neurosis in general but among delinquents: "We often regretted that, after foster-home placement or institutional life, a delinquent had to return to a home with the social pathology largely or entirely unaltered. All clinical observers inveigh against this; it presents so much essentially wasted effort, since so many cases then revert to their delinquent trends." In our visited group of cases we found examples corroborating each of these statements, and consider that they may both apply at times, not necessarily the one to psychoneurotic disturbances and the other to delinquency, but to almost any type of symptom. The children who seem to have derived lasting benefit from being sent away (and these were in the majority) all came from homes where relations had become strained to the point of creating an atmosphere thoroughly inimical to the child's recovery, but where the psychological environment was moderately healthy outside the sphere of the problem. The cases which relapsed soon after their return, though they had all improved during absence from home, came back to exactly the same aggravating atmosphere which they had left. In two of these, for instance, the mother had marked personality difficulties of her own, and in another the stepmother's attitude towards a delinquent boy prevented any chance of permanent recovery. The question then arises whether some attempt should be made to modify the environment during the child's absence and, if this is not possible, should the case be rejected from the first as unsuitable for treatment, thus leaving the time available for more hopeful cases? Healy and Bronner (1937), in the course of the research to which we have just alluded, divided their delinquents into three groups: in Group 1 are the "abnormal or the markedly neurotic personalities or those suffering from severe mental conflicts, and mental defectives"; in Group 2, "those where the social pathology was heavily weighted against successful treatment." The cases in these two groups, they concluded, were unsuitable for treatment. In Group 3 were "individuals whose personality or internal difficulties did not show extreme deviations and who came from conditions where the social pathology did not give evidence of greatly weighing against the chances of successful treatment. This does not mean that the cases were less severely delinquent or that none exhibited any signs of abnormality, neuroticism, and conflict, nor does it mean that there was no social pathology." Only in this group did they find cases which had justified to any extent the time and expense of clinic treatment.

A study of the unimproved cases in our follow-up group to a large extent upholds the truth of these findings. Again we are referring to all symptoms, not merely to delinquency. The obvious criticism, however, of this very careful selection of patients is that little progress can be made in methods of treatment if the more difficult cases are rejected, and that diagnosis is not such a simple matter as to enable cases to be neatly consigned to one group or the other. Some children recover in the face of apparently insuperable difficulties, and others retain their symptoms for reasons which often remain obscure.

Summary

A follow-up inquiry was carried out upon a group of 1,330 cases attending the Tavistock Clinic for treatment between 1921 and 1934; 500 replies were obtained and analysed.

Of those who did not reply 150 were visited to determine the reason for the lack of reply. The present condition of this group of patients was entirely comparable to that of those who did reply.

Of those who did reply a group of 160 cases were visited to verify the reliability of the written replies. No significant difference was found.

The inquiry showed that three years and more after cessation of treatment improvement in the condition for which the patient sought treatment is still present in over

77 per cent. of cases. If all the cases which received further treatment are excluded the figure is 70 per cent.

Little or no significant variation in the degree of improvement could be found as between the two sexes, in different complaints, or in relation to position in the family.

Those cases with average intelligence respond better than those above or those below average.

The proportion of cases relieved in a group of 121 patients who had passed through adolescence was the same as that for the whole group.

We wish to acknowledge the generous gift from an anonymous donor which enabled the investigation to be carried out.

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THE REMOTE EFFECTS OF PUERPERAL SEPSIS

BY

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The far-reaching effects of childbirth and its complications in the causation of maternal morbidity are well known to the medical profession, and the difficulty of assessing the bearing of this morbidity on the patient's future health is fully appreciated. In recent years, however, more detailed investigation of the problem has been strongly advocated by such authorities as McIlroy (1935), MacLean (1935), and the Departmental Committee of the Ministry of Health (1932). In 1937 Kenny published the results of such an investigation in a series of 100 patients.

One of the chief causative factors of disability resulting from childbirth is puerperal sepsis. This condition is almost always regarded, by the lay public at least, as a very serious illness which either terminates fatally or leaves behind a train of crippling symptoms and much ill-health. Accordingly, those of us in the medical profession who have had to deal with "puerperal fever wards" cannot fail to have noticed the ever-present anxiety of the patient and her relatives, not only for her immediate recovery but for her future health. It would seem, therefore, that an investigation into the maternal morbidity following puerperal sepsis and an analysis of the disability caused thereby are desirable and essential. It was with these points in view that I began to study the remote effects of puerperal sepsis.

The Investigation

This was started in March, 1936, and the number of patients examined was 200. Invitations to attend at the hospital for examination were sent to all the patients who had been in the wards between certain dates with verified puerperal sepsis, until 200 replies had been received, by which time 710 invitations had been sent. All the patients who were examined had been admitted with

puerperal sepsis four to six years previous to the start of the inquiry. The examination consisted of a careful survey of the patient's medical and obstetrical history before and after the puerperal illness, a general medical examination, a pelvic examination, a bacteriological examination of the upper vaginal secretion, and a radiological examination where necessary. All the patients were examined by me personally. The results are set forth below under several main sections, and are an attempt to demonstrate the late effects of puerperal sepsis *per se*; morbidity resulting from any other cause, such as trauma, having been excluded so far as possible.

Subsequent Obstetric History

Much speculation often exists in the minds of both patients and doctors as to the possible effects of puerperal sepsis on child-bearing, and this usually with particular reference to sterility and the recurrence of sepsis. The subsequent obstetric history of each patient under examination was, therefore, of special interest, and a careful study revealed several interesting features.

Perhaps the most outstanding feature was sterility. Of the 200 patients examined, seventy-seven (38.5 per cent.) had had no pregnancy since their puerperal sepsis three to six years previously. In thirty-three patients (16.5 per cent.) this may have been due to the use of contraceptive measures, but the remaining forty-four patients—that is, 22 per cent. of the series—were regarded as sterile, after due consideration of the various factors affecting sterility. In every case where sterility was present it had followed puerperal infection and was regarded as the result of this infection, no other cause being found at examination. It should be noted here that in no instance was the primary infection a severe one. Some interesting points emerged, however, from the pelvic examination of these sterile patients. In 25 per cent. of them no palpable lesion was found which could account for their sterility; in 34 per cent. chronic tubal disease provided the chief cause; while in 36 per cent. the outstanding lesion was chronic uterine infection. The percentage of sterile patients with negative pelvic findings is worthy of note, and emphasizes the need for detailed examinations, such as tests for tubal patency, in the investigation of cases of sterility. Similarly the relative predominance of chronic uterine sepsis over tubal disease as a cause of sterility is somewhat unexpected, but here, too, incomplete investigation of tubal function may provide the explanation.

Another prominent feature of the subsequent obstetric history was a marked increase in the incidence of abortion. In this series of patients the abortion to labour ratio was 1:5.7 before sepsis and 1:2.8 after sepsis. In view of the difficulty generally experienced in assessing the causes of abortion this result is interesting; and more especially as, in this series, after careful consideration, chronic uterine sepsis resulting from previous puerperal infection was found to be the only causal factor.

And, lastly, one other feature worthy of special mention emerged from this survey of the patients' obstetric histories—namely, a comparatively high incidence of puerperal sepsis during the 4–5 year period following the initial puerperal infection. The figure taken for comparison was that given in the report of the medical officer of health for Glasgow (1936), which represents the incidence of puerperal sepsis for an unselected population. The figures obtained were as follows.

Unselected cases (M.O.H. figures) ..	25.1 per 1,000
Present series (verified sepsis) ..	58.0 „ „
„ „ (known factors excluded) ..	39.0 „ „

The difference between these figures is striking, and shows an increased sepsis rate in the present series; but before the primary puerperal infection could be regarded as responsible it was necessary to exclude cases of sepsis with any other predisposing factors, such as difficult labour or albuminuria. The corrected figures obtained for the series are also given, and suggest that the incidence of puerperal sepsis was increased after the primary infection.

Health of the Patients and the Morbid Conditions Found

No little difficulty was experienced in assessing the health of the patients subsequent to their puerperal infection, since much of the ill-health complained of could not in fairness be traced to the puerperal illness. After making the necessary allowances, therefore, it was found that on the whole their health had not been affected in any great degree; only 38 per cent. had suffered in any way severely. This appeared to be somewhat surprising, especially when examination revealed the presence of chronic infective lesions of the reproductive organs in 78 per cent. of the patients. The explanation lay in the fact that in the majority of cases the symptoms produced were mild and did not affect the general health; indeed, the impression received during the investigation was that most of the patients regarded such symptoms as back-ache, leucorrhoea, etc., as necessary sequelae to “child-bed fever.”

Gynaecological Conditions Revealed

As already noted, chronic infective lesions of the reproductive organs comprised the majority of the lesions uncovered in the investigation, and these were considered to result from previous puerperal infection. The appended table, without going into detail, gives some idea of the conditions found and their relative frequency.

Table showing Incidence of Chronic Infective Lesions as Separate Entities

Lesions	No. of Lesions	Percentage of Patients with Under-noted Lesions	Percentage of Total Lesions Found
Chronic cervicitis	135	67.5	57.0
Chronic corporeal infection ..	58	29.0	24.4
Chronic pelvic cellulitis ..	14	7.0	6.0
Chronic salpingo-oophoritis	30	15.0	12.6

Total number of lesions, 237. No gross lesion found, 43.

As may be seen, chronic uterine sepsis (corporeal and cervical) was the commonest lesion, but in most cases the resulting disability was slight. On the other hand, the prominent part played by this infection in the production of sterility and abortion has already been suggested. It may be argued that chronic cervicitis is the combined result of trauma and sepsis. With this possibility in view, comparison was made with the pelvic findings in fifty parous women who had had no previous sepsis. The results demonstrated an overwhelming preponderance of cervicitis among the patients who had suffered from sepsis. Finally, comparing chronic uterine infection and chronic tubal infection, it must be pointed out that while the latter was less frequent it almost invariably produced severe disability.

Extragenital Sequelae

The various lesions uncovered were not confined to the reproductive canal and its adnexa. These lesions were noted for their diversity, and included such conditions as

persistent phlegmasia (twenty-one cases); chronic arthritis and rheumatism (eleven); recurrent tonsillitis (six); urticaria (two); chronic iritis (two); and chronic endocarditis (two). They had in common the fact that there was no history or record of their existence before the puerperal infection. Some were the easily recognizable direct result of the original illness, as, for example, persistent swelling of the legs and fixed joints resulting from septic arthritis. In the others a reasonable theory of origin could be traced in the existence, in all, of a focus of sepsis in the reproductive system.

Bacteriology

In the great majority of patients the infecting organism at the primary puerperal illness was the *Streptococcus haemolyticus*, but in no instance did bacteriological examination demonstrate this organism in the vagina at the time of the investigation.

Summary and Conclusions

An investigation into the maternal morbidity following puerperal sepsis, and the resulting disability, is made in a series of 200 cases.

In only a small percentage of cases is the subsequent health of patients recovering from puerperal sepsis severely affected; but some mild invalidism is to be expected.

Prominent gynaecological sequelae to puerperal sepsis would appear to be sterility, increased incidence of abortion, and a higher incidence of puerperal sepsis affecting future confinements.

Chronic infective lesions of the reproductive organs were commonly found as a direct result of primary puerperal infection, while many affections outside the reproductive tract appeared to bear a definite aetiological relationship to the original infection.

I wish to thank Dr. John Watson, superintendent of Robroyston Hospital, for providing every facility for the investigation, and also the nursing staff for their generous assistance. I am especially indebted to Dr. M. A. Foulis for his invaluable criticism, and I am grateful to Professor Hendry and Professor Baird for their interest and help.

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The *Handbook on the Welfare of the Blind in England and Wales* was compiled under the aegis of the advisory committee appointed by the Minister of Health. It has now been revised and brought into line with recent legislation in a third edition, to which the Minister, Dr. Walter Elliot, contributes a preface. The handbook contains detailed information relating to the services for the welfare of the blind, including a special chapter on the provisions of the Blind Persons Act, 1938. Among the various appendices will be found information on such subjects as old age pensions and national health and unemployment insurance in relation to the blind, State and other grants for the blind, and a summary of legislation. The handbook constitutes a useful manual for the guidance of the councils of counties and county boroughs who are charged with the duty of providing for the welfare of blind persons, of the voluntary associations for the blind, and other interested bodies or persons. It may be obtained, price 1s., from H.M. Stationery Office, York House, Kingsway, W.C.2, or through any bookseller.

ADULT SERUM IN A SCHOOL EPIDEMIC OF MEASLES

BY

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The use of adult serum in measles epidemics in public schools is still on its trial; there is not yet sufficient evidence to prove its practical value in this particular field or to make an authoritative statement as to the best way of employing it. For this reason any careful attempt to use this serum is worth recording, whether the results be good, bad, or indifferent; much can be learned from the mistakes and failures of others, and something may be added to the sum of recorded experience.

The first two cases of measles at Haileybury College occurred on May 4 and May 6, 1938, respectively, and, so far as could be ascertained, were independent of each other. The latter case, which occurred in the sixth form, did not lead to subsequent cases. There were in all 530 boys in the school, of whom 139 (26.2 per cent.) were presumed to be susceptible to measles in view of their negative history as regards previous attack. Of these 139 no fewer than 120 developed measles—that is, 86.3 per cent. In addition, five boys with histories of having had a previous attack (four of them in infancy, and one, a doctor's son, five years previously), and who therefore did not receive serum, developed measles of average severity. Among the 129 presumed non-immunes, twenty-three (16.5 per cent.) received no serum for one reason or another; these, together with the five who had second attacks, accordingly serve as controls. Of the remainder, 115 (82.7 per cent.) received 20 c.cm. of adult serum, while to one boy 5 c.cm. of convalescent serum was given at his private doctor's request.

The serum was administered to the first series of contacts between the fifth and the seventh day after earliest known exposure, which was reckoned from the appearance of the first symptom of the disease in the primary case. The date of exposure of the contacts to the first two cases was known with considerable accuracy; eight cases of measles occurred among these, of which one had not been inoculated. Only partial success was achieved in discovering and injecting all the contacts of these eight infecting cases, as no fewer than ten out of the next twenty-five cases of measles occurred in boys in whom no contact had been suspected, and who therefore had not been inoculated. As the epidemic was observed to spread with no readily defined limits, it was decided to inoculate the remainder of the presumed non-immunes as early as practicable, irrespective of whether contact was known or not. For this reason wide fluctuations were encountered in the intervals between the time of inoculation of serum and the onset of measles.

Results of Serum Administration

An attempt was made in this study to arrive at a direct comparison between the inoculated group and the controls, using for the purpose the data of height and duration of fever, degree of modification of attack, and incidence of complications.

TABLE I.—Degree and Duration of Pyrexia

	No.	Average Duration	Highest Temperature						
			105°	104°	103°	102°	101°	100°	Normal
Controls ..	28	4 days	2	11	10	3	2		
Inoculated ..	96	3 „	3	18	38	19	12	4	2