ART. XXV—*Ship Fever, so called; its History, Nature, and Best Treatment. The Fiske Fund Prize Dissertation, for 1849.* By HENRY GRAFTON CLARK, M.D., Member of the Boston Society for Medical Improvement. "Per Ardua." Printed by order of the Rhode Island Medical Society. 8vo. pp. 48. Boston, 1850.

DR. CLARK has not entered into a very elaborate investigation of the pathology of ship fever. His dissertation, nevertheless, presents a very sensible and well written exposition of the peculiar character and treatment of the fever with which, under that name, we have unfortunately become of late years familiar, in consequence of its extensive prevalence among the immigrant passengers from Europe, who have crowded our principal commercial cities and their immediate vicinities.

In one of the hospitals opened for the especial reception of immigrants labouring under ship fever, the observations which form the basis of the present dissertation were made. There two thousand cases of the disease fell under the personal notice of the author; consequently his opportunities for studying its symptomatology and usual course, and the means best adapted to arrest its fatal termination, have been sufficiently ample.

Dr. Clark believes that the disease which forms the subject of his dissertation is identical with that described by Howard, Pringle, Monxham, McBride, Darwin, and others, under the various titles of jail, hospital, or camp fever; putrid malignant fever; putrid continual fever; petechial fever, maculated typhus and English or Irish typhus. And farther, that it is very clearly different from any fever which has hitherto been known in this country. There is every reason to fear that with the present rush of immigrants to our shores from England and Ireland, although it has until recently been only an exotic, it will soon become domesticated among us, and hereafter loiter around or fix itself permanently in the purlieus of all our great maritime cities, if it do not follow the great avenues of travel into the interior, especially into the manufacturing towns.

Dr. Clark believes the typhus fever which has occasionally prevailed in this country, particularly in the New England States, often as an extensive epidemic, is an entirely distinct disease from that known as ship fever, the first being typhoid fever, the latter the true typhus of Great Britain.

No extended examination is, however, entered into to prove the distinct nature of these two diseases. The author contents himself with a simple statement of the leading points in which they differ from each other.

According to Dr. Clark, typhoid and typhus fever differ in their access, their progress, and their termination.

"Typhoid fever is slow and insidious in its attack; often of unknown origin; only contagious in a modified degree, and under certain circumstances; not infectious; there is generally diarrhoea, and often hemorrhage from the bowels; opistaxis; its diagnostic *tache*, consisting of a sparsely scattered pink eruption, is chiefly confined to the abdomen and lower part of the chest, and *disappears* on pressure. The duration of the disease is from two to twelve weeks, the average being about three weeks. An ulceration or inflammation of Peyer's glands is *always found* on post-mortem examination. It attacks subjects in *all conditions* of life, and is *not* prevented by any attention to cleanliness and ventilation.

"Typhus fever, on the other hand, is of sudden and violent access, often seizing the patient *instantly* upon his exposure to the exciting cause; it originates from well-known causes; is confined to those exposed to contagion from the sick, or from exposure in a bad atmosphere, and filthy and badly situated tenements, crowded with animal exhalations; it is infectious, and in the majority of cases is unaccompanied (in its acute form) with diarrhoea. The eruption is very abundant, often being sprinkled over the trunk, head, and limbs. It is of a dirty red colour, does not disappear on pressure, and frequently, as the disease progresses, becomes of a dark brown, which sometimes remains even after death. The eyes are dull and suffused. The duration of the fever is about fourteen

days. There is no inflammation of Peyer's or Brunner's glands, although at the same time the whole neighbouring intestine is often seriously affected.

"Finally, the secondary affections of the absorbent system, and the peculiar ulceration of the large intestines (the cause of a most fatal hemorrhagic diarrhoea), are worthy of especial notice as common sequelæ to ship fever. They do not occur in typhoid fever. In fact, the distinctions must be so obvious that the diagnosis of a well marked case ought never to be doubtful."

Although, in the foregoing sketch of the differential diagnosis of typhoid and typhus fever, all the features which characterize each of these diseases are not noticed, still it is sufficiently full and accurate to enable any one to distinguish between them. After all, however, the question, Are these two forms of typhus fever specifically different, or are they merely different grades of one and the same disease? remains unanswered. If it can be shown that in the one there is invariably present an inflammation of the solitary glands and glandular patches of the intestines, which is invariably absent in the other, this, with the difference in the symptomatology and general course of the two diseases, would certainly be sufficient to establish a specific difference between them. But this is still the point in dispute: many assert that the inflammation of the glandiform bodies of the intestines occurs, also, frequently in cases of unquestionable typhus; and we have certainly seen cases occurring on board of immigrant passenger ships where the typhus fever prevailed, or in those who have recently landed from such vessels, marked by the very symptoms described as those diagnostic of typhoid fever, and presenting after death the same lesions of the intestines.

Ship fever, according to Dr. Clark, is communicable by contagion. In the hospital under his charge, on Deer Island, Boston Harbour, all the nurses, who were usually themselves immigrants, were successively attacked, and several of them died. The physician had fallen a victim to the disease, and when Dr. C. first undertook the superintendence of the establishment, the only remaining assistant physician was sick with the fever. He considers it also to be infectious. He has known a considerable number of instances in which the disease was unquestionably propagated by chests of clothing, &c., without any personal contact with the sick.

"In all probability," he remarks, "one attack of ship fever, as in the case of the other exanthems, generally precludes another; and although there are well-known instances in which the disease has occurred a second or even a third time, yet, as a general rule, the protection is complete; and if the secondary cases do sometimes occur, they are in a milder form and much less to be dreaded. Indeed, from a personal familiarity with nearly two thousand cases, we are sure that this is the *rule*, and that second cases are the exceptions to it; for we are quite certain that we have known more instances of varioloid after small-pox, or second attacks of measles and scarlatina in a greater number of cases than of ship fever. It must be understood that the secondary diseases which occur after the fever, and are only appendages to it, are *not* referred to, for these are frequent and often fatal. The point is, that *second attacks* of the primary fever after an entire recovery are exceedingly rare, even with the greatest exposure."

The disease is seldom propagated from a single patient in a well-ventilated house; even in a large hospital, with strict attention to insure the cleanliness of the persons, clothing, and bedding of the patients, and a proper ventilation of the apartments, the disease will not spread.

"In this particular it differs essentially from typhoid fever, which, although its contagious properties may be considered to be much below those of typhus, yet it will often be found that typhoid fever will persist in spite of the most energetic measures of cleanliness and ventilation. The poison of typhoid fever seems to be of a more subtle character, and decidedly less amenable to any hygienic rules of this sort."

"Ship fever," Dr. Clark remarks, "like the other exanthems, is ordinarily a self-limited disease, its most usual duration being fourteen or fifteen days, the great majority of cases of the primary fever terminating within that period. Nevertheless, so far as our experience goes, at least two-thirds of all the deaths occur at a much later period. They are caused by the secondary diseases,

which follow, after a certain period of partial recovery, so that they may be considered as relapses."

This corresponds with our own experience. In the cases of ship fever which have fallen under our notice, in the greater number of those which terminated fatally, death was unquestionably the result of the secondary affections—particularly the diarrhoea, which is so liable to occur after a partial recovery from the primary disease. We cannot, however, agree with Dr. C. in regard to the absolute contagiousness of either the typhus or typhoid fever—that the first is communicable in small, filthy, ill-ventilated and crowded apartments, as well as by the filthy clothing of the sick, when shut up from the air, we admit; but, as the author has himself shown, its communicability is effectually prevented by cleanliness and ventilation, which would not be the case if the disease was absolutely contagious. In regard to typhoid fever, it appears to us that the facts with which we are acquainted in relation to its etiology would indicate its dependence upon some inappreciable endemic cause, often limited in extent, and upon a peculiar predisposition to its influence, which certain individuals possess in a much greater degree than others. We have no doubt, however, that it may be communicable under similar circumstances with those which render typhus fever communicable.

The secondary affections common in cases of ship fever, Dr. Clark classes under two principal forms, which, although they sometimes run into each other, are generally quite distinct:—

"1st. General dropsy, which is often accompanied by swelling and sloughing, or suppuration of the parotid and other glands, and occasionally by suffocative cedema of the glottis.

"2d. A diarrhoea or dysentery, which is usually dependent upon inflammation and ulceration of the ileum and cæcum, and is frequently fatal.

"1st. The *dropsical affection*, which we have seen in several cases, after severe attacks of fever, is scarcely referred to by authors who have written on the fever. It seems to bear the same relation to this fever that it does to scarlatina, and is accompanied with suppression of urine. We have known it to be fatal in four or five instances out of about three times that number of cases. In two of them death was caused by the extension of the disease to the glottis, the general state of the patients otherwise precluding any chance of benefit from tracheotomy. In one, death followed extensive sloughing of the parotids; in the others the patients were apparently exhausted by an obstinate diarrhoea, with which the dropsy was complicated.

"2d. *Chronic diarrhoea and dysentery*.—This most fatal sequel to ship fever comes on in most instances, apparently from some error in diet, in the form of a slight diarrhoea, which makes its appearance usually towards the close of convalescence and after the appetite is pretty fully established. If not arrested in this stage, it commonly goes on to a fatal issue, although we have seen a few recoveries after a very long continuance of the disease in an aggravated form. The patient has, at length, frequent discharges of a thin, yellowish, white, frothy liquid, of very fetid odor, which, as the disease advances, becomes sanious or purulent; the tongue is flabby and red, the pulse feeble and frequent, and there is great prostration. The pain is not always severe at first, although there may be considerable tenderness of the abdomen. In the latter stages it often becomes intolerable."

The important question—What are the pathological changes peculiar to ship fever? is answered in the dissertation before us, by presenting an account of all the lesions discovered after death in the cases that were examined. This account is, however, imperfect—in consequence of no intimation being given of the number of post-mortem examinations from which it is derived: and in consequence of its furnishing no exact specification of the relative frequency of the several lesions described. We present it to our readers in the words of the author:—

"*Lesions after death during the acute stage*.—These consist, as in other fatal exanthems, chiefly of congestions of the various organs, especially of the membranes of the brain, and the parenchyma of the lungs. The bronchial tubes are often found much obstructed with frothy and tenacious mucus. The blood

in the heart and great vessels *was noticed* to be peculiarly dark, fluid, and sily; its clot large, loose, and easily broken. The lining membrane of the stomach is *sometimes* seen to be reddened, and dotted with clustered points near its cardiac orifice, but this was not constant. In cases where the urine had been retained, the bladder showed marks of irritation. In the small intestine, the internal surface of the ileum sometimes presented traces of inflammation, but the pathological condition was *more generally* limited to a decided injection of this part for an extent of three feet or so from the ileo-cæcal valve (without disorganization); and no case was examined in which this was not observed to a certain extent, which varied with the duration of the disease. The same may be said of the large intestines also.

"It must be considered as established, that ulceration of the small intestines does not take place in the acute form of typhus; but that the diarrhoea, which happens as a sequel to it, depends upon ulceration, hypertrophy, or inflammation of the ileum, cæcum, or colon. Peyer's glands are *usually* unaffected in any form of ship fever.

"One important symptom which occurs in some of the graver cases, we have not seen mentioned in any treatise. It is, a remarkable retention of urine. At the same time, there is no suppression, but rather an increased secretion; the catheter procuring sometimes from three to four pints daily. It is an unfavourable sign, and occurs mostly in those cases where the nervous system is a good deal affected.

"Another characteristic of this fever is the great indifference which the patient manifests in regard to the issue of the disease in his own case and in those about him—an indifference which is entirely distinct from delirium, and not at all dependent upon it.

"Tympānitis occurs oftener than is usually supposed; and although the gravamen of the fever is usually upon the brain and the nervous system, yet there are very few cases in which the abdomen is not more or less disturbed."

We proceed to notice the treatment which Dr. Clark found most successful in arresting the disease, and its sequelæ.

The first and all-important measure is to secure the perfect cleanliness of the person and clothing of the patient, as well as of his apartment and bedding, and the freest ventilation of the latter. In other words, to remove the patient from the influence of the inducing cause of the fever.

After clearing the digestive canal, the camphor mixture, with spirits of nitre, or the liquor ammoniæ acetatis, were given during the day, and when there was any restlessness, a full dose of Dover's powder at night. Demulcent drinks to satisfy thirst. If the bowels were not otherwise moved, a dose of oil or magnesia was administered, once in two or three days. If there was delirium, accompanied by a hard pulse, the fever mixture of Dr. Stokes was substituted for the other. Ice water was applied to the head, and sinapisms to the nucha, ankles, or abdomen. If the pulse was depressed, brandy or wine were administered in free doses until the delirium subsided. A blister to the back of the neck proved almost a specific in many such cases. Delirium, sometimes of a very violent character, was present in many cases which ultimately recovered. There was nothing from which the patients derived more comfort than frequent sponging of the trunk and limbs during the height of the fever.

"Local congestions about the chest frequently occurred from the exposure of patients on their way to the hospitals, or during the disembarkation, at an inclement season. They were treated mostly by external applications, such as epispasties, dry cuppings, &c. In some cases the antimonial treatment, combined with local bleeding, was found to be advantageous. But even in these cases, which were complicated with severe pneumonia or bronchitis, it was often necessary to continue the stimulants at the same time."

Bleeding, general or local, was seldom thought advisable in uncomplicated cases. In the few cases in which it was resorted to, leeches or cups were always preferred. Dry cupping often seemed to be of the greatest service in instances where the loss of even the smallest quantity of blood was contraindicated.

The chief reliance of the physician, in a very large proportion of all the cases of ship fever, must be upon the administration of direct stimulants. Wine

or brandy—the latter of which Dr. Clark prefers in hospital practice—must be given, often in the most liberal quantities, measuring them only by their effects. The most furious delirium will often be subdued by free draughts of wine or brandy and water, and in so short a space of time that the effect seems almost magical. Dr. Clark's ordinary dose of brandy was about half an ounce to an ounce, repeated usually every three or four hours.

Camphor, when the nervous system is much disturbed, may be given with advantage, in doses of from five to fifteen grains.

"Quinine is most useful after the acme of the febrile symptoms is passed, and will be found to be beneficial in preventing the dropsical sequence of the fever."

Purgatives are to be used in all cases with the utmost caution. A moderate use of calomel may sometimes be required during convalescence, but castor oil is better for common use.

"Some subjects were brought into the hospital in an almost moribund condition, and unable to swallow. In these cases, stimulating injections were administered (per anum). Dry heat, by means of hot flannels, bricks, &c., seemed to be of great service in aiding in the restoration of the enfeebled circulation, and some patients recovered who really seemed, when they first arrived, to be in a desperate condition."

"*Anodynes*.—Opium, in the form of Dover's powder, was almost universally preferred as an anodyne, excepting during the secondary diarrhoea, when it seemed to irritate the bowels. It was given a great deal, and almost invariably with good effect. It is much better borne during the delirium of typhus than of typhoid fever. Its sedative effects in most cases were quite direct, and very seldom preceded by any period of excitement. Its use is of course improper, where there is any tendency to coma."

"*Sulphuric Ether*.—This was used by inhalation in a few cases, with very good effect" and, "it may become, eventually, a most valuable remedy in the delirium and restlessness of fever, when narcotics would be counter-indicated."

"*Anti-septic Enemas* are sometimes useful, especially if there is much puffing up of the abdomen from flatus; and the common brewer's or baker's yeast is a convenient article for this purpose."

For the diarrhoea, which occurs as a sequel of ship fever, Dr. Clark employed a solution of nitrate of silver as an injection, with the application of counter-stimulants to the abdomen. The nitrate was administered with a glass syringe, to which he sometimes attached Mr. O'Beirne's tube, introducing thus the solution directly into the colon, and throwing it up from that point. In some cases, this treatment was apparently beneficial, in many others no treatment availed. Dr. Clark believes it promises as much as any other, when combined with the usual opiate remedies.

During convalescence from ship fever, Dr. C. remarks, a slight indiscretion in diet is sure to cause a relapse, or to bring on the fatal diarrhoea. At first, light farinaceous food, with porridge, rice, &c., in small quantities at a time, are the best articles. Broths and soups are not well borne for a long time after recovery has commenced, and their use should be delayed until the patient is able to take a little exercise about the house. Dr. C. directs as drink, chamomile tea for breakfast and supper, and a little soda water or brandy and water for dinner.

"If the weather is suitable, the patient should be allowed to exercise in the open air as soon as he is able to walk; for nothing in our experience so rapidly restores the exhausted energies of a convalescent from ship fever."

As a sensible, practical dissertation upon the leading particulars connected with the etiology, symptomatology, and treatment of ship fever, the prize Essay of Dr. Clarke will be read with interest and profit. What facts the author has adduced in respect to the pathology of the disease are in themselves valuable—they are, however, less so than he might have rendered them by employing more precision in their detail. So far as they go they would appear to favour the doctrine of the specific difference between ship, or typhus, and typhoid fevers; and yet we suspect that the advocates of this doctrine would not be inclined to appeal to the dissertation of Dr. Clark for very positive, or at least conclusive evidence of its truth.

D. F. C.