if a battalion had five companies, so the Swiss field-hospital has five "sections," each called "ambulances," or, as we would call them, "field-hospitals." Each section has four medical officers, one quartermaster, one apothecary, and thirty-four non-commissioned officers and men of the medical corps.

This is a very neat unit; but as it is intended only for European warfare, it is not an accurate guide for us, who can find no assistance whatever in a New Zealand fern-thicket, on the plains of Egypt, on the Crimean steppes, or in the jungles of Ashantee. We must embark with the means of being efficient, or we shall never be efficient at all.

1. *The Column of Sick Transport Carriages.*—So far as I understand it, there are no definite units, called "bearer-companies," in the Swiss service. They separate all the sick transport-wagons into units by themselves, and call them "transport-columns," assigning to each two medical officers and ten rank and file, and thirty-two wagons. These act as convoys; and by adding a column of carriages to the *personnel* of an ambulance (field-hospital) a bearer-company is made *pro tempore*.

It seems to me that it will always be a drawback in our service to think that, however efficient the medical officers and men of a bearer-company may be at work, the declaration of peace extinguishes them as an unit, and their good or bad tradition perishes. The Swiss system abolishes this, for it separates the main body of the *personnel* into a field-hospital, and leaves but two officers and ten men with the thirty-two wagons. It is this small body alone which perishes as an unit. If we ever did this, we could once and for all break up the medical service into field-hospital units, permanent alike in war and in peace; and simply add on a transport-column to a field-hospital unit, and call it a bearer-company, and use it as a chief dressing-station on the field; just as the battery is the artillery unit, so the field-hospital would be the medical unit; three, four, or five such units forming hospitals for 300, 400, or 500 men. The permanency of the unit, in war and in peace, is the keystone of the arch of efficiency as far as the care of the sick is concerned.

K. *The Reserve of Medical Material for the Division.*—This is a very essential element of field efficiency. To ask an officer commanding a field-hospital to act also as medical storekeeper, and issue medicine for the division, is to handicap very much the working power of the hospital as a nursing agency. The Swiss avoid this by attaching to each division a reserve of medical material under the apothecary of the headquarters of the field-hospital, for divisional supply only. A couple of wagon-loads of such material, under an apothecary, with a sergeant and a couple of men, would be a great help in all our wars. The surgeon-general has, as I pointed out, an officer dealing specially with the army corps medicine-supply on his staff.

Limits as to space prevent me from dealing with other important points in the medical organisation of this interesting army—an army, I feel certain, we shall one day copy in many of its points of organisation. I may summarise the points of interest as follows:

1. The staff of the surgeon-general of the Army Corps, its number, and its adaptability for work.
2. The staff of the divisional principal medical officer, enabling that officer to be the teacher and real commander of his corps, and freeing him from unimportant detail.
3. The large battalion aid on mobilisation.
4. The bearers allowed to each artillery-battery.
5. The practical formation of a divisional medical regiment, by interpolating a chief surgeon between the divisional principal medical officer and the "sections" of the field-hospitals, thus co-ordinating their work, securing the all important daily and hourly inspection, while freeing the principal medical officer of the division from perpetual trivial detail matters connected with them.
6. The abolition of the bearer-company as a separate unit, and the utilisation of the *personnel* of unoccupied field-hospitals as such, aided by the "transport-columns."
7. Lying under all, yet towering over all, and permeating all, the absolute equality in rank, status, and consideration afforded to the Swiss Medical Corps by their army rules.

THE LATE MR. CHARLES C. ELLIS.—A very handsome tablet has been erected in the Baptist Chapel, Oswestry, to the memory of this gentleman, bearing the following inscription:—"In loving memory of Charles Cartwright Ellis, L.R.C.P., M.R.C.S., of Mount Oswald, Oswestry, who departed this life November 6th, 1884, at the early age of 22 years. This memorial was placed here by the staff, students, and nurses of St. George's Hospital, Hyde Park, London, in appreciation of his many sterling qualities, and as a tribute of the esteem and affection in which he was held. 'Thy will be done.'"

THE ETIOLOGY OF ENTERIC FEVER.

By ALEXANDER COLLIE, M.D. Aberd.,
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IV.

It is so long since my last paper on this subject appeared (January 1880), that a few words of recapitulation may not be out of place. The object of the papers was to show that enteric fever is contagious; and by contagious I mean communicable by direct personal intercourse—in most cases, probably, by means of the recent stools, although it is by no means affirmed that no other emanations from the sick person can produce it. In support of this view, the cases of Maria and Sarah Allen were narrated, two laundry-women, whose duty was to sort the dirty linen, and to wash what was soiled. In this work, Maria Allen had been engaged off and on for two years, and continuously for six months, and Sarah continuously for two years, without contracting enteric fever, although exposed for the periods mentioned—no disinfectants being used—to all the soiled enteric fever linen of the hospital. If decomposed enteric fever stools produce enteric fever, why was it not produced in the case of these two women? They were susceptible subjects, as was afterwards proved by the fact that, when exposed to direct personal intercourse with a person sick of it, they took the fever. At the end of the two years of service in the laundry, a young man was admitted into the hospital suffering from enteric fever. This patient was the brother of Maria Allen's sweetheart; and, when Maria learned this, she visited the patient on four different occasions after April 1st, 1878, remaining with him about ten minutes each time. On or about April 28th, she began to be ill, and passed through a well marked attack of enteric fever. She was visited daily by her sister Sarah, who fell ill on the 20th of the following July. Comment is almost needless.

I then related the history of nineteen other cases of enteric fever amongst the nurses, assistant-nurses, and ward-servants, all of whom, with one exception, had been nursing or working in the enteric fever wards.

Briefly, at the Homerton Fever Hospital, enteric fever has been found to attack susceptible subjects, as scarlet fever and typhus fever do; but, as it is, like the former, a disease of childhood and early youth, a large number of nurses are protected by reason of their age, which, even in the present day, nearly always exceeds 20, very often 25, and in many cases 30. This is the reason why enteric fever is rarely seen in hospital-nurses; and, for the same reason, scarlet fever is rarely seen. But it has never yet been argued that scarlet fever is not contagious. The importance of age in the etiology of enteric fever will be seen from the following table.

Percentage of Attacks of Scarlatina, Typhus, and Enteric Fever in the Different Quinquennial Periods.

Ages.	Scarlatina.	Typhus.	Enteric.
0 to 5 years	20.5	4.	2.75
5 " 9 "	34.0	10.6	11.6
10 " 14 "	17.75	17.75	22.6
15 " 19 "	13.	17.75	25
20 " 24 "	9.3	11.5	26.8
25 " 29 "	4.5	7.5	9.75
30 " 34 "	1.75	8.6	4.6
35 " 39 "	1.	6.75	3.5
40 " 44 "	0.75	8.75	2
45 " 49 "	0.4	4.75	1.75

NOTE.—The calculations are based on 9,830 cases of scarlatina, 1,923 of typhus, and 3,323 of enteric fever, admitted into the London, Stockwell, and Homerton Fever Hospitals during the ten years ending 1880.

In opposition to the view here maintained, it has been urged that, because the experience of the London Fever Hospital is different from the experience of the Homerton Fever Hospital in this matter, therefore the enteric fever amongst our nursing staff was probably due to drains. To this it was replied, first, that the experience of the two hospitals might be different, and yet that the difference need not be dependent upon a difference in the drainage systems; secondly, that an examination of drains by competent persons showed that the drains at Homerton, although not free from objection, were, for practical purposes, efficient; an opinion which was supported by an analysis of the persons exposed to the drains and the persons attacked with enteric fever.

For, besides the nurses and servants, 956 patients suffering from other acute diseases than enteric fever were exposed to an atmosphere, *ex hypothesi*, contaminated by sewer-air from drains containing enteric stools, but not one of these persons contracted enteric fever. The persons who contracted the fever were, excepting one laundry-woman and Bentick, a doubtful case, persons who nursed enteric fever patients. Third, it was urged that no fair comparison of the two hospitals could be made, because of the difference of their age. It was pointed out that the London Fever Hospital, having been in existence for nearly eighty years, would necessarily be in possession of a nursing-staff more protected by previous illness than a hospital which had just been opened. This opinion is confirmed by the further experience of this hospital, which, in the first six years of its existence, gave twenty-one cases of enteric fever amongst its staff, whereas (excepting the steward's clerk, who did not live in the building, and who had here no necessarily direct contact with the sick), in the second six years of its existence it has only given seven. Lastly, it was maintained that the experience of the London Fever Hospital, properly interpreted, was not different from the experience of this hospital, but similar. This view is supported by the incidence of enteric fever on the two staffs during the years 1878, 1879, 1880, 1881, 1882, and to November 1883. During these years, the admissions for enteric fever, and the nurses attacked in the two hospitals, were the following.

	1878.	1879.	1880.	1881.	1882.	1883.	Total.
London Fever Hospital:							
Enteric Fever Admissions ..	101	69	75	120	85	105	555
Nurses Attacked	0	0	0	4	0	4	8
Homerton Fever Hospital:							
Enteric Fever Admissions ..	292	143	131	226	230	183	1205
Nurses Attacked	0	4	1	1	1	0	7

If our steward's clerk be added, the number here would also be eight.

With these preliminary remarks, I proceed to relate briefly the history of the cases which have arisen in the years mentioned.

E. Swanson, aged 22, entered the service on August 31st, 1878. From this date until February 3rd, 1880 (with the exception of January 1st, 1879, when she was on night-duty in an enteric fever ward) she was assistant-nurse in the third scarlet fever ward, and, with the exception stated, nowhere else. On February 3rd, 1880, the third scarlet fever ward, having been cleared of the scarlet fever patients, was occupied with enteric fever patients, Swanson continuing to perform the duties of assistant-nurse. On March 7th, she was found to be suffering from enteric fever, having been ailing three weeks. She was discharged recovered on May 2nd.

E. West, aged 29, entered the service on September 2nd, 1878. She was on day-duty as an assistant-nurse in an enteric fever ward from September 4th to October 29th. From October 30th to April 23rd, 1879, she was on duty as night-nurse in a scarlet fever-ward. From April 23rd to May 4th, she was off duty. On the latter day, and on the fifth, she was on night-duty in an enteric fever ward. From May 5th to 9th she was off duty. From the latter day to June 23rd, she was on day-duty as an assistant-nurse in an enteric fever ward. On the night of June 24th, she was on night-duty in a scarlet fever ward. On the 25th of this month, she was found to be suffering from enteric fever. She was discharged recovered on August 29th.

H. Longland, aged 25, entered the service on September 11th, 1878. She was on day-duty as an assistant-nurse in a scarlet fever ward from the 17th of this month to the 28th. From this time to June 16th, 1879, she was on day-duty as an assistant-nurse in an enteric fever ward. From June 17th to the 21st, she was in charge of a case of abdominal abscess; and from this time to July 2nd, she was on duty in an enteric fever-ward, on which day she was found to be suffering from enteric fever, having been ailing for a week. She was discharged recovered on October 19th.

E. Goodfellow, aged 22, entered the service on July 10th, 1879. From the 11th to the 29th of this month, she was on night-duty in an enteric fever ward. From this time to October 30th, she was on night-duty in a scarlet fever ward. From this time to November 5th, she was on night-duty in an enteric fever ward. From November 6th to the 10th, she was in charge of special cases, not enteric fever. From November 11th to the 21st, she was on night-duty in an enteric fever ward as an extra nurse, because the duties were heavy. From the 22nd to the 24th, she was on night-duty in the same ward by herself. At this time, the ward contained eighteen and nineteen acute cases daily during the fourteen days from the 11th to the 24th.

From November 25th to December 1st, she was on special night-duty, in charge of a doubtful case. From December 2nd to the 11th, she was on day-duty in a scarlet fever ward, when she was found to be suffering from enteric fever, having been ailing for three weeks, and definitely ill for about a week. She was discharged recovered on March 26th.

E. Brown, aged 22½, entered the service on July 10th, 1879. From the 11th of that month to August 21st, she was engaged in nursing scarlet fever. From August 22nd to September 3rd, she was engaged in nursing enteric fever. From September 5th to October 31st, she was in charge of scarlet fever patients. From November 1st to the 11th, she was again in charge of enteric fever patients, on which latter day she was found to be suffering from enteric fever, with which she had been ailing for about fourteen days. She was discharged, recovered, on January 15th, 1880.

H. Austin, aged 33, male, entered the service on November 21st, 1880, but there is no record of his daily work. It can be made out, however, that some time in January 1882, he was in attendance upon a delirious patient, from whom he contracted typhus fever. Some time in November 1882, this man admitted and bathed an enteric fever patient, who looked so like a patient with typhus, and had such a strong smell, that Austin thought he would be sent to a typhus ward. He was sent to an enteric fever ward, and Austin followed on November 26th.

Of these cases three deserve special notice. Swanson was an assistant nurse in the hospital, in a scarlet fever ward, a ward adjoining the enteric fever ward, the drains of which were continuous for seventeen months. To the emanations from them, if there were any, she was exposed during seventeen months, with impunity; but within a month of the time when the ward was occupied with enteric fever patients, she contracted the disease. The case of Nurse Brown is discussed at length in the JOURNAL of November 6th, 1880. The peculiarity of it is the unusual (so far as hitherto believed) length of the incubation-period, which appeared to be about eight weeks. This would have been, to some, a complete answer to the opinion that her fever was caught from enteric patients in the hospital, although nothing certain is known of the incubation-period of enteric fever. But since the publication of Nurse Brown's case, and another of a like kind (BRITISH MEDICAL JOURNAL, November 6th, 1880), in which I pointed out that the incubation-period appeared to be about eight weeks, further and independent evidence has appeared in support of my contention on this point. Mr. Welch, in a pamphlet on enteric fever, says that the incubation-period is sometimes "long," and that "from observations by Dr. Saunders, A.M.D., at the Cape, and from examples from Egypt, it seems certain that the recognised time of the incubation-period must be extended to six weeks, or even nearer two months, in exceptional instances." (*Enteric Fever*, p. 45.)

If this be true, it throws quite a new light on the etiology of enteric fever, for almost all conclusions as to its causation have been founded upon the belief that the incubation-period does not exceed two to three weeks. In particular, in cases arising in hospital amongst nurses, it will be of the utmost importance to find out, not merely where the nurses were on duty when they fell sick or immediately before, but for some considerable time before. Austin's case is worthy of notice, because his work at the mortuary at *post mortem* examinations, and in disinfecting clothing, brought him into contact with decomposed stools for about two years with impunity. This danger he escaped, a very considerable one at *post mortem* examinations, until, in November 1882, he bathed a patient who stank strongly. In these cases, as in those already published, the one factor common to all is close contact with the enteric sick. This is the first group of cases. One Horton, who makes the seventh of the nursing staff who contracted enteric fever, will be described in another group, where the conditions were different from those of the six just narrated.

I now come to the second group, for which I am indebted to the kindness of my colleague, Dr. Gayton. The cases which belong to this group arose in the Homerton Small-pox Hospital, so that, before proceeding to deal with them, it will be necessary to say something of the history of this hospital. From February 1st, 1871, to September 19th, 1879, the Small-pox Hospital, with the exception of two periods during which it was used for the treatment of scarlet fever, was occupied with small-pox. During this period of nearly nine years, 6,771 cases of small-pox, and 171 cases of scarlet fever, had been treated. During the same period, 487 persons had been engaged in nursing there. Of these 7,429 persons, the great majority of whom, being small-pox and scarlet fever patients, were of the age susceptible of enteric fever, not a single one contracted it.

The drainage forms part of the drainage of the fever-hospital, with which it is directly continuous, as may be seen from the following

sketch, in which the old drainage, the drainage in question, is marked by the black line; the red indicates the new drainage now being constructed.

On the hypothesis that the drainage of the Fever Hospital was defective, that of the Small-pox Hospital was equally so, because it was part of it, made in every detail exactly like it. For a period of nine years, therefore, 7,429 persons have been exposed to sewer-air from drains through which the stools of 1,293 enteric fever patients had passed, but without the least effect on any single person. The case of the patients is more remarkable still. Being small-pox and scarlet fever patients, the majority were under 30, a large number were under 25, and many were under 20. They were, therefore, a large number of them, of the susceptible age, but not one contracted enteric fever. But for the assertion that the cases which arose in the Fever Hospital were due to defective drainage, it might have been said that the absence of enteric fever for nine years in 7,429 persons, each one of whom (excepting those who died), for about one month, made daily use of a drainage-system in direct communication with the drainage of an enteric fever hospital, was proof that, for practical purposes, the drainage was efficient. Had it been practically inefficient, it would have shown its inefficiency in the form of cases of enteric fever amongst some of the many susceptible persons exposed to its influence. But it did not. If it be true that, given susceptible persons and a sufficiency of exposure to sewer-air from drains containing the motions of enteric fever patients, enteric fever will be the result, why did it not result in this case? Here were all the factors: (a) susceptible persons; (b) enteric fever stools; and (c) exposure from defective drainage. But the product of these factors, "enteric fever," where is it?

It was alleged that certain cases of enteric fever which arose in the Homerton Fever Hospital were due to the exposure of susceptible persons to the influence of defective drainage. Good. Why, then, under conditions essentially the same, were there no cases of enteric fever in the Small-pox Hospital? The definition of cause (omitting the metaphysics of the definition) is, that which being posited, the effect is also posited. "Causa est id quo posito ponitur effectus, quo sublato tollitur." In the case of the Homerton Small-pox Hos-

pital, this definition would have to read, "Causa est id quo posito tollitur effectus;" for about the cause, defective drainage, there was no doubt. It was the assertion of those who think differently from me on this subject. About the conditions there was still less doubt, because the number of persons exposed was large, and many of them were of the susceptible age. Here, then, in the Small-pox Hospital, was the cause and the conditions; but there was no effect. Either the one or the other was wanting. But neither was. Those who maintain that defective drainage was the cause of the cases which arose in the Fever Hospital must explain how it was that, with the same drainage and the same other conditions, there was complete immunity from enteric fever on the part of 7,429 persons, unless they are prepared to accept the definition of cause which we have suggested, and to say, "Causa est id quo posito tollitur effectus."

This absence of the effect, enteric fever, lasted up to September 29th, 1879; but upon that day the Small-pox Hospital became subject to new conditions. It was, owing to the pressure of fever in the Fever Hospital, opened for the treatment of enteric fever. The nurses and servants of this hospital were now subjected to the same influence as those of the Fever Hospital—those of them who nursed enteric fever patients—and with a similar result. Within six weeks there were two cases of enteric fever, followed by a third some weeks later, amongst the nurses in the enteric fever wards. There was a fourth case—that of the porter who bathed the male cases; but, as there are points of special interest in this case, it is not included in this group.

On February 7th, 1880, the Small-pox Hospital was closed for enteric fever, and, on the following day, all the enteric fever patients having been moved to the Fever Hospital, it was opened for small-pox. From that day to this there has not been a single case of enteric fever. Again, the conditions of the two hospitals are changed, and there is the same change in the result.

It may be urged, however, that, whilst the general drainage was good, it by no means followed that the ward-drainage was also good. An answer to this objection has been already given. It may be here added that the soil-pipes, which are four and eighteen feet in length from the closets to the siphon which connects them with the main drains, were taken to pieces; the siphon was taken up, and the drains beyond the siphon exposed. On the soil-pipes was a thin coating of matter, which yielded, on analysis by Dr. Graham, the following result.

The substance, dried at 105° Cent., contained in 100 parts:

Organic matter	...	...	28.15
Mineral matter	...	...	71.85
			100.00

The organic matter contained 2.95 of fatty substances. The mineral matter consisted almost entirely of carbonate of lime.

The original substance, dried at 105° Cent., yielded by the Wanklyn process:

Saline ammonia	...	...	0.100 per cent.
Albuminoid ammonia	...	...	0.750 "

The foregoing experiments are sufficient to show that the substance was carbonate of lime, mixed with nitrogenous and fatty organic matters, such as one would expect to find on a drain-pipe. On the floor of the drains beyond the siphon was a thin bluish-white soapy material. Of anything in the form of obstruction, there was a complete absence.

I now proceed to narrate briefly the cases, the notes of which are by Dr. Gayton.

A. Adams, aged 37, entered the service on October 1st, 1879, when she was placed on duty in an enteric fever ward. On November 10th, she was found to be suffering from enteric fever. She was discharged to the Isle of Wight to recruit on December 20th.

M. Barham, aged 18, entered the service on June 30th, 1877, as a nurse in the Small-pox Hospital. She continued to nurse small-pox patients until September 28th, 1879, at which time enteric fever patients began to be admitted. She was then placed in charge of enteric fever patients, and on November 16th she was found to be suffering from enteric fever, having been ailing for about ten days. She was discharged to the country to recruit on January 8th.

M. Witchell, aged 30, entered the service as a small-pox nurse on December 11th, 1877, and remained as such until October 1879, when enteric fever was admitted, and she was engaged to act as receiving-nurse, in which capacity she would bathe the female enteric patients. On December 3rd she was placed in charge of an enteric fever ward, and on the 9th she began to complain. On the 19th she was unable to continue her duties, and was sent to the ward with enteric fever. She was discharged recovered on February 14th.

I now come to the third group, which arose under circumstances in which specifically infected drains could have had no part, because they were abolished. On October 4th, 1881, at which time there were four enteric fever patients in the four wards forming the east side of the hospital, the water-closets were nailed up, and their connection with the main drainage cut off at the point where the ward-drain joins the hospital-drain. A pit was dug in one of the airing courts, and into this pit the motions of the enteric fever patients were thrown as soon as they were passed, and covered over with dry earth. Communication between the ward and specifically contaminated drain was, therefore, completely cut off. There remained, of course, communication with the drains and the wards by means of the baths and the scullery-sinks; and, from the pythogenic theory, this would have been enough. But here we are arguing on the hypothesis that enteric fever is specific; and, therefore, although air from the drains might have escaped through the baths and scullery-sinks, such air could not have contained enteric fever poison, because none went into them. These arrangements appeared to me to supply the conditions for a fairly accurate experimental inquiry, so far as concerns the drains and the decomposed stool theory. And here it may be as well that I should repeat, that I am not arguing that drains may not convey enteric fever, but that our drains did not convey the fever in the cases which arose in the fever and small-pox hospitals. The contention in these papers is, that the disease is contagious in the ordinary sense; that in susceptible persons, who for the most part are young adults, it arises by direct contact with the sick, if the contact be sufficiently close and prolonged, as in the case of nurses. That the contagium does not spread to any great distance, say, from one bed to another, in a well-ventilated, well kept room, is a factor bearing on the question. How far does the contagium spread? not at all on the question, Does it exist? Typhus fever and enteric fever have been treated together over and over again with impunity, but who doubts that typhus fever is contagious? I am not recommending that the diseases should be treated together when it can be avoided, for the simple reason that the precautions necessary to the success of the practice can rarely be obtained. That enteric fever, however, does now and then spread in hospital-wards, there appears to be little doubt. Dr. Sharkey has given some instances; and when it is more generally recognised that the disease does arise by contagion, we shall probably hear of more. The widely spread belief, that it cannot arise in this way, necessarily leads inquirers to look for another mode of origin. But to return. The drains at the Homerton Fever Hospital—that is, specifically infected drains—have no existence. The closets are all nailed up, and the connection between the ward drain and the main drain is taken up. Nurses and others could not, if they would, pass enteric fever or other motions into the drains. In each ward, there was an additional assistant nurse to carry the motions immediately they were passed, and throw them into the pit. This was the condition of things from October 4th up to March, 1882. Now, whatever has not been eliminated is a possible cause. But drains at Homerton were eliminated; therefore, drains at Homerton were not a possible cause, or, more correctly, a means of conveying the cause. In these conditions, L. Horton, aged 18, entered the Bradley ward as an assistant nurse on October 8th. She was on duty until November 6th, when she was found to be suffering from what was probably enteric fever. She was discharged recovered on January 2nd. There was continuous fever for twenty-two days, with the general appearance peculiar to enteric fever. This is not a striking result, but it has been the yearly average amongst the nursing staff during the last six years, 1878 to November 1883. It may be fairly said, therefore, that the absence of drains specifically infected made no real difference in the incidence of enteric fever on the nursing staff of the Homerton Fever Hospital.

There were two other cases during this period, one that of a patient, the other that of a visitor to an enteric fever patient.

A. C., aged 17, was admitted to the hospital on January 6th, 1882, supposed to be suffering from enteric fever, and was placed in the Collins enteric fever ward. Some time after his admission, we came to the conclusion that pneumonia was the illness from which he was suffering. On January 16th, he was able to sit up. On the 17th, he had full diet; and from this time to February 2nd, when he was discharged, he was up and about daily. On the 10th of the same month, he was readmitted with distinct enteric fever. He died on the 14th.

At the *post mortem* examination, which was attended by Dr. Henderson, of the London Fever Hospital, numerous ulcers were found on the lower part of the ileum, just on the point of sloughing; no evidence of a relapse.

H. A. was admitted into the hospital on October 19th, 1881, from

a college in Queen's Square, Bloomsbury, certified to be suffering from scarlatina. She was seen by my colleague, Dr. Twining, who sent her into a scarlet fever ward. From the scarlatina she was apparently so far recovered, that, on the 23rd, she was placed on a diet.

On November 2nd, she was again definitely ill, and had been ailing two or three days.

On the 5th, enteric fever was diagnosed, and she was removed to an enteric fever ward. On the appearance of an apparently new illness on November 2nd, H. A.'s mother, who was a servant in a well-to-do family in Kensington, was communicated with. She left her situation, took lodgings at 71, Ballance Road, Hackney, and visited her child, first in the scarlet fever ward and then in the Godding enteric fever ward daily, between November 5th and 12th, when she was compelled to desist through illness.

On November 24th, I was asked to see her. She said she had been suffering from sore-throat, general weakness, and loss of appetite. On examination, her throat was somewhat relaxed, and her pulse and temperature were normal. She might, I thought, have had a mild attack of scarlatina, contracted by visiting her child in one of our scarlet fever wards. I told her there was little the matter with her, ordered her some quinine, and said she would probably be well in a few days. On December 8th, she was admitted with enteric fever.

It is not contended that these three cases are conclusive. It might be objected that Horton's case was not decided enough to found a conclusion upon; and although conclusions upon this question have been founded upon less satisfactory evidence, I think that, having regard to the conclusions intended to be drawn from it, the objection is a valid one. To the second case, it might be objected that the sanitary conditions of the lodgings which Susan H. took at Ballance Road, Homerton, in order that she might visit conveniently her sick child, were sufficient to account for the case. Such water as she drank was probably a more or less diluted solution of sewage; stinks of all sorts were so common that public meetings had been held on the subject; the soil on which the houses were built was made soil, and made chiefly of a compost of various kinds of dirt; the street was rarely free from some form of zymotic disease; and, as a matter of fact, known at the Hackney Town Hall, a death from enteric fever was reported as having occurred at No. 118, Ballance Road, on July 29th, 1881, and, what is more to the point, one on October 28th, at No. 92, Hassett Road, the street just behind Ballance Road, and not far from 71, where Susan H. lived. To the third, it might be objected that the illness from which she finally died had been hanging about her from January 6th; that the pneumonia, if it existed, was an unimportant incident, or, if it did not exist, that it was enteric fever beginning in this way, as some say it does; and that, about the end of February, when she was going about, she was really suffering from the first stage of an enteric fever caught outside the hospital; and that, therefore, the case proves nothing at all.

These, briefly, are objections to the view sought to be established; objections which might easily be enlarged upon. Individually, I do not think these cases of great importance; but together, whilst far from conclusive, I think they deserve consideration from those who attach little importance to the view that enteric fever is communicable from the sick to the healthy, by personal intercourse in circumstances in which decomposition can have no part, except, of course, such decomposition as may have taken place within the body. Whatever conclusion may be drawn from them, and whatever objections may be taken to them as evidence in favour of the view that enteric fever is an infectious disease, one fact is indisputable, and that is, that three persons fell sick of enteric fever within about a fortnight of their exposure to enteric patients, in rooms cut off completely from drains; in rooms in which there were no decomposing stools; and that these three persons were not exposed to any other known source of contagion; that is, briefly, the absence of the cause, "specifically infected drain," and "decomposing stool," was not followed by the absence of the effect, enteric fever.

MEDICAL CENTENARIANS.—Dr. Christopher Columbus Graham, who died on February 3rd, 1885, at Louisville, Kentucky, had celebrated his hundredth birthday on October 10th, 1884. He is described as a man of remarkable physical and mental power, who practised as a physician for a period equal to an average lifetime, and spent his old age in scientific and literary pursuits. Another reputed centenarian still survives in Dr. O. S. Taylor, of Auburn, New York, who, it is said, completed his hundredth year on December 17th, 1884. He entered at Dartmouth College in 1809, and graduated in 1813.

MEDICAL MAGISTRATE.—Mr. Frank Spencer Watson, Colonial Surgeon at St. Helena, has lately been appointed a justice of the peace.