It is the weighing up of all points that produces the convinced diagnosis, and it is this diagnosis in an early case of mild small-pox that is at the same time both essential and difficult. A missed case (for the doctor is not always sent for) or an error in diagnosis is the usual and regretted beginning of epidemics, mild or severe.

There is no dividing line to be plainly seen between small-pox *sine eruptione*; mild small-pox, with one, two, ten, twenty, or a hundred lesions; severe, discrete, confluent small-pox, and the haemorrhagic forms of this disease.

The conjecture that there is a separate and distinct disease—alastrim—must be rejected. Leake and Force of the United States Public Health Service made certain experiments on rats and monkeys with material from cases of so-called alastrim in the West Indies. They found¹ that in monkeys a vesico-papular eruption was produced by inoculation of crusts or the contents of vesicles from such patients and that the animals were protected against re-inoculation with the virus or with vaccinia. Rats inoculated with alastrim did not develop an eruption, but became almost completely immune to vaccine virus. When intracutaneous inoculation is made with small-pox crusts, alastrim material, and vaccine virus in rats in the manner used in the Schick test for diphtheria, a reaction occurs. Rats previously inoculated with vaccine virus gave an intracutaneous reaction to small-pox crusts, alastrim material, and vaccine virus, but remained negative to chicken-pox crusts. They conclude that definite immunity to vaccinia is produced by previous inoculation with alastrim and that this affords additional evidence of the essential identity of alastrim with small-pox.

Taking an average of small-pox fatality for 276 cities in the United States of America and Canada, the rate has increased from 0.6 per cent. in 1920 to 5 per cent. in 1922, and at the present moment it would be unwise to presume that the mild type of small-pox as seen in Gloucester and the North of England will not revert in the future to the more fatal form of the disease.

I have endeavoured in this short article to bring out the fact that a definite diagnosis between these two diseases is at times extremely difficult. In the recent Gloucester epidemic the two diseases existed side by side in the same family; in such an instance a case of chicken-pox was admitted to hospital as one of small-pox. The patient, on recovery, was discharged from hospital, and a few days later passed through a typical prodromal history and developed a typical and profuse small-pox rash! The converse has also happened, a small-pox patient on discharge from hospital developing a typical chicken-pox eruption within a month of discharge.

Administrative measures for dealing with an epidemic of mild small-pox must at present remain the same as if we were dealing with the virulent type of the disease. One matter of paramount importance which should never be omitted where small-pox threatens is the provision of an observation ward where cases of doubt can be isolated. As stated before, a correct diagnosis can and should be made, and the number of cases for observation should be small.

REFERENCE.

¹ Report of U.S. Public Health Service, vol. 36, No. 25, June 24th, 1921.

CLINICAL NOTES OF FIFTY CASES OF SMALL-POX (1923).

BY

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In the following notes of 50 consecutive cases occurring in West Gloucestershire, the main consideration has been to show on which of the classical diagnostic points reliance may be placed in the light of present experience, and especially to emphasize those points in which the current type of the disease differs from the classical. The cases are the first fifty admitted to the West Gloucestershire Small-pox Hospital during the present epidemic, and occurred

between May and October, 1923. The first and several subsequent cases were imported from Gloucester; the remainder were contacts of earlier cases.

Of the 50 cases, 27 were males, 23 females; the youngest was 2 years of age; 2 belonged to the age-group 2 to 5 years, 9 to the group 5 to 10 years, 13 to group 10 to 15, 9 to group 15 to 20, 9 to group 20 to 30, and 8 were from 47 to 55 years. Forty-two were unvaccinated; the remaining 8 had been vaccinated in infancy and never re-vaccinated; the youngest vaccinated case was 23, and the next youngest 47 years old, so that none of the patients had been vaccinated within twenty-three years and only one within forty-seven years.

In type the cases were fairly clearly divided into a mild type (36 cases) and a semiconfluent type (14 cases). The mild type had a less severe prodromal illness, fewer spots, and a quicker convalescence. Some of these were very mild indeed, the prodromal illness being negligible and the rash confined to a very few spots on the face, wrists, or ankles. There can be no doubt that several cases of this kind passed unrecognized, so keeping up the epidemic; it was established beyond doubt that the mildest cases could hand on the disease in semiconfluent form to contacts. Previous vaccination did not appear to affect the type—of the 8 vaccinated cases 6 being of the mild and 2 of the semiconfluent type.

The semiconfluent type of case had a more severe prodromal illness, being in every case confined to bed, a profuse rash consisting of many hundreds of spots so that the features in the worst cases were quite unrecognizable, and usually a longer convalescence. In none of these cases was the constitutional disturbance at all so severe as one would have expected from so many pustulating vesicles.

One of the patients had been successfully vaccinated in the incubation period, four good vesicles forming; his subsequent illness was in no way different from that of the other mild cases. The remaining 49 were vaccinated on admission to hospital to confirm the diagnosis; immunity to vaccinia was complete in every case.

Incubation Period.—As a student, the writer was once asked by his chief on what day of the week the rash of small-pox most often appeared; the correct answer was "Sunday"—that is, fifteen days from the most likely day of infection under prevailing social conditions. Although difficult to establish with accuracy, this appears to have been about the interval in these cases.

Prodromal Period.—The onset being in the great majority of cases quite definite, it has been possible to define the length of this period with more accuracy and the result has failed altogether to confirm the four days universally described in textbooks. In three cases it was impossible to determine accurately the commencement of the disease; of the remaining 47 cases the rash appeared once on the second day, three times on the third day, twelve times on the fourth day, fourteen times on the fifth day, twelve times on the sixth day, four times on the seventh day, and once on the eighth day; in a certain number of cases, however, medical advice was not sought until the rash was well out, and it is possible that the rash may occasionally have been present a day before it was recognized by the patient's friends.

In the great majority of cases the prodromal illness was first diagnosed as a "chill" or "influenza"; two patients who had had pneumonia before complained of "pain like pneumonia but a little lower down"; one case was diagnosed "lumbago." Only four times was lumbar pain at all prominent, headache being the pain usually complained of. Initial vomiting occurred in 3 cases; there was no case of convulsions and no prodromal rash. Those cases which were under observation during this period had usually a temperature of from 100° to 103° F., which fell to normal when the rash appeared, and in quite a number of instances on the day previous to the rash. It was impossible to establish any relationship between the duration of this period and the severity of the subsequent disease.

The nature and distribution of the rash was very consistent in all cases, differing only in quantity. Appearing

always first on the face, it followed in a few hours on the arms and legs, with a few spots on the back; the chest and abdomen were nearly free, in many mild cases absolutely free, the picture so formed being very striking in its contrast to varicella; on the limbs the rash was always centrifugal. There was no succession of crops as in varicella, all the spots in a given part of the body being of the same age. The individual spots were in the deeper layers of the skin as opposed to the superficial vesicles of varicella, and passed through the classical stages on the face in about ten days; in the limbs much longer was required, unbroken pustules being often present after the face was clear; the last to clear up were always round the ankles and on the soles of the feet. A few of the largest spots were punctured and found to be unilocular; umbilication was frequent but not universal. So uniform was the rash in its essential features as regards both its nature and distribution that the diagnosis rarely gave any anxiety once the rash was well out.

Secondary rise of temperature occurred in all but one of the semiconfluent cases and in 10 of the mild cases—twenty-three times in all. It was invariably septic in type, and while it lasted patients always felt worse than during the early days of the rash, though usually not so ill as in the prodromal period. It commenced on the third or fourth day of the rash and lasted for one day only in 7 cases, for two days in 4 cases, for three days in 2 cases, for four days in 7 cases, and for five, six, and nine days in one case each. In only 10 cases did it exceed 100°, the highest recorded being 101.6°.

Conjunctivitis occurred during pustulation in 6 cases and appeared to be caused by pustules on the eyelids; arthritis of the knee occurred once during convalescence, in a man of 55 not previously subject to "rheumatism." There were no other complications; one case each of imperfectly compensated mitral disease and of six months' pregnancy were unaffected, both being cases of "mild" type.

Treatment was symptomatic only. From the period of scabbing onwards all patients were liberally treated with olive oil and hot baths; the nursing staff as well as the author were convinced that this materially shortened convalescence.

Duration of Infectivity.—After the scab had fallen off a purple scar remained, at first slightly raised; around its edge was often attached some dry skin, the remaining circumferential part of the skin originally covering the vesicle. Until this had disappeared from all the spots the patient was regarded as still infectious. The last part to clear was invariably the ankles and soles of the feet, and the process was completed within three weeks of the appearance of the rash in 23 cases; in 20 cases infection persisted to the fourth week, in 3 cases to the fifth, in 3 cases to the sixth, and once to the seventh week. Liberal applications of olive oil and hot baths materially assisted the removal of this dry skin; premature picking off of the scabs, on the other hand, delayed the process. The patients were discharged immediately at the end of this period and there were no "return cases"; the scars faded gradually in the course of several weeks after discharge and do not appear to have left any pitting.

Conclusions.

1. It is impossible to diagnose the present type of small-pox before the appearance of the rash.
2. Fall of temperature without appearance of rash in a suspected case does not immediately preclude the possibility of small-pox; nor does the non-appearance of rash on the fourth day.
3. The centrifugal distribution of the rash and its comparative absence on the chest, its depth in the skin, and the absence of successive crops are reliable guides in the differentiation from chicken-pox.
4. Successful vaccination performed after the disease has appeared excludes small-pox, but successful vaccination during the incubation period has no diagnostic value.
5. The protective value of recent vaccination is once more abundantly confirmed.

TWO CASES OF INTRA-ABDOMINAL HERNIA.

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I.—HERNIA INTO THE INTERSIGMOID FOSSA.

THE intersigmoid fossa has been described by Treitz,¹ Waldeyer,² and Treves³; the mechanism of its formation, suggested by Toldt,⁴ was confirmed by Moynihan.⁵ Records of hernia into the fossa are very rare. Bryant,⁶ Eve,⁷ Eccles,⁸ Coley,⁹ Murphy,¹⁰ Barnard,¹¹ Black,¹² and Marsh¹³ relate or refer to cases, but, in some of these, particulars are wanting. There are no doubt others, overlooked, but the references have not been verified. Most of the cases were seen as "intestinal obstruction," without previous history of abdominal disorder; in one or two there was a history of attacks of constipation with left-sided abdominal pain.

The patient, aged 47, a man of fine physique, at the end of a journey from the Continent, was seized with sudden abdominal pain, at first in the right iliac region; later it spread across the whole lower abdomen, and he vomited. A few hours later he was seen by Dr. Cumming Grant, who found him collapsed. He had had an urgent desire for stool, which persisted although the bowels did not act, nor was flatus passed. At first he had micturated easily, but now had difficulty and pain. Vomiting recurred.

When seen by us the whole abdomen was distended, rigid, and tender, the greatest tenderness being in the left iliac fossa; there was no recognizable hyperaesthesia, nor could any "lump" be felt; the whole abdomen was slightly tympanitic. On rectal examination oedema of the mucosa was found high up and general fullness of the recto-vesical pouch, but no "lump" could be felt.

The patient himself, although he had had no previous attack, felt sure he was suffering from appendicitis. Without dismissing that possibility, the abdomen was opened as for intestinal obstruction. On entering the pelvis the hand at once encountered an indefinite fixed fullness on the left posterior wall. Coils of small intestine of unequal calibre were seen passing towards this region, but not until the sigmoid had been drawn up and over to the right was the mass revealed. It proved to be incarcerated small gut behind or between the layers of the sigmoid mesocolon. The whole sigmoid and upper part of the rectum were markedly oedematous. The opening looked downwards and to the right. The intestine, 8 to 10 inches, was easily withdrawn and was clearly viable. The pouch admitted three fingers to their whole extent, and was directed upwards and to the left. The margin of the opening was rounded though oedematous, and the sigmoid artery, arching in the upper edge, coursed down the left rim. The ureter was not identified; the bifurcation of the iliac was below and slightly to the right. It was thought inadvisable to attempt any suturing of the opening; the sigmoid was turned down and its outer edge stitched to the abdominal wall as far down and to the left as possible.

Recovery was without incident.

Intersigmoid Fossa. A, Approximate outline of sac behind descending mesocolon. B, Sigmoid branches. C, Mouth of pouch as distended by incarcerated gut. D, Superior haemorrhoidal artery. E, Approximate position of ureter.

II.—HERNIA THROUGH A DEFECT IN THE MESENTERY.

The anatomy of the aperture in the following case corresponds exactly with the description given by Treves.¹⁴ Possibly the type may not be very rare, but records are certainly scarce. Howard Marsh¹⁵ described one in 1888, and Barnard¹⁶ mentions two, but both of them were traumatic. This case differed entirely from the two of deficiency of the last part of the mesentery recorded by Armstrong,¹⁷ in that the terminal part of the ileum was quite free from attachment to the abdominal wall. There was no history of trauma in this instance. It seems probable that the attacks of pain were due to incarceration of a loop of gut.

A single woman, aged 31, one of twins, a patient of Dr. Garden, was admitted to the Westminster Hospital in May, 1923, having had attacks of "appendicitis." The first attack, in February, 1923, was