

success as if the latter were used. It is more soluble; tends less to derange the gastric functions; begets less of the malaise; the cephalic symptoms are less violent and enduring, and it is not followed by any special unpleasant effect more than is observed to ensue after use of quinia, and it may be administered in all cases and under all circumstances where this substance is indicated. In saying this, we do not profess to have observed anything new in its mode of use, administration, or the effects arising from it, more than previously detailed by Bally, Bardsley, Pepper, and others who have impartially investigated its properties; but after a more extensive series of experiments, especially in intermittent fever, we can confirm the results obtained by them.

In conclusion, we hope that others will be prompted to extend to it the careful consideration demanded by the subject, and doubt not but all said in its favour will in essential particulars be confirmed.

ART. IX.—*Miasmatic Typhoid Fever*. By JAMES J. LEVICK, M. D., one of the Physicians of Pennsylvania Hospital. (Extract from a paper read before the Philadelphia County Medical Society, October 14, 1863.)

Without discussing the question of the identity or non-identity of typhus and typhoid fevers, I propose briefly, in this paper, to direct attention to some of those modifications of typhoid fever which are developed by the peculiar antecedents of the individuals thus affected. Reference is not now made to those cases which, from some personal idiosyncrasy, present occasional peculiarities, such as may be seen in the walking cases of this disease, or in those instances in which the cerebral or pulmonic symptoms are so prominent as to mask the ordinary enteric phenomena; but to those in which there is associated with the ordinary cause of the disease a miasmatic or other specific poison, the coexistence of which superadds to the ordinary symptoms of the disease, phenomena of its own production. I do not mean by this to imply that necessarily a hybrid disease is produced; but believe that in some instances, at least, the two diseases run their course together, side by side, to some extent modifying each other, but not inevitably losing the individuality of either.

This doctrine of the coexistence of specific morbid poisons is in direct opposition to the teachings of the earlier writers. John Hunter distinctly states that "no two fevers can exist in the same constitution, nor two local diseases in the same part at the same time." That this opinion of Hunter is erroneous has been clearly demonstrated by Ring, by Marson,

and more recently by Murchison. Marson¹ adduces numerous instances of the simultaneous existence of variola and scarlatina, variola and rubeola. Ring² reports the coexistence of smallpox, measles, and whooping-cough; Murchison,³ numerous instances of smallpox and scarlatina, as well as cases in which typhus and typhoid (or, as he calls it, *pythogenic*) fever coexisted.

Although it has thus been shown that the doctrine of Hunter is untenable, there are yet not a few in our profession who hold that there exists a special antagonism between the typhoid fever and the miasmatic fever poisons. Dr. Murchison⁴ quotes numerous authorities on this subject, and refers to the writings of M. Bondin and M. Ancelon, who have largely investigated this subject. Another French writer, M. Thirial,⁵ has written a memoir on this antagonism. Murchison very justly maintains that the facts recorded by these writers so far from proving an antagonism rather suggest a similarity of origin of the two fevers, and I am not sure that they do not prove that the one may act as the determining cause of the other. Be this as it may, I feel very confident that the two poisons are often co-operating in the same individual, just as we have cases of miasmatic fever associated with pneumonia, with dysentery, and other diseases.

After having been accustomed for many years to treat the ordinary form of typhoid fever, my attention was arrested in the early part of last year by the occurrence of a series of cases which, while presenting the ordinary phenomena of typhoid fever, had superadded to these many of the symptoms of well-marked miasmatic remittent fever. These cases were characterized by the suddenness of the attack, by the intense pain in the head and back of the neck, by the regularly periodical remission and exacerbation of the fever, and by its amenability to quinia. I have ventured to call such cases *Miasmatic-typhoid fever*, preferring this term to that of *malarial*, for although etymologically the distinction will not hold, yet by common consent in this country the term miasmatic is accepted as belonging to that form of poison which is believed to be due to paludal exhalations; while the term *malaria* (*bad air*) applies with especial propriety to what is now regarded by some English authorities as the specific cause of typhoid, or, as they call it, *pythogenic* fever.

In some remarks made at the Pennsylvania Hospital, June 7th, 1862,

¹ Marson on the Coexistence of Variola and Scarlatina. (Med.-Chir. Trans., vol. xxx. p. 121.)

² See Williams on Morbid Poisons, vol. i. p. 211.

³ Murchison on the Coexistence of Specific Morbid Poisons. (Brit. and For. Med.-Chir. Review, vol. xxvi. p. 178.)

⁴ Murchison on Continued Fever, p. 421, London, 1862.

⁵ De l'antagonisme entre la fièvre typhoïde et les maladies graves en général, &c., par le Docteur H. Thirial, Paris, 1855.

which were published at that time, I gave a detailed clinical account of one group of these cases. I shall, therefore, content myself here by giving, in a condensed form, a summary of the observations then made. That these were cases of typhoid fever was shown by the fact that in every instance, even in the mildest, was found the characteristic eruption. That there was disease of Peyer's glands was inferable from the fact that diarrhœa was present in every case, or was readily induced by small doses of cathartic medicine, a teaspoonful of castor oil producing five alvine passages.

In some of these cases the attack was gradual, a sort of imperfectly developed stage existing for a week or longer; the patient able to move about, but with a little diarrhœa; pretty well in the morning, but with severe headache and some fever every evening, with restless, uncomfortable nights. In other instances the attack began suddenly, with a chilliness and intense "splitting" pain in the head, unlike the headache of typhoid fever, which is dull and heavy. A slight cough, with the usual bronchitic râles, was noticed in nearly all the cases referred to. The remittent character of some of these cases in their forming stages has been already alluded to; in all of them the paroxysmal character was strongly developed, a marked exacerbation occurring in the latter part of the day or evening, the fever passing off towards morning, and the apyrexia ushered in with as profuse sweating as is witnessed in the most decided cases of miasmatic fever. I am well aware that a partial subsidence occurs in ordinary typhoid fever, but the exacerbation and remission of the miasmatic typhoid fever bear no resemblance to this temporary subsidence in "continued fever." The severe headache, which has already been noticed, was one of the most constant symptoms—described by the patient as "splitting," "battering," and the like; it appears to have been one of the chief sources of his discomfort, though generally associated with it were intense pains in the back of the neck and the muscles between the shoulders, and in some instances universal aching. The tongue was generally covered with a loose yellowish-white fur, and in all the cases to which I now refer did not present the dry, brown condition which is so often seen in the advanced stages of typhoid fever. The pulse, though in two instances reaching 120, was rarely above 90, and in all was soft, and in none alarmingly feeble. There was in these cases no great tympanites. The mental condition of these patients was unlike that of ordinary typhoid fever, in being free from the dulness or hebetude which usually attends this disease. Though indisposed to any active mental exertion, all these patients retained their interest in the events transpiring around them, and gave intelligent responses to questions put to them. In none of them was there well-marked delirium. These were the phenomena which presented themselves in all the cases of miasmatic-typhoid fever which were unassociated with the graver complications hereafter to be alluded to. Merely considering the facts which have been mentioned, we might readily infer that this exposure to the double poison of miasmatic and

typhoid fevers had developed a new disease, a *tertium quid*, as it were, in which the elementary constituents were so intimately united as to have developed a new and distinct compound body, analogous to what occurs in chemical combinations. But it is an interesting fact in this connection, that the administration of the usual remedy in remittent fever, sulphate of quinia, while it always promptly relieved and arrested the miasmatic fever element of the disease, did not promptly cure the patient; it mitigated the symptoms, but convalescence did not begin for a week or more; the enteric fever element continued, and this disease ran its course. But what was also highly interesting was the fact that the addition of the miasmatic fever element did not render the disease more serious than typhoid fever in its ordinary form. On the contrary, either this complication, or the means taken to combat it, seemed to render the disorder more tractable and less fatal. It should before this have been mentioned that all these illustrations of miasmatic typhoid fever occurred among soldiers or sailors engaged in our national service —sailors who had been attached to vessels carrying troops to Fortress Monroe and the coast of North Carolina; soldiers in the army of the Potomac, before and at the beginning of the Peninsular campaign.¹

Such was the character of the cases of miasmatic typhoid fever coming under notice in the spring and early summer months of last year. On the 7th of July, 1862, there arrived at the Pennsylvania Hospital, direct from

¹ More recently my attention has been attracted to another interesting fact in connection with this form of disease, which may be here briefly alluded to. During the late invasion of our State, it is well known that large numbers of patriotic young men entered the ranks of the State militia, and endured the hardships of a brief but victorious campaign. The health of these soldiers during their active service, for the most part, was excellent; but a week or more *after their return* very many of them were seized with this fever, and in some I am told it proved fatal. A more remarkable illustration of the same occurred to the members of Hasting's Battery, of this city. These young men offered their services to the President in the summer of 1862 for one year, which were accepted. They were attached to the army of the Potomac, and shared its varied fortunes, hardships, and exposures. At the expiration of the twelve months they were mustered out of service. Up to this time the health of the regiment had been excellent. But *on their return to their homes* in Philadelphia numbers of them were seized with a modified form of typhoid fever, which, though grave, has I believe in no instance proved fatal. Andral, in his earliest account of typhoid fever, makes mention of the fact that medical students coming to Paris for the first time were very liable to be attacked within a few weeks of their arrival with typhoid fever. The same has been noticed in London. Every one who has had much to do with students of medicine coming to our city from North Carolina and other miasmatic regions, well knows that nothing was more common than for them to be attacked a fortnight or sooner after arrival here with a severe form of bilious remittent fever, and this too after having lived safely all their lives long in the midst of the miasmatic poison. It is at least an interesting coincidence that the same fact obtains in the form of fever which we are now considering.

the army of the Potomac, twenty-seven cases of fever, presenting very different phenomena. These were men who had accompanied the army in its march along the Peninsula; had lain before Yorktown, had toiled in the swamps of the Chickahominy, and either had been active participants in the seven days' fight, or had been in the hospitals at the White House and elsewhere in this vicinity. They represented almost all forms of typhoid fever. Some were cases well described in my previous remarks, though of a more severe type. Others were instances in which, with the ordinary phenomena of typhoid fever, the *tache*, diarrhœa, &c., were associated those of pernicious congestive remittent fever, as evinced by the shrivelled washerwoman's fingers, copious serous discharges, not unlike those of Asiatic cholera, the colliquative sweats, and other symptoms of extreme exhaustion. Still another class were individuals in whom, to the ordinary typhoid fever symptoms, were added those of great blood poisoning, cases presenting the true typhoid, *i. e.*, typhus-like symptoms, as shown by extreme emaciation, excessive nervous tremors, delirium, sordes, excessive irritability of stomach and vomiting of a dark greenish fluid, diarrhœa, involuntary discharges from the bowels, petechiæ, vibices, sloughing bed sores, hemorrhage from the bowels, and in a large number of cases ending in death. The contrast between the mortality of ordinary typhoid fever, and as thus modified, was strikingly impressed on the writer's mind by the fact that of twenty-nine cases of typhoid fever treated by him during the months of April, May, and June, uncomplicated, except by those lesions which usually occur, all recovered; while of twenty-seven cases of typhoid fever brought under his care from the army, in which the complication existed of miasmatic poison, the scorbutic diathesis, the typhous condition, nine, *i. e.*, one-third, died—four of the number not living long enough to be put on any regular treatment.

Indeed it is difficult to paint a more melancholy picture than that which these poor creatures exhibited. Brought in crowded transports, they arrived in our city during the intense heat of July, and thence over the rough stones were conveyed to our hospital. With constitutions broken down by the life they had recently led, necessarily deprived of the kind of food to which their previous lives had accustomed them, drinking the water of the James, or the viler water of the Chickahominy, wearing both by day and night the same apparel; ill in crowded hospitals, to be transferred to more crowded transport ships—nothing was wanting to fill up the catalogue of causes which result in the development of genuine typhus fever. And yet I cannot recall one case in which the true typhus fever rash exhibited itself, nor was there, so far as I could learn, a single instance in which the fever was communicated by contagion to any one in the hospital. Petechiæ, passive hemorrhages, there were in melancholy abundance, but not the true rubeoloid rash. And yet, that the condition of the blood was very much that of true typhus, there can be no doubt; the injected eye, the acute delirium, or

the profound coma, all corresponded to this, as well as did the other phenomena before described. There was, indeed, in these cases a third morbid agent—a scorbutic or typhous condition of the blood associated with the true typhoid and miasmatic poisons.

Those who are familiar with the celebrated Walcheren fever, cannot fail to be struck with the remarkable correspondence, I had almost said identity, existing between this and the fever of the Chickahominy. This ill-starred expedition, the memory of which still casts its dark shadow over many an English home, left England 40,000 strong on the 28th of July, 1809, and sailed for the Scheldt.¹ The soldiers, exposed to the miasm of these flat, marshy countries, became affected to a fearful extent with a violent form of fever. Thousands of them returned to England broken down in health. A part of the army remained to garrison the island of Walcheren, “an island of all others the most unhealthy.” An idea may be formed of the unhealthiness of the soldiers, when it is stated that on the 14th of September, of 15,000 men in Walcheren, 10,000 were actually sick, the deaths averaging 20 to 30 per day. One week’s return gave five officers and 375 men dead (DAVIS’ *View of the Fever of Walcheren*, London, 1810, page 15). The type of this fever has generally been regarded as that of the miasmatic remittent, but that in very many instances it was really that of the miasmatic typhoid fever in its worst form, I think there can be no doubt. This is confirmed by the statement of Dawson, who has left us an interesting account of the cases coming under his care. He says of it: “The fevers were of the continued and intermittent kind, and in every case there was an unaccountable disposition in the one to degenerate into the other, and it was a circumstance which very frequently took place.”² This writer gives, among the symptoms attending the Walcheren fever, in the severe forms, a brown and furred tongue, a convulsive tremor of the body, great fulness of the abdomen with tenderness on pressure, violent and constant pain in the head, and delirium, pulmonary irritation, diarrhœa, the sudden occurrence (doubtless from perforation) of fatal peritonitis. After death, it is recorded by Davis and by Dawson, among other lesions, that “in the ileum and jejunum were little ragged ulcers, excavated in the middle, resembling chancre, or one large, or a succession of small ulcers spreading wide upon and deep into the coats of the intestine.” Both Davis and Dawson note tumefaction, and in some instances suppuration of the mesenteric glands as a not infrequent pathological condition of Walcheren fever. This, it will be remembered, was more than twenty years before Louis had pointed out these as the post-mortem lesions of typhoid fever. These writers fall into the error of treating of diarrhœa and dysentery as distinct diseases in these cases, instead of regarding each of them, and especially the former,

¹ This was exclusive of a large naval force attached to the expedition.

² Observations on the Walcheren Diseases, &c. By G. P. Dawson, London, 1810.

as in many instances but an attendant of the general febrile disorder. This mistake occurs in practice much more frequently than is suspected. Patients were often sent to us as cases of "diarrhœa" which, upon careful inspection of the abdomen, were readily recognized as cases of typhoid fever with its characteristic eruption.

I trust, on the other hand, not to be understood by this to assert that every case of diarrhœa with febrile symptoms, occurring under the circumstances I have related, was an instance of typhoid fever. That this was not the case was proved by the phenomena during life, and the appearances after death. In the few autopsies made at the Pennsylvania Hospital, the cases recognized as typhoid fever presented the anatomical lesions usually found in this disease, viz., enlargement of Peyer's glands, increasing in thickness lower down the bowel, the lowest in various degrees of ulceration, the solitary glands enlarged, as were also those of the mesentery, the spleen softened, and the liver in some instances engorged. This corresponds with the description given me by my friend, Professor Leidy, whose investigations as Pathologist to the West Philadelphia Military Hospital were of the most extensive and scientific character. But in cases of Chickahominy diarrhœa, as it was called, without the *tache* of typhoid fever, a different set of post-mortem appearances presented. In these, he tells me, were found patches of inflammation in the ileum; while in the glands of Peyer and the solitary glands there was invariably found a deposit of a black colour, but no ulceration. There was inflammation of the caput coli and sigmoid flexure, but none of the transverse colon. In one-fourth of these cases there was *discoloration* of the supra-renal capsules. The spleen was so impoverished of blood that its intimate structure could be more readily studied than usual. The lungs and heart were in appearance natural; there was no diminution in the relative proportion of the white and red corpuscles of the blood, but a great diminution or alteration in the whole amount.

In concluding these remarks on some of the modifications of typhoid fever, I wish it to be distinctly understood that no claim to originality is made in thus recognizing this association of the two poisons in the disease just treated of. I am well aware that its occasional existence has been noticed by our own writers, and its frequent concurrence by physicians in our Southern and Western States, where the elements for its development are more constant than they are with us. Dr. Drake, in his work on the Principal Diseases of the Interior Valley of North America—a monument of medical industry—describes what he calls *remitto-typhus*, not recognizing the distinction between typhus and typhoid fevers, and mentions the interesting fact, if it be such, that the union of the miasmatic and typhus fevers occurs only between the latter and the remittent, not with the intermittent. He adds what seems to conflict with this statement, but what my own observations already reported confirm, that these poisons combine in all

proportions, and that as the elements vary in their proportions, so the phenomena must vary. So, too, Dr. Wooten, of Lownsboro', Alabama, writes to Dr. Bartlett many years ago, "I have often seen typhoid fever and remittent existing together, and I have cured the paroxysmal exacerbation whilst the disease essential to typhoid fever continued." Numerous other authorities might be quoted. My own observations, however, were made at the bedside, and recorded before these two descriptions came under my notice. The especial object of this paper is to call attention to the fact that this coexistence is not merely a rare phenomenon, but one of frequent occurrence. While numerous illustrations in groups of cases might be adduced as confirmatory of this fact, it is its sporadic occurrence which it is most important we should bear in mind. When the same symptoms attack large numbers of people, our attention is arrested, and we are better prepared to encounter them; the single individual cases steal quietly upon us, and often find us off our guard. Although the instances here adduced have all been from among our soldiers, examples have recently occurred in private practice of the same facts. There can be no doubt that there exists at the present time in our city and vicinity a strongly developed miasmatic influence. It shows itself not merely in its familiar garb of intermittent and remittent fevers, but attaches itself to almost every other disease, if not lending its full livery, at least casting its mantle upon them. Cases even of cholera infantum have been noticed this autumn as thus disguised. So prominent are the miasmatic fever symptoms, and so amenable to quinia, that unless we are on the watch for the typhoid fever element it will for a time escape notice. In the instances under the writer's care during the last month there has been no decided diarrhoea, no especial sensitiveness of the bowels until discovered by the therapeutic test. In these cases, too, the mind has been bright and active, with none of the hebetude of typhoid fever. These cases have taught him the lesson not to be led astray in his diagnosis of fever by the occurrence of well-marked exacerbations and remissions, nor to suppose that a fever is purely miasmatic because the grave symptoms disappear under the use of quinia, but rather in all fevers, other than the ephemera, to search carefully, day after day, for the spots of typhoid fever; to sedulously avoid the use of all active purgatives, and in every instance, during the first week or two, to keep his patients exclusively on the use of liquid food, lest, by the sudden occurrence of fatal perforation of the intestine, when it is too late he may be aroused to a painful consciousness of the fact that he has been treating, not a case of simple remittent, but of *Miasmatic typhoid fever*.

Oct. 14th, 1863.