rest. It is difficult to reconcile such a supposition with the circumstantial description of the occurrence given in the letter. It seems more probable that the woman was acting under an irrational impulse to deceive; and the hypochondriacal vein running through her letter, and especially her laborious anxiety to describe her very trivial symptoms to her physician, indicate exactly the *malade-imaginaire* type of mind in which such an impulse might be expected to arise.

CASE IV.—*A Boy Vomiting large numbers of Membranous Tubes, which turned out to be pieces of Arteries.*—The subject of this singular case was a well-grown healthy boy of fourteen. He was sent to me by his medical attendant from Oldham, with a request that I would take him into the Infirmary, and have him watched. The boy was accompanied by his mother, who produced a piece of glistening membranous tube, three inches long and as thick as the thumb, which had been vomited by the boy, as she alleged, as they were coming in the train. I had no difficulty in recognising this as a piece of the thoracic aorta of some animal (probably a sheep), turned inside out. She further informed me that the boy had vomited similar tubes almost daily, and sometimes two or three times a day, for the last two months, and that she possessed at home a large collection of such pieces, which had been preserved after being vomited. I found that the boy was her youngest child (she was a widow), and evidently the pet of herself and of his two grown-up brothers. She expressed great concern about the boy's ailment, and the boy himself seemed very anxious to be cured. She stated that the complaint commenced with vomiting of blood, and that afterwards the tubes appeared; that, when the tubes were vomited, the boy suffered extremely; that he became swollen about the neck and black in the face, and well-nigh choked. He never vomited any food with the tubes; sometimes they were tinged with blood, and sometimes not. At times he was so ill that he kept his bed for several days, and at these periods he brought up numerous tubes. I wrote to the boy's medical attendant an account of my discovery (saying nothing to his mother), and suggested that, before taking him into the Infirmary, a strict watch should be set on foot at home, and that inquiries in all the butchers' shops and slaughter-houses in the neighbourhood should be made, in order to ascertain where the boy procured his pieces of arteries. I also desired that the collection of tubes should be sent to me for examination. All this was accordingly done.

The collection of tubes arrived in nine pickle-jars. All consisted of pieces of arteries of various sizes, evidently obtained from the carcasses of animals slaughtered for butcher's meat. I found no difficulty in matching every variety of them from the carcasses of sheep and oxen hung up in the shambles. The total amounted to fifty-five pieces, weighing altogether two-and-a-half pounds. The greater number were pieces of the thoracic aorta of sheep or lambs, varying from two to nine inches in length; these were all carefully turned inside out. There was one piece of aorta nine inches long, which was not turned inside out, with a big lump of fatty tissue attached to one end of it; this weighed a quarter of a pound. Another piece was still larger—sixteen inches long and half a pound in weight; this was turned inside out. A large number consisted of smaller arterial trunks—pieces of the abdominal aorta and its branches—varied in size from a goose-quill to the thickness of the little finger; all these were turned inside out.

All the watching and inquiries proved utterly unproductive, though carried out with scrupulous care and trouble. The boy's brothers, as they informed me themselves, watched by his bedside days and nights, and witnessed over and over again the boy bringing up, with apparent pain and imminent suffocation, pieces of tubes which, they alleged, it was impossible for him to have procured and swallowed beforehand without their having detected him. No traces could be found of the boy's visits to any of the slaughter-houses or butchers' shops in the neighbourhood.

At the end of a fortnight, I took the boy into the Infirmary. He was perfectly sound in all his organs. His appearance was somewhat girlish, but simple and ingenuous. He vomited up a piece of aorta as my clinical clerk was taking notes of his case, and another piece was discovered hidden among his clothes. When asked about this latter, he answered that he had vomited it on his journey, and brought it to show the doctors. He remained in the Infirmary ten days, during which time he was quite well, and vomited no more tubes. Mr. Fletcher, my clerk, stated that he found him vigorously sucking his gums on one occasion, and spitting out a bloody sputum. When he was told that his imposition had been discovered, and solemnly adjured to confess where he had obtained the pieces of tubes, he simply replied that he "got them from nowhere"—that "they came from his inside"; and, when more strongly urged, he began to shed tears. All the endeavours of nurses, students, and of myself, and even threats of corporal punishment, which were used without my sanction, failed ignominiously to extract a word of confession from the boy. His mother

and brothers likewise continued, in spite of the clearest demonstrations, quite unshaken in their belief in the genuineness of the symptoms. Ten days after the boy's return home, I received the following note from him.

"Dear Sir—I write these few lines for what you have done to me during the little time I have been at the Infirmary; but I am very sorry to say that you have not cured me; and I am very glad to say I have not yet vomited any more of the tubes, and I have begun to vomit blood. I have vomited blood three nights together, and spit a little on Sunday night; and, if you desire to analyse any of it, it will be a great pleasure to us to send you a bottle of it. In concluding, allow me to thank you sincerely for your kind service while under your treatment. I am," etc.

I did not, however, care to follow the case further. The family of which this boy was a member was of the respectable artisan class. They lived in comfort and abundance. The boy himself was a factory hand; he was quite comfortable in his situation, and professed himself anxious to return to his work. No conceivable motive could be assigned for the imposition. The boy bore an unblemished character for truthfulness; and of the *bona fides* of his mother and brothers it was impossible to entertain a doubt.

As to the mechanical difficulties of the case, they lie outside the purpose of the present paper. The boy was repeatedly seen to bring up from his throat—and once by my clinical clerk—large pieces of artery. Probably he had acquired the trick of partially swallowing objects—that is, of taking them into the gullet—and regurgitating them again. He evidently did not take them into the stomach, for he never vomited his food. Chinese jugglers, who swallow knives and disgorge them again, appear to possess this power in even greater degree than was acquired by this boy.

While admitting the undoubtedly hysterical affinities of these cases, it must not be forgotten that hysteria sometimes overlaps the confines of insanity; and that, in most large asylums, cases are found in which it is very difficult or impossible to draw a line of demarcation. It may indeed be truly said that an exaggerated desire to excite attention and sympathy is a sufficient motive for many of the slighter cases; but such an explanation is scarcely satisfactory in cases where pain and inconvenience, and even death itself, are encountered to keep up the imposition.

FEIGNED OR HYSTERICAL DISEASE OF SKIN.

By THOMAS FLOWER, Esq., House-Surgeon to the Royal Surrey County Hospital.

IN this JOURNAL for January 8th, 1870, Mr. Startin mentions some cases of feigned skin-diseases; and again in the number for February 12th, 1870, Dr. Hilton Fagge gives notes on similar cases. At the present time, when "feigned diseases" are engaging considerable attention, the following case may prove worthy of notice.

R. S., servant, aged 17, very tall, but well nourished (height, 5 ft. 9½ in.; weight, 10 st. 7 lb.), was admitted into the Royal Surrey County Hospital under Dr. Stedman on December 6th, 1869. She was well in health, except that the catamenia were irregular and the bowels costive. On each cheek was a bright scarlet blush; which, she said, was painful and tender. She had been laid up at her situation for five weeks with a similar rash coming out on various parts of the body, which had defied medical treatment. The blush on the cheeks continued for three days, when it gradually faded, and desquamation took place. Eight days after admission, an eruption resembling urticaria appeared on the outside of the left hip; and, two days later, a similar one on the back of the left hand and forearm, with three long marks as if caused by finger-nails; but she denied scratching her arm. It afterwards appeared, successively, on the front of the chest, on the inside of the left knee, the left arm, and again on the inside of the left knee. This last eruption was of a bright scarlet colour, and felt rough to the touch. A mustard-plaster of the same size as the eruption was applied to the right knee for three hours, and the next morning both rashes seemed exactly similar. She denied having caused it; but, during the remainder of her stay (ten days) in Hospital, no fresh rash appeared. A month after her discharge she continued well. In sweeping the chimney of the room in which she was laid up at her mistress's, a "pot with some old dried mixed mustard in it" was found lodged above the fire-place. The patient was kept some time in the Hospital in order that she might be closely watched, to detect, if possible, the agent with which she caused the rash, but nothing was found; yet, from the similarity of the rash on both knees—one caused by mustard-plaster, from the finding of the secreted mustard-pot, and from the erratic nature and various forms which the eruptions took, undoubtedly all were caused

artificially, and mustard was the sole or principal agent used. But it is difficult to decide for what reason the girl tried to sham illness, as she lost a comfortable situation, and had to return to a miserable home inhabited by a sick father and mother.

ON THE PROPAGATION OF ENTERIC FEVER.*

By T. CLIFFORD ALLBUTT, M.A., M.D.Cantab., F.L.S., etc.

THE great and inspiring advance of recent medical knowledge is nowhere better seen than in the department of infectious diseases. The distinction between typhus and enteric fever, and the wholly distinct causation of the two diseases, have, during the last few years, been clearly made out, and but few points remain to be investigated. Among questions which are still open are those which relate to the kind and the origin of the agent which produces the "enteric" state. The admirable investigations of W. Budd, Parkes, Murchison, and many others in England, and of men like Hirsch, Liebermeister, Pettenkofer, and others abroad, have done much to aid our investigations even in this direction also.

I think it is not yet clearly understood by the profession at large that enteric fever is a specific fever, and therefore must, in accordance with all analogy, depend upon a specific poison. We see many accounts of epidemics—accounts which are drawn up with industry and intelligence, but which fail to tell us the origin of the specific poison. The drinking of polluted water is shown, the entrance of drain-refuse into the wells is proved, but the farther problem is too often overlooked—the problem of the introduction of the peculiar poison. It is, however, quite certain that persons may drink faecal water for months or years, their cesspools may communicate with their wells, their drains may find a way into their water-pipes, and, in consequence, they may suffer from diarrhoea, from low forms of sore throat, from debility, languor, and from other evidences of low vitality, but they do not suffer from enteric fever, unless they drink the specific poison of that disease which may or may not be present in the cesspool or drain, and which certainly is not there unless it be introduced from without. Enteric fever is not caused by the drinking of faeces, whatever else this may produce, but by the drinking of a specific poison whose chief place of development is the infected human bowel, and which is, therefore, often found in human dejections. Unless that element be traced, the origin of the endemic is not discovered. Here, for example, is one of the difficulties which waits for settlement. Can the enteric poison which is known to be carried by water into the system be carried also by the atmosphere into the lungs and blood? Many writers hold that this latter is a means by which the endemic spreads. It is always hard to prove a negative, still more so to prove a negative in a question of such subtlety; the right course is rather to extend, as far as possible, the positive proof of that means which we know; viz., the introduction by water, and to find out whether it will cover all cases.

It seems to me very doubtful whether it will cover all cases. In large towns like Leeds, for instance, where the water-supply is uniform, continuous, and excellent, and where enteric fever is nevertheless prevalent, there would seem to be some farther means at work. For instance, I go frequently into infected houses where the water-supply is all that can be desired, but where there is a strong ventilation from the sewers. In such cases it would certainly seem as if the poison were light enough to be borne upon the wind and thence either breathed or caught in the food. Again, there seems to be some widely spread influence which determines the periods of the endemic. Individuals, or their excrement, must be moving from place to place and carrying infection all the year round; but yet we see endemic outbreaks chiefly in autumn, and their subsidence chiefly in spring. The ground-water levels seem to have much to do with this, probably in some mechanical way;† and it is certain that rains have much to do with it, as we see in one of the cases I shall now publish, as was seen in the Dundee outbreak so well described by Dr. MacLagan in the *Edinburgh Medical Journal* (October 1867, p. 297‡); and at Terling also, as was shown in the reports of Dr. Haviland in the *Medical Times and Gazette* for January 11th, 1868; and of Mr. Salter in the same journal for the 7th of March. The fall of rain acts, no doubt, by washing the infecting material into the springs and water-courses. That personal contagion has little or nothing

to do with the spread of the disease is now believed by all careful and instructed writers. That mere accumulation of dung and filth has no direct causative power is less clearly seized as a truth; and the hesitation which is felt on this point is now explained by the fact that the poison (whether parasite or not, as Fischer and Hallier have attempted to show,) certainly batters upon excrementitious filth and organic putrefactive matters.* In large towns, where many and complex agencies are at work, it is difficult or impossible to trace the beginning and causation of epidemics or epidemics, except it be under circumstances so crucial and peculiar as those of the Guildford outbreak. It is in small societies, the circumstances of which are simple, that such investigations are most likely to prove successful. In two such cases, I have been able to trace the origin of enteric fever, and these cases I have now to bring forward. The first case, in point of time, was that of a college belonging to the Society of Friends; it is called the Flounders Institute, and is situated at Ackworth, near Pontefract. The following is the report which I was enabled to make with the kind assistance of Dr. Wood.

"At the request of Mr. Harvey and Mr. Brown, I visited the Flounders Institute on April the 16th, 1869, in order to ascertain the nature of the fever now prevalent at the Institute and in Ackworth, and in order to learn, if possible, the causes of its prevalence. I met your medical attendant, Dr. Wood, accordingly; we visited several patients at the Institute, and I ascertained that the disease from which they were suffering was enteric fever. That opinion you had already heard from Dr. Wood. We also visited several patients in Ackworth Moor Top, and ascertained they also were suffering in like manner from enteric fever. As is commonly the case, it had fallen chiefly and firstly upon young persons.

"As regards the Institute, I found your conditions as to site, and aspect, and internal comforts, to be most satisfactory. My survey ended, as is common in these cases, by my suspicions falling upon the drinking water. I found that your supply was from two sources. 1. From a well upon your own premises; 2. From a well in the village, to which I shall refer under the name of the watering troughs. First, as to your own well. It appears that this water has been little used for drinking purposes. You have not any cesspool in dangerous proximity to it, your drains are constructed with sanitary tubes, and I do not think it likely that the excreta from the fever-patients in your house have reached your well. I shall show reason for believing that they all derived their poison from one common source; viz., the watering troughs.

"The analysis of your well-water, made by Mr. Wilson of the Leeds School of Medicine, shows that it contains 1.82 grains of organic and volatile matter per gallon, and 4.9 grains of common salt. On the whole, though somewhat unsatisfactory, it may safely be used, provided it be exposed to the air so as to allow the sediment of oxide of iron in combination with organic matter to be fully formed, and that it be then filtered. Mr. Wilson holds the same opinion, and recommends the use of a carbon-filter.

"I now turn to the water at the watering troughs. It appears that this water, which is very bright and pleasant, has been chiefly or entirely used for table purposes in your household. As your Institution is conducted upon the principle of total abstinence, this village water has been largely consumed by your inmates. The watering troughs supply a favourite drinking water not only to yourselves but also to that part of the village of Ackworth called Ackworth Moor Top. It is a remarkable fact, which I hear from Dr. Wood, that those persons in the village who have suffered first and most severely are also total abstainers, and have drunk largely of the attractive water of the troughs. The watering troughs and the small well or drinking trough a little above them, are supplied from one stream, and the analysis of the water, as made by Mr. Wilson, is as follows: 'The water from the spring at the watering troughs is inodorous, very bright and clear, and has a scarcely perceptible saline taste; it forms no deposit on standing. An imperial gallon contains 5.04 grains of organic and volatile matters and 6.21 grains of common salt.' Nitric acid, which is a product of the decomposition of animal matter, is present in unusually large quantity. It will be clear to you from the above analysis that the water of the troughs is, in spite of its beautiful appearance, very impure. The area of the enteric fever is curiously conterminous with the area supplied by the troughs, only one case having occurred outside this area, and that one was a boy who passed by the impure well twice daily and frequently drank the water. On examining the troughs with Dr. Wood, I found below your gates and across the road two large troughs, and a short distance above these troughs another small trough. On inquiry, I found that a stream was known to cross the high road reaching the well-trough from a point about thirty yards higher up. We crossed

* Read in the Medical Section at the Annual Meeting of the British Medical Association in Leeds, July 1869.

† When I wrote this paper, I had not had the advantage of reading the admirable paper on the same subject by Dr. Buchanan, in the *Medical Times and Gazette* for March 12th, 1870. He shows very clearly the specific origin of an outbreak in an Essex village, and makes some remarkable observations on Pettenkofer's theory.

‡ In this interesting paper, Dr. MacLagan shows that cholera followed the same track as enteric fever; while typhus, on the contrary, took quite another course.

* Cf. Liebermeister's account of the outbreak at Basel, in the *Deutsche Klinik* for 1866, Nos. 6, 7, 9, 10.