larger phlegmons of boils and carbuncles. This principle of local treatment of specific lesions has of late been acted upon in the case of another zymotic disease—typhoid fever—in which the local growths and ulcerations are internal and difficult to reach; and yet much effort has been directed to the getting down into the intestines drugs which might favourably influence the specific ulcers or their products. It is well known that such beneficial influence has been believed to have been sometimes obtained. The ectrotic plan of treating small-pox was suggested by me in a paper "On the Local Uses of Carbolic Acid," published in 1878.¹ It was further dwelt upon, and recommended after extended trial, by Dr. Makuna in a paper read before the Royal Medical and Chirurgical Society in 1881—a paper which, for practical details, is well worth referring to.² It has also been recommended or tried by other observers, both English and foreign, and gratifying results have been recorded. Since that time variola has not been epidemic amongst us.

Once again, as to the decadent stage. If small-pox be essentially a local skin disease, then doubtless its ripened germs are chiefly shed, as in scarlatina, from this surface. In scarlatina, the method of simple antiseptic inunction of the skin, to prevent contagion, when the disease is declining, is largely practised, and is held to be of considerable value. Although the practice is not generally adopted, it is equally probable that the same good results would follow in the case of small-pox.³ One reason why much local treatment has not usually been employed in this disease is undoubtedly the loathsomeness of the exanthem, and no doubt a repeated local insertion of a remedy into each individual softening papule is tedious in the extreme; but nevertheless, if the principle could be shown to be the right one, the efficacy of any proved mode of practice would soon ensure its general adoption.

ON THE DIAGNOSIS OF SMALL-POX IN ITS EARLY STAGES.

By THOMAS D. SAVILL, M.D., LOND.

DURING the recent inquiry into the small-pox epidemic at Warrington, which I have made on behalf of the Royal Commission on Vaccination, I have been much impressed with the importance of the earliest possible recognition of the disease. Without this, the other means of preventing spread may be of no avail. A typical case of variola with the pustular rash well out is, perhaps, one of the easiest diseases to recognise; but the difficulties in the diagnosis of incipient small-pox as we see it in the present day are often very great. Nevertheless, the question is one of far greater importance than most medical problems, for on its prompt decision hang not only the health and happiness of the patient himself, but also the health and happiness—nay, the very lives—of the community amongst whom he dwells.

It may be useful, therefore, to examine, first, the means at our disposal for diagnosis before the appearance of the typical eruption, and secondly, the means of distinguishing the characteristic papular rash of small-pox from others for which in actual practice it is liable to be mistaken.

A. The means on which reliance may be placed for diagnosis before the appearance of the typical papular eruption are:

1. *A Suspicion that Small-pox is or may be in the Locality.*—Many of the serious epidemics of modern times would have been averted if medical men had borne this in mind when in the presence of what his patient has diagnosed as "heat bumps." At the present moment there is no part of the United Kingdom to which such suspicion may not apply.

2. *The Sudden Advent of Pyrexia in a Previously Healthy Person.*—A more liberal use of the thermometer would, I believe, often lead to an early detection of the malady, and would, moreover, avert the charge, sometimes made by ignorant friends and relatives against the doctor of "giving his patient

small-pox" by vaccinating him too late. On the first day of onset the temperature runs up suddenly to 102° F. or more, and remains up more or less till the eruption appears on the fourth day, when it begins to fall, and the patient feels much better. In my experience this preliminary fever, accompanied by *malaise*, occurs in even the mildest cases, and its severity is no guide to the subsequent course or severity of the disease. This sudden advent of pyrexia occurs in only two other acute specific diseases common in this climate, namely, scarlatina and erysipelas, and is of itself, therefore, a most valuable means of detection.

3. *Other Constitutional Symptoms.*—Along with the initial fever there are other constitutional symptoms which are more common in variola than other kindred diseases, and which are, moreover, of a very characteristic kind. Chief amongst them are severe *pain in the back*, and *sickness or vomiting*. "Aching all over," the patient tells you, but much worse in the back and loins, with the symptoms of "a cold." The three symptoms—sudden advent of pyrexia, pain in the back, and sickness—especially when occurring in a district where variola may possibly have been imported, are quite distinctive of the disease. The lumbar pain and sickness are rarely as marked in scarlatina or erysipelas, but all three diseases call for some sort of quarantine precautions; and in the course of thirty to forty hours the appearance either of the red blush spotted with tiny papules of scarlatina, or the raised marginated erythema of erysipelas, will decide in which category the case should be placed.

4. *Initial Rashes.*—In certain more or less rare cases of small-pox an initial rash appears before the typical eruption of the fourth day. It appears usually on the second or third day of the disease. It is generally of an erythematous and sometimes petechial character; and its favourite position seems to be over and adjacent to Poupart's ligament; or it may be in the axillæ or other flexures of the joints. Erythematous or purpuric eruptions in this position are highly characteristic of the disease. This is what my own somewhat limited experience of these initial rashes teaches: but Dr. S. J. Sharkov,¹ who did great service by directing professional attention to the matter, has recorded some cases where the initial eruption was more generalised, and involved the flexor or extensor surfaces of the limbs. This author classifies the erythemata occurring in this initial stage into:

- A. General erythema.
 1. Scarlatiniform.
 2. Morbilliform.
- B. Partial erythema.
 1. On extensor surfaces.
 2. On flexor surfaces.

My belief is that these initial rashes are comparatively rare, but it would be of much interest if those who have the opportunity of observing a large number of variola cases at an early date would give their experience both as to the occurrence and most frequent form.

Date of Appearance of Rash.—The date of appearance of the rash is a matter of some importance. It is generally stated to be three days after the onset—namely, the fourth day of disease. Out of 375 cases I have had the opportunity of investigating on this point the largest number, 31 per cent., appeared on the third day of the disease; 26.4 per cent. on the fourth day, 15.7 per cent. on the second and fifth days; 4.5 per cent. on the sixth day, 4 per cent. on the first day, and 2.6 per cent. on the seventh day.

THE TRUE ERUPTION.

B. The true eruption of small-pox always starts as *hard round isolated papules*. Like *measles*, it first shows itself on the face, and also at the same period of the disease (fourth day). These two eruptions are often extremely hard to distinguish off hand. (a.) Both are papular, but measles has a tendency to be flat, whereas variola has a tendency to be "shotty" and round. (b.) In measles the papular character begins to subside at the end of about twelve hours; but in small-pox the shotty papular character goes on increasing, and passes in forty-eight hours into the vesicular and thence into the pustular stage.

The temperature is of but little value in the diagnosis of these two affections, for in both the temperature falls when the rash appears; but the accompanying coryza of measles and

¹ *Lancet*, vol. i, 1878. See also various letters on the subject published in the same journal this year.

² *Medical Press*, October, 1882.

³ See Pritchard on the External Use of Permanganate of Potash, *Lancet*, vol. ii, 1881.

¹ *St. Thomas's Hospital Reports*, 1880.

the history of the patient's previous illnesses are valuable aids. With *German measles* small-pox need never be confused, but in any difficulty the above indications are sufficient. The rash of *scarlatina* differs very widely in its appearance and circumstances from *variola*.

THE ERUPTION IN MILD MODIFIED CASES.

The eruption of *chicken-pox* may be distinguished from small-pox by the absence of premonitory fever, the rash being the first, often the only, symptom noticed in the former disease. Moreover, the papular stage is very transient, giving rise in a few hours (as compared with two clear days) to a clear vesicle on a slightly inflamed base, without induration. The face is not, as in *variola*, the most favourite place, and different stages of the eruption may always in chicken-pox be seen at the same time.

It should always be borne in mind that small-pox as we see it in the present day presents many degrees of severity, and some cases are so trivial as scarcely to merit the patient's notice, from the scanty rash and few symptoms, much less to impede him in his work. These cases require to be diagnosed from *acne*. This can only be done (a) by the position, for *acne* favours the roots of the hair, and (b) by the fact that the *acne* spots may generally be seen in several stages, and some nearly always show the small points of comedones. In the mildest case of small-pox some constitutional signs may generally be discovered by careful investigation. A few isolated papules occurring (and not becoming vesicular or pustular) on the fourth or fifth day of an illness are most probably small-pox.

AGE OF THE RASH.

I should like to take this opportunity of pointing out the great value which attaches to the question of time in the diagnosis of a small-pox rash. A knowledge of the exact age of an eruption will often decide the question. At the end of twelve hours the papules of measles begin to fade, those of small-pox get harder and larger, and after an interval of two days become vesicular; whereas *varicella* is vesicular almost at the very commencement.

CHARACTERS ON PALPATION.

The feel of a small-pox rash is another point only second in importance to the element of time. To pass your hand over the forehead and cheeks is a procedure which should never be omitted in a doubtful case. In this way the disease could almost be diagnosed in the dark. I know objections may be urged, but the advantages are very great, for the hard shotty lumps of small-pox, which can be felt even before they are visible, are totally different from the feel of the soft flat margined papules of measles, or the non-indurated vesicles of *varicella*.

These are the chief diseases which in actual practice are liable to be confused with incipient small-pox. At a later stage there is rarely much difficulty, though I have mistaken a case of acute glanders, in which the usual nasal discharge was absent, and my mistake was amply confirmed. But having regard to the grave issues at stake, it is undoubtedly wise to adopt quarantine precautions in any doubtful case. It is sincerely to be hoped, moreover, that the day is not far distant when a properly fitted quarantine ward will be regarded as a necessary adjunct to the receiving ward of every isolation hospital.

CASE OF ACUTE PERIOSTITIS OF THE JAW FROM MERCURIAL POISONING.

By W. H. C. STAVELEY, F.R.C.S.ENG., L.R.C.P.LOND.

AND

R. DENISON PEDLEY, L.D.S., F.R.C.S.EDIN.

MEDICAL REPORT BY MR. STAVELEY.

MRS. K., widow, aged 31, had had fairly good general health until recently. She had had a good deal of worry from legal matters in connection with her late husband's affairs. She had suffered occasionally from muscular rheumatism.

She consulted me for the first time on December 23rd, 1892, complaining of general nervousness, tremors of the hands, inability to sleep, and almost complete want of appetite. She attributed her condition to two boils which had formed on the right arm. One of these was well, the other had been incised and was healing. She also had some facial neuralgia. The catamenia appeared regularly every three weeks. The bowels acted twice daily. She was a tall, spare woman. There was marked pallor of the face, but not much anæmia of the mucous membranes. The tongue was thickly coated and the breath offensive. Teeth had been recently filled, and she was in the habit of visiting her dentist every six months.

I attributed her condition to insufficient food, and prescribed a generous diet and the following mixture: Ferr. et quin. cit. gr. x., tinct. nuc. vom. ℥x, aq. chloroform. 3j, t. d. s.

On December 26th she sent for me, as the neuralgia had been very severe. The breath was very offensive, the gums swollen, and there was much creamy fur about the teeth. I advised her to visit her dentist if the pain did not subside, and prescribed pulv. phenacetin, gr. 5, to be repeated in half an hour's time if necessary.

On December 27th I received a note from Mr. R. Denison Pedley at 8 P.M., saying that the patient had been to see him and that he had extracted two teeth to relieve pain. He suggested that the condition of the mouth was due to some poison, probably septic. I saw Mrs. K. the same evening, and found the teeth on the right side of the mouth all loose, pus welling up from the sockets; the breath was most offensive, and there was a profuse flow of saliva. The temperature was 100°.

On December 28th she was somewhat relieved; the temperature was 99°. A chlorine mouth wash was ordered to be used frequently.

On January 2nd, 1893, there was still much discharge, and great pain in the second (?) lower molar; pus was still welling up from the tooth sockets. At 5 P.M. I met Mr. Pedley in consultation. She was then free from pain, and we decided to wait. We discussed the question of poison for some time, but could discover no source. We were both much perplexed as to the cause. She continued under my treatment until the end of January. Abscesses formed at the roots of two other teeth, with great pain, necessitating their removal. All the teeth extracted were carefully examined, and the pulps found to be healthy.

On February 4th the patient's sister informed me for the first time that the patient had been using a lotion for her complexion since the beginning of October, 1892, and left a bottle of it at my house. On examining it I found it contained mercury, apparently in large quantities. I did not attempt to estimate it quantitatively. I left this bottle at the office of the British Medical Association on February 14th, 1893.

DENTAL REPORT BY MR. PEDLEY.

The following is the dental report from notes taken at the time or the day after:

December 27th, 1892. Mrs. K., aged about 30, came to-day with her sister about 4 P.M. Complains of constant pain in upper and lower jaw on the right side; has kept her awake at night for nearly a week. Says she hardly knows how to bear the pain; it is acute and throbbing. On examination patient can scarcely open her mouth. The breath is very offensive. From the mid line in upper and lower jaws on right side, as far as the wisdom teeth, the gums are inflamed and thickened. The teeth are all loose, and on pressing the gum pus oozes out round the necks of the teeth. The molar teeth in upper and lower jaw on right side are acutely sensitive when pressed upon. Patient fainted twice during the examination. Decided to remove a molar tooth in upper and lower jaw on right side, the most sensitive. Nitrous oxide administered. Upper twelve years' molar and lower wisdom tooth removed on the right side. Patient seemed much relieved. Teeth not carious. Teeth carefully examined after extraction. The upper molar had been previously stopped on the posterior surface, but there was no reason for supposing that the nerve pulp was irritated. The periosteum was much inflamed and thickened. On cutting the teeth open the pulps were healthy in appearance.

December 29th, 1892. The father of Mrs. K. came to-day,