

two colonies of *B. coli* on one of the slope agar tubes, no other organism was found.

Pericardium.—There were evidences of a slight plastic pericarditis, a few flakes of fibrin being adherent to the heart muscle. This condition was not diagnosed during life, and it was entirely owing to the restrictions placed on the necropsy by the parents that none of the fluid could be properly collected and examined. It is, however, quite permissible to reason that in all probability the condition was pneumonic in origin.

Heart.—The right cavity was in a state of slight dilatation, and otherwise the whole organ was perfectly healthy. The valves were absolutely sound, and there was no evidence whatever of any existent endocarditis; and it is, further, a significant fact that no infarcts of any kind were met with in any of the internal organs examined.

Elbow-joint.—No sign of inflammation, swelling, or other abnormality was visible. However, I aspirated the joint with a sterile needle, and withdrew a few drops of practically clear fluid containing a small number of floating flocculi. Coverslips made direct from the fluid presented a few capsulated Gram-staining hastate cocci, but cultures both in blood broth and on blood agar remained sterile. I have, however, no doubt in my mind that the organisms were no other than genuine pneumococci.

Middle Ear.—During the child's stay in the hospital no discharge or ear trouble ever manifested itself. At the necropsy, however, I introduced in the middle ear on each side a sterile pipette, but entirely failed to withdraw even one drop of fluid.

This is interesting, for on inquiry the mother stated that before the child's admission a discharge from its ears had been noticed for some time. This of course may or may not be true, but for the period during which the child was under treatment in the hospital no ear trouble was ever observed, though on several occasions it was searched for unsuccessfully.

In conclusion it may be interesting to trace out in tabular form the time and nature of the various sequential infections:

| | | Bacteriological Report. | |
|-------------------------------|--------|-------------------------|-------------------------------|
| Original pneumonia | ... .. | March 7-12 | Diplococcus pneumoniae |
| Left elbow-joint | ... .. | March 17-18 | " " |
| Empyema | ... .. | March 24 | " " |
| Blood examined | ... .. | April 20 | " " |
| Cerebro-spinal fluid examined | ... .. | April 24 | " " |
| Death | ... .. | April 28 | " " |
| Necropsy | ... .. | April 30 | " " |
| Lung squeezing | ... .. | ... .. | Diplococcus pneumoniae |
| Elbow-joint | ... .. | ... .. | ... .. |

I desire to express here my thanks to Dr. Ewart for permitting me to publish this case, and the obligation I owe to Dr. Vere Pearson, the Medical Registrar, who kindly placed his clinical notes at my disposal.

REFERENCE.

¹ *St. Bartholomew's Hospital Reports*, vol. xxxii, 1896.

CONCURRENT SCARLET FEVER AND MEASLES IN CHILDREN.

By ERNEST A. DENT, M.B., C.M.,
Cheltenham.

On February 8th I was sent for to see a child, E. B., aged 10 years. She was suffering from scarlet fever, and I sent her to the hospital for infectious diseases. She was away six weeks. The house, clothing, etc., were thoroughly disinfected by the sanitary authority. Six other children—A. B., a boy at work, aged 16; T. B., a girl, aged 13; C. B., a boy, aged 8; N. B., a girl, aged 7; M. B., a girl, aged 5; and G. B., a girl, aged 1½—remained away from school for fourteen days, according to the routine order of the sanitary authority, and then, being apparently perfectly well, returned to school until the Easter holidays.

M. B. (the youngest but one) became ill on April 1st. I was sent for on April 3rd, and I found her suffering from sore-throat, swollen glands, sickness, general *malaise*, and a slight rash, which commenced on the chest, and was, I thought, that of scarlet fever; the fact of the previous case in the house strengthened this view. I notified the case as a suspicious one, and asked Dr. Garrett, the medical officer of health, to see the child, and he kindly did so on the following day (4th). The rash had disappeared, and he considered the signs then evident hardly sufficient to justify removal of the patient to the hospital, and we agreed that it would be well to keep her at home under observation. On April 6th, when I visited the house, the child was covered with a very distinct and profuse eruption which was unmistakably that of measles; there were also other symptoms of that affection.

I was asked to see her brother C. B., aged 8. This boy had an indefinite rash which was not typical of either scarlet fever

or measles; there was no evidence of sore throat nor of swollen glands, and except for headache at times, he appeared to be pretty well. In five days desquamation had set in, and large scales of epidermis were peeling chiefly from his neck and chest; the appearance was quite unlike the fine branny desquamation which follows the disappearance of the rash in measles, and which is usually most in evidence on the body and lower extremities. The boy felt well and wanted to go out. I was of opinion that this was a case of scarlet fever, and communicated with Dr. Garrett, who again visited the house. We considered it right to send both children to the hospital.

Two of the other children T. B. and N. B., were apparently sickening for something. The house was again disinfected. Four days later T. B., N. B., and the baby were in bed with measles. They all recovered without any further development. A. B., the eldest, was the only member of the family mentioned who was not affected by illness.

Two days after admission to hospital a blotchy, measles-like eruption came out in the face of the boy; there was marked coryza, and desquamation continued for several weeks. He remained in hospital until June 3rd.

The girl had a good deal of desquamation of the neck and face, which continued for a long time; also, there was a persistent rhinorrhoea. On account of these indications she was detained in hospital an unusually long period, and did not leave until July 5th.

The cases mentioned illustrate some of the difficulties met with in making a precise diagnosis in non-typical cases of the eruptive fevers. The boy was without definite signs until desquamation occurred, which itself was more like that of scarlet fever than anything else. In certain indefinite cases, unless they are watched from the outset, and every sign, including even a slight and transient rash, noted it is likely that the presence of scarlet fever may be overlooked. I was fortunate enough to see M. B. while the rash (although indistinct) was present, and this, together with the other symptoms, led me to the belief that the case was one of scarlet fever. The rash, as not infrequently happens in this complaint, quickly disappeared.

These two cases are interesting, also, as affording examples in which the poisons of both scarlet fever and measles were present at the same time, and in which these poisons in combination modified the symptoms of both diseases.

I understand that during an epidemic of measles in Cheltenham, which has now subsided, other cases were admitted to the hospital for infectious diseases as typical of scarlet fever, and in less than a week after admission a distinct rash of measles developed in them, followed by a modification of symptoms similar to that in the cases now cited.

If one disease is coexistent with another (for instance, scarlet fever with measles, or scarlet fever with influenza), it is probable that the general character of the symptoms is so altered that the case is non-typical of either disease, and a definite diagnosis of it may not be possible. So misleading, indeed, may the condition be (especially if not under close observation from the commencement of the illness), as to suggest to the observer that some new disease is present.

A good deal has been written about the "fourth disease," which, as described, appears to have for its symptoms those which bear resemblance to both German measles and mild scarlet fever, and yet to be somewhat unlike either. It is conceivable that such symptoms might be caused by the poisons of both these affections acting together.

DENGUE FEVER IN PENANG.

By F. M. T. SKAE, M.D.,
Penang.

In the *BRITISH MEDICAL JOURNAL* of July 12th, 1902, Dr. F. O. Stedman¹ gives an account of an epidemic of dengue fever in Hong Kong during the last three months of 1901, and Dr. Nightingale² reports its arrival in Bangkok in the beginning of December of the same year. The disease reached Penang from Singapore in the end of November or beginning of December, 1901 (my first case was on December 5th), was

very prevalent during the next three months, and had almost disappeared by the end of March. A large proportion of the native population suffered and many Europeans, but the proportion seemed to be greater in the purely native parts of the town. No medical man was affected.

The type of the disease seen in Penang differed considerably from that described by Drs. Stedman and Nightingale; indeed, I and others had at first some doubt as to the identity of the disease. Later it approximated more to the textbook descriptions, but certain symptoms were slight or absent throughout.

The incubation period seemed to be one or two days, or at all events the first case in a house was usually followed by a second within that time. Occasionally as much as ten days elapsed, but in these cases probably the infection was independent. In one house in which 9 cases occurred, the first seven were within sixteen days of the first and the last sixty-seven days after.

Premonitory symptoms were entirely absent in my cases, except slight rigors in two children. The onset was always sudden, and the temperature with very few exceptions highest on the first day, frequently reaching 105° F. On the second day it was usually considerably lower, and on the third in the great majority of cases it fell to normal. It was usually highest in children, and in some adults never exceeded 100° F. Crisis was rare. Delirium and convulsions were frequent in children when the temperature exceeded 104°.

In the early part of the epidemic pains were usually entirely absent, or not more marked than they often are in malarial fevers. Later they were more common and severe, and in a few cases persisted after the other symptoms had vanished. Of my first 20 cases 5 complained of pain, one of them only after the temperature had fallen to normal, but in none of them was it severe. Of the last 20 pain was a fairly marked symptom in 13. In only one did it at all approach the condition described by Manson,³ in which "the pain caused by muscular movements more than counterbalances the advantage a purgative might otherwise bring." Constipation, by the way, was almost invariable.

Congestion of the skin—the initial eruption—was well marked in a few cases, especially on the face, but in many was hardly perceptible. Injection of the conjunctivae, which in some cases was so extreme as to look like ecchymosis, was rather more constant; but that, too, was often very slight.

The rash appeared usually on the fourth, fifth, or sixth day; in nearly half the cases on the fourth. Occasionally it was seen as early as the second day, and in none after the seventh. In some cases it did not appear at all. It corresponded pretty closely with the description given in Manson's *Tropical Diseases*, but was brighter than that of measles, with which I had several opportunities of comparing it. It first appeared, and was most marked in most cases on the flexor surface of the forearms, and was faint or absent on the palms and soles. Occasionally on the second day it did not entirely disappear on pressure, but left a brown stain. Itching was seldom complained of, and I saw no desquamation, but many cases were lost sight of as soon as the fever was over. In one case there was a slight petechial eruption, while the usual raised spots did not appear. The appearance of the rash was in no case accompanied by a rise of temperature, and the few cases of secondary fever which occurred in my practice were after the disappearance of the eruption.

In a few cases I observed an eruption on the mucous membrane of the mouth, consisting of isolated greyish vesicles about $\frac{1}{8}$ in. in diameter, each surrounded by an area of congestion. They were most numerous on the inner surface of the lower lip, but also occurred on the inner surface of the upper lip and cheeks, and on the tongue, never on the outer surface of the lips. This eruption was painful and appeared on the second day of the fever. Enlarged lymph glands were seen in only two cases. Haemorrhage from the nose occurred in one, and was followed by a feeling of relief.

Owing to the mild type of the disease and the inconstancy of what are usually characteristic symptoms, diagnosis, especially in the early stages, was somewhat difficult. In no single case under my care did rheumatoid pains, rash, and secondary fever all occur. Facial and conjunctival congestion, when well marked, were useful guides, but occur to a slight

extent in other fevers. The course of the temperature was the most characteristic feature. Other fevers prevalent at the same time were malaria, febricula, measles, enteric, and small-pox, and of these the first two were the most difficult to exclude.

REFERENCES.

- ¹ An Epidemic of Dengue Fever, F. O. Stedman, M.D., B.S., BRITISH MEDICAL JOURNAL, July 12th, 1902. ² Climate and Diseases of Bangkok, P. A. Nightingale, M.D., BRITISH MEDICAL JOURNAL, September 20th, 1902. ³ *Tropical Diseases*, p. 204.

DENGUE FEVER IN BURMAH.

BY W. G. PRIDMORE, CAPTAIN, I.M.S.,
Civil Surgeon, Bhamo, Upper Burma.

An epidemic of this disease occurred in Burma during April, May, June, and July, and is still continuing. It is not unlikely that its source is the epidemic at Hong Kong, of which Dr. Stedman wrote in the BRITISH MEDICAL JOURNAL of July 12th, 1902. The disease appeared in Rangoon in April; it then travelled northwards up the Irrawaddy valley. In June Mandalay was visited, and towards the latter end of the same month it appeared in Bhamo, the northernmost town of any importance in Upper Burma. The epidemic has followed the important trade route.

In Bhamo, to which place my experience of the epidemic is limited, it has attacked all nationalities alike. Those living in better hygienic surroundings—namely, European officers and native troops—naturally have not suffered to such an extent as those of the crowded localities.

Infection.—There is no doubt that the disease is highly infectious and can be carried by one person to another without of necessity the carrier becoming a victim. The first case to come under my notice, a European, arrived on June 20th from Mandalay, where the epidemic was progressing. On June 27th he was well. On June 28th my daughter, a child aged 3½ years, was attacked and went through all the stages of dengue. As she had not been exposed to direct infection, I must have conveyed it to her. I escaped, but was infected at a later date.

Incubation.—Dr. Manson, in his *Tropical Diseases*, says, "One to three days." Cantlie, in Allchin's *Manual of Medicine*, says, "One to five days." The former authority thinks that five to seven days, as given by some observers, is an over-estimate. My experience in the present epidemic leads me to agree with Dr. Manson. The incubation period probably varies from twenty-four hours to three or four days, the average being three days. Dr. Stedman, in his account, quotes a case of twenty-four hours' incubation. Such a short period is probably rare. The child mentioned had perfectly recovered on June 6th. Her mother, who nursed her, was attacked on June 9th, and I, her father, on June 12th. Thus, in the mother's case, the incubation was not less than three days.

Symptoms.—The cases in this epidemic have been characterized by sudden onset and symptoms of remarkable similarity. A person previously well and perhaps at work would be suddenly attacked with the peculiar characteristic pains in the joints. Pain in the muscles and back, particularly in the lumbar region, is generally felt. The pain affects the smaller joints especially—wrists, ankles, finger-joints, and toe-joints. The knees and elbows are also affected. Sometimes shivering or a feeling of cold down the back ushers in the attack. Vomiting in adults is an occasional symptom at the onset, but is frequent in children. The initial rash described in books I have only seen in a few cases. In these it has consisted of little more than a hyperaemia of the skin of the face. In one child a peculiar mottled rash appeared on the trunk and arms on the second day of the disease, and afterwards extended to the legs and feet. Frontal headache, with congested, watery eyes, is characteristic shortly after the disease has set in. The painful joints frequently become swollen and tender.

Temperature.—The amount of fever varies considerably. The temperature rises steadily, and in twenty-four hours reaches 103° or 104° F. It remains high, with slight remissions, for one, two, or—rarely—three days, and then falls rapidly. In a child under my care the temperature remained at 103° to 104° for two days, and on the second night extreme restlessness