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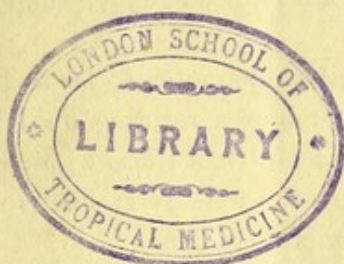
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EPIDEMIC OF CONTINUED FEVER.

BY

PATRICK MANSON, M.D.

1880

Epidemic of Continued Fever.

By PATRICK MANSON, M.D.

I HAD an opportunity this summer of observing an epidemic of continued fever of a somewhat anomalous character. As it illustrates admirably the difficulty we meet with in classifying the fevers of tropical countries, I am induced to give the following brief sketch of the cases that came under my notice.

The epidemic was of a very circumscribed character, as far as I could ascertain, among the Chinese; but out of the small number of foreigners residing on Kulangsu, six were attacked. Undoubtedly many more Chinese had the disease than those whose cases passed under my own observation—six in number,—but with them the malady seemed to be limited to a particular group of houses; there was nothing like a general epidemic.

The group of houses I refer to, and from which all the Chinese cases came, is situated at the foot of a hill, and on the margin of a string of paddy fields. There are many wells along the margin of the paddy land, and as they lie low, without any particular appliance to keep out surface water, these wells must be filled with garbage after every shower of rain. They supply water to several washermen, and probably eke out the yield of milk from the many buffaloes stabled near them, and from which part of the milk supply of foreigners comes. Preceding the outbreak of the epidemic among foreigners we had some very rainy weather, and it is a curious circumstance that all the foreigners affected obtained their milk from milkmen living in the vicinity of these wells. The greater part of the foreign community is supplied from another dairy, situated some distance from any Chinese house, and about a mile away from the focus of the epidemic. I mention this fact about the milk supply as significant, but do not necessarily associate it with the sickness among foreigners as cause and effect. The following is a brief sketch of the cases that came under observation. I number them (arbitrarily) for the sake of reference.

1. On 23rd May a Chinese lad, about 18 years of age, was admitted to the Chinese Hospital with symptoms resembling typhoid fever. He had high fever, furred tongue, low delirium, a stupid, drunken countenance, diarrhoea, and abdominal tenderness. He took large doses of quinine for a time, but, not improving, all drugs were put aside, and careful and diligent feeding substituted. He was well enough to leave hospital on 28th June, but he had been very ill, was wasted to a shadow, and had lost the vision of one eye from sloughing of the cornea setting in towards the end of his fever. On inquiry I learned that his illness began about the 28th of April with shivering, followed by fever, and that he was not brought to hospital till he had become delirious. I put the case down at the time as typhoid fever.

2. This lad's father was in hospital from 23rd April to 3rd May with a milder attack of apparently the same disease. He was ill about a month before he applied for admission.

3. His mother was laid up from 4th April to 3rd May with what was described as quotidian ague. I did not see her.

4. A girl about 17 years of age, a pupil in one of the mission schools, came to live during the summer holidays in a house near that from which the three preceding cases came. She left school about the end of July. On 15th August she got up in the morning feeling giddy; at 8 A.M. she had a smart rigor, rapidly followed by high fever and delirium. She continued in this state till the morning of the 18th, when her friends brought her to the hospital. She was moribund on admission, and died within an hour.

5. Her little brother, who slept in the same bed with her, began to be ill on 16th August. He came with his sister to hospital on the 18th. I saw him shortly after admission; he had smart fever, and could keep nothing on his stomach. He got a subcutaneous injection of quinine at once. This was repeated on the 19th, 20th, and 21st; on the 22nd he was well and left for his home.

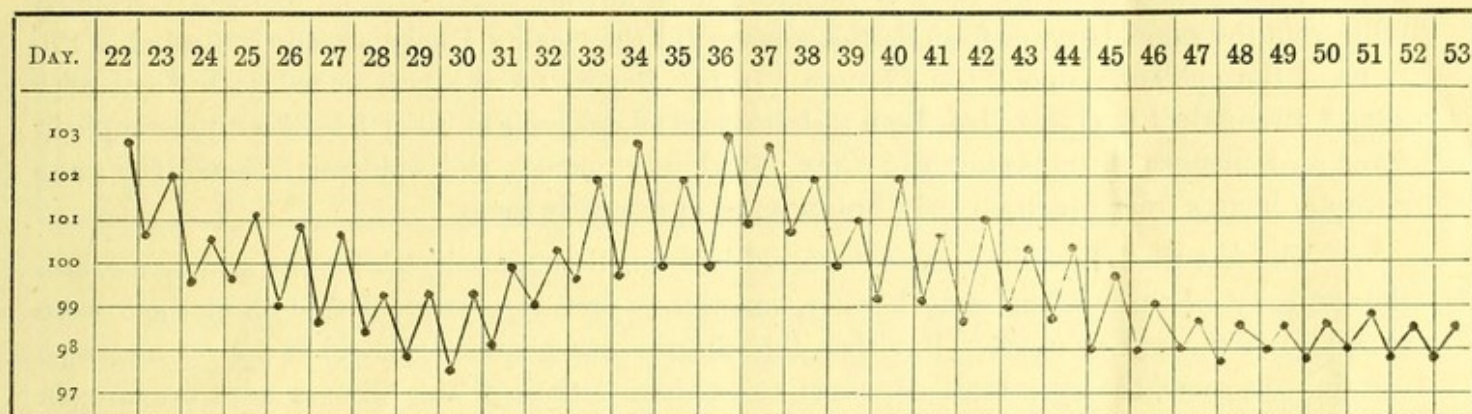
6. About the end of May I was called to see a lad, the servant of Mr. A. (7), ill with fever. He lived in Mr. A.'s house till his fever began, but when I first saw him he had been removed to a Chinese house close by. He had been ill for about a week, his only symptoms being fever and frequent and profuse epistaxis. He had no diarrhœa. Supposing the case to be one of remittent fever, I ordered several large doses of quinine. Next day he appeared better, and I handed the case over to a native assistant. Hearing nothing about him for some time, I concluded he had recovered; but towards the end of June I was informed by the assistant that he was no better and that his temperature was permanently over 105° , and often as high as 106° . I had him removed to the Seamen's Hospital, and made a careful examination. He was very much wasted, had a dry, harsh skin, a slightly furred tongue, and the high temperature above mentioned; but he had no delirium, diarrhœa, abdominal tenderness, petechiæ, nor any visceral disease I could make out. He took quinine in very large and frequently repeated doses. The temperature fell rapidly, but it took weeks to reach the normal standard, any remission in the use of quinine being immediately followed by an increase of fever. Altogether he was ill about two months, and apparently owed his recovery to the constant drugging with quinine. He is now quite well.

These are all the Chinese cases of which I had personal cognizance. At the time there was no general epidemic of fever among the natives. The usual autumnal epidemic of malarial fevers, which is at present very severe, did not begin till the middle or end of September.

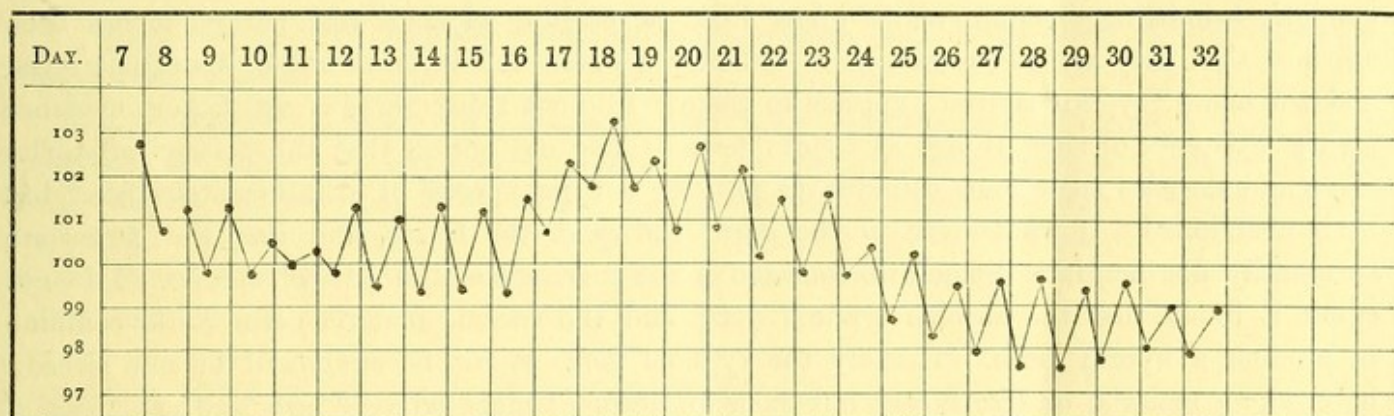
7. Mr. A.'s was one of the first cases of fever amongst foreigners. He was taken ill about the 10th June, with attacks of feverishness coming on every afternoon, preceded by slight feelings of chilliness, and followed during the evening and night by considerable sweating. He was always pretty well during the morning, and was able to move about till 2 P.M. Although cinchonised frequently, his fever continued for a fortnight, and did not leave him till he was sent on a voyage to Tamsui. He improved as soon as he got to sea, but on his return to Amoy had a slight relapse. He had no diarrhœa.

8. Mrs. A. woke during the night of 26th-27th June feeling cold; she shivered, became very hot; and violent fever was followed by profuse perspiration. On the 27th, at midday, had a similar attack, and again during the night and following day two separate and similar attacks. On the 29th had four such distinct paroxysms of rigor, fever, and diaphoresis, the thermometer rising during the fever to $105^{\circ}.5$, and probably higher. At midnight had another flash of fever, and on its subsiding, quinine in five-grain doses was taken every hour for five hours, and cinchonism induced. Fever then became continued. On the 30th June, 1st July, and 2nd July, on each day had forty grains of quinine. Diarrhœa set in. On 1st July she miscarried at five months. Then the diarrhœa became very violent, and collapse threatened. Lead and opium were freely administered and appeared to control the purging. Fever then gradually abated, but not before a bad bed sore had formed over one gluteal region. By the 14th July the temperature had fallen to normal, and from that day she convalesced steadily. The following chart indicates the temperature in this case. Since the fever her hair has fallen out. While this lady, her husband, and their servant were ill, I was attending three other cases of grave continued fever in foreigners.

11. About the 4th of June Mrs. D. was attacked with fever and diarrhœa and præcordial oppression. She was living in what I considered a malarious locality. She took quinine in moderate doses all through her illness. About the 28th day the thermometer had fallen to normal, but this temporary improvement was quickly followed by a relapse, and it was not until the end of the seventh week that she could be pronounced convalescent. The rise and fall of temperature was thus recorded:—



12. Her husband, Mr. D., began to suffer from headache, lassitude and fever about the 26th July, a week after his wife began to get well. He had no diarrhœa; headache, lassitude, anorexia and fever were his only symptoms. He was treated with aperients and quinine. Towards the end of the second week he improved slightly, but relapsed, and it was not until the beginning of the fifth week that he began to get well. The following is his temperature chart:—



In the case of the foreigners attacked, the fever has been followed in every instance by falling of the hair (I cannot speak to this point as regards the Chinese); but beyond this and slight debility, it has had no other sequelæ whatever.

One curious circumstance I would note in connexion with this epidemic. Of the six foreigners attacked, four were missionaries. All the foreign residents together number only about 260, including children. Of these, 20 are missionaries, or their children. If all the cases had occurred in one house, the circumstance of its being a missionary's house might be fairly ascribed to accident and some purely local and limited influence; but the cases occurred in three different houses. Two of the houses, it is true, were in close proximity, but the other was quite

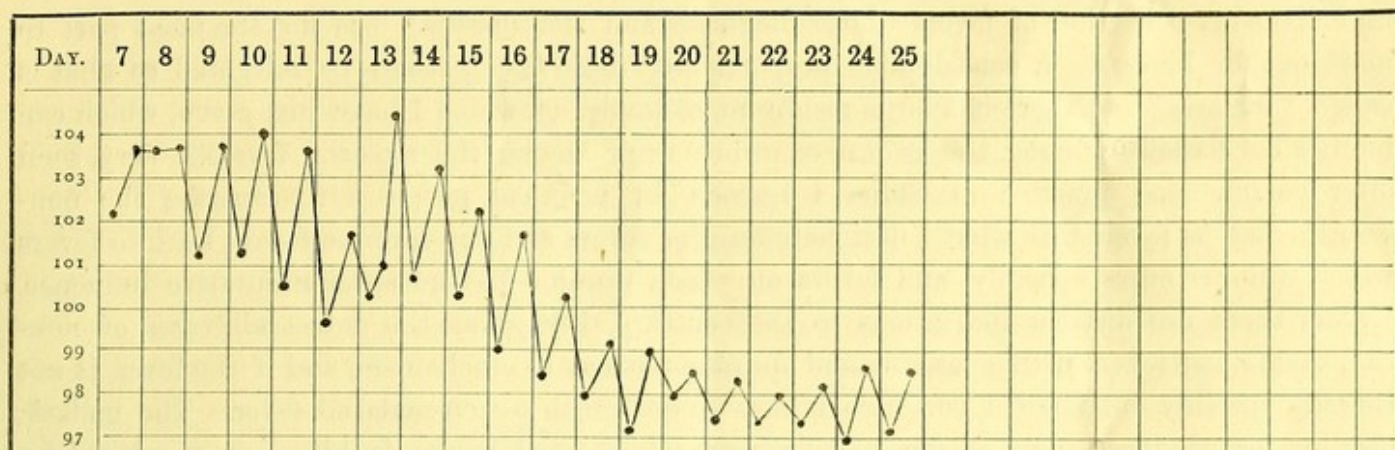
three-quarters of a mile distant, and in a most salubrious situation. It might be suggested that in course of their occupation as missionaries they may have been exposed to the same morbid influences, but I could trace nothing of this sort, and such a hypothesis is upset by the fact that the other two cases—husband and wife—were entirely unconnected with the missionary circle, and lived at some distance from any missionary's house. The only circumstance that I can discover connecting these six cases is the fact I have already stated, that all of them consumed milk from the same dairy, or from dairies situated in the locality I have already indicated as the focus of the epidemic among the Chinese. In my Report for the year ended 30th September 1879,* I remarked that there had been a circumscribed epidemic of what I believed to be typhoid fever on Kulangsu in the autumn of 1878. Curiously enough, this epidemic affected the same group of houses from which all the Chinese cases of this year came.

The fact that all of these cases occurred in a small community about the same time, and the majority of them in the same locality, amounts to presumptive proof that all of them were examples of the same disease. But that this disease was genuine typhoid is by no means so certain. In some, the symptoms supposed to be characteristic of this disease were present; in others, again, beyond the facts that the fever was continued and was uncontrolled by quinine, there was no evidence of its typhoid nature. One case was decidedly intermitting, but in this instance quinine completely failed, so that it was probably non-malarial; but in another case—that of the little boy whose sister died—quinine appeared to cut the disease short at once.

An ingenious explanation of such anomalous fevers has been invented, and in place of candidly admitting that we really know little or nothing of their real nature, it has been affirmed that they are a combination of ordinary typhoid and intermittent or remittent fever, and the name "typho-malarial" applied to them. I do not think there is satisfactory evidence for the existence of such things as hybrid fevers. The old notion that the poisons of scarlet fever and measles sometimes combine to produce a third species of exanthematous fever has been abandoned. If we believe in the germ theory of the fevers, and that the germs are specifically distinct, it is difficult to conceive of the marriage of the distinct species. I do not think it likely that the specific typhoid germ and the specific malaria germ could combine to produce a hybrid germ. Possibly the typhoid germ might be swallowed by one already infected by malaria, or *vice versa*; but such an accident must be very rare, and epidemics of such a combined disease would be sure to be accompanied by a preponderating proportion of pure malarial fever and pure typhoid fever. An epidemic of typho-malarial fever could not occur in a community otherwise nearly entirely free from pure malarial fever and pure typhoid fever.

The truth is we are nearly entirely ignorant of a number of specific fevers which from time to time affect the inhabitants of foreign countries. I frequently meet with cases of continued fever both in foreigners and natives which do not admit of diagnosis and classification. For example, the case of fever imported from Tamsui last autumn, the temperature chart in connexion with which was noted as follows:—

* See Customs Medical Reports, xviii, 58.

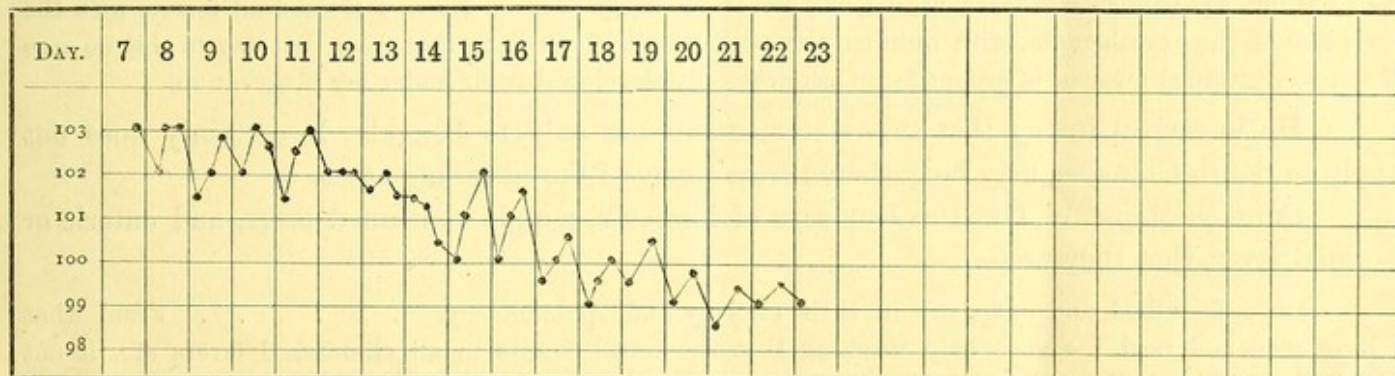


The history was briefly this:—

The patient had frequently had "Tamsui fever." On 23rd November he felt pain in his left side; on the 24th, was feverish; on the 25th, had rigors and was much prostrated, and he took some quinine; fever continued, and on the 28th he left Tamsui; on the 29th he arrived in Amoy. He had then considerable fever, prostration, pains in the neck, arms and legs, and some tenderness of the epigastrium; his tongue was furred; he had severe headache, and he was covered from head to foot with an exanthem. The spots were circular, from $\frac{1}{16}$ " to $\frac{1}{8}$ " in diameter, red, not elevated, and disappeared on pressure. He had neither diarrhoea, iliac tenderness, nor enlargement of the spleen. The eruption kept out till 4th December. During that night he perspired profusely, and on 5th December the eruption had entirely faded; this was the day of highest temperature. From that date the fever gradually subsided, and he was convalescent on the 20th day of his illness.

The case in some respects resembled mild typhus, but wanted many of the features of that disease. Again,

A lightkeeper was brought in this summer from Chapel Island—a bare rock, miles from any land or opportunity of infection—ill with a continued fever. I saw him on the seventh day of his illness. He had much headache and was a good deal excited; but, beyond the ordinary phenomena of simple continued fever, had no particular symptoms. His temperature (shown in the following chart) did not reach the normal point till the end of the third week. He took abundance of quinine, but apparently without any curative effect on the fever.



What were these cases? Certainly not typhoid, and certainly not malarial.

Besides the well-known exanthematous fevers whose characteristics have been marked out in Europe, and are easily recognised, the medical practitioner in these parts has to deal with a

miscellaneous collection of fevers whose diagnosis and treatment he has for the most part to mark out for himself. A considerable proportion of these may perhaps be relegated to what is called "malaria," but there is a large residuum, examples of which I have just given, which can neither be classified among the known exanthems nor among the malarial fevers. Very soon after commencing practice in China I learned for practical purposes to separate the non-exanthematous fevers into what I designate quinine fevers and non-quinine fevers, *i.e.* into fevers which quinine cures speedily, and fevers on which quinine has no specific curative influence. Unless there are distinct indications to the contrary, I treat at the outset all cases of non-exanthematous fevers with aperients and quinine pushed to cinchonism, and if the fever is not thereby speedily cut short I conclude I have to deal with a non-malarial fever. The malaria bacillus, or whatever may be the specific cause of malarial fevers, is killed or paralysed by quinine, or quinine in some way interferes with its fever-producing effects. Given a fever which does not subside on the proper administration of the specific for malaria, I think we are justified in most instances in concluding that such fever is non-malarial. And if, in addition to the evidence supplied by this test, we find that such a fever subsides after a week or two spontaneously, and is not succeeded by the recognised consequences of malarial poisoning, such as agues, neuralgias, enlarged spleen, anæmia, and so forth, we have abundant reason for pronouncing it non-malarial. Every year I meet with such cases, and I confess to great confusion in my ideas with regard to them. One gets little satisfaction from books on the subject. Certain classifications are proposed, but when the attempt is made to attach a name to a given case the attempt is seldom satisfactory.

It was therefore with some hope of receiving fresh light on this subject that I read the reports of the Epidemiological Society's discussion on "Fevers in India" and the various papers by distinguished Indian authorities leading up to the debate. But I must confess to a feeling of complete disappointment at the outcome of the papers and the discussion they gave rise to. Dr. NORMAN CHEVERS, in his very interesting "Practical Notes on the ordinary Diseases of India" (*Medical Times and Gazette*, 8th May 1880), says:—

I believe that I have always, since the occurrence of my first case, been well acquainted with the cause and nature of the febricula, simple continued fever, and ardent fever of Bengal As I did not see true enteric fever until I had served for many years in India, I treated all fevers, with the exception of the exanthemata, with quinine, the plain result of which is that from that day to this no case of simple continued fever or of ardent fever has ever fully developed itself under my observation.

He is careful to say that this statement applies only to Bengal. It certainly does not apply to South China, as may be gathered from many of the foregoing cases.

Surgeon-Major W. GERARD DON says of febricula, simple continued fever, and enteric or typhoid fever, that they are—

Mutually allied and mixed up in their etiology and epidemiology. From what I have seen and read I cannot help thinking that the broad factors in all climatorial fevers are, if not identical, entirely similar.

That is, that the cause producing simple continued fever produces typhoid fever. Adopting this etiology and Dr. NORMAN CHEVERS' therapeutics, we ought to cure typhoid fever with quinine!

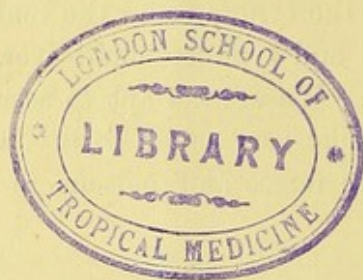
Dr. JOSEPH EWART believes—

That many of the so-called malarious remittents were simply typhoid or typhus fever modified, often marked for a time by malarious poisoning; but experience of enteric fever in India tends to show that malaria, such as is the accepted cause of paroxysmal fevers, is never the cause *per se* of enteric fever in India.

He does not say in the paper I quote what he considers to be the nature of febricula, ardent fever, or simple continued fever, but leads the reader to infer that a large proportion of such cases are really instances of typhoid fever.

Surgeon-General C. A. GORDON has no fewer than ten species of fever presumably acknowledging ten different causes, besides ordinary typhoid fever, viz., 1, endemic continued fever; 2, continued fever of adynamic type; 3, febricula; 4, ardent fever; 5, endemic remittent; 6, fever of uncertain type; 7, continued fever; 8, typho-malarial fever; 9, remittent; and 10, malarial endemic.

It is very evident from these discrepancies of opinion that the clue to the proper classification of tropical fevers has not been found; and I do not think that it will be found until investigators disabuse their minds of the idea that these fevers must be modifications or combinations of two poisons only, the typhoid and the malarial. The history of the discovery of the difference between typhoid and typhus should ever be a warning when the attempt to assign a fever to its cause is made. We are too apt to assume that we can assign correctly the various causes of diseases, and dislike very much to say, when asked for an answer, "I don't know," or to think that there are forces and poisons in nature of whose existence we are ignorant.





I am sorry to say
it is exceeding ill. But
as I believe, P.S.
12/1/91

5/11/91