this way large quantities of blood and clots, a glass drainage tube was inserted, and the cavity closed. The patient made an uninterrupted recovery, with the exception of a small stitch abscess, and the drainage tube was removed on the fourth day. The accompanying plates, from photographs taken immediately after the operation, show the fœtus and the ruptured gestation tube, which were removed from the abdomen.

REMARKS.—The points worthy of remark in this case are in reference to the diagnosis and treatment.

1. *Diagnosis.*—When I first saw the case with Dr. Austin, although the symptoms were very obscure, I believed that it was one of ruptured tubal pregnancy. The problem to be solved then was: Given a married woman suddenly seized with profound collapse and symptoms of internal hæmorrhage, but with an absence of any special abdominal or pelvic

Fig. 2.—Left Fallopian tube, ruptured at seat of gestation cyst.

signs on physical examination, what was the source of the bleeding? Her previous history: Irregularity of menstruation, uterine hæmorrhage, and a period of sterility afforded the clue to the diagnosis of a tubal gestation, which had ruptured, and the subsequent attacks of pain and collapse with the abdominal signs confirmed this view of the case. The condition of matters present in July, 1891, when her relatives as well as myself thought her profoundly ill, is difficult to explain. At that time her symptoms may have depended on a ruptured tubal pregnancy, from which she recovered, or on an ordinary or a tubal abortion.

2. *Treatment.*—The line of treatment indicates the enormous advance made in recent years in abdominal surgery; and the case is of special interest as being the first one operated on in Belfast. The patient is now quite well.

DONATIONS.—The Fishmongers' Company have made a grant of £150 towards the funds of the Metropolitan Hospital, Kingsland Road.

THE PREVENTION AND MITIGATION OF SMALL-POX.

By SIR PETER EADE, M.D., F.R.C.P.,
Consulting Physician to the Norfolk and Norwich Hospital.

THE increasing prevalence and diffusion of small-pox in England at this time necessarily attract the attention of the medical profession to the subject of this disease; the more especially as it is well known that there is a large and increasing number of unvaccinated, and therefore unprotected, children and persons in our midst.

As in the case of the other acute zymotic diseases, we know of no internal remedy which can cut short the disease. Nor can we do more by way of treatment than relieve some of the more urgent symptoms and miseries which attend its course.

We all watch with interest the vital experiment which Leicester, as well as some other places, is making in regard to variola, and we mark the repetition of the known facts of the disease which are there being illustrated. We can scarcely doubt that the result will be—as is, indeed, already becoming the case—to show once more that a serious proportion of the unvaccinated die, and that there is but one real known remedy against an attack of small-pox, and that is the preventive protection of the population by universal vaccination.

But even if there were any reliable method of treating the disease when once acquired, "prevention is better than cure;" and the prevention of it, by efficient vaccination and revaccination at proper periods, is not only better, but a means of saving a large amount of human life. And the professional mind, as a whole, remains quite unshaken in the conviction of the general efficacy of these processes. This, then, is the first and the greatest of antivariolous preventive measures. But in the face of a present widespread epidemic, and with the possibility of very valuable lives at stake, it seems worth while to recall other measures more or less effective to prevent or mitigate which have from time to time been recommended, after exposure to the contagion or during the progress of the disease itself.

The view has been entertained, and there are many strong arguments in favour of it, that small-pox contagion is really and actually received upon the cutaneous and mucous surfaces, and that it grows and develops thereon, or rather in their follicles or involutions, prior to the infection of the blood and general system—just as in diphtheria we believe that the specific poison first alights upon the tonsils, and, vegetating there, produces secondarily the further local and general symptoms which characterise the disease.

Now, after exposure to variolous contagion there are twelve days before the seed sown begins to show its local reproductions, before the distinctive papular foci appear and develop into the typical papules and pustules. We cannot reach or treat any seed spots sown upon the internal mucous membranes, but has any sufficient trial ever been made during this incubatory period, and after exposure, of the method of inuncting the outer surface, and especially the more exposed parts, such as the face, neck, chest, and wrists, with some sufficiently potent antiseptic or bactericidal application? This might be either sulphur or carbolic ointment well rubbed into the pores of the skin of these parts, or they might be saturated with some cleaner application, such as strong salicylic lotion. We know that the danger of an attack of small-pox may be largely measured by the number of pustules which form. Therefore even a considerable diminution of these, or their early abortion, would be almost certain to benefit the patient and increase his chances of recovery.

Again, after the eruption has appeared and the papules have begun to soften, it has often been proposed to apply to these some bactericidal application which may prevent the normal and thorough development therein of the variolous germs. External spongings at this stage with lotions, or the outside smearing of the surfaces with antiseptic applications, however strong, although apparently of some value, are insufficient for abortive action, because the agents used do not come in contact with the ripening germs. But a large amount of benefit has been found to be derived from their insertion into the individual pimples, just as has been found from a similar internal application of bactericides to the

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 erythematous 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.