship.

The Hon. S. S. Cox, in the House of Representatives Dec. 2, 1879, has elaborated this matter in his bill to regulate emigration.

There should be to every one hundred male passengers a steerage steward, and to every fifty female passengers with children a steerage stewardess, whose duties should be to supervise the passengers and their apartments, and see that both are kept clean.

As soon after departure as possible, the emigrants should be grouped into messes of twenty, one of the twenty to act as mess-man under the direction of the steerage steward. The duty of the mess-man should be to look after the cleanliness of the mess-gear, the tables, pots, pans, etc.; to receive the cooked food from the galley, or cambouse; and to see the meals served.

The cooked food should be inspected before serving out by the officer of the watch, to see that it is properly cooked.

Call all passengers at 5.30 A.M., except women and children; serve out coffee and biscuit; and have the men bathe themselves on the spar-deck, weather permitting, and clear up the decks afterwards.

At 6.30 A.M., up all bedding, if the weather is favorable. Call the women and children, and have them wash and dress themselves. At 7 A.M., call all hands to breakfast. At 8 A.M., clean up, sweep down, cleanse berths; keep all hands on deck, except the sick and working-gangs. 9 A.M., serve out provisions. 10 A.M., mess-men to report to steerage stewards their decks, mess-gear, berths, etc., ready for inspection. At 10.30 A.M., an inspection to be made by the captain and medical officer. At 11 A.M., after inspection, spread mess-gear for dinner. 12 M., dinner. 1.30 P.M., clean up, sweep down, put away mess-gear. 2.30 P.M., down all bedding and make up berths. 4 P.M., prepare for supper. 5 P.M., supper. 6.30 P.M., clean up, sweep down, put away mess-gear. 8 P.M., pipe down, turn in, out all fires and lights, except

those in charge of the watch. No naked lights to be allowed, nor smoking between decks, nor friction matches of any kind whatever to be carried by emigrants.

On Saturdays let the emigrant wash his clothes, the clothes-lines to be rove on Friday evenings.

Some such method as this specified can be made, and a captain who cannot arrange some such routine is incompetent to take charge of a passenger vessel. The writer would have steamship companies mulct heavily for carrying passengers in excess of the law; or, failing to secure immunity from overcrowding by expensive suits at law, prohibit the landing of any passengers carried in excess of the limits established by our own statutes.

Steamship companies, under such a ruling, would soon cease this murderous custom.

There is a necessity for an *actual* inspection of the food-supply; of the water; of the apartments; of a complete and thorough sanitary inspection of the vessel at the port of departure and before the reception on board of the emigrant. Indeed, the sanitary care of a vessel should commence with the laying of her keel, removing, as the vessel progresses in building, all the *débris* that collects during the construction,—to see that all the permanently enclosed spaces, especially those between the ribs, are free from dirt, chips, sawdust, and all other kinds of refuse. Such sanitary care should never cease.

Although most of the emigrants to our shores are carried in vessels under foreign flags, and not directly amenable to our laws, yet it is within the province of the government, if not its duty, to provide for the health of its citizens; and, as these emigrants become the future citizens, it certainly has the right to demand that they shall be protected by legislation in life and health in their transit of the ocean to their homes in the New World.

The statement that the average emigrant is marked by a low degree in the social scale, which has been put forth as an excuse for much of the degradation heaped upon him in his transatlantic voyage, may be accepted as true; but the writer fails to see in such statement any warrant for such unsanitary surroundings about them as would disgrace a pig-sty. In the reports furnished Congress upon this subject, it is instructive to observe the uniform adherence to the laws of his fatherland or mother country concerning emigration which characterizes the English, German, and other writers. Viewing this matter commercially, each indorses the law of his native land as leaving nothing to be desired; each cites the great care taken of the emigrant at the port of departure, eulogizes the rigid scrutiny of the food-supply, the water allowance, the cooking, the air-space, the seaworthiness of the vessel, crew, etc.; each strenuously insisting that this inspection is made to see that the laws are complied with: and then, for comparison, to place the results of official inspection at the port of entry, where the emigrant is delivered to us,—the decaying, ill-cooked, and scanty allowance of food, insufficient and bad water-supply, careless indifference to the sick, gross insults to unprotected women, the overcrowding, dampness, bestial filthiness of the compartments, etc., exist-

ing in all alike. That this pen-picture is but faintly limned, I know ; but I can refer, for evidence of every statement made, to the returns to the House of Commons, 1876, concerning the health of crews of merchant vessels in the British mercantile marine, and to the appended extracts from papers, which can be multiplied indefinitely. (Appendix XIII.)

And yet these owners of large steamship lines, boasting of their superior accommodations and discipline, admitting the demonstrated facts of increased disease and death-rates, of the disease-producing effects of overcrowding, of all the violations of the law, etc., in their vessels, recognizing at the same time the preventive measures proposed by the sanitarian as efficient safeguards to the health of this mass of the population, with a sublimity than to which impudence can rise no higher, suggest a rise in the rates of fare for the emigrant in their floating stock-yards.

The execution of the existing statutes for the protection of the emigrant is a sorry travesty upon even a feeble enforcement: the laws stand on the statute-book ignored ; and, so long as they remain so, will they be bright and shining examples of ponderous wordiness, —

“ Full of sound and fury, signifying nothing.”

The remedy for all this is in the hands of the legislator. Enforce the law, or make a law that can be enforced. Prevent all landing on our shores of emigrants, rather than subject them to the present degradations of the steerage permitted by laws now in existence, which are no more regarded than the bleating of a sheep.

I have thus far presented cursorily to consideration from a sanitary standpoint all the actual and the proposed legislation concerning the emigrant up to the present time. The proposed bill is an improvement upon previous legislation ; but, to be effective, it must keep up with the advance of sanitary science. It is not abreast the requirements demanded by modern scientific sanitary research. In asking for this recognition of improved sanitary surroundings for the emigrant, there has been demanded nothing more than that which can be sustained by appeal to physiological, chemical, and sanitary laws.

The writer has also taken into careful consideration the emigration laws of other countries, in connection with our present and proposed legislation.

These laws differ materially, and in varying degrees from our own ; and he is of the opinion that the regulation of the whole matter comes within the jurisdiction of the country of which the emigrant proposes to become a permanent inhabitant. The right of expatriation is recognized by our statutes ; and the first “ casting loose ” from a foreign dock of the vessel in which the emigrant takes passage for the land of his adoption, renders such expatriation an accomplished fact. The differences, however, in these laws can only be settled by an international conference with those nations most interested ; but, as stated in the outset, these questions must be left to the discussion of the law-makers.

In concluding this sketch of the hygiene of emigrant vessels, it may be considered that the writer advocates measures that cannot be accomplished on ship-board ; that the securing of such sanitary surroundings are not feasible, and impracticable, besides being far beyond the requisites and expectations of the emigrant. Such an argument has been put forth more than once in the discussion of these matters. There is nothing at all impracticable in cleanliness, dryness, and ventilation, as opposed to filth, dampness, and foul air. There is no argument for overcrowding at the price paid for lives, save

“ The accursed greed of gain.”

The condition of the emigrant vessels arriving on our shores would be a disgrace to barbarism : how much more so are they to our sham enlightenment? In the struggle for existence we all know that sooner or later the weak “ goes to the wall ” according to the degree of his weakness ; but go he must in obedience to the action of inexorable law.

No other consideration but the regard he has for the profession to which he belongs makes the writer demand, for the weak and strong alike all that Nature so lavishly bestows, and he specializes this demand for the sailor and emigrant.

“ The slayer Death is everywhere, and many a mask hath he ;
Many and awful are the shapes in which he rules the sea.”

Enveloped at sea in the cleanest and purest air on deck, they should LIVE in the healthiest habitation below.

APPENDICES.

APPENDIX I.

AN ACT REGULATING PASSENGER SHIPS AND VESSELS.

Be it enacted, etc., That if the master or other person on board of any ship or vessel owned in the whole or in part by a citizen or citizens of the United States, or the territories thereof, or by a subject or subjects, citizen or citizens, of any foreign country, shall, after the first day of January next, take on board of such ship or vessel at any foreign port or place, or shall bring or convey into the United States, or the territories thereof, from any foreign port or place, or shall carry, convey, or transport from the United States, or the territories thereof, to any foreign port or place, a greater number of passengers than two for every five tons of such ship or vessel, according to custom-house measurement, every such master or other person so offending, and the owner or owners of such ship or vessel, shall severally forfeit and pay to the United States the sum of one hundred and fifty dollars for each and every passenger so taken on board of such ship or vessel over and above the aforesaid number of two to every five tons of such ship or vessel, to be recovered by suit in any circuit or district court of the United States where the said vessel may arrive, or where the owner or owners aforesaid may reside: *provided*, nevertheless, that nothing in this Act shall be taken to apply to the complement of men usually and ordinarily employed in navigating such ship or vessel.

SECT. 2. *And be it further enacted,* That if the number of passengers be so taken on board of any ship or vessel as aforesaid, or conveyed or brought into the United States or transported therefrom as aforesaid, shall exceed the said proportion of two to every five tons of such ship or vessel by the number of twenty passengers in the whole, every such ship or vessel shall be deemed and taken to be forfeited to the United States, and shall be prosecuted and distributed in the same manner in which the forfeitures and penalties are recovered and distributed under the provisions of the Act entitled "An Act to regulate the collection of duties on imports and tonnage."

SECT. 3. *And be it further enacted,* That every ship or vessel bound on a voyage from the United States to any port on the continent of Europe, at the time of leaving the last port whence such ship or vessel shall sail, shall have on board, well secured under deck, at least sixty gallons of water, one hundred pounds of salted provisions, one gallon of vinegar, and one hundred pounds of wholesome ship-bread for each and every passenger on board such ship or vessel, over and above such other provisions, stores, and live-stock as may be put on board by such master or passenger for their use, or that of the crew of such ship or vessel, and in like proportion for a shorter or longer voyage; and if the passengers on board of such ship or vessel in which the proportions of provisions herein directed shall not have been provided shall at any time be put on short

allowance, in water, flesh, vinegar, or bread, during any voyage aforesaid, the master or owner of such ship or vessel shall severally pay to each and every passenger who shall have been put on short allowance as aforesaid, the sum of three dollars for each and every day they may have been on such short allowance, to be recovered in the same manner as seamen's wages are or may be recovered.

SECT. 4. *And be it further enacted*, That the captain or master of any ship or vessel arriving in the United States, or any of the territories thereof, from any foreign place whatever, at the same time that he delivers a manifest of cargo, and, if there be no cargo, then at the time of making report or entry of the ship or vessel, pursuant to the existing laws of the United States, shall also deliver and report, to the collector of the district in which such ship or vessel shall arrive, a list or manifest of all the passengers taken on board of the ship or vessel at any foreign port or place; in which list or manifest it shall be the duty of the said master to designate particularly the age, sex, and occupation of said passengers respectively, the country to which they severally belong, and that of which it is their intention to become inhabitants; and shall further set forth whether any and what number have died on the voyage: which report and manifest shall be sworn to by said master in the same manner as is directed by the existing laws of the United States in relation to the manifest of cargo, and that the refusal or neglect of the master aforesaid to comply with the provisions of this section shall incur the same penalties, disabilities, and forfeitures as are at present provided for a refusal or neglect to report and deliver a manifest of the cargo aforesaid.

SECT. 5. *And be it further enacted*, That each and every collector of the customs, to whom such manifest or list of passengers as aforesaid shall be delivered, shall, quarter-yearly, return copies thereof to the Secretary of State of the United States, by whom statements of the same shall be laid before Congress at each and every session. [*Approved March 2, 1819.*]

APPENDIX II.

AN ACT TO REGULATE THE CARRIAGE OF PASSENGERS IN MERCHANT VESSELS.

Be it enacted, etc., That if the master of any vessel, owned in whole or in part by a citizen of the United States of America, or by a citizen of any foreign country, shall take on board such vessel, at any foreign port or place, a greater number of passengers than in the following proportion to the space occupied by them and appropriated for their use, and unoccupied by stores or other goods, not being the personal luggage of such passengers, that is to say, on the lower deck or platform one passenger for every fourteen clear superficial feet of deck, if such vessel is not to pass within the tropics during such voyage; but, if such vessel is to pass within the tropics during such voyage, then one passenger for every twenty such clear superficial feet of deck, and on the orlop deck (if any) one passenger for every thirty such superficial feet in all cases, with intent to bring such passengers to the United States of America, and shall leave such port or place with the same, and bring the same, or any number thereof, within the jurisdiction of the United States aforesaid; or if any such master of a vessel shall take on board of his vessel at any port or place within the jurisdiction of the United States aforesaid any greater number of passengers than the proportions aforesaid admit, with intent to carry the same to any foreign port or place, every such master shall be deemed guilty of a misdemeanor, and, upon conviction thereof before any circuit or district

court of the United States aforesaid, shall, for each passenger taken on board beyond the above proportions, be fined in the sum of fifty dollars, and may also be imprisoned for any term not exceeding one year: *provided*, that this Act shall not be construed to permit any ship or vessel to carry more than two passengers to five tons of such ship or vessel.

SECT. 2. *And be it further enacted*, That if the passengers so taken on board of such vessel, and brought into or transported from the United States aforesaid, shall exceed the number limited by the last section to the number of twenty in the whole, such vessel shall be forfeited to the United States aforesaid, and be prosecuted and distributed as forfeitures are, under the Act to regulate duties on imports and tonnage.

SECT. 3. *And be it further enacted*, That if any such vessel as aforesaid shall have more than two tiers of berths, or in case in such vessel the interval between the floor and the deck or platform beneath shall not be at least six inches, and the berths well constructed, or in case the dimensions of such berths shall not be at least six feet in length and at least eighteen inches in width, for each passenger as aforesaid, then the master of said vessel and the owners thereof, severally, shall forfeit and pay the sum of five dollars for each and every passenger on board of said vessel on such voyage, to be recovered by the United States as aforesaid in any circuit or district court of the United States where such vessel may arrive, or from which she sails.

SECT. 4. *And be it further enacted*, That, for the purposes of this Act, it shall in all cases be computed that two children, each being under the age of eight years, shall be equal to one passenger, and that children under the age of one year shall not be included in the computation of the number of passengers.

SECT. 5. *And be it further enacted*, That the amount of the several penalties imposed by this Act shall be liens on the vessel or vessels violating its provisions; and such vessel may be libelled and sold therefor in the district court of the United States aforesaid in which such vessel shall arrive. [*Approved Feb. 22, 1847.*]

APPENDIX III.

AN ACT TO AMEND AN ACT ENTITLED "AN ACT TO REGULATE THE CARRIAGE OF PASSENGERS IN MERCHANT VESSELS," AND TO DETERMINE THE TIME WHEN SAID ACT SHALL TAKE EFFECT.

Be it enacted, etc., That the Act to regulate the carriage of passengers in merchant vessels, approved the twenty-second day of February, eighteen hundred and forty-seven, shall, in regard to all vessels arriving from ports on this side of the capes of Good Hope and Horn, take effect and be in force from and after the thirty-first day of May next ensuing, and, in regard to all vessels arriving from places beyond said capes, on and after the thirtieth day of October next ensuing.

SECT. 2. *And be it further enacted*, That so much of said Act as authorizes shippers to estimate two children of eight years of age and under as one passenger, in the assignment of room, is hereby repealed. [*Approved March 2, 1847.*]

APPENDIX IV.

AN ACT TO PROVIDE FOR THE VENTILATION OF PASSENGER VESSELS, AND FOR OTHER PURPOSES.

Be it enacted, etc., That all vessels, whether of the United States or any other country, having sufficient capacity, according to law, for fifty or more passengers (other than cabin passengers), shall, when employed in transporting such passengers between the United States and Europe, have on the upper deck, for the use of such passengers, a house over the passage-way leading to the apartment allotted to such passengers below deck, firmly secured to the deck or coamings of the hatch, with two doors, the sills of which shall be at least one foot above the deck, so constructed that one door or window in such house may at all times be left open for ventilation; and all vessels so employed, and having the capacity to carry one hundred and fifty such passengers, or more, shall have two such houses, and the stairs or ladder leading down to the aforesaid apartment shall be furnished with a hand-rail of wood or strong rope: *provided*, nevertheless, booby-hatches may be substituted for such houses in vessels having three permanent decks.

SECT. 2. *And be it further enacted*, That every such vessel so employed, and having the legal capacity for more than one hundred such passengers, shall have at least two ventilators to purify the apartment or apartments occupied by such passengers, one of which shall be inserted in the after part of the apartment or apartments, and the other shall be placed in the forward portion of the apartment or apartments; and one of them shall have an exhausting-cap to carry off the foul air, and the other a receiving-cap to carry down the fresh air; which said ventilators shall have a capacity proportioned to the size of the apartment or apartments to be purified; namely, if the apartment or apartments will lawfully authorize the reception of two hundred such passengers, the capacity of such ventilators shall, each of them, be equal to a tube of twelve inches diameter in the clear, and in proportion for larger or smaller apartments; and all said ventilators shall rise at least four feet and six inches above the upper deck of any such vessel, and be of the most approved form and construction: *provided*, that if it shall appear, from the report to be made and approved, as provided in the seventh section of this Act, that such vessel is equally well ventilated by any other means, such other means of ventilation shall be deemed, and held to be, a compliance with the provisions of this section.

SECT. 3. *And be it further enacted*, That every vessel carrying more than fifty such passengers shall have for their use on deck, housed and conveniently arranged, at least one camboose or cooking-range, the dimensions of which shall be equal to four feet long and one foot six inches wide for every two hundred passengers; and provision shall be made in the manner aforesaid in this ratio for a greater or less number of passengers: *provided*, however, and nothing herein contained shall take away the right to make such arrangements for cooking between decks, if that shall be deemed desirable.

SECT. 4. *And be it further enacted*, That all vessels employed as aforesaid shall have on board, for the use of such passengers, at the time of leaving the last port whence such vessel shall sail, well secured under deck, for each passenger, at least fifteen pounds of good navy bread, ten pounds of rice, ten pounds of oatmeal, ten pounds of wheat-flour, ten pounds of peas and beans, thirty-five pounds

of potatoes, one pint of vinegar, sixty gallons of fresh water, ten pounds of salted pork, free of bone, all to be of good quality, and a sufficient supply of fuel for cooking; but at places where either rice, oatmeal, wheat-flour, or peas and beans cannot be procured of good quality and on reasonable terms, the quantity of either or any of the other last-named articles may be increased and substituted therefor; and, in case potatoes cannot be procured on reasonable terms, one pound of either of said articles may be substituted in lieu of five pounds of potatoes: and the captains of such vessels shall deliver to each passenger at least one-tenth part of the aforesaid provisions weekly, commencing on the day of sailing, and daily at least three quarts of water, and sufficient fuel for cooking; and if the passengers on board of any such vessel in which the provisions, fuel, and water herein required shall not have been provided as aforesaid, shall at any time be put on short allowance during any voyage, the master or owner of any such vessels shall pay to each and every passenger who shall have been put on short allowance the sum of three dollars for each and every day they may have been on such short allowance, to be recovered in the circuit or district court of the United States: *provided*, nevertheless, and nothing herein contained shall prevent any passenger, with the consent of the captain, from furnishing for himself the articles of food herein specified; and, if put on board in good order, it shall fully satisfy the provisions of this Act so far as regards food: *and provided further*, that any passenger may also, with the consent of the captain, furnish an equivalent for the articles of food required, in other and different articles; and if, without waste or neglect on the part of the passenger, or inevitable accident, they prove insufficient, and the captain shall furnish comfortable food to such passengers during the residue of the voyage, this in regard to food shall also be a compliance with the terms of this Act.

SECT. 5. *And be it further enacted*, That the captain of any such vessel so employed is hereby authorized to maintain good discipline and such habits of cleanliness among such passengers as will tend to the preservation and promotion of health; and to that end, he shall cause such regulations as he may adopt for this purpose to be posted up before sailing, on board such vessel, in a place accessible to such passengers, and shall keep the same so posted up during the voyage: and it is hereby made the duty of said captain to cause the apartment occupied by such passengers to be kept at all times in a clean, healthy state; and the owners of every such vessel so employed are required to construct the decks, and all parts of said apartment, so that it can be thoroughly cleansed; and they shall also provide a safe, convenient privy or water-closet for the exclusive use of every one hundred such passengers. And when the weather is such that said passengers cannot be mustered on deck with their bedding, it shall be the duty of the captain of every such vessel to cause the deck occupied by such passengers to be cleaned with chloride of lime, or some other equally efficient disinfecting agent, and also at such other times as said captain may deem necessary.

SECT. 6. *And be it further enacted*, That the master and owner or owners of any such vessel so employed, which shall not be provided with the house or houses over the passage-ways, as prescribed in the first section of this Act; or with the ventilators, as prescribed in the second section of this Act; or with the cambooses or cooking-ranges, with the houses over them, as prescribed in the third section of this Act; shall severally forfeit and pay to the United States the sum of two hundred dollars for each and every violation of or neglect to conform to the provisions of each of said sections, and fifty dollars for each and every neglect or

violation of any of the provisions of the fifth section of this Act; to be recovered by suit in any circuit or district court of the United States, within the jurisdiction of which the said vessel may arrive, or from which it may be about to depart, or at any place within the jurisdiction of such courts, wherever the owner or owners or captain of such vessel may be found.

SECT. 7. *And be it further enacted*, That the collector of the customs at any port in the United States at which any vessel so employed shall arrive, or from which any such vessel shall be about to depart, shall appoint and direct one of the inspectors of the customs for such port to examine such vessel, and to report in writing to such collector, whether the provisions of the first, second, third, and fifth sections of this Act have been complied with in respect to such vessel; and if such report shall state such compliance and be approved by such collector, it shall be deemed and held as conclusive evidence thereof.

SECT. 8. *And be it further enacted*, That the first section of the Act entitled "An Act to regulate the carriage of passengers in merchant vessels," approved February twenty-two, eighteen hundred and forty-seven, be so amended that when the height or distance between the decks of the vessels referred to in the said section shall be less than six feet, and not less than five feet, there shall be allowed to each passenger sixteen clear superficial feet on the deck, instead of fourteen, as prescribed in said section; and if the height or distance between the decks shall be less than five feet, there shall be allowed to each passenger twenty-two clear superficial feet on the deck; and if the master of any such vessel shall take on board his vessel, in any port of the United States, a greater number of passengers than is allowed by this section, with the intent specified in said first section of the Act of eighteen hundred and forty-seven, or if the master of any such vessel shall take on board at a foreign port, and bring within the jurisdiction of the United States, a greater number of passengers than is allowed by this section, said master shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be punished in the manner provided for the punishment of persons convicted of a violation of the Act aforesaid; and in computing the number of passengers on board such vessels, all children under the age of one year at the time of embarkation shall be excluded from such computation.

SECT. 9. *And be it further enacted*, That this Act shall take effect in respect to such vessels sailing from ports in the United States in thirty days from the time of its approval; and, in respect to every such vessel sailing from ports in Europe, in sixty days after such approval; and it is hereby made the duty of the Secretary of State to give notice in the ports of Europe of this Act in such manner as he may deem proper.

SECT. 10. *And be it further enacted*, That so much of the first section of the Act entitled "An Act regulating passenger ships and vessels," approved March two, eighteen hundred and nineteen, or any other Act that limits the number of passengers to two for every five tons, is hereby repealed. [*Approved May 17, 1848.*]

APPENDIX V.

AN ACT TO EXTEND THE PROVISIONS OF ALL LAWS NOW IN FORCE RELATING TO THE CARRIAGE OF PASSENGERS IN MERCHANT VESSELS, AND THE REGULATION THEREOF.

Be it enacted, etc., That all vessels bound from any port in the United States to any port or place in the Pacific Ocean, or on its tributaries, or from any such port

or place to any port or place in the United States on the Atlantic, or its tributaries, shall be subject to the provisions of all the laws now in force relating to the carriage of passengers in merchant vessels sailing to and from foreign countries, and the regulation thereof; except the fourth section of the "Act to provide for the ventilation of passenger vessels, and for other purposes," approved May seventeen, eighteen hundred and forty-eight, relating to provisions, water, and fuel; but owners and masters of all such vessels shall, in all cases, furnish to each passenger the daily supply of water therein mentioned, and they shall furnish, or cause the passengers to furnish for themselves, a sufficient supply of good and wholesome food; and in case they shall fail so to do, or shall provide unwholesome or unsuitable provisions, they shall be subject to the penalty provided in said fourth section, in case the passengers are put on short allowance of water or provisions.

SECT. 2. *And be it further enacted*, That the Act entitled "An Act to regulate the carriage of passengers in merchant vessels," approved February twenty-two, eighteen hundred and forty-seven, shall be so amended as that a vessel passing into or through the tropics shall be allowed to carry the same number of passengers as vessels that do not enter the tropics.

SECT. 3. *And be it further enacted*, That this Act shall take effect on and after the fifteenth day of March, eighteen hundred and forty-nine. [*Approved March 3, 1849.*]

APPENDIX VI.

AN ACT TO REGULATE THE CARRIAGE OF PASSENGERS IN STEAMSHIPS AND OTHER VESSELS.

Be it enacted, etc., That no master of any vessel owned in whole or in part by a citizen of the United States, or by a citizen of any foreign country, shall take on board such vessel, at any foreign port or place, other than foreign contiguous territory of the United States, a greater number of passengers than in the proportion of one to every two tons of such vessel, not including children under the age of one year in the computation, and computing two children over one and under eight years of age as one passenger. That the spaces appropriated for the use of such passengers, and which shall not be occupied by stores or other goods, nor the personal baggage of such passengers, shall be in the following proportions: viz., on the main and poop decks or platforms, and in the deck-houses, if there be any, one passenger for each sixteen clear superficial feet of deck, if the height or distance between the decks or platform shall not be less than six feet; and on the lower deck (not being any orlop deck), if any, one passenger for eighteen such clear superficial feet, if the height or distance between the decks or platforms shall not be less than six feet; but so as that no passenger shall be carried on any other deck or platform, nor upon any deck where the height or distance between decks is less than six feet, with intent to bring such passenger to the United States, and shall leave such port or place and bring the same, or any number thereof, within the jurisdiction of the United States; or if any such master of any vessel shall take on board his vessel, at any port or place within the jurisdiction of the United States, any greater number of passengers than in the proportion aforesaid, to the space aforesaid, or to the tonnage aforesaid, with intent to carry the same to any foreign port or place other than foreign contiguous territory as aforesaid, every such master shall be deemed guilty of a mis-

demeanor, and, upon conviction thereof, before any circuit or district court of the United States, shall, for each passenger taken on board beyond the limit aforesaid, or the space aforesaid, be fined in the sum of fifty dollars, and may also be imprisoned, at the discretion of the judge before whom the penalty shall be recovered, not exceeding six months; but should it be necessary, for the safety or convenience of the vessel, that any portion of her cargo, or any other articles or article, should be placed on or stored in any of the decks, cabins, or other places appropriated to the use of passengers, the same may be placed in lockers or enclosures prepared for the purpose on an exterior surface impervious to the wave, capable of being cleansed in like manner as the decks or platforms of the vessel. In no case, however, shall the places thus provided be deemed to be a part of the space allowable for the use of passengers, but the same shall be deducted therefrom; and in all cases where prepared or used, the upper surface of said lockers or enclosed spaces shall be deemed and taken to be the deck or platform from which measurement shall be made for all the purposes of this Act. It is also provided, that one hospital in the spaces appropriated to passengers, and separate therefrom by an appropriate partition, and furnished as its purposes require, may be prepared, and, when used, may be included in the space allowable for passengers; but the same shall not occupy more than one hundred superficial feet of deck or platform: *provided*, that on board two-deck ships, where the height between the decks is seven and one-half feet or more, fourteen clear superficial feet of deck shall be the proportion required for each passenger.

SECT. 2. *And be it further enacted*, That no such vessel shall have more than two tiers of berths, and the interval between the lowest part thereof, and the deck or platform beneath, shall not be less than nine inches; and the berths shall be well constructed, parallel with the sides of the vessel, and separated from each other by partitions, as berths ordinarily are separated, and shall be at least six feet in length, and at least two feet in width, and each berth shall be occupied by no more than one passenger; but double berths of twice the above width may be constructed, each berth to be occupied by no more, and by no other, than two women, or by one woman and two children under the age of eight years, or by husband and wife, or by a man and two of his own children under the age of eight years, or by two men, members of the same family: and if there shall be any violation of this section in any of its provisions, then the master of the vessel and the owners thereof shall severally forfeit and pay the sum of five dollars for each passenger on board of said vessel on such voyage, to be recovered by the United States in any port where such vessel may arrive or depart.

SECT. 3. *And be it further enacted*, That all vessels, whether of the United States or any foreign country, having sufficient capacity or space, according to law, for fifty or more passengers (other than cabin passengers), shall, when employed in transporting such passengers between the United States and Europe, have, on the upper deck, for the use of such passengers, a house over the passage-way leading to the apartments allotted to such passages below deck, firmly secured to the deck or coamings of the hatch, with two doors, the sills of which shall be at least one foot above the deck, so constructed that one door or window in such house may at all times be left open for ventilation; and all vessels so employed, and having the capacity to carry one hundred and fifty such passengers or more, shall have two such houses; and the stairs or ladder, leading down to the aforesaid apartment, shall be furnished with a hand-rail of wood or strong rope; but booby-hatches may be substituted for such houses.

SECT. 4. *And be it further enacted,* That every such vessel so employed, and having the legal capacity for more than one hundred such passengers, shall have at least two ventilators to purify the apartment or apartments occupied by such passengers, one of which shall be inserted in the after part of the apartment or apartments, and the other shall be placed in the forward portion of the apartment or apartments; and one of them shall have an exhausting-cap to carry off the foul air, and the other a receiving-cap to carry down the fresh air; which said ventilators shall have a capacity proportioned to the size of the apartment or apartments to be purified; namely, if the apartment or apartments will lawfully authorize the reception of two hundred such passengers, the capacity of such ventilators shall be equal to a tube of twelve inches diameter in the clear, and in proportion for larger or smaller apartments; and all said ventilators shall rise at least four feet six inches above the upper deck of any such vessel, and be of the most approved form and construction; but if it shall appear, from the report, to be made and approved, as hereinafter provided, that such vessel is equally well ventilated by any other means, such other means of ventilation shall be deemed and held to be a compliance with the provisions of this section.

SECT. 5. *And be it further enacted,* That every vessel carrying more than fifty such passengers shall have for their use on deck, housed and conveniently arranged, at least one camboose or cooking-range, the dimensions of which shall be equal to four feet long and one foot six inches wide for every two hundred passengers; and provision shall be made in the manner aforesaid, in this ratio, for a greater or less number of passengers; but nothing herein contained shall take away the right to make such arrangements for cooking between decks, if that shall be deemed desirable.

SECT. 6. *And be it further enacted,* That all vessels employed as aforesaid shall have on board, for the use of such passengers, at the time of leaving the last port whence such vessel shall sail, well secured under deck, for each passenger, at least twenty pounds of good navy bread, fifteen pounds of rice, fifteen pounds of oatmeal, ten pounds of wheat-flour, fifteen pounds of peas and beans, twenty pounds of potatoes, one pint of vinegar, sixty gallons of fresh water, ten pounds of salted pork, and ten pounds of salt beef, free of bone, all to be of good quality; but at places where either rice, oatmeal, wheat-flour, or peas and beans cannot be procured, of good quality and on reasonable terms, the quantity of either or any of the other last-named articles may be increased and substituted therefor; and, in case potatoes cannot be procured on reasonable terms, one pound of either of said articles may be substituted in lieu of five pounds of potatoes; and the captains of such vessels shall deliver to each passenger at least one-tenth part of the aforesaid provisions weekly, commencing on the day of sailing, and at least three quarts of water daily; and if the passengers on board of any such vessel in which the provisions and water herein required shall not have been provided as aforesaid, shall, at any time, be put on short allowance during any voyage, the master or owner of any such vessel shall pay to each and every passenger who shall have been put on short allowance, the sum of three dollars for each and every day they may have been put on short allowance, to be recovered in the circuit or district court of the United States; and it shall be the duty of the captain or master of every such ship or vessel to cause the food and provisions of all the passengers to be well and properly cooked daily, and to be served out and distributed to them at regular and stated hours, by messes, or in such other manner as shall be deemed best and most conducive to the health and comfort of such passengers, of which

hours and manner of distribution due and sufficient notice shall be given. If the captain or master of any such ship or vessel shall wilfully fail to furnish and distribute such provisions, cooked as aforesaid, he shall be deemed guilty of a misdemeanor, and, upon conviction thereof before any circuit or district court of the United States, shall be fined not more than one thousand dollars, and shall be imprisoned for a term not exceeding one year: *provided*, that the enforcement of this penalty shall not affect the civil responsibility of the captain or master and owners, to such passenger as may have suffered from said default.

SECT. 7. *And be it further enacted*, That the captain of any such vessel so employed is hereby authorized to maintain good discipline and such habits of cleanliness among such passengers as will tend to the preservation and promotion of health; and to that end he shall cause such regulations as he may adopt for this purpose to be posted up, before sailing, on board such vessel, in a place accessible to such passengers, and shall keep the same so posted up during the voyage; and it is hereby made the duty of said captain to cause the apartments occupied by such passengers to be kept at all times in a clean, healthy state; and the owners of every such vessel so employed are required to construct the decks and all parts of said apartment so that it can be thoroughly cleansed; and they shall also provide a safe, convenient privy or water-closet for the exclusive use of every one hundred such passengers. And when the weather is such that said passengers cannot be mustered on deck with their bedding, it shall be the duty of the captain of every such vessel to cause the deck, occupied by such passengers, to be cleansed with chloride of lime, or some other equally efficient disinfecting agent, and also at such other times as said captain may deem necessary.

SECT. 8. *And be it further enacted*, That the master and owner or owners of any such vessel so employed, which shall not be provided with the house or houses over the passage-ways as prescribed in the third section of this chapter, or with ventilators as prescribed in the fourth section of this chapter, or with cambooses or cooking-ranges, with the houses over them, as prescribed in the fifth section of this chapter, shall severally forfeit and pay to the United States the sum of two hundred dollars for each and every violation of, or neglect to conform to, the provisions of each of said sections, and fifty dollars for each and every neglect or violation of any of the provisions of the seventh section of this chapter, to be recovered by suit in any circuit or district court of the United States within the jurisdiction of which the said vessel may arrive, or from which she may be about to depart, or at any place within the jurisdiction of such courts, wherever the owner or owners, or captain of such vessel may be found.

SECT. 9. *And be it further enacted*, That the collector of customs at any port of the United States at which any vessel so employed shall arrive, or from which any such vessel shall be about to depart, shall appoint and direct one or more of the inspectors of the customs for such port to examine such vessel, and report in writing to such collector whether the requirements of law have been complied with in respect to such vessel; and if such report shall state such compliance, and shall be approved by such collector, it shall be deemed and held as *prima facie* evidence thereof.

SECT. 10. *And be it further enacted*, That the provisions, requisitions, penalties, and liens of this Act, relating to the space in vessels appropriated to the use of passengers, are hereby extended and made applicable to all spaces appropriated to the use of steerage passengers in vessels propelled in whole or in part by steam, and navigating from, to, and between the ports, and in manner as in this Act

named, and to such vessels and to the masters thereof; and so much of the Act entitled "An Act to amend an Act entitled 'An Act to provide for the better security of the lives of passengers on board of vessels propelled in whole or in part by steam, and for other purposes,' approved August thirty, eighteen hundred and fifty-two," as conflicts with this Act, is hereby repealed; and the space appropriated to the use of steerage passengers in vessels so as above propelled and navigated, is hereby subject to the supervision and inspection of the collector of the customs at any port of the United States at which any such vessel shall arrive, or from which she shall be about to depart; and the same shall be examined and reported in the same manner and by the same officers by the next preceding section directed to examine and report.

SECT. 11. *And be it further enacted*, That the vessels bound from any port in the United States to any port or place in the Pacific Ocean, or on its tributaries, or from any such port or place to any port in the United States on the Atlantic or its tributaries, shall be subject to the foregoing provisions regulating the carriage of passengers in merchant vessels, except so much as relates to provisions and water; but the owners and masters of all such vessels shall in all cases furnish to each passenger the daily supply of water therein mentioned, and they shall furnish a sufficient supply of good and wholesome food, properly cooked; and in case they shall fail so to do, or shall provide unwholesome or unsuitable provisions, they shall be subject to the penalty provided in the sixth section of this chapter, in case the passengers are put on short allowance of water or provisions.

SECT. 12. *And be it further enacted*, That the captain or master of any ship or vessel arriving in the United States, or any of the territories thereof, from any foreign place whatever, at the same time that he delivers a manifest of the cargo, and if there be no cargo, then at the time of making report or entry of the ship or vessel, pursuant to law, shall also deliver and report to the collector of the district in which such ship or vessel shall arrive a list or manifest of all the passengers taken on board of the said ship or vessel at any foreign port or place; in which list or manifest it shall be the duty of the said master to designate particularly the age, sex, and occupation of the said passengers respectively, the part of the vessel occupied by each during the voyage, the country to which they severally belong, and that of which it is their intention to become inhabitants; and shall further set forth whether any and what number have died on the voyage; which list or manifest shall be sworn to by the said master, in the same manner as directed by law in relation to the manifest of the cargo; and the refusal or neglect of the master aforesaid to comply with the provisions of this section, or any part thereof, shall incur the same penalties, disabilities, and forfeitures as are provided for a refusal or neglect to report and deliver a manifest of the cargo aforesaid.

SECT. 13. *And be it further enacted*, That each and every collector of the customs to whom such manifest or list of passengers as aforesaid shall be delivered shall quarter-yearly return copies thereof to the Secretary of State of the United States, by whom statements of the same shall be laid before Congress at each and every session.

SECT. 14. *And be it further enacted*, That in case there shall have occurred on board any ship or vessel arriving at any port or place within the United States or its territories any death or deaths among the passengers (other than cabin passengers), the master or captain or owner or consignee of such ship or vessel shall, within twenty-four hours after the time within which the report and list or manifest of passengers mentioned in section twelve of this Act is required to be delivered

to the collector of the customs, pay to the said collector the sum of ten dollars for each and every passenger above the age of eight years who shall have died on the voyage by natural disease; and the said collector shall pay the money thus received, at such times and in such manner as the Secretary of the Treasury, by general rules, shall direct, to any board or commission appointed by and acting under the authority of the State within which the port where such ship or vessel arrived is situated, for the care and protection of sick, indigent, or destitute emigrants, to be applied to the objects of their appointment; and if there be more than one board or commission who shall claim such payment, the Secretary of the Treasury for the time being shall determine which is entitled to receive the same, and his decision in the premises shall be final and without appeal: *provided*, that the payment shall, in no case, be awarded or made to any board or commission or association formed for the protection or advancement of any particular class of emigrants, or emigrants of any particular nation or creed; and if the master, captain, owner, or consignee of any ship or vessel refuse or neglect to pay to the collector the sum and sums of money required, and within the time prescribed by this section, he or they shall severally forfeit and pay the sum of fifty dollars, in addition to such sum of ten dollars, for each and every passenger upon whose death the same has become payable, to be recovered by the United States in any circuit or district court of the United States where such vessel may arrive, or such master, captain, owner, or consignee may reside; and, when recovered, the said money shall be disposed of in the same manner as is directed with respect to the sum and sums required to be paid to the collector of customs.

SECT. 15. *And be it further enacted*, That the amount of the several penalties imposed by the foregoing provisions regulating the carriage of passengers in merchant vessels shall be liens on the vessel or vessels violating these provisions, and such vessel or vessels shall be libelled therefor in any circuit or district court of the United States where such vessel or vessels shall arrive.

SECT. 16. *And be it further enacted*, That all and every vessel or vessels which shall or may be employed by the American Colonization Society, or the colonization society of any State, to transport, and which shall actually transport, from any port or ports of the United States to any colony or colonies on the west coast of Africa, colored emigrants, to reside there, shall be, and the same are hereby, subjected to the operation of the foregoing provisions regulating the carriage of passengers in merchant vessels.

SECT. 17. *And be it further enacted*, That the collector of the customs shall examine each emigrant ship or vessel on its arrival at his port, and ascertain and report to the Secretary of the Treasury the time of sailing, the length of the voyage, the ventilation, the number of passengers, their space on board, their food, the native country of the emigrants, the number of deaths, the age and sex of those who died on the voyage, together with his opinion of the cause of the mortality, if any, on board, and, if none, what precautionary measures, arrangements, or habits are supposed to have had any, and what, agency, in causing the exemption.

SECT. 18. *And be it further enacted*, That this Act shall take effect, with respect to vessels sailing from ports in the United States on the eastern side of the continent, within thirty days from the time of its approval; and with respect to vessels sailing from ports in the United States on the western side of the continent, and from ports in Europe, within sixty days from the time of its approval; and with respect to vessels sailing from ports in other parts of the world, within six months from the time of its approval. And it is hereby made the duty of the

Secretary of State to give notice in the ports of Europe, and elsewhere, of this Act, in such manner as he shall deem proper.

SECT. 19. *And be it further enacted,* That from and after the time that this Act shall take effect with respect to any vessels, then, in respect to such vessels, the Act of second March, eighteen hundred and nineteen, entitled "An Act regulating passenger ships and vessels;" the Act of twenty-second February, eighteen hundred and forty-seven, entitled "An Act to regulate the carriage of passengers in merchant vessels;" the Act of second March, eighteen hundred and forty-seven, entitled "An Act to amend an Act entitled 'An Act to regulate the carriage of passengers in merchant vessels,' and to determine the time when said Act shall take effect;" the Act of thirty-first January, eighteen hundred and forty-eight, entitled "An Act exempting vessels, employed by the American Colonization Society in transporting colored emigrants from the United States to the coast of Africa, from the provisions of the Acts of the twenty-second February and second of March, eighteen hundred and forty-seven, regulating the carriage of passengers in merchant vessels;" the Act of seventeenth May, eighteen hundred and forty-eight, entitled "An Act to provide for the ventilation of passenger vessels, and for other purposes;" and the Act of third March, eighteen hundred and forty-nine, entitled "An Act to extend the provisions of all laws now in force relating to the carriage of passengers in merchant vessels, and the regulation thereof,"—are hereby repealed. But nothing in this Act contained shall in any wise obstruct or prevent the prosecution, recovery, distribution, or remission of any fines, penalties, or forfeitures, which may have been incurred in respect to any vessels prior to the day this Act goes into effect, in respect to such vessels, under the laws hereby repealed, for which purpose the said laws shall continue in force. But the Secretary of the Treasury may, in his discretion, and upon such conditions as he shall think proper, discontinue any such prosecutions, or remit or modify such penalties. [*Approved March 3, 1855.*]

APPENDIX VII.

AN ACT TO AMEND THE ACT ENTITLED "AN ACT TO REGULATE THE CARRIAGE OF PASSENGERS IN STEAMSHIPS AND OTHER VESSELS," APPROVED MARCH THREE, EIGHTEEN HUNDRED AND FIFTY-FIVE.

Be it enacted, etc., That the thirteenth section of the Act entitled "An Act to regulate the carriage of passengers in steamships and other vessels," approved March three, eighteen hundred and fifty-five, be, and the same is, hereby repealed; and that hereafter each and every collector of customs to whom shall be delivered the manifests or lists of passengers prescribed by the twelfth section of the Act aforesaid, approved March three, eighteen hundred and fifty-five, shall make returns from such manifests or lists of passengers to the Secretary of the Treasury of the United States, in such manner as shall be prescribed by that officer, under whose direction statements of the same shall be prepared and published. [*Approved May 7, 1874.*]

APPENDIX VIII.

AN ACT TO AMEND AN ACT ENTITLED "AN ACT TO REGULATE THE CARRIAGE OF PASSENGERS IN STEAMSHIPS AND OTHER VESSELS," APPROVED MARCH THREE, EIGHTEEN HUNDRED AND FIFTY-FIVE, FOR THE BETTER PROTECTION OF FEMALE PASSENGERS, AND OTHER PURPOSES.

Be it enacted, etc., That every master or other officer, seaman, or other person employed on board of any ship or vessel of the United States who shall, during the voyage of such ship or vessel, under promise of marriage, or by threats, or by the exercise of his authority, or by solicitation, or the making of gifts or presents, seduce and have illicit connection with any female passenger, shall be guilty of a misdemeanor, and, upon conviction, shall be punished by imprisonment for a term not exceeding twelve months, or by a fine not exceeding one thousand dollars: *provided*, that the subsequent intermarriage of the parties seducing and seduced may be pleaded in bar of a conviction.

SECT. 2. *And be it further enacted*, That neither the officers, seamen, or other persons employed on board of any ship or vessel bringing emigrant passengers to the United States, or any of them, shall visit or frequent any part of such ship or vessel assigned to emigrant passengers, except by the direction or permission of the master or commander of such ship or vessel, first made or given for such purpose; and every officer, seaman, or other person employed on board of such ship or vessel who shall violate the provisions of this section shall be deemed guilty of a misdemeanor, and, on conviction thereof, shall forfeit to the said ship or vessel his wages for the voyage of the said ship or vessel during which the said offence has been committed. Any master or commander who shall direct or permit any officer or seaman or other person employed on board of such ship or vessel to visit or frequent any part of said ship or vessel assigned to emigrant passengers, except for the purpose of doing or performing some necessary act or duty as an officer, seaman, or person employed on board of said ship or vessel, shall be deemed guilty of a misdemeanor, and shall, on conviction thereof, be punished by a fine of fifty dollars for each occasion on which he shall so direct or permit the provisions of this section to be violated by any officer, seaman, or other person employed on board such ship or vessel.

SECT. 3. *And be it further enacted*, That it shall be the duty of the master or commander of every ship or vessel bringing emigrant passengers to the United States to post a written or printed notice, in the English, French, and German languages, containing the provisions of the second section of this Act, in a conspicuous place on the fore-castle and in the several parts of the said ship or vessel assigned to emigrant passengers, and to keep the same so posted during the voyage; and upon neglect so to do, he shall be deemed guilty of a misdemeanor, and, on conviction thereof, shall be punished by a fine not exceeding five hundred dollars.

SECT. 4. *And be it further enacted*, That, in case of the conviction of any person under the provisions of the first section of this Act, and the imposition of a fine, the court sentencing the person so committed, may, in its discretion, by an order to be entered on its minutes, direct the amount of the fine, when collected, to be paid for the use or benefit of the female seduced, or her child or children, if any.

SECT. 5. *And be it further enacted*, That no conviction shall be had under

the provisions of this Act on the testimony of the female seduced uncorroborated by other evidence, nor unless the indictment shall be found within one year after the arrival of the ship or vessel at the port for which she was destined when the offence was committed. [*Approved March 24, 1860.*]

APPENDIX IX.

[In the House of Representatives. April 8, 1880.]

A BILL TO REGULATE THE CARRIAGE OF PASSENGERS BY SEA.

Be it enacted, etc., That it shall not be lawful for the master of a steamship or other vessel, whereon emigrant passengers, or passengers other than cabin passengers, have been taken at any port or place in a foreign country or dominion (ports and places in foreign territory contiguous to the United States excepted), to bring such vessel and passengers to any port or place in the United States, unless the compartments, spaces, and accommodations hereinafter mentioned have been provided, allotted, maintained, and used for and by such passengers during the entire voyage; that is to say, in a steamship, the compartments or spaces, unobstructed by cargo, stores, or goods, shall be of sufficient dimensions to allow, for each and every passenger carried or brought therein, one hundred cubic feet, if the compartment or space is located on the first deck next below the uppermost deck of the vessel, or in a poop or deck-house constructed on the main deck of the vessel; and one hundred and twenty cubic feet for each passenger carried or brought therein, if the compartment or space is located on the second deck below the uppermost deck of the vessel; and it shall not be lawful to carry or bring passengers on any deck other than the two decks above mentioned, and in the aforesaid poop or deck-houses. And in sailing-vessels such passengers shall be carried or brought only on the deck (not being an orlop deck) that is next below the uppermost deck of the vessel, or in a poop or deck-house constructed on the main deck; and the compartment or space, unobstructed by cargo, stores, or goods, shall be of sufficient dimensions to allow one hundred and twenty cubic feet for each and every passenger brought therein. And such passengers shall not be carried or brought in any between-decks, nor in any compartment, space, poop, or deck-house, the clear height of which is less than seven feet. In computing the number of such passengers carried or brought in any vessel, children under one year of age shall not be included, and two children between one and eight years of age shall be counted as one passenger; and any persons brought in such vessel, who shall have been, during the voyage, taken from any other vessel wrecked or in distress on the high seas, or have been picked up at sea from any boat, raft, or otherwise, shall not be included in such computation. The master of a vessel coming to a port or place in the United States in violation of either of the provisions of this section, shall be deemed guilty of a misdemeanor; and if the number of passengers, other than cabin passengers, carried or brought in the vessel, or in any compartment, space, poop, or deck-house thereof, is greater than the number allowed to be carried or brought therein respectively, as hereinbefore prescribed, the said master shall be fined fifty dollars for each and every passenger in excess of the proper number, and may also be imprisoned not exceeding six months.

SECT. 2. *And be it further enacted,* That in every such steamship or other vessel, there shall be a sufficient number of berths for the proper accommodation,

as hereinafter provided, of all such passengers. There shall not be on any deck, nor in any compartment or space occupied by such passengers, more than two tiers of berths. The berths shall be properly constructed, parallel with the sides of the vessel, and be separated from each other by partitions, as berths ordinarily are separated, and each berth shall be at least two feet in width and six feet in length; and the interval between the floor or lowest part of the lower tier of berths and the deck beneath them shall not be less than six inches, nor the interval between each tier of berths, and the interval between the uppermost tier and the deck above it, less than two feet six inches, and each berth shall be occupied by not more than one passenger over eight years of age; but double berths of twice the above-mentioned width may be provided, each double berth to be occupied by no more and by none other than two women, or by one woman and two children under the age of eight years, or by husband and wife, or by a man and two of his own children under the age of eight years, or by two men, members of the same family. All the male passengers, upwards of fourteen years of age, who do not occupy berths with their wives, shall be berthed in the fore part of the vessel, in a compartment divided off from the space or spaces appropriated to the other passengers by a substantial and well-secured bulkhead, without opening or communication with any adjoining passenger space; and unmarried female passengers shall be berthed in a compartment separated from the spaces occupied by other passengers by a substantial and well-constructed bulkhead, the opening or communication from which to any adjoining passenger space shall be so constructed that it can be closed and secured. Each berth shall be numbered serially, on the outside berth-board, according to the number of passengers that may lawfully occupy the berth; and the berths occupied by such passengers shall not be removed or taken down until they have been inspected by a customs officer as hereinafter provided. For any violation of either of the provisions of this section, the master of the vessel shall be liable to a fine of five dollars for each passenger carried or brought on the vessel.

SECT. 3. *And be it further enacted,* That every such steamship or other vessel shall have adequate provision for affording light and air to the passenger decks and to the compartments and spaces occupied by such passengers, and with adequate means and appliances for ventilating the said compartments and spaces. To compartments having sufficient space for fifty or more of such passengers, at least two ventilators, each not less than twelve inches in diameter, shall be provided, one of which ventilators shall be inserted in the forward part of the compartment, and the other in the after part thereof, and shall be so constructed as to ventilate the compartment; and additional ventilators shall be provided for each compartment, in the proportion of two ventilators for each additional fifty of such passengers carried or brought in the compartment. All ventilators shall be carried at least six feet above the uppermost deck of the vessel, and shall be of the most approved form and construction. In any steamship the ventilating apparatus provided, or any method of ventilation adopted thereon, which has been approved by the proper emigration officers at the port or place from which said vessel was cleared, shall be deemed a compliance with the foregoing provisions; and in all vessels carrying or bringing such passengers, there shall be properly constructed hatchways over the compartments or spaces occupied by such passengers, which hatchways shall be properly covered with houses or booby-hatches, and the coamings or sills of which shall rise at least one foot above the deck; and the said houses shall have a door on each side, so constructed as to afford the greatest

amount of light and air and of protection from wet that the case will admit ; and there shall be proper companion-ways or ladders from each hatchway leading to the compartments or spaces occupied by such passengers ; and the said companion-ways or ladders shall be securely constructed, and be provided with hand-rails or strong rope, and such passengers shall have the free and unimpeded use of the whole of each hatchway situated over the compartments or spaces appropriated to their use ; and every vessel carrying or bringing such passengers shall have a properly located and constructed camboose and cooking-range, or other cooking apparatus, the dimensions and capacity of which shall be sufficient to provide for properly cooking and preparing the food of all such passengers. In every vessel carrying or bringing such passengers, there shall be at least two water-closets or privies, and an additional water-closet or privy for every one hundred male passengers on board, for the exclusive use of such male passengers, and an additional water-closet or privy for every fifty female passengers on board, for the exclusive use of the female passengers and young children on board. The aforesaid water-closets and privies shall be properly enclosed, and located on each side of the vessel, and shall be separated from passengers' spaces by substantial and properly constructed partitions or bulkheads ; and the water-closets and privies shall be kept and maintained in a serviceable and cleanly condition throughout the voyage.

For any violation of either of the provisions of this section, or for any neglect to conform to the requirements thereof, the master of the vessel shall be liable to a penalty not exceeding two hundred and fifty dollars.

SECT. 4. *And be it further enacted,* That every such steamship or other vessel shall have on board during the voyage, properly stored and secured, a supply of good and wholesome food, provisions, and water, sufficient to provide for the daily distribution to each of such passengers while on board the vessel an allowance of food and provisions equal, for the first twenty days of the voyage, in value to at least fifty cents, United States money, per head, and to be of good and wholesome character and of sufficient quantity, and to be served on tables with seats around, as now is customary in the second cabin of the transatlantic steamships, the computations of the fifty cents' value to be made in bulk at the rate of fifty dollars for every hundred passengers. Mothers with infants and young children shall be furnished the necessary quantity of wholesome milk or condensed milk for the sustenance of the latter. On sailing-vessels and on steamships, for the time after the first twenty days of the voyage, an allowance of food and provisions equal in quality and quantity to a navy ration of the United States, and of water not less than three quarts per day, shall be furnished each of such passengers. Three meals shall be served daily at regular and stated hours, of which hours sufficient notice shall be given. If any such passenger shall, at any time during the voyage, be put upon short allowance of food or water, the master of the vessel shall pay to such passenger three dollars for each and every day the passenger may have been put on short allowance. And for every wilful violation of any of the provisions of this section, the master of the vessel shall be deemed guilty of a misdemeanor, and shall be fined not more than five hundred dollars, and be imprisoned for a term not exceeding six months. The enforcement of this penalty, however, shall not affect the civil responsibility of the master and owners of the vessel to such passengers as may have suffered from any negligence, breach of contract, or default on the part of such master and owners.

SECT. 5. *And be it further enacted,* That in every such steamship or other vessel, there shall be properly built and secured, or divided off from other spaces,

two compartments or spaces to be used exclusively as hospitals for such passengers, one for men, and the other for women; the hospitals shall be located in a deck-house constructed on the main deck or on the deck next below the uppermost deck of the vessel, and not elsewhere; the hospital spaces shall in no case be less than in the proportion of eighteen clear superficial feet for every fifty such passengers who are carried or brought on the vessel, and such hospitals shall be supplied with proper beds, bedding, and utensils, and be kept so filled and supplied throughout the voyage. And every steamship or other vessel carrying or bringing emigrant passengers, or passengers other than cabin passengers, exceeding fifty in number, shall carry a duly qualified and competent surgeon or medical practitioner, who shall be rated as such in the ship's articles, and who shall be provided with surgical instruments, medical comforts, and medicines proper and necessary for diseases and accidents incident to sea-voyages, and for the proper medical treatment of such passengers during the voyage, and with such articles of food and nourishment as may be proper and necessary for preserving the health of infants and young children; and the services of such surgeon or medical practitioner shall be promptly given, in any case of sickness or disease, to any of the passengers, or to any infant or young child of any of such passengers who may need his services. For a violation of either of the provisions of this section, the master of the vessel shall be liable to a penalty not exceeding two hundred and fifty dollars.

SECT. 6. *And be it further enacted,* That the master of every such steamship or other vessel is authorized to maintain good discipline, and such habits of cleanliness among such passengers as will tend to the preservation and promotion of health, and to that end he shall cause such regulations as he may adopt for such purpose to be posted up on board the vessel, in a place or places accessible to such passengers, and shall keep the same so posted up during the voyage; the said master shall cause the compartments and spaces provided for or occupied by such passengers, to be kept at all times in a clean and healthy condition, and to be, as often as may be necessary, disinfected with chloride of lime, or by some other equally efficient disinfectant. Whenever the state of the weather will permit, such passengers and their bedding shall be mustered on deck, and a clear and sufficient space on the uppermost deck of the vessel shall be set apart, and so kept, for the use and exercise of such passengers during the voyage. For each neglect or violation of any of the provisions of this section, the master of the vessel shall be liable to a penalty not exceeding two hundred and fifty dollars.

SECT. 7. *And be it further enacted,* That neither the officers, seamen, nor other persons employed on any such steamship or other vessel shall visit or frequent any part of the vessel provided or assigned to the use of such passengers, except by the direction or permission of the master of such vessel first made or given for such purpose; and every officer, seaman, or other person employed on board of such vessel, who shall violate the provisions of this section, shall be deemed guilty of a misdemeanor, and may be fined not exceeding one hundred dollars, and be imprisoned not exceeding twenty days for each violation; and the master of such vessel who directs or permits any officer, seaman, or other person employed on board the vessel, to visit or frequent any part of the vessel provided for or assigned to the use of such passengers, or the compartments or spaces occupied by such passengers, except for the purpose of doing or performing some necessary act or duty as an officer, seaman, or other person employed on board of the vessel, shall be deemed guilty of a misdemeanor, and may be fined not more

than one hundred dollars for each time he directs or permits the provisions of this section to be violated. A copy of this section, written or printed in the language or languages of the passengers on board, shall, by or under the direction of the master of the vessel, be posted in a conspicuous place on the forecabin and in the several parts of the vessel provided and assigned for the use of such passengers, and in each compartment or space occupied by such passengers, and the same shall be kept so posted during the voyage; and if the said master neglects so to do, he shall be deemed guilty of a misdemeanor, and shall be fined not more than one hundred dollars.

SECT. 8. *And be it further enacted,* That it shall not be lawful to take, carry, or have on board of any such steamship or other vessel any nitro-glycerine, dynamite, or any other explosive article or compound, nor any vitriol or like acids, nor gunpowder, except for the ship's use, nor any article or number of articles, whether as cargo or ballast, which, by reason of the nature or quantity or mode of storage thereof, shall, either singly or collectively, be likely to endanger the health or lives of the passengers or the safety of the vessel; and horses, cattle, or other animals taken on board of or brought in any such vessel shall not be carried on any deck below the deck on which passengers are berthed, nor in any compartment in which passengers are berthed, nor in any adjoining compartment, except in a vessel built of iron, and of which the compartments are divided off by water-tight bulkheads extending to the upper deck. For every violation of any of the provisions of this section the master of the vessel shall be deemed guilty of a misdemeanor, and shall be fined not exceeding one thousand dollars and be imprisoned for a period not exceeding one year.

SECT. 9. *And be it further enacted,* That it shall not be lawful for the master of any such steamship or other vessel, not in distress, after the arrival of the vessel within any collection-district of the United States, to allow any person or persons, except a pilot, officer of the customs, or health officer, to come on board of the vessel, or to leave the vessel, until the vessel has been taken in charge by an officer of the customs, nor after charge so taken, without leave of such officer, until all the passengers with their baggage have been duly landed from the vessel; and on the arrival of any such steamship or other vessel within any collection-district of the United States, the master thereof shall deliver to the officer of customs who first comes on board the vessel and makes demand therefor, a correct list, signed by the master, of all the passengers taken on board the vessel at any foreign port or place, specifying separately the names of the cabin passengers, their age, sex, calling, and the country of which they are citizens, and the number of pieces of baggage belonging to each passenger, and also the name, age, sex, calling, and native country of each emigrant passenger, or passengers other than cabin passengers, and their intended destination or location, and the number of pieces of baggage belonging to each passenger, and also the location of the compartment or space occupied by each of such passengers during the voyage; and if any of such passengers died on the voyage, the said list shall specify the name, age, and cause of death of each deceased passenger; and a duplicate of the aforesaid list of passengers, verified by the oath of the master, shall, with the manifest of the cargo, be delivered by the master to the collector of customs on the entry of the vessel. For a violation of either of the provisions of this section, or for permitting or neglecting to prevent a violation thereof, the master of the vessel shall be liable to a fine not exceeding one thousand dollars.

SECT. 10. *And be it further enacted,* That in case there shall have occurred

on board any such steamship or other vessel any death among such passengers during the voyage, the master or consignees of the vessel shall, within forty-eight hours after the arrival of the vessel within a collection-district of the United States, or within twenty-four hours after the entry of the vessel, pay to the collector of customs of such district the sum of ten dollars for each and every such passenger above the age of eight years who shall have died on the voyage by natural disease; and the master or consignees of any vessels, who neglects or refuses to pay to such collector, within the times hereinbefore prescribed, the sums of money aforesaid, shall be liable to a penalty of fifty dollars in addition to the sum required to be paid as aforesaid for each passenger whose death occurred on the voyage. All sums of money paid to any collector, under the provisions of this section, shall be by him paid into the Treasury of the United States in such manner and under such regulations as shall be prescribed by the Secretary of the Treasury.

SECT. 11. *And be it further enacted,* That the collector of customs of the collection-district within which, or the surveyor of the port of which, any such steamship or other vessel arrives, shall direct an inspector or other officer of the customs to make an examination of the vessel, and to admeasure the compartments or spaces occupied by the emigrant passengers, or passengers other than cabin passengers, during the voyage (and such measurements shall be made in the manner provided by law for admeasuring vessels for tonnage); and to compare the number of such passengers found on board with the list of such passengers furnished by the master to the customs officer; and the said inspector or other officer shall make a report to the aforesaid collector or surveyor, stating the port of departure, the time of sailing, the length of the voyage, the ventilation, the number of such passengers on board the vessel, and their native country respectively; the cubic quantity of each compartment or space, and the number of berths and passengers in each space; the kind and quality of the food furnished to such passengers on the voyage, the number of deaths, and the age and sex of those who died during the voyage, and of what disease; and in case there was any unusual sickness or mortality during the voyage, to report whether the same was caused by any neglect or violation of the provisions of this Act, or by the want of proper care against disease by the master or owner of the vessel; and the said reports shall be forwarded to the Secretary of the Treasury at such times and in such manner as he shall direct.

SECT. 12. *And be it further enacted,* The provisions of this Act shall apply to every steamship or other vessel whereon emigrant passengers, or passengers other than cabin passengers, are taken on board at a port or place in the United States for conveyance to any port or place in a foreign country, except foreign territory contiguous to the United States, and shall also apply to any vessel whereon such passengers are taken on board at any port or place of the United States on the Atlantic Ocean or its tributaries for conveyance to a port or place on the Pacific Ocean or its tributaries, or *vice versa*, and whether the voyage of said vessel is to be continuous from port to port, or such passengers are to be conveyed from port to port in part by the way of any overland route through Mexico or Central America; and before any such vessel shall be cleared from, or may lawfully depart from, the port or place where such passengers are taken on board, the master of such vessel shall furnish to the collector of customs of the district from which such vessel is about to depart, a correct list of all passengers who have been, or are intended to be, taken on board the vessel; and the said list shall specify the age, sex, and nationality of each passenger, and whether the said pas-

sengers are cabin or other passengers, and the location of the compartment or space in the vessel provided and intended for the use of the passengers other than cabin passengers; and the said collector of customs may direct an examination of the vessel to be made by an inspector or other officer of the customs, who shall make the examination and report whether the provisions of this Act have been complied with in respect to such vessel, and the said collector is authorized to withhold the clearance of such vessel until the coming in of such report; and if the said report shall show that any of the provisions of this Act have not been complied with, the collector is authorized and directed to withhold the clearance of such vessel until the said provisions are complied with; and if the master of any such vessel shall wilfully present or cause to be presented to the aforesaid collector of customs any false or fraudulent list or lists of such passengers, or if any such vessel leaves the aforesaid port or place without having been duly cleared by the collector of customs, the master shall be deemed guilty of a misdemeanor, and may be fined not exceeding one thousand dollars and be imprisoned not exceeding one year, and the vessel shall be liable to seizure and forfeiture.

SECT. 13. *And be it further enacted*, That the amount of the several fines and penalties imposed by any section of this Act upon the master of any steamship or other vessel carrying or bringing emigrant passengers, or passengers other than cabin passengers, for any violation of the provisions of this Act, shall be liens upon such vessel, and such vessel may be libelled therefor in any circuit or district court of the United States where such vessel shall arrive or depart.

SECT. 14. *And be it further enacted*, That this Act shall come into operation and take effect on the _____ day of _____, eighteen hundred and eighty; and sections forty-two hundred and fifty-two to forty-two hundred and seventy-seven inclusive, of the Revised Statutes of the United States, are, from and after said date, repealed; and this Act may be cited for all purposes as "The Passenger Act, eighteen hundred and eighty."

APPENDIX X.

MODE OF MEASUREMENT. REVISED STATUTES.

SECT. 4150. The registry of every vessel shall express her length and breadth, together with her depth, and the height under the third or spar deck, which shall be ascertained in the following manner: the tonnage-deck, in all vessels having three or more decks to the hull, shall be the second deck from below; in all other cases, the upper deck of the hull is to be the tonnage-deck. The length from the fore part of the outer planking on the side of the stem to the after part of the main stern-port of screw-steamers, and to the after part of the rudder-port of all other vessels, measured on the top of the tonnage-deck, shall be accounted the vessel's length. The breadth of the broadest part on the outside of the vessel shall be accounted the vessel's breadth of beam. A measure from the under side of the tonnage-deck plank, amidships, to the ceiling of the hold (average thickness), shall be accounted the depth of hold. If the vessel has a third deck, then the height from the top of the tonnage-deck plank to the under side of the upper-deck plank shall be accounted as the height under the spar-deck. All measurement to be taken in feet and fractions of feet, and all fractions of feet shall be expressed in decimals.

SECT. 4151. No part of any vessel shall be required by the preceding section

to be measured or registered for tonnage that is used for cabins or state-rooms, and constructed entirely above the first deck, which is not a deck to the hull.

SECT. 4153. The register tonnage of every vessel built within the United States, or owned by a citizen or citizens thereof, shall be her entire internal cubical capacity in tons of one hundred cubic feet each, to be ascertained as follows : —

Measure the length of the vessel in a straight line along the upper side of the tonnage-deck, from the inside of the inner plank, average thickness, at the side of the stem to the inside of the plank on the stern-timbers, average thickness, deducting from this length what is due to the rake of the bow in the thickness of the deck, and what is due to the rake of the stern-timber in the thickness of the deck, and also what is due to the rake of the stern-timber in one-third of the round of the beam; divide the length so taken into the number of equal parts required by the following table, according to the class in such table to which the vessel belongs : —

TABLE OF CLASSES.

Class One. — Vessels of which the tonnage-length, according to the above measurement, is fifty feet and under, into six equal parts.

Class Two. — Vessels of which the tonnage-length, according to the above measurement, is about fifty feet and not exceeding one hundred feet, into eight equal parts.

Class Three. — Vessels of which the tonnage-length, according to the above measurement, is above one hundred feet and not exceeding one hundred and fifty feet, into ten equal parts.

Class Four. — Vessels of which the tonnage-length, according to the above measurement, is above one hundred and fifty feet and not exceeding two hundred feet, into twelve equal parts.

Class Five. — Vessels of which the tonnage-length, according to the above measurement, is above two hundred feet and not exceeding two hundred and fifty feet, into fourteen equal parts.

Class Six. — Vessels of which the tonnage-length, according to the above measurement, is above two hundred and fifty feet, into sixteen equal parts.

Then, the hold being sufficiently cleared to admit of the required depths and breadths being properly taken, find the transverse area of such vessel at each point of division of the length as follows : —

Measure the depth at each point of division from a point at a distance of one-third of the round of the beam below such deck; or, in case of a break, below a line stretched in continuation thereof, to the upper side of the floor-timber, at the inside of the limber-strake, after deducting the average thickness of the ceiling, which is between the bilge-planks and limber-strake; then, if the depth at the midship division of the length do not exceed sixteen feet, divide each depth into four equal parts; then measure the inside horizontal breadth at each of the three points of division, and also at the upper and lower points of the depth, extending each measurement to the average thickness of that part of the ceiling which is between the points of measurement; number these breadths from above, numbering the upper breadth one, and so on down to the lowest breadth; multiply the second and fourth by four, and the third by two; add these products together, and to the sum add the first breadth and the last, or fifth; multiply the quantity thus obtained by one-third of the common interval between the breadths, and the product shall be deemed the transverse area; but if the midship depth exceed

sixteen feet, divide each depth into six equal parts, instead of four, and measure, as before directed, the horizontal breadths at the five points of division, and also at the upper and lower points of the depth; number them from above as before; multiply the second, fourth, and sixth, by four, and the third and fifth by two; add these products together, and to the sum add the first breadth and the last, or seventh; multiply the quantities thus obtained by one-third of the common interval between the breadths, and the product shall be deemed the transverse area.

Having thus ascertained the transverse area at each point of division of the length of the vessel, as required above, proceed to ascertain the register tonnage of the vessel in the following manner: Number the areas successively one, two, three, and so forth, number one being at the extreme limit of the length at the bow, and the last number at the extreme limit of the length at the stern; then, whether the length be divided, according to the table, into six or sixteen parts, as in classes one and six, or any intermediate number, as in classes two, three, four, and five, multiply the second, and every even-numbered area, by four, and the third, and every odd-numbered area, except the first and last, by two; add these products together, and to the sum add the first and last, if they yield any thing; multiply the quantities thus obtained by one-third of the common interval between the areas, and the product will be the cubical contents of the space under the tonnage-deck; divide this product by one hundred, and the quotient, being the tonnage under the tonnage-deck, shall be deemed to be the register tonnage of the vessel, subject to the additions hereinafter mentioned. If there be a break, a poop, or any other permanent closed-in space on the upper decks or the spar-deck, available for cargo or stores, or for the berthing or accommodation of passengers or crew, the tonnage of such space shall be ascertained as follows: Measure the internal mean length of such space in feet, and divide it into an even number of equal parts, of which the distance asunder shall be most nearly equal to those into which the length of the tonnage-deck has been divided; measure at the middle of its height the inside breadths; namely, one at each end, and at each of the points of division, numbering them successively one, two, three, and so forth; then to the sum of the end breadths add four times the sum of the even-numbered breadths and twice the sum of the odd-numbered breadths, except the first and the last, and multiply the whole sum by one-third of the common interval between the breadths; the product will give the mean horizontal area of such space: then measure the mean height between the planks of the decks, and multiply it by the mean horizontal area; divide the product by one hundred, and the quotient shall be deemed to be the tonnage of such space, and shall be added to the tonnage under the tonnage-decks, ascertained as aforesaid. If a vessel has a third deck or spar-deck, the tonnage of the space between it and the tonnage-deck shall be ascertained as follows: Measure in feet the inside length of the space, at the middle of its height, from the plank at the side of the stem to the plank on the timbers at the stern, and divide the length into the same number of equal parts into which the length of the tonnage-deck is divided; measure, also at the middle of its height, the inside breadth of the space at each of the points of division, also the breadth of the stem and the breadth at the stern; number them successively one, two, three, and so forth, commencing at the stem; multiply the second, and all other even-numbered breadths, by four, and the third, and all the other odd-numbered breadths, except the first and the last, by two; to the sum of these products add the first and last breadths, multiply the whole sum by one-third of the common interval between the breadths, and the

result will give, in superficial feet, the mean horizontal area of such space ; measure the mean height between the plank of the two decks, and multiply it by the mean horizontal area, and the product will be the cubical contents of the space ; divide this product by one hundred, and the quotient shall be deemed to be the tonnage of such space, and shall be added to the other tonnage of the vessel, ascertained as above directed. And if the vessel has more than three decks, the tonnage of each space between decks, above the tonnage-deck, shall be severally ascertained in the manner above described, and shall be added to the tonnage of the vessel ascertained as above directed. In ascertaining the tonnage of open vessels the upper edge of the upper strake is to form the boundary-line of measurement, and the depth shall be taken from an athwart-ship line, extending from the upper edge of such strake at each division of the length. The register of the vessel shall express the number of decks, the tonnage under the tonnage-deck, that of the between-decks, above the tonnage-deck ; also that of the poop or other inclosed spaces above the deck, each separately. In every registered United States vessel the number denoting the total registered tonnage shall be deeply carved or otherwise permanently marked on her main beam, and shall be so continued ; and if at any time cease to be so continued, such vessel shall no longer be recognized as a registered vessel of the United States.

MEASUREMENT OF FOREIGN VESSELS. REVISED STATUTES.

SECT. 4154. . . . If the vessel be double-decked, take the length thereof from the fore part of the main stem to the after part of the stern-port, above the upper deck, the breadth thereof at the broadest part above the main wales, half of which breadth shall be accounted the depth of such vessel, and shall then deduct from the length three-fifths of the breadth, multiply the remainder by the breadth, and the product by the depth, and shall divide this last product by ninety-five ; the quotient whereof shall be deemed the true contents or tonnage of such vessel. If such vessel be single decked, the surveyor, or other person, shall take the length and breadth as above directed in respect to a double-decked vessel, shall deduct from the length three-fifths of the breadth, and, taking the depth from the under side of the deck-plank to the ceiling in the hold, shall multiply and divide in the same manner, and the quotient shall be deemed the tonnage of such vessel.

APPENDIX XI.

[N. Y. Cat. No. 1087.]

REPORT OF EXAMINATION

Of _____ of _____ tons burden, Capt. _____, from _____ . Arrived
 at _____, 18____, Date of sailing, _____ . Length of voyage, _____ days.
 Number, diameter, and description of Ventilators, _____ . Height of Ventilators above
 Upper Deck, _____ . Number of Decks, _____ .

PASSENGERS.		Males.	Females.	Total No. of Passengers.
CLASS 1.—Cabin Passengers	Eight years of age or over .			
	Under eight years of age .			
Total				
CLASS 2.—Passengers, other than Cabin	Eight years of age or over .			
	Under eight and over one .			
	Under one year of age .			
Total				

SPACE FOR PASSENGERS, OTHER THAN CABIN PASSENGERS.

	Height between Decks.	Superficial Capacity, in feet.	No. of Passengers, other than Cabin Passengers, allowed by Law.	No. of Statute Passengers brought, other than Cabin Passengers.
Main Deck				
Lower Deck				
Deck-houses				
Total				

Food (kinds and daily allowance) _____
 How cooked (whether well or badly, etc.) _____
 Number, capacity, and arrangement of Hospitals _____
 Number of Tiers of Berths Number of Physicians on board
 Distance between Berths and Deck beneath Number of Houses over Hatchway
 Dimensions of Single Berths Number of Caboozes
 Dimensions of Double Berths Number of Latrines for Males
 Locality and separation of Latrines _____ Number of Latrines for Females

NATIVE COUNTRY OF PASSENGERS, OTHER THAN CABIN.

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DEATHS AND BIRTHS AMONG PASSENGERS, OTHER THAN CABIN.

DEATHS.		Males.	Fe-males.	BIRTHS.	Num-ber.
PASSENGERS	Above eight years, from natural disease .			Males .	
	“ “ from other causes .			Females .	
	Under eight years of age			Total .	
	Total				

Causes of mortality during voyage _____
 Receipts under sect. 4268, Revised Statutes of the United States _____

REMARKS.

_____, 187____ . _____ Examiner.
 To _____

APPENDIX XII.

[Form A.]

No. _____.

Port of _____.

THE UNITED STATES OF AMERICA.—NATIONAL BOARD OF HEALTH.

Bill of Health.

I, _____ (consul, consular agent, or other officer empowered by law to sign), at the port of _____, do hereby state that the vessel hereinafter named clears from this port under the following circumstances:—

Name of vessel: _____ Tonnage: _____
 Apartments for passengers, No. _____ Destination: _____
 Name of medical officer (if any): _____
 Total number of passengers: 1st cabin, _____; 2d cabin, _____; steerage, _____
 Nature (vessel-of-war, ship, schooner, etc.): _____ Guns: _____
 Where last from: _____ Name of captain _____
 Total number of crew: _____ Cargo: _____
 Sanitary history of the vessel:

1. Sanitary condition of vessel (before and after reception of cargo, with note of any decayed wood). Note disinfection of vessel:

2. Sanitary condition of cargo:

3. Sanitary condition of crew:

4. Sanitary condition of passengers:

5. Sanitary condition of clothing, food, water, air-space, and ventilation (to be in quantity as required by Revised Statutes):

6. Sanitary condition of port and adjacent country—

a. Prevailing diseases (if any):

b. Number of cases of and deaths from yellow fever, Asiatic cholera, plague, small-pox, or typhus fever during the week preceding:

b. Number of cases of—

Yellow fever	. . .	_____
Asiatic cholera	. . .	_____
Plague	. . .	_____
Small-pox	. . .	_____
Typhus fever	. . .	_____
Relapsing fever	. . .	_____

b. Number of deaths from—

Yellow fever	. . .	_____
Asiatic cholera	. . .	_____
Plague	. . .	_____
Small-pox	. . .	_____
Typhus fever	. . .	_____
Relapsing fever	. . .	_____

7. Any circumstances affecting the public health existing in the port of departure to be here stated:

CLEAN.

I certify that I have personally inspected the said vessel, and that the above statements are correct; that good health is enjoyed in this port and the adjacent country, without any suspicion of yellow fever, Asiatic cholera, or plague; that neither small-pox nor typhus fever exists as an epidemic; that the sanitary condition of the vessel, cargo, crew, and passengers is good; that the rules and regulations prescribed by the National Board of Health have been complied with, and that the [name of vessel] leaves this port in *free pratique*, bound for _____, United States of America.

[Signature of medical officer.]

Or, FOUL.

I certify that I have personally inspected the said vessel, and that the above statements are correct, and that she leaves this port bound for _____, United States of America, in *quarantine*.

[Signature of medical officer.]

I certify that the foregoing statements are made by _____, M.D., who has personally inspected said vessel; that I am satisfied that the said statements are correct; and I do further certify that the said vessel leaves this port bound for _____, in the United States, in _____ *pratique* [or in quarantine].

In witness whereof, I have hereunto set my hand and the seal of office, at the port of _____, this _____ day of _____, 18____, ___ o'clock.

[SEAL.]

[Consul-General, Consul, Commercial Agent, Sanitary Officer, et al.]

APPENDIX XIII.

DEATH IN THE STEERAGE.—THE MORTALITY ON BOARD THE "OHIO."—PARENTS PRAYING WHILE THEIR CHILDREN DIED.—COMPLAINTS FROM ANOTHER STEAMSHIP OF THE BREMEN LINE.

The steamship "Ohio," of the Bremen line, arrived on Friday with 1,342 passengers crowded into the steerage. There were 272 children under ten years of age, 156 being infants less than a year old. There was much sickness among them; thirteen died during the passage, and one at Castle Garden after the immigrants landed. All the deaths were sudden, and were not caused by the outbreak of any contagious disease. There were no cabin passengers aboard. Complaints were promptly made to Superintendent Jackson, charging ill ventilation, overcrowding, and bad management generally; and an official communication was received by the Emigration Commissioners yesterday from the German Consulate General to the following effect:—

NEW YORK, April 24, 1880.

GENTLEMEN,—Having been informed, that, among the emigrants who arrived yesterday in this port by the German steamship "Ohio" from Bremen, an extraordinarily large number of children (thirteen, as by enclosed list) died during this voyage, and that some of the passengers made complaint at Castle Garden about the insufficiency of their meals and the way the same were served to them on board the said steamship, I would ask your kindness to cause the complainants' names and addresses to be sent to this office. Hoping that I may be able to ascertain whether the German laws relating to the treatment of emigrants on board of German ships have been violated,

I am, gentlemen, yours very respectfully,

HERMAN A. SCHUMACHER, *Consul-General.*

The following list of deaths was enclosed. It gives the date of death, the names, the disease, and the ages of the deceased children:—

- April 8.*—Francisca Weyber, diphtheria, two years, two months.
- April 10.*—Otto Dreher, pneumonia, one year, four months.
- April 12.*—Fried. Schelawski, pneumonia, seven months.
- April 13.*—Wilhelm Poschelk, pneumonia, two years, two months.
- April 15.*—Ernst Herm. Aug. Schutz, diphtheria, six years, three months.
- April 17.*—Aug. Carlvil Otto, atrophy, four months.
- April 19.*—Joseph Piotrowski, abdominal catarrh, one year, two months.
- April 19.*—Anna Bertha Huber, lung catarrh, four months.
- April 19.*—Fried. Aug. Carl Priebe, pneumonia, seven months.
- April 19.*—Joseph Carlewinsk, abdominal catarrh, eight months.
- April 21.*—Fal. Mazurkiwicz, diphtheria, three years, two months.
- April 22.*—O. A. C. Frank, abdominal catarrh, five months.

Another death of a child occurred yesterday among the passengers just landed from the steamer.

Wilhelmina Pischelke, in an affidavit, deposes that she is a widow, and when she started upon the voyage had her two children with her. Last Monday week her youngest, aged two years, was taken sick in the afternoon, and died the same night. The air was so foul and close she thought that was the cause of the child's death. The ship was so crowded, many passengers had to lie on the floor. The doctor was very attentive to the sick; and there was plenty of food, but no system in its distribution.

Maria Schilafski and Friedrich Patofsky testified that the food was so unequally distributed, that some passengers got too much, while others got too little.

A GENERAL DENIAL.

The Castle Garden Committee of the Emigration Commission yesterday afternoon began an official investigation. Commissioners Ulrich and Pinckney were present. The first witness examined was Capt. Gustave Meyer, the commander of the steamer. He testified that the steamer was specially fitted up to carry steerage passengers; the cabins were removed, and the whole of two decks was converted into a steerage, except amidships, where the officers' quarters were. There was plenty of room for the 1,342 passengers, 1,150 berths having been put up. Some of the families preferred to huddle together and sleep on the floor, so that there were empty berths on the first night out. The ventilation was good, two hatches being kept open. Some of the passengers complained that there was too much air. The rules required the captain to visit the steerage only once a day, but he went three times every day. Over twenty-five per cent more food than the allowance was cooked. There were 500 Poles on board. They behaved very badly, and acted "hoggishly" in scrambling for the food. There were 7,800 pounds of fresh beef aboard when the steamer left Bremen, and it was all used on the voyage. The cause of the deaths among the children was neglect of the doctor's instructions. The children that died were Poles. They died of neglect. Instead of giving medicines, their parents all gathered round and said prayers, while the children were allowed to die. The captain admitted that the arrangements for serving out food were imperfect, and that there was overcrowding of the passengers; but he claimed that it was their own choice.

The purser and the surgeon of the ship testified to the same effect. All agreed in declaring that the Poles were dirty, and neglected the doctor's instructions.

The report of the investigating committee will, it is thought, exonerate the officers of the steamer from direct responsibility for the deaths, but will condemn the overcrowding, and suggest a better system of distributing food.

WHEN SWISS MEETS GERMAN.

Another crowded steamer of the Bremen line arrived at Castle Garden yesterday morning. There were 1,152 immigrants in the steerage; and, as soon as they landed, some of the passengers hastened to prefer complaints against the ship of a similar nature to those charged upon the "Ohio." There had been four sudden deaths among children on the voyage from the same alleged causes,—overcrowding and bad ventilation. The Castle Garden Committee promptly began an investigation into this case also. They took the testimony of three passengers and two of the ship's officers, but will conclude their inquiry on Monday morning. Richard Libere, Michael Meyer, and Leo Schmidt, steerage passengers from Bremen, complained in their affidavits that the officers of the ship did not take care of the passengers; that the Swedish passengers received better treatment than the Germans; that the food was not good, and was badly distributed; that the steward was most of the time under the influence of liquor; that the sexes were not properly separated; that a number of passengers had money stolen from them; and that there was general overcrowding, dirt, and bad management, resulting in sickness and the death of children. The purser and the doctor of the steamer were sworn and examined by the committee. They testified that no complaints were made to them of bad treatment during the voyage. They had four deaths on the voyage,—all

children, of whom there were 222 in all, — and two births. The steamer was not overcrowded, but had twenty-five unoccupied berths. The two officers denied in general all the charges of bad management, and declared that they believed all the troubles among the passengers to have arisen from the fact that two nationalities were crowded together. — *New York Herald*, April 25, 1880.

LIFE IN THE STEERAGE. — THE ILL TREATMENT TO WHICH POOR PASSENGERS ARE OBLIGED TO SUBMIT.

Notwithstanding the fact that the steamship-lines plying between the European ports and New York are declared, upon the highest authority, to make more money on their steerage passengers coming to America, than they do from those who travel in the saloon or first cabin, there have been many well-founded complaints recently brought before the Emigration Commissioners concerning the bad treatment to which immigrants and other steerage passengers are subjected.

The latest cry from the steerage comes from a number of passengers on the Anchor-line steamer "Alsatia," on her latest trip to this port. Owen McManus, an intelligent Scotch mechanic, complains that he was one of a hundred and seventeen others, who were subjected to treatment which he designates as cruel. He has travelled in the steerage of steamers on other lines, on previous visits to this country, and is, therefore, somewhat familiar with the customs of the steerage. He declares, in his written statement, that he and many others were unable to eat the food supplied in the steerage. The salt meat, he alleges, was unfit for human food, being hard, stringy, and tasteless; and fresh meat they were provided with only three times on the voyage. He tasted it once, and found it tainted; and was informed that on the other occasions it was no better. The salt fish was worse than the salt pork, and was thrown overboard untasted by his mess. Oatmeal porridge was supplied every morning for breakfast; but it was black and dirty, and often had black beetles in it. McManus never saw any sugar on the ship. Treacle (molasses) was dealt out instead. What was called butter was furnished, but nobody could eat it. It was so rancid that even the officers of the ship joked about it. The coffee was very poor. For dinner they had pea-soup two or three times, and barley and rice broth on other days. It was always weak and watery. Potatoes were also served every day for dinner. Sometimes they were fit to eat, but generally they were watery; and rotten ones were often cooked with good ones, thereby spoiling them. The only article of food which was good was the "plum duff," and this they only saw on three occasions. Supper consisted of bread, butter, and tea, the latter being very poor.

The sleeping accommodations, Mr. McManus's complaint alleges, were very dirty. The ship had been used to carry cattle, and was not properly cleaned. The smell was so unbearable, that many men slept all night on deck in the rain. He saw the captain in the steerage but once. A number of passengers made a complaint to him, going to see him in a body; but there was no improvement. The steerage steward (Hamilton) neglected his duty, he says. Two sick women (Mrs. Cook and Mrs. Harris) were confined to their berths for three days; and no one, except the other passengers, went to see them, or took them food. McManus had brought some food on board with him. With this, and by feeing one of the servants, he managed to get some boiled rice every day, and some occasional morsels from the cabin table. In this way he managed to live during the voyage.

Another cause of much complaint was the system of petty thefts which is alleged

to have prevailed. McManus's bed was stolen from him ; and he afterward, he claims, recognized it as being offered for sale by one of the petty officers, who made a practice of selling beds to the passengers. He also says that he had a silk umbrella, a package containing clothing, a bottle of whiskey, a pound of tobacco, and other articles stolen from him during the voyage. He heard other passengers complain of similar losses. Another passenger, who accompanied McManus, corroborated his story, and said that, if necessary, further evidence in support of it could be procured. — *New York Herald*, Sept. 23, 1880.

SCANDALOUS TREATMENT OF EMIGRANTS.

The Castle Garden Committee made a report regarding the complaints against the treatment of the steerage passengers on the steamer "Hecla," of the Cunard line. The report finds that the bread furnished the passengers was sour, and that the potatoes were not good ; that the berthing was faulty, and, "in consequence thereof, the indiscriminate mingling of the sexes in the sleeping-berths is deserving of censure ;" that the conduct of the chief steerage steward was reprehensible, and that he is unfit for his position ; "that there was no steerage stewardess on board, and that many female passengers were subjected to insult from the steerage stewards ;" and that the ventilation of the steerage was not good. The Committee recommend that a copy of the evidence taken be sent to the Cunard-line company, with a request that the matters complained of be remedied, together with a recommendation that the women passengers be lodged in separate apartments from the men, and that a steerage stewardess be carried on each vessel of the company engaged in immigrant-passenger traffic. The findings of the Committee and their suggestions were concurred in by the Board. — *New York Herald*, Sept. 29.

A STEERAGE PASSENGER'S COMPLAINTS.

In pursuance of his inquiries at Castle Garden, a "Herald" reporter encountered a Mrs. St. Clair, who, accompanied by her six children, was a passenger in the steerage by the "Péire." This lady, who was met on her arrival by her husband, a resident of Perth Amboy, N.J., complains bitterly of the food and general treatment received by herself and her family. One of the steerage stewards, of whose nationality she cannot speak with certainty, though she thinks he is a German, spoke English, and, shortly after the vessel left Havre, she says, informed her that he should not take the trouble to do any thing for her unless she gave him a fee. Being short of money, she handed him all she could spare, — namely, two shillings ; and, from her after experience, the investment would appear to have turned out any thing but profitable.

"The food served out to us," said Mrs. St. Clair, "was insufficient in quantity, and much of it was quite unfit to eat. For three or four days in succession we had salt pork. This was nearly all fat, and, when cut into, was quite black. The bread was sour ; and this steward has served out to me five potatoes only, with this filthy pork, as a dinner for my six children and myself. This little one," Mrs. St. Clair continued, placing her hand on the brown tresses of a delicate-looking little maiden of some eleven summers, "was so ill after we had been a few days at sea, that I sent for the doctor. He came ; and, from his manner, I presume he did his best : but, as I could not understand French, nor he English, he must have found it somewhat difficult to make a diagnosis of the case. He called this second steward, and, as I afterward understood from a passenger who was present and spoke a little English, ordered him to get some eggs and give me them for the child. I after-

ward found out this inhuman fellow got the eggs, and sold them to one of the passengers.

“My child being unable to eat the food provided, was five days without taking any solid food; and, when I told the fellow that I would complain to the captain, he said, ‘Go and complain as fast as you please: he wouldn’t understand a word you say.’ The doctor also left a bottle of brandy with this steward, to be given to the sick passengers who needed a stimulant; and its contents he sold to them at so much per glass. During the whole of the bad weather, the bed on which my children had to lie was saturated with sea-water.”—*New York Herald*, Tuesday, Dec. 7, 1880.

HORRORS OF THE STEERAGE.—GRAVE CHARGES MADE BY PASSENGERS IN THE “SWITZERLAND.”—A BOATSWAIN’S BRUTALITY.—SAILORS ILL TREATED, AND ONE MAN WELL-NIGH KILLED.

The steamer “Switzerland,” of the Red Star line, sailed from Antwerp on the 20th of November, and arrived at this port yesterday, after a stormy passage of eighteen days, bringing four hundred and thirty steerage passengers, and thirty-two persons in the cabin. Nearly all of the former were German and Swedish immigrants; but a small party of Englishmen, bound to Nebraska, were of the number. In their formal and sworn affidavits yesterday, Edward Marryatt and David Lawton and others of the English party declare that the “Switzerland” was advertised to sail from Hull on the 17th and London on the 18th, and that the tickets they purchased for £4 18s. contain that contract. At the last moment, however, they were told that they must go to Antwerp; that the “Switzerland” would not touch at the English ports at all. They were accordingly shipped to Antwerp in two small coasters, and lodged for a night in a filthy hotel, with bedding made of wet shavings and straw. Next morning they were hustled on board the steamer, only ten minutes being allowed for four hundred and thirty passengers to get aboard. Some were very rudely treated, even to the extent of being pushed and kicked. They found the steerage wet and dirty, so that the bedding soon became water-soaked. There was no separation of the sexes whatever; and the accommodations were so scant that several of the passengers could find no bunks, and had to sleep on the deck. Some of the bunks broke down in the first storm. According to the statements of the English-speaking passengers, during the whole long voyage of eighteen days the most disgraceful immorality prevailed.

A PERFECT PANDEMONIUM.

To make matters worse, if that were possible, there were only three lights under steerage at night; and in this semi-darkness a perfect pandemonium prevailed. To use the language of one of the men, “the ship was nothing less than a floating hell.” Only two gallons of fresh water were furnished in the morning for four hundred and thirty people to wash with. The officers of the ship, it is alleged, were surly, and sometimes brutal, and laughed at the passengers’ complaints, except the second steward, who was more courteous, but could do little for them. David Lawton declares that he was able to get water to drink only twice during the whole voyage. The officers of the ship were mostly Germans; and, when the passengers complained, they pretended not to understand them.

The names of the English passengers who unite in the complaints, as briefly given above, are, Edward Marryatt, David Lawton, Alfred Morrison, Thomas White, James Alexander, and George Septimus Kirkham.

The complaint of the German steerage passengers contains the names of no less than one hundred and thirty-six persons; but the spokesmen of the party, in the formal complaints and affidavits laid before the Emigration Commissioners, were Herman George Koenig, Alfred Haecklaender, and George Reinhard. Their statements were of the same tenor as those of their English-speaking fellow-passengers. One of them said that he had crossed the ocean several times in the steerage of different vessels, but had never seen such immorality, ill treatment, and filth, as in the "Switzerland." The steerage was always wet and dirty, and their bedding was never dry.

ILL-TREATED TARNS.

But the passengers, it is said, were not the only sufferers. The sailors, so it is alleged, were the victims of the brutality of one of the petty officers, — an Irishman, either the boatswain or the boatswain's mate, — who beat and abused them shamefully. On the second day out, it is charged he seized an iron bar, and crushed in the head of a sailor, whose name the passengers did not learn. The man fell, and lay as though dead; and after about a half-hour was carried below, and never seen again by the passengers or the crew. Some of the former are of the opinion that he was killed, and that his body was thrown overboard. In seeking for further evidence of this alleged murder, a "Herald" reporter found two of the sailors of the "Switzerland," named Frederick Heintz and Olaf Oelsen, who confirmed the passengers' story of the brutality of the boatswain. They did not know whether or not their messmate was dead. If he was not, they said, he is still in the ship's hospital in a critical condition. The unlucky sailor had done nothing, it was alleged, except to tell the officer that if he struck him, as he had threatened to do, he would have to defend himself. Thereupon, the story runs, the boatswain seized an iron bar, and broke the man's skull. The boatswain's name was unknown to the two sailors with whom the reporter talked. It was their first cruise in the "Switzerland," and they had not heard his name.

The Castle Garden Committee of the Commissioners of Emigration will investigate the passengers' complaints to-day.

A cabin passenger on the "Switzerland," a gentleman of intelligence and observation, whose sympathy was aroused in behalf of the unfortunate steerage passengers and for the crew, made a statement to the reporter, which strongly confirmed the sad story told by the immigrants who complained at Castle Garden. The gentleman in question is an old traveller; but he said he never saw any thing so shameful as the management of matters on board the "Switzerland," especially in the steerage, where people were crowded together like hogs in a pen. "Such dirt, immorality, and foul smells," he said, "are beyond belief. It was enough to breed a pestilence, and would have done so, had it not been that the weather was so cold. The steerage was always wet and unhealthy, and I don't believe it was cleaned or disinfected during the whole voyage. There was a great deal of sickness on board, undoubtedly caused by the dirt. No pure water was to be had. The arrangements for the second-class passengers were very imperfect, — in fact, shamefully bad. Even the commonest articles of necessity were not to be had. When complaint was made to the captain in regard to the ill treatment and sufferings of the steerage passengers, he expressed his regret, and said that he would remedy the abuses if he could, but that it was not in his power to be in every part of the ship at once."

A BRUTAL BOATSWAIN.

“The man who was nearly murdered,” the reporter’s informant went on, “was an American, I believe. It was reported that he had drawn a knife on the boatswain’s mate, and was knocked down with a piece of iron. I don’t know the name of the boatswain, or that of his mate; but the former was a Scotchman, and I heard him called ‘Tom.’ It was an every-day matter for him to kick and beat the men. There was a little half-clad Italian boy, who tried to pick up a living on board by blacking boots, and whose box and brushes were his capital to start in life in the New World. This boatswain, one day, as a piece of fun, upset the boy’s box, and kicked it to pieces with his heavy boot. The poor lad cried continually during the rest of the voyage. Another day the boatswain ordered an old Belgian sailor to do something; and, because the old man did not run, he kicked him from one side of the ship to the other. This was so brutal a thing that it nearly caused a mutiny. Another time I saw him approach a man who was tarring a donkey-engine, and smear the fellow’s face with the stuff, almost suffocating him by pushing the brush into his mouth. He refused to allow the poor man to wash off the disgusting, suffocating stuff all day. He played the same cruel joke on a man who was painting a boat,—a poor stowaway, with scarcely any clothing. He made the man swallow some of the paint, which nearly strangled him.

“But the most cruel of all his deeds that I saw was his treatment of two Italian stowaways who were found concealed in the hold. He ordered them to go below to the coal-hole; but, as they could not speak English, they probably did not understand him. Thereupon he ordered them to be brought out on deck, stripped naked, and made them stand for hours exposed to the biting wind.”

Another gentleman who travelled in the cabin of the “Switzerland” said, “The matter ought certainly to be brought to public notice; and that is, the gross brutality to which the crew were systematically subjected by the men who were immediately in charge of them. The deck was daily and almost hourly the scene of savage and cowardly assaults upon helpless seamen, whose only fault appeared to be, that, being for the most part foreigners shipped from Antwerp, they did not readily understand the orders, which were bellowed out to them amid a storm of curses. Sometimes they misapprehended their instructions, or did not carry them out with sufficient alacrity to satisfy the man who was placed in charge of them; and it was no uncommon spectacle to see men kicked from end to end of the deck.”

AN OFFICER’S EXPLANATION.

Second Officer Mills said, “Being a junior officer, I do not wish to take on myself the responsibility of answering for the captain or other officers, who are all on shore. As to the alleged case of brutality in connection with the beating of the seaman, George Hill: I was on the bridge at the time it occurred, and only have a hearsay account of the matter. We had shipped a crew pretty well under the influence of liquor, and who were constantly quarrelling among themselves for the first twenty-four hours. As far as disobedience or obedience of orders was concerned, it was six of one and a half-dozen of the other. They were ugly with drink. About eight hours after we had started, and when off the mouth of the Scheldt, a difficulty occurred forward. During the *mêlée*, in which several of the men were engaged, Hill drew a knife; but, before he could use it, he was knocked down, and quite severely cut about the head. He was taken below, and did not

come out of the ship's hospital during the voyage. I can say that the boatswain is a pretty rough fellow, who has several *aliases*; and I do not know under what name he has made the two voyages he has been on this vessel, as I always addressed him as 'Bosun.' His mate is another sort of man altogether. I have been assured, however, that the boatswain did not strike Hill at all."

The surgeon of the steamer, Dr. A. Weir, said, "Hill was brought down the companion-way to me, and was at once placed in the ship's hospital, where he still remains, though able to walk around the deck. He was beaten soon after we left Flushing, and the injuries to his head (four or five cuts) were so severe that at one time I despaired of his life. He does not know who hurt him, as he was very much intoxicated at the time. He wanted to go to his home in Cherry Street to-day; but I could not permit it: first, because he is not fit to be allowed to travel on the streets alone, weak as he is; and, second, because he shipped at Antwerp, and, under the shipping laws there, we must return him. And, if we gave him leave, he would undoubtedly desert." — *New York Herald*, Dec. 9, 1880.

THE "SWITZERLAND." — ANOTHER SIDE TO THE COMPLAINTS MADE BY STEERAGE PASSENGERS. — INVESTIGATION BY THE COMMISSIONERS OF EMIGRATION.

The Castle Garden Committee of the Commissioners of Emigration yesterday afternoon held an investigation of the sworn complaints preferred by the steerage passengers of the Red Star line steamer "Switzerland," from Antwerp, against the officers of that company, for failing to provide separate sleeping apartments for the sexes, and for other abuses specified in their statements, as published in yesterday's "Herald." Messrs. Hurlbut, Ulrich, Star, and Pinckney, of the Commissioners, were present; President Hurlbut conducting the examination.

The first witness examined was Herman George Koenig, one of the passengers whose affidavit was given in yesterday's "Herald." His testimony was substantially the same as his affidavit. When other complainants were called for, there were none forthcoming; and it was regarded as very singular, that, out of one hundred and thirty-six persons who signed the original complaint, only one was present to sustain the serious charges at the hearing yesterday. It is no doubt true that many of the immigrants could not afford the time to wait over in New York for the hearing. Three immigrants were present, who testified in direct conflict with the charges made.

Barbara Hochstaedler, a good-looking German woman, deposed that she had crossed the ocean three times in the steerage. She came out in the "Switzerland" to join her husband in the West, and had travelled alone. She said, that, so far as she knew, the sexes were not mingled together, single women not being compelled to sleep in the same compartment with men, and so on. The single men were supposed to sleep down stairs, in the lower steerage, and the unmarried women were put in the upper steerage. A few single women, however, by their own choice slept with their parents in the compartment reserved for married couples. The witness saw no immorality, and heard of none. The water was good, and there was enough of it. She had no complaints to make against the management of the steamer. She had been as well treated as she could expect in the steerage.

William Sharp, a steerage passenger, also deposed, under oath, that he had no complaints to make. He did not see or know of any immorality. The men and women had separate apartments, although there were no signs over the doors to distinguish them; but they need not have occupied the same berths unless they

chose to do so. The steerage was wet and damp at times, but he did not know of any sickness that was caused therefrom. The witness, under further examination, denied the stories of scarcity of water for washing and drinking purposes.

Arthur Christian Day, another steerage passenger, gave testimony to the same effect. He knew nothing of the serious abuses of which one hundred and thirty-six of his fellow-passengers had complained.

CAPT. ANDERSON'S EMPHATIC DENIAL.

John Bruce Anderson, the captain of the ship, was then placed on the witness-stand. He testified emphatically and without hesitation, and denied all the serious charges made by the complainants. He said that he attributed all the complaints to the fact that the voyage was so long, on account of the bad weather. He said that there was plenty of room in the steerage; that separate rooms, with doors, were provided for the sexes; and that there was no compulsory mingling of the two. On the contrary, every thing was done to preserve good morals. He visited the steerage himself once every day during the voyage, and sometimes oftener, and saw that every thing was kept clean and wholesome. The passengers quarrelled and fought among themselves; and, while the Germans sang "Die Wacht am Rhein," the French shouted "La Marseillaise." Sometimes they almost came to blows. The captain declared that the voyage was unusually lengthened and stormy, and that, on this account, there was some discomfort; but he repeated his assertions, that no complaints had been made to him during the voyage. There was no overcrowding, more than enough berths being provided for all. Some of the passengers slept on the deck, but they did so of their own choice. They were Englishmen, and declared that they would not sleep in the lower steerage with the Italians. Witness was of the opinion that the complaints among the passengers had all been fomented by one man, who had induced the passengers to sign the paper complaining of their bad treatment.

Louis C. Martines, chief steerage steward, testified that there were four hundred and thirty-six steerage passengers, and that there were about four hundred and fifty berths. There was no overcrowding, while there was plenty of water and good food. He confirmed the captain's story, — every word of it.

A. H. Weir, the ship's surgeon and purser, was sworn. He declared that there was no serious sickness. He knew of no overcrowding, and no immorality, or of men occupying the women's berths. It was witness's first voyage, and he did not know how the steerage people were usually treated.

Mr. Hennessy, of Peter Wright & Sons, who was present as the representative of the agents of the line, declared that the company invited a full investigation. He denied that there was any foundation for the complaints.

The Committee took the papers, and reserved their decision.—*New York Herald*, Dec. 10, 1880.

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