hysteria or delinquency, the end-result of introversion is dementia praecox. It would be well if school medical officers would realize the fact which Jung pointed out many years ago—namely, that for every case of dementia praecox that reaches a mental hospital there are scores of cases of schizophrenia which carry on a partially adjusted life. In all these cases, whether we designate them neurasthenia, psychasthenia, etc., we find that the school life was not normal, and that there was a noteworthy failure to make a social adjustment. I would go the length of saying that the real problem of dementia praecox is the prophylactic diagnosis and treatment of the early schizophrenic during his school life. If confirmation is required of my contention, I would point to the cases of school suicide; it is true that they are few, and fortunately fewer in this country than in some others, but I submit that if an adolescent commits suicide at school it is evidence of such a gross failure of mental prophylaxis as to imply extensive neglect of minor cases.

In this connexion I would mention one symptom which is common enough to command interest; I refer to stammering. It is true that stammers can often be improved, and sometimes cured, by teachers of elocution and speech therapists, but our experience at the Institute of Medical Psychology (where we have two very competent speech

therapists at work) confirms my experience in private practice. I believe that every stammering child has some fault of emotional development, generally, of course, a parent fixation. I sympathize with the teacher who looks to the speech therapist for help with such cases, because the teacher knows well enough that the school doctor has no contribution to make. I maintain, however, that this should not be the situation, but that a medical officer with a reasonable understanding of psychopathology should be able and willing to investigate these cases.

Finally I come to delinquency. No doubt medical officers are frequently consulted about the persistent thief, the incendiary, the forger, but I believe that I am justified in stating that the schoolmaster or schoolmistress does not in such cases approach the doctor with any great optimism. And yet these juvenile delinquents are pathological cases; they ought to be dealt with by the doctor, and in general they are extremely rewarding. But in point of fact a trained teacher (I exclude the untrained schoolmaster) knows more about the aetiology of these behaviour problems than most medical officers. I submit that the time is ripe for the profession to recognize that the field of mental hygiene in the school is in urgent need of cultivation, in that it is an opportunity for prophylaxis second to none in the whole extent of national health.

SOME COMMENTS ON SYPHILIS IN WOMEN *

BY

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Syphilis in women differs from the same disease in men only during the years when the menstrual cycle is a dominant in the rhythm of life. Before puberty, and after the menopause, sex makes little appreciable difference—the boy and the girl, the old man and the old woman, react similarly to the ravages of the organism.

We notice the dissimilarity between the sexes only, therefore, because women become infected generally during the period of sexual bloom—a time when it is known that the presence of functioning ovaries, and still more the advent of pregnancy, have a profound effect on the clinical picture of the disease. It is a commonplace of medicine, pointed out almost a hundred years ago by Colles¹ (1837), that many women go through the whole period of their sexual life without a single clinical sign of syphilis, and yet give birth to children who are obviously infected.

PATERNAL OR CONCEPTIONAL SYPHILIS

This observation gave rise to the theory that the father could infect the ovum *in utero*, and the mother might thus escape entirely. It was a theory which was badly shaken when it was found that most of such mothers gave a positive Wassermann in the blood, although they were clinically clear. No one has yet demonstrated spirochaetes in an ovum. It is even doubtful if they have ever been found in semen; so, unless there is a resting or spore stage of the spirochaete, it is difficult to see how syphilis, passing from father to child without infecting the mother, is possible. French medical opinion, however, still clings to the view; and its importance for us is that, if we accept it as feasible, there may then be exceptions to Colles's law (that a syphilitic child cannot infect its mother), and we may have to

protect the mother from her congenital child by refusing to let her breast-feed it.

In a series of 94 pregnant syphilitic cases recently tabulated at the London Lock Hospital, 92 had positive Wassermanns, and were delivered of 79 healthy children and 13 congenitals (14.1 per cent.). The other two had negative Wassermanns in their blood before delivery, were delivered of congenitals who gave a positive Wassermann, and each developed a positive Wassermann herself within a month. French observers would claim this as presumptive evidence that the mothers became infected during delivery (Gougeret²). The usual view in this country, however, would be that the mothers had already been syphilized, and pregnancy was masking the Wassermann.

The practical point arising from this is that:

Unless both mother and child have a positive Wassermann, or mother and child have a negative Wassermann, the mother should not be allowed to suckle the child direct.

With two similar blood reactions there cannot reasonably be any risk of cross-infection; but with dissimilar reactions either the diseased mother or the diseased child may infect the healthy one. It does not appear, as Uhlenhuth³ and Mulzer⁴ claimed in 1913, that milk itself is contagious; and so, if the mother is diseased and her milk is drawn off into a sterile bottle, which has not been in contact with her, such milk may apparently be given to a healthy child with impunity. The child is thus not deprived of the benefit of its mother's milk.

ABSENCE OF CLINICAL SIGNS

We do not yet know exactly why it is that, during the child-bearing period, syphilitic women frequently have so few symptoms that it is impossible clinically to diagnose the disease in them. Probably the absence of a primary sore in many cases is more apparent than real. This is due to the fact that chancres on the external genitalia are usually painless, frequently small, often not indurated, and not uncommonly tucked away in some fold unnoticed by the casual eye. The researches of Anwyl Davies⁵ also suggest that a large number of primaries occur on the cervix; and as they are evanescent, and often not looked for, another factor in frequency has been over-

* Read in opening a discussion in the Section of Dermatology at the Centenary Meeting of the British Medical Association, London, 1932.

looked. Nevertheless, even allowing for these facts, it remains obscure why the primary lesion is so often missed in women.

SECONDARY SYMPTOMS

Admitting the possibility of the primary lesion in women often being overlooked when present, there is no reason whatever why secondary symptoms, if they were as prominent as they are in the male, should go unnoticed. All of us, of course, can recall many cases of profuse secondary eruptions in women—particularly of the condylomatous and mucous tubercle type. None the less it is a fact that many women have no definite rashes at all, or merely mildly evanescent erythematous eruptions which quickly fade, and thus are readily taken for more innocent conditions. It is for this reason that the practitioner finds it extremely difficult to act, in the absence of definite signs, when he suspects his patient may have run the risk of acquiring syphilis—knowing, for instance, that her husband has it. It is not easy to take a specimen of blood without giving some definite reason for so doing; and the result is that frequently the practitioner shirks his responsibility.

LEUCODERMA COLLI

Faced with such a difficulty as this it is extremely important to remember that there is one syphilitic rash which is almost peculiar to women, and very common, lasting for many months even after a full course of treatment, and yet very generally overlooked, because attention is not often drawn towards it in the textbooks. I refer to leucoderma colli. This is a secondary eruption which appears on the neck and shoulders of women, often spreading to the axillae in marked cases. It is an irregular mottling in which the central white portions, about the size of a threepenny bit to a sixpence, are surrounded by irregular melanotic borders, the whole presenting a measly appearance. If one looks carefully for this eruption, it is surprising how frequently it is found, particularly in brunettes. As I have said, it lasts for months, and is quite unaffected by treatment. In the days before the Wassermann test it was an invaluable sign. It is absolutely pathognomonic of syphilis; and if present one should insist on a confirmatory Wassermann, no matter who the patient may be. This is particularly necessary if the patient happens to be pregnant, for it is on the treatment adopted that the fate of the unborn child almost certainly depends.

TERTIARY LESIONS

These, unlike primary and secondary eruptions, are common in women with syphilis, particularly at the menopause. It is then very often for the first time that one discovers one's patient is an old syphilitic, the occurrence of a central perforation of the palate, a vocal cord lesion, a sudden ptosis, or a suspicious indolent ulcer on one of the lower limbs suggesting the diagnosis. Going back over her obstetrical history, one finds a record of one or more abortions or miscarriages, or of early death of children which has been attributed to other causes. Such a combination of circumstances, even when the Wassermann is negative, is practically diagnostic of syphilis—for it must be remembered that not more than 75 per cent. of tertiary lesions give a positive Wassermann. In circumstances like these one should give a small provocative injection of 0.3 gram of neo-salvarsan, and retest in forty-eight hours. This may produce a positive result. Alternatively one can use the therapeutic test, so familiar to the older clinicians, of giving iodide of potassium and watching for the result. If the condition is specific, there will be an immediate and dramatic improvement.

CARDIOVASCULAR AND LATE NERVE SYPHILIS

The former condition occurs in women in less than one-quarter of the percentage in which it is found in men. If, for instance, one thinks of the number of aneurysms one has seen, one finds that they have almost always been in men. This may be partly due to a sex differentiation, but is more probably attributable to the fact that women drink much less alcohol, and are exposed to less laborious occupations than men; for it generally takes the triad—drink, hard work, and syphilis—to produce aneurysm.

Tabes, tabo-paresis, and general paresis occur in 0.5 per cent. of women affected by the disease, as contrasted with 3 to 5 per cent. in men. This comparative immunity in women is not due to any increased resistance to penetration of the central nervous system by the organism, if one is to judge by statistics obtained from an examination of the cerebro-spinal fluid of 250 cases after lumbar puncture at the London Lock Hospital, tabulated by Miss Gladys Sandes.⁶ These cases were mostly in the secondary stage of the disease; and it was found that 26 per cent. gave a positive C.S.F. Wassermann, 15 per cent. cleared up under treatment, and 11 per cent. remained unaffected by treatment. It will thus be seen that women's central nervous system appears to be quite readily permeable to the virus in the early stages of the disease. Why then do we find that so few women, comparatively speaking, develop late nerve syphilis? I think we must link up this observation with the similar facts found regarding disease of the cardiovascular system. It may be that the more sheltered life led by women again has something to do with this lesser incidence, but one is tempted to another solution—namely, that the protective functions of the ovary and of pregnancy have still more to do with it than anything else. Most women get the primary infection in the twenties or early thirties. Late nerve syphilis and vascular syphilis usually occur within twelve to twenty years of infection. Women are thus exposed to the peak-risk of nerve and vascular sequelae before 45 years of age—whilst their ovaries are still functioning—and it may be the protective power of the internal secretions, still circulating, that produces this comparative immunity.

THE WASSERMANN REACTION

It is generally believed that the Wassermann test in women, especially in the early stages of the disease, is just as reliable as in men. Unfortunately this is not the case. Every now and again one gets a florid secondary syphilis in which the Wassermann is negative. During pregnancy there is a tendency for some women to give a doubtful or weak positive reaction which becomes negative immediately after parturition. Cases of this nature should not be treated as syphilitic unless the Wassermann, on provocative injection, becomes more positive, or unless, on repeated examination of the blood, the positive Wassermann is confirmed. Then there is the difficult sort of case, already alluded to, where a persistently negative Wassermann during pregnancy becomes positive immediately after delivery. This may be, as the French affirm, a failure of Colles's law, and an infection of the mother from the child. But it is more likely that it is a case where the chorionic hormones no longer inhibit the Wassermann reaction. In tertiary syphilis there is an average in the male of 20 per cent. to 25 per cent. who give a negative reaction. In women, this average rises to between 30 and 40 per cent., a circumstance often forgotten when the practitioner is puzzled by some curious skin eruption, bone swelling, or ulceration that will not clear up. A woman, presenting symptoms of this kind, should not therefore be deprived of the benefit of treat-

ment simply because her Wassermann reaction is negative.

This uncertainty about the Wassermann test is a little discomposing at times, as one cannot come to a clear conclusion in every case, but the uncertainty is rather individual than general. In a series of 2,200 cases of pregnant women examined by Boas, Gammeltoft, and Siecke,⁷ it was found that 6.7 per cent. gave a positive Wassermann during pregnancy. The same women re-examined one to two years later, when no longer pregnant, still gave 6.7 per cent. of positive Wassermanns. We can thus assume, generally though not absolutely, that a positive Wassermann reaction in a pregnant woman means syphilis. We cannot, however, assume the comfortable doctrine that a negative Wassermann means the absence of syphilis or its successful treatment, for unfortunately quite 30 per cent. of congenital syphilitic children are born to mothers with a negative Wassermann (Stokes⁸).

GRAVITY OF THE DISEASE IN WOMEN

From the foregoing picture one can, quite justifiably, look upon syphilis in woman as a comparatively mild disease compared with the same affection in the male. It is rather more difficult to diagnose on account of the milder incidence of symptoms, and the disturbing effects of pregnancy and menstruation on the Wassermann reaction. But it is not nearly so likely to lead to the catastrophic vascular and nervous sequelae one associates with the later stages of the same disease in the male. Why, then, do we look upon syphilis in women as the most appalling calamity that can light upon the race? The answer is that it is not in the woman, but in the seed she may bring forth, that the disease takes its deadly toll.

Ballantyre, quoting statistics from the Edinburgh Royal Maternity Hospital, stated that the infantile death rate from untreated syphilis in the mothers was 60 per cent.⁹ According to Hochsinger¹⁰ in 1910, and Veeder¹¹ in 1916, 40 per cent. of syphilitic pregnancies ended in death of the foetus, and only 10 per cent. of those that survived were free of the taint. Routh¹² in 1918 estimated that 25 per cent. of stillbirths and abortions were syphilitic. Eardley Holland in 1922 was more conservative—15.3 per cent.¹³ Findlay¹⁴ in Glasgow found that 19 per cent. represented the death rate from abortions and stillbirths due to syphilis; and F. J. Browne in Edinburgh,¹⁵ in a series of 400 cases, found his percentage was 17.5. These later figures probably indicate the improvement produced by better and more intensive treatment of the pregnant mother; but they are still double the normal of non-syphilitic stillbirths.¹⁶

Statistics such as these are depressing in themselves, but even then, unhappily, they indicate only half the picture. The other half is that of the unfortunate maimed children who survive six months or a year and then succumb, the feeble-minded epileptics, spastic diplegics, and juvenile general paralytics who may drag on to puberty, and all the other types of congenital syphilitics with whom we are familiar. It is when we come to consider the disease in women as it affects the race that the true proportions of its virulence can be appreciated. For, once a woman has become infected with the disease, all her subsequent children may be contaminated, even when such children are born to a different and healthy husband, as has not uncommonly happened after the remarriage of war widows. It does not matter that such a woman may have been adequately treated as soon as the disease was discovered. It does not matter that she now shows no sign of syphilis and has a negative Wassermann. *If she has once had syphilis, as long as she is capable of bearing children, such children may be syphilitic.*

The dictum of Kassowitz that the virus gradually wears itself out, and a woman goes through the stages of abortion, stillbirth, live congenitals, and finally healthy children, is not borne out by facts. A woman may have

one or more stillbirths or live congenitals, two or three healthy children, and finally end up with a syphilitic baby right at the end of her child-bearing life. What are the chances of a woman having a healthy child if infected during pregnancy and not treated? Generally one may say that if infection occurs after the seventh month, the child will escape; between the fifth and seventh month it has a fifty-fifty chance; before the fifth month, it will be infected (McDonagh¹⁷).

PROFETA'S LAW

There is one grave warning that ought to be impressed on the profession—namely, that if a woman is infected late in pregnancy she may have local lesions or a strong blood Wassermann at the time of parturition, and may therefore infect her child at birth. In such circumstances one finds the child is born apparently healthy, gives a negative Wassermann in the blood, and then, after six to eight weeks, develops symptoms. Such a child has been infected at birth, and is really a case of acquired syphilis. It is for this reason that I always teach that a mother infected late in pregnancy should not be allowed to suckle her child; for, though Colles's law probably still holds good, Profeta's law (that a syphilitic mother cannot infect her newly born and apparently healthy child) is not true, but only appears to be so when this child is a congenital with delayed symptoms.

Anyone seeing a pregnant woman suffering from syphilis would immediately advise treatment, in the hope of saving the child. But many practitioners hesitate to treat a pregnant woman who is known to have had syphilis, and who is now Wassermann-negative. Theoretically a woman adequately treated should be in the same position as a man, but practically she is not; and therefore anyone adopting this attitude of *laissez-faire* towards her is living in a fool's paradise. Such a woman may bear syphilitic children to her husband after both he and she have had adequate treatment, and been declared cured. Such a woman may, as a widow, have been told that she can re-marry safely—a statement with which most clinicians will agree, if that means that she will not infect her subsequent husband. But no one with any real experience will agree that she can safely have children by that husband; for it has been found, time and again, that, as I have previously remarked, such women have, to their horror, produced congenital syphilitic children to husbands who are free from the disease. It cannot therefore be too urgently stressed that no matter what treatment a woman has had, no matter how clinically clear she may be, and no matter how long she may have been Wassermann-negative, she is still capable of producing a syphilitic baby as long as she is able to produce a baby at all.

Should a woman who has had syphilis be allowed to have any more children? The answer to this is "Yes," provided the woman is treated all through each pregnancy exactly as if she had just acquired the disease, for the chances of her having a healthy baby are then almost as good as those of a non-infected woman. There is, however, possibly one exception—that if a woman has a persistently positive C.S.F. Wassermann in spite of treatment, she should not be allowed to have another child. This is suggested by the statistics collected by Miss Sandes,¹⁸ to which I have already referred. Among these cases were five pregnant women, each with a persistently positive C.S.F. Wassermann. Every one of these women gave birth to a congenital syphilitic in spite of average adequate treatment. The number is, of course, much too small to dogmatize on; but it is sufficiently suggestive to make one pause before promising a healthy child to any woman who carries out her treatment whole-heartedly.

TREATMENT

Here I need only consider broad principles, for treatment in women does not differ materially from that in the male. Women, as a rule, stand anti-syphilitic medication extraordinarily well. They have fewer complications; they are less liable to the toxic effects of metallic poisoning than men, and relatively can stand more intensive treatment. It must be remembered, however, that owing to their smaller body weight they require smaller dosage. Few women need larger single doses of neo-salvarsan, or its substitutes, than 0.45 gram; and the average course of such arsenical preparations should not exceed half a gram per stone—that is, a ten-stone woman requires 5 grams of neo-salvarsan in one course.

I always give a course of mercury or bismuth simultaneously with the arsenical medication, because I am a strong believer in the curative effect of the slow metallic intoxication produced by these drugs absorbed gradually and persistently from reservoirs in the buttocks, and I have no belief at all in the permanent curative effects of arsenical preparations.

I understand that it is the custom at some ante-natal clinics to treat pregnant women with arsenic alone. I have seen a considerable number of such cases, treated elsewhere, and I find that these are just the sort of cases which surprise one by having a positive Wassermann in their cerebro-spinal fluid, which further treatment is often unable to influence. Whatever we may consider this reaction portends, no one, I think, would care, wittingly, to risk producing it in his patients. It is said that by giving bismuth, or mercury, intramuscularly to pregnant women we thereby increase the chance of miscarriage. This has not been our experience at the London Lock Hospital, where we have many of these cases under observation for months as in-patients.

Bismuth is well tolerated by women, most of the newer preparations being painless, and rapidly effective, clinically. If I am giving it with arsenic, I like to give it once a week. If I am giving it alone, I use it twice a week. In the combined treatment I favour preparations which depend on metallic bismuth for their efficacy, rather than the more soluble forms. If I am using bismuth in cases intolerant to arsenic, I prefer the soluble preparations, because then one is anxious to have the most rapid absorption possible.

Mercury is not so well borne by women as bismuth. It is more painful intramuscularly, and it produces gingivitis more rapidly. For some six or eight years recently it has been rather under a cloud, having been ousted from pride of place by bismuth. But in the last year or so it has been regaining ground, since clinicians began to realize that the results of experiments on rabbits need not be authoritative for man, and that negative Wassermann results are no real indication of the efficacy of cure. It should, of course, be given in conjunction with arsenic. It is possible that time may show that its permanent effects are more lasting than those of bismuth. At present the question is still *sub judice*, with a bias in favour of the newer drug.

CONCLUSION

To sum up briefly then, I should like to emphasize the general consensus of opinion that syphilis in women, as individuals, is milder than in the male, more amenable to treatment, less liable to late nervous and vascular sequelae. But on the other hand, as regards the next generation, it has been until recently the most deadly curse to which the race is subject. I stress the word recently, for now I think that even in this direction we can face the future with greater optimism; for, with the possible exception of cases with Wassermann-positive cerebro-spinal fluid, which will not yield to treatment, I believe

that with modern methods there is no longer any necessity for any woman to have a syphilitic child, provided she is treated adequately as soon as diagnosed, and has a full course of further treatment during each succeeding pregnancy.

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NON-OPERATIVE TREATMENT OF CHRONIC HYDROCELE OF THE TUNICA VAGINALIS

BY

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Every practitioner is familiar with the patient, suffering from the acquired type of chronic hydrocele of the tunica vaginalis, who refuses an open operation for various domestic reasons. The patient would willingly undergo "tapping" and the injection treatment if he could be assured that the treatment would not interfere with his normal testicular function and that he would be cured.

During the past five years I have performed the injection treatment on ten private cases, in none of whom has there been any recurrence within three months to three years. Impotence occurred in one case for about six months, otherwise normal testicular function was maintained in all. No direct cause could be assigned to any case from an investigation of the fluid withdrawn from the sac.

AETIOLOGY

The tunica vaginalis is of the same histological structure as the peritoneum and has the same morphology. There is also a similarity in the pathological changes occurring in each. It consists of a single layer of flattened epithelium resting upon fine connective tissue, in which run lymphatic channels. Between the endothelial cells stomata, arranged irregularly, communicate with the lymphatic spaces (Schafer). This fact is refuted by some histologists. The endothelium is richly supplied with blood vessels. Nerve fibres travel along these vessels to the endothelium, where they form a fine plexus (Quain). These anatomical data present three possibilities as to the cause of hydrocele—excluding any direct cellular disorder: (a) nervous; (b) vascular; (c) lymphatic.

Increased nervous stimulation would probably lead to excessive endothelial secretion (as also would increased vascularity), but not of sufficient amount to produce a hydrocele. Furthermore, in those cases upon which I have operated, I have not noticed any marked inflammatory changes.

Lymphatic obstruction seems the most probable cause, since this is certainly the cause in hydrocele due to the *Filaria bancrofti* occurring in the West Indies. The fluid removed from a filarial hydrocele is identical with that from the ordinary hydrocele. The filaria mostly cause