reports a fatal case in which the symptoms occurred early, the paralysis extended rapidly and involved the upper limbs, and death took place on the eleventh day. Marked vascular changes were found in the gray matter of the spinal cord, and were believed to depend on an early disseminated myelitis. Examination of the peripheral nerves was not made. Similar cases are met with in the literature, and they probably come under the division of the post-febrile polyneuritis, though of course it is not impossible that some of them, such as Barlow's case, may be due to a rapidly ascending myelitis.

Diagnosis.—From scarlet fever, with which it is most likely to be confounded, measles is distinguished by the longer initial stage with characteristic symptoms, and the blotchy irregular character of the rash, which is so unlike the diffuse uniform erythema of scarlet fever. Occasionally in measles, when the throat is very sore and the eruption pretty diffuse, there may at first be difficulty in determining which disease is present, but a few days should suffice to make the diagnosis clear. It may be extremely difficult to distinguish from rötheln. I have more than once known practitioners of large experience unable to agree upon a diagnosis. The shorter prodromal stage, the slighter fever in many cases, are perhaps the most important features. It is difficult to speak definitely about the distinctions in the rash, though perhaps the more uniform distribution and the absence of the crescentic arrangement are more constant in rötheln.

The conditions under which measles may be mistaken for small-pox have already been described. Of drug eruptions, that induced by copaiba is very like measles, but is readily distinguished by the absence of fever and catarrh.

Prognosis.—The mortality bills of large cities show what a serious disease measles is in a community. Among the eruptive fevers it ranks third in the death-rate. The mortality from the disease itself is not high, but the pulmonary complications render it one of the most serious of the diseases of children.

In some epidemics the disease is of great severity. In institutions and in armies the death-rate is often high. The fever itself is rarely a source of danger. The extension of the catarrhal symptoms to the finer tubes is the most serious indication.

Treatment.—Confinement to bed in a well-ventilated room and a milk diet are the only measures necessary in cases of uncomplicated measles. The fever rarely reaches a dangerous height. If it does it may be lowered by sponging or by the tepid bath gradually reduced. If the rash does not come out well, warm drinks and a hot bath will hasten its maturation. The bowels should be freely opened. If the cough is distressing, paregoric and a mixture of ipecacuanha wine and squills should be given. The patient should be kept in bed for a few days after the fever subsides. During desquamation the skin should be oiled daily, and warm baths given to facilitate the process. The convalescence from measles is the most important stage of the disease. Watchfulness and care may prevent serious pulmonary complications. The frequency with which the mothers of children with simple or tuberculous bronchopneumonia tell us that "the child caught cold after measles," and the contemplation of the mortality bills should make us extremely careful in our management of this affection.

IX. RUBELLA (*Rötheln, German Measles*).

This exanthem has also the names of *rubeola notha*, or epidemic roseola, and, as it is supposed to present features common to both, has been also known as hybrid measles or hybrid scarlet fever. It is now generally regarded, however, as a separate and distinct affection.

Etiology.—It is propagated by contagion and spreads with great rapidity. It frequently attacks adults, and the occurrence of either measles or scarlet fever in childhood is no protection against it. The epidemics of it are often very extensive.

Symptoms.—These are usually mild, and it is altogether a less serious affection than measles. Very exceptionally, as in the epidemics studied by Cheadle, the symptoms are severe.

The stage of incubation ranges from ten to twelve days.

In the stage of invasion there are chilliness, headache, pains in the back and legs, and coryza. There may be very slight fever. In 30 per cent of Edwards's cases the temperature did not rise above 100°. The duration of this stage is somewhat variable. The rash usually appears on the first day, some writers say on the second, and others again give the duration of the stage of invasion as three days. Griffith places it at two days. The eruption comes out first on the face, then on the chest, and gradually extends so that within twenty-four hours it is scattered over the whole body. It may be the first symptom noted by the mother. The eruption consists of a number of round or oval, slightly raised spots, pinkish-red in color, usually discrete, but sometimes confluent.

The color of the rash is somewhat brighter than in measles. The patches are less distinctly crescentic. After persisting for two or three days (sometimes longer), it gradually fades and there is a slight furfuraceous desquamation. The rash persists as a rule longer than in scarlet fever or measles, and the skin is slightly stained after it. The lymphatic glands of the neck are frequently swollen, and, when the eruption is very intense and diffuse, the lymph-glands in the other parts of the body.

There are no special complications. The disease usually progresses favorably; but in rare instances, as in those reported by Cheadle, the symptoms are of greater severity. Albuminuria may occur and even

nephritis. Pneumonia and colitis have been present in some epidemics. Icterus has been seen.

Diagnosis.—The mildness of the case, the slightness of the prodromal symptoms, the mildness or the absence of the fever, the more diffuse character of the rash, its rose-red color, and the early enlargement of the cervical glands, are the chief points of distinction between rötheln and measles.

The treatment is that of a simple febrile affection. It is well to keep the child in bed, though this may be difficult, as the patient rarely feels ill.

X. EPIDEMIC PAROTITIS (*Mumps*).

Definition.—An infectious disease, characterised by inflammation of the parotid gland. The testes in males and the ovaries and breasts in females are sometimes involved.

Etiology.—The nature of the virus is unknown. It is probably a micro-organism, and a *bacillus parotidis* has been described.

The affection has all the characters of an epidemic disease. It is said to be endemic in certain localities, and probably is so in large centres of population. At certain seasons, particularly in the spring and autumn months, the number of cases increases rapidly. It is met most frequently in childhood and adolescence. Very young infants and adults are seldom attacked. Males are somewhat more frequently affected than females. In institutions and schools the disease has been known to attack over 90 per cent of all the children. It may be curiously localised in a city or district. The disease is contagious and spreads from patient to patient.

A remarkable idiopathic, non-specific parotitis may follow injury or disease of the abdominal or pelvic organs. Stephen Paget* has collected 101 cases of this kind, the majority of which were not associated with septic processes.

Symptoms.—The period of incubation is from two to three weeks, and there are rarely any symptoms during this stage. The invasion is marked by fever, which is usually slight, rarely rising above 101°, but in exceptionally severe cases going up to 103° or 104°. The child complains of pain just below the ear on one side. Here a slight swelling is noticed, which increases gradually, until, within forty-eight hours, there is great enlargement of the neck and side of the cheek. The swelling passes forward in front of the ear, and back beneath the sterno-cleido muscle. The other side usually becomes affected within a day or two. The submaxillary glands may also be involved. The greatest inconvenience is experienced in taking food, for the patient is unable to open the mouth, and

* British Medical Journal, March 19, 1887.

even speech and deglutition become difficult. There may be an increase in the secretion of the saliva, but the reverse is sometimes the case. There is seldom great pain, but, instead, an unpleasant feeling of tension and tightness. There may be earache and slight impairment of hearing.

After persisting for from seven to ten days, the swelling gradually subsides and the child rapidly regains his strength and health. Relapse rarely if ever occurs.

Occasionally the disease is very severe and characterised by high fever, delirium, and great prostration. The patient may even lapse into a typhoid condition.

One of the most remarkable features of the disease is a tendency to involvement of the testes. This most frequently occurs after the affection of the salivary glands has subsided. The swelling may be great, and occasionally effusion takes place into the tunica vaginalis. The orchitis is in some instances unilateral, involving the right testicle. The inflammation increases for three or four days, and resolution takes place gradually. Occasionally there may be a muco-purulent discharge. In severe cases atrophy may follow. Orchitis is rarely seen before puberty.

A vulvo-vaginitis sometimes occurs in girls, and the breasts may become enlarged and tender. Involvement of the ovaries is rare.

Complications and Sequelæ.—Of these the cerebral affections are perhaps the most serious. As already mentioned, there may be delirium and high fever. In rare instances meningitis has been found. Hemiplegia and coma may also occur. A majority of the fatal cases are associated with meningeal symptoms. These, of course, are very rare in comparison with the frequency of the disease; yet, in the Index Catalogue, under this caption, there are six fatal cases mentioned. In some epidemics the cerebral complications are much more marked than in others. Acute mania has occurred, and there are instances on record of insanity following the disease.

Arthritis is an occasional complication. Albuminuria, with convulsions, has been described. Fatal cases have occurred from acute uræmia.

Suppuration of the gland is an extremely rare complication in genuine idiopathic mumps. Gangrene has occasionally occurred. The special senses may be seriously involved. Many cases of deafness have been described in connection with or following mumps. The deafness, unfortunately, may be permanent. Affections of the eye are rare, but atrophy of the optic nerve has been described.

The diagnosis of the disease is usually easy. The position of the swelling in front of and below the ear and the elevation of the lobe on the affected side definitely fix the locality of the swelling. In children inflammation of the parotid, apart from ordinary mumps, is excessively rare.

Treatment.—It is well to keep the patient in bed during the height of the disease. The bowels should be freely opened, and the patient given a light liquid diet. No medicine is required unless the fever is high, in