A Survey of Two Years Work in the Treatment of Syphilis in Women and Children, with especial reference to the Results of Treatment during Pregnancy.

by

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CONTENTS.

Introduction.

Chapter I  The organisation of the Auxillary Treatment Centre for Venereal Diseases, Swansea.

Chapter II  A survey of the sources from which the women were referred, and also of the signs or symptoms which led to their being referred to the Auxillary Treatment Centre.

Chapter III  Types of patients attending the Auxillary Treatment Centre, and the mode of procedure adopted in the examination of a patient presenting herself at the Clinic.

Chapter IV.  The diagnosis and manifestations of Syphilis in women.

Chapter V.  The value of the Wassermann Reaction.

Chapter VI  The Treatment of Syphilis as carried out at the Auxillary Treatment Centre.

Chapter VII  The Effect of Syphilis in the causation of foetal and infant deaths and the results of Anti-specific treatment.

Chapter VIII  The results of anti-syphilitic treatment given during pregnancy.

Chapter IX  The results of the Wassermann Reactions in the mother and children analysed to discover if it is in agreement.

Chapter X.  A survey of the manifestations of Congenital Syphilis, and the age at which they appear.


Chapter XII  An outline of the Treatment given to the Congenital Syphilitic children at the Auxillary Treatment Centre.

Chapter XIII  A consideration of the ways in which the organisation of the Auxillary Treatment Centre could be improved.

Chapter XIV  A general consideration of the conclusions arrived at by studying the work of the last two years at the Auxillary Treatment Centre, Swansea.
INTRODUCTION.

Syphilis in the Acquired and Congenital forms is a subject which during recent years, has begun to receive the consideration it demands. Congenital Syphilis is a disease which it is hoped will be prevented, and it is well recognised that this can be done by treating the mothers during pregnancy. It is only recently that this aspect of Syphilis has come to be recognised for only about 20 years ago, no mention was made of the Ante-natal treatment of Syphilis.

Congenital Syphilis is the cause of a great deal of suffering in children, and may lead to defects which may later interfere with their wage-earning capacity. One's great aim is to prevent rather than cure disease, and in the following paper, particular attention has been paid to the results of Ante-natal treatment in Syphilitic women. No effort is too great to prevent the birth of Congenital Syphilitic children and the means of doing this is considered.

Syphilis is held to be responsible for a large proportion of miscarriages, premature births, still-births and neo-natal deaths. The series of cases attending my clinic has been investigated to see if this assertion is true, and also as to whether ante-natal treatment is efficacious in preventing the loss of this potential infant life.

The manifestations of Syphilis in women attending the Auxiliary Treatment Centre have been investigated, and particular attention has been paid to the incidence of
Latent Syphilis and the means by which it may be diagnosed.

In 1932, the number of persons with Syphilis attending the Auxiliary Treatment Centre was 256 and the number at the Venereal Disease Clinic at the Swansea General Hospital was 276 or 532 in all. The total population of Swansea is 164,825. Therefore, the incidence of diagnosed Syphilis in 1932 was 0.3%.

The incidence is probably slightly higher than this figure, as it is only the Hospital Class of patients who attend the Clinics. However, it can be assumed that the incidence of Syphilis in Swansea is under 1%. This figure is very low when one considers that the incidence in urban populations is generally taken as being 10%.

A large proportion of the patients attending the Auxiliary Treatment Centre were referred from the Maternity and Child-Welfare Clinics and the reason for this is obvious when the growth of Maternity and Child Welfare Work in Swansea is considered.

The origin of Infant Welfare Work was the institution of a Voluntary Babies' Welcome Clinic by Lady Mond and her helpers in 1910. At this Clinic, the mothers were given advice by a Lady Doctor who was in General Practice in the town and arrangements were made for them to have Dental Treatment. Free dinners but not free milk, were given to the mothers, and in those cases where the mothers were working, the babies were cared for.
In 1914, the Voluntary Babies' Welcome Clinic was taken over by The Public Health Authorities, and the first Infant Welfare Clinic was begun. At this time, owing to strain and anxiety caused by the war, many of the mothers lost their Breast Milk. It was therefore decided to distribute free Cow's milk and dried milks to necessitous mothers.

In 1914, there were only two Health Visitors, but this was increased to four in 1916.

The first Ante-natal Clinic was held in 1921 and at first was poorly attended, but the numbers have gradually increased, until in 1933, 6 Ante-natal Clinics are held weekly.

As the numbers attending the Maternity and Child Welfare Clinics increased, new Centres were opened in different areas of the town, so that now there are 7 Maternity and Child Welfare Centres, and at these 6 Ante-natal and 13 Infant Welfare Clinics are held weekly.

The number of Registered Births in 1932 was 2,925. Of this number 814 or 27.7% had attended the Ante-natal clinics for supervision. This is gratifying, but it is hoped that the proportion of pregnant women attending the Ante-natal Clinics will be increased as the mothers become educated to the importance of Ante-natal treatment. The pregnant women receive dental treatment and if necessitous, are supplied with a pint of milk daily from the sixth month of pregnancy onwards.
The total number of children who attended the Infant Welfare Clinics in 1932 was 4,836. Of this number, 2,233 were under 1 year of age, 1,078 between 1 and 2 years, 756 between 2 and 3 years, 447 between 3 and 4 years and 292 between 4 and 5 years.

It is impossible to give the percentage of all the children in Swansea who attend the Infant Welfare Clinics at the different age groups. It is obvious however, that a large proportion must attend, when it is noted that the total number of children attending the Infant Welfare Clinics was 2,233 under 1 year of age, and that the number of live births was 2,925 in 1932.

When the Clinics were first started, the mothers and children who were suspected to be suffering from Venereal Disease, were referred to the Venereal Disease Clinic at the Swansea General Hospital. Many of the mothers refused to attend the Hospital as they objected to mixing with all types of patients, including the amateur and professional prostitute. They also resented being told they were suffering from Venereal Disease, and it led in many cases to family friction and to the husbands finally refusing to allow the mothers to attend the Maternity and Child Welfare Clinics.

The question arose, how could these mothers be treated? It was decided to open a Venereal Disease Clinic for the women and children attending the Clinics and to run it as part of the Maternity and Child Welfare Scheme. The name Venereal Disease was avoided and the clinic was christened
the Auxiliary Treatment Centre. It was decided to run the Clinic in the same building as the Central Maternity and Child Welfare Clinic and that the women should be handled more as gynaecological than as venereal cases, and that the nature of the disease from which they were suffering should not be divulged. In this way, it was hoped that the mothers would attend the Clinic with confidence and would bring their children for treatment.

The chief criticism of a clinic run on these lines lies in the fact that the husbands are not referred for treatment. The only Venereal Disease Clinic for men is at the Swansea General Hospital and if the men were referred, the veil of secrecy over the Clinic could not be maintained. Whether a clinic conducted in the way described is worth while, is discussed in the following paper.

The Medical Officer in charge of the Auxiliary Treatment centre holds an appointment as Assistant Medical Officer of Health under the Swansea Corporation. Besides being in charge of the Centre, she is also in charge of the Greig House Maternity Hospital which is one of the two Borough Maternity Hospitals, and is for patients who are attending the Auxiliary Treatment Centre. The Wassermann reaction is done on the cord blood of all patients confined at the Greig House Maternity Hospital and the result is entered on the patients card at the Clinic.

The Medical Officer also conducts Infant Welfare Clinics, Routine School Medical Inspections and administers Dental
Anaesthetics. Only four sessions a week can be devoted to the Auxiliary Treatment Centre.

The Staff of the Public Health Service in Swansea has increased as the number of the clinics and the work has grown. The full staff now consists of the Medical Officer of Health, the Deputy Medical Officer, six Assistant Medical Officers, and five full time Dental Surgeons. There are also 26 Health Visitors.

It is thus seen that the Public Health work in Swansea is active and is still increasing. It has been decided however, to limit the scope of this paper to a survey of the manifestations and results of treatment of Syphilis in women and children during the two years I have been in charge of the Auxiliary Treatment Centre.
CHAPTER I.

The organisation of the Auxiliary Treatment Centre.

The Auxiliary Treatment Centre was opened in September 1922, at one of the existing Maternity and Child Welfare Centres, and the work carried out as part of the ordinary Maternity and Child Welfare Scheme. It had been felt for some time that such a Centre was desirable for the following reasons:

1. The large number of still-births and abortions occurring in the Borough.
2. The large number of early Infant Deaths.
3. The number of cases of Ophthalmia Neonatorum.

While the general infant mortality had fallen from 107 in 1916 to 82 in 1922, the death rate of infants under 1 week remained approximately constant, being 24.04 in 1916, and 23.02 in 1922, the average during that time being 25. The main cause of death in these infants under 1 week was Prematurity, amounting to 49% in 1916, and 42.3% in 1922. The number of Still-births was about 42 from the year 1916 to 1922. It was thought that Syphilis was responsible for a large number of these cases of Still-births and Premature labour, and that if the suspected patients were treated before and during pregnancy, this rate might be reduced.

It was therefore decided to open a Centre for Venereal Infections amongst mothers and children. These mothers were for the most part infected maritally, and were quite unaware of the true nature of their condition, and would certainly
have resented being transferred to the Venereal Clinic at the Swansea General Hospital where they would mix with all types of patients. It was decided that the best chance of the scheme being successful was by treating the patients as privately as possible in premises that were well known and by a staff with whom they came frequently into contact in the course of the ordinary Maternity and Child Welfare Work.

To this end, it was decided to adapt the basement of the Central Maternity and Child Welfare Centre which was well known and attended with confidence and where all Ophthalmia Neonatorum cases had previously been treated.

The consent of the Ministry of Health was obtained, and the rooms altered to suit the required needs. The premises now consist of three rooms:—

1. A Waiting room, entered by a door in the area.
2. A Consulting Room, fitted with basins and cupboards, where the patients are examined and Anti-Syphilitic Treatment given.
3. A small room with a cemented floor for the treatment of cases of Gonorrhoea. There is also special lavatory accommodation.

These premises have proved totally inadequate for the numbers now attending. The adjoining house has been bought and plans are being made for extending the Auxiliary Treatment Centre.

The Staff consists of one part-time Medical Officer, four part-time nurses, which is the equivalent of two full-time nurses, and one part-time clerk.
Four sessions a week are held by the Medical Officer and thirteen sessions by the nurses, including evening sessions for those who cannot attend during the day. The Doctor's Clinics are held at the same hour and in the same building as the Antenatal Clinics, and so the true nature of the Venereal Disease Clinic is not suspected.

The bulk of the adult cases are referred from the Antenatal and Post-Natal Clinics, which act as a sorting out station for suspected specific infections. The mother suffering from a vaginal discharge or a significant history of previous stillbirths and mis-carriages is referred to the Auxiliary Treatment Centre.

The mother regards the Treatment received at the Auxiliary Centre as some natural part of the routine of the Ante-Natal supervision. It is thus possible to secure with greater certainty that adequate specific treatment be administered before and after confinement.

The Wassermann Reaction is taken in all cases reporting at the Auxiliary Centre, and if the result is positive, or if the clinical evidence is strong, treatment is begun at once. It is explained to the patient that she has an infection in her blood which necessitates prolonged treatment for the sake of her own health and for any future children she may have. The disease is not labelled unless all efforts at persuasion are unsuccessful in persuading her to attend the Clinic. The woman with syphilis is also asked to bring her children for blood tests to ascertain if any require treatment.
CHAPTER II

A Survey of the Sources from which the women were referred and also of the signs or symptoms which led to their being referred to the Auxiliary Treatment Centre.

TABLE I. The adult patients suffering from Syphilis who have attended the Auxiliary Treatment Centre during the last 2 years were referred from the following sources,

2. Post-Natal Clinics. 27 "
3. Relatives attending Auxiliary Treatment Centre 22 "
4. Private Practitioners. 6 "
5. Borough Maternity Hospital 3 "
6. Friends. 1 "
7. Self. 2 "

Total: 110 patients.

TABLE II A Survey of the reasons for the Women being referred to the Venereal Disease Centre.

1. Leucorrhrea 19
2. Gonorrhrea 28
3. History of still-births. 9
4. History of Miscarriage 8
5. History of Miscarriage and still birth 7
6. Cummata 5
7. Child attending with Congenital Syphilis 23
8. Syphilitic Condylomata 2
9. Syphilitic Rashes. 4
10. Wassermann Reaction of Placental Blood positive 3
11. Primary Sore. 2

Total: 110.

In Table I it is seen that 110 Syphilitic women, 49 of whom were pregnant, attended my clinic during the last two years. The total number of patients attending the Ante-Natal Clinics during this period was 2,377, 470 of whom were referred to the Auxiliary Centre on account of a vaginal discharge or a history suggestive of Syphilis.

49 of the 2,377 women attending the Ante-Natal Clinics
were found to have Syphilis, i.e., 2.06%. This number errs on the small side, as the Wassermann Reaction was not done on every pregnant woman.

A.C. Roxburgh in a small Clinic run by the Battersea Borough Council, found 2.2% of all the women attending the Ante-Natal Clinics suffered from Syphilis in the years 1924-5-6-7.

He states that his figure was much lower than that of 10% which is usually given as the incidence of Syphilis in urban populations.

Pye-Smith in the Salomons Centre found that 119 out of 9,800 women attending the Ante-Natal Clinics had syphilis. The incidence was 1.21%. The same procedure of selecting cases is used at this Centre as at the Ante-Natal Clinics in Swansea and a Wassermann is only done on those cases with a suggestive history of syphilis, where members of the family are known to have syphilis, or where the woman is referred to the Venereal Disease Clinic on account of Vaginal discharge. The Wassermann was not done as a routine on every pregnant woman.

It was thought that comparatively few cases of Syphilis were missed by this method of selection of cases. It was, however, decided to do a routine Wassermann at the Salomon's Centre on 200 primigravida, and only 3 were found to be positive. This gives an incidence of 1.5% and so it was concluded that the method of selection in use at the Salomon's Centre was not a source of great error.

J.N. Cruikshank found, in a series of 1,881 unselected mothers, the Wassermann Reaction to be positive in 9.10% in
the "hospital" class of patient in Glasgow.

J.W. Williams analysed the results of 10,000 pregnancies, and found there resulted 705 still-births (26% of which were due to Syphilis) and that of the children born alive, 5.5% were syphilitic. From this, he concludes that there was an incidence of 5% of Syphilitic cases in the series of 10,000.

The incidence of Syphilis in pregnant women attending the Ante-Natal clinics in Swansea is 2.06% which corresponds closely to the figure given by Roxburgh in a similar clinic in Battersea.

Although it is ideal to do a Wassermann Reaction on every pregnant woman attending the Ante-natal Clinic, it has not been possible to arrange this, although it is hoped it will be done when the premises are enlarged. However, I do not think that this is a source of grave error because of the 244 women confined at the Borough Maternity Hospital, during my appointment, the Wassermann Reaction on the Placental Blood being done in each case, only 4 new cases of Syphilis were discovered. All the other cases were diagnosed at Ante-Natal Examination. Thus the incidence of undiagnosed Syphilis was 1.6% of all patients. Accordingly, one concludes that such procedure permits some few cases to remain undiagnosed; Latent Syphilitic infection frequently being diagnosed only by the Wassermann Reaction.

In Table II it is seen that 17.7% were referred on account of Leucorrhea, 25.2% due to Gonorrhea, and if the cases of Leucorrhea and Gonorrhea are taken in conjunction, then 42.9%
of the adults attending the clinic were referred in the first place on account of vaginal discharge, and syphilis was not diagnosed till the result of the Wassermann Reaction was received.

33.6% of the cases were referred because of a history or Clinical signs suggestive of Syphilis. Some of these cases had a vaginal discharge as well as Syphilis.

20.5% of the Adults were discovered through the children attending the Clinic with Congenital Syphilis.

Latent Syphilis is very prevalent among maritaly-infected women. It is therefore important that all women attending the Ante-Natal Clinic should have a Wassermann Reaction taken as a routine procedure, and not only in those cases referred to the Auxiliary Centre on account of vaginal discharge or a history suggestive of Syphilis. Against this, it has been argued that the "Blood test" would frighten the women and so prevent many attending the Ante-Natal clinics. I am firmly convinced that this would not be the case, and if it was explained to the women that a specimen of blood was required for examination, to ensure that she was healthy and that she would have a healthy child, she would gladly submit to having the Wassermann taken especially if this was done painlessly by a skilled Doctor or nurse. If this practice was instituted, the number of Congenital Syphilitic children would be greatly reduced, for even though the mother may have Latent Syphilis she may give birth to a child who may show or develop all the stigmata of Congenital Syphilis.
CHAPTER III

Types of patients attending the Auxiliary Treatment Centre, and the mode of procedure adopted in the examination of a patient presenting herself at the Clinic.

TABLE III  The type of cases attending the Auxiliary Centre.

<table>
<thead>
<tr>
<th></th>
<th>Type of cases</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Congenital Syphilis</td>
<td>89</td>
</tr>
<tr>
<td>2</td>
<td>Acquired Syphilis</td>
<td>110</td>
</tr>
<tr>
<td>3</td>
<td>Gonorrhea</td>
<td>674</td>
</tr>
<tr>
<td>4</td>
<td>Non-Venereal Disease</td>
<td>576</td>
</tr>
<tr>
<td></td>
<td><strong>Total:</strong></td>
<td><strong>1459</strong></td>
</tr>
</tbody>
</table>

The incidence of Congenital Syphilis at the Clinic is 6.1% and that of Acquired Syphilis is 7.5%.

Anwyl-Davies found at the Whitechapel Clinic, that the incidence of Congenital Syphilis was 3.84% and that of acquired was 20.53%.

The greater proportion of Congenital Syphilis attending my Clinic may be due to the following reasons:

1. Babies referred from the Infant Welfare Clinics if any suspicious signs of Syphilis.
2. Children referred from the School Clinics and Routine Medical School Inspection if Syphilis suspected.
3. An effort is made in every case to persuade the mother with Syphilis to bring up her children for the Wassermann Test.

Cards are sent to the head Mistresses of the Schools, giving the children appointments to attend the Clinic, and if the child does not attend, the School Nurse follows up the case. The Clinic is known to the teachers as just one of the School
Clinics and its true nature is not known.

By this means, cases of congenital Syphilis are collected and encouraged to attend for treatment till finally medically and serologically cured.

In the case of an adult presenting herself at the Clinic a full case history is taken, especially as regards the number of pregnancies, live-births, still-births and miscarriages. The women are very uncertain as to whether the children were full-term or premature, and it has been impossible to verify this with any degree of success; the women saying they went to full-term if they were doubtful as to the duration of pregnancy. The health of the living children is enquired into and if any have died, the cause and age at death is ascertained.

The woman is also asked if she has had rashes, sore throats, chronic ulcers, etc. Any history of discharge is enquired into, especially dysuria, frequency of micturition, pruritis, arthritis or other such manifestations.

After the history has been taken, the patient is examined starting with the mouth and fauces and then the Heart, Lungs, Eye Reflexes, Knee and Ankle Jerks. The examination of the Nervous System is carried out fully if there are any indications that it has been affected. This includes an appointment for an Ophthalmoscopic examination to exclude any pathological condition of the Optic Nerve, so that subsequent treatment may be determined. A Lumbar Puncture is also done, so that the Cerebro-Spinal Fluid may be examined for the Wassermann Reaction and Lange's Colloidal Gold Curve.
After the examination, the blood is taken from the Medial Basilic vein for the Wassermann Reaction and no difficulty is encountered in persuading the women to submit to it. The Wassermann Reaction is done as a routine on all patients who attend the Auxiliary Centre.

Since reading Primary Syphilis in the Female by Thomas Anwyl Davies, I have paid particular attention to the examination of all my potential Primary and Secondary Syphilitic patients in the lithotomy position, with the knees resting on supporting crutches, and a powerful standlamp behind my left shoulder.

An examination of both the inguinal regions for enlarged glands is done. If these are absent, then the probability is that there is no Syphilitic infection or inflammation of the Vulva.

If the glands are enlarged, they are palpated for the characteristic painless, rubber-like constituence of Syphilitic glands in the absence of Secondary infection.

The Vulva and Cervix are then examined for any evidence of a chancre; and if present, the ulcer is cleansed with normal saline, and pressure applied by finger and thumb till serum is exuded. A Harrison needle may be used to scarify the surface if sufficient serum is not obtained. The serum is then collected in a capillary tube and sent for examination for the Spirochaeta Pallida.

At the end of the examination, the patient is asked to report the following week for the result of the tests.
If Syphilis is the diagnosis, it is explained to the patient that she has an infection of her blood, the disease not being labelled, which necessitates treatment for at least two years or longer, and that for the sake of her health and any future children, it is most essential to attend regularly for the treatment until told she is cured by the Clinic Doctor. The specimen of the Urine is then taken and examined for albumen and sugar and she is given her first injection. She is asked to bring her children to the Clinic the following week for a Blood Test.

A list of instructions is given to the patient, and she is asked to carry them out carefully. These are:

1. Do not take food within two hours before treatment or three hours after treatment.
2. Take a dose of opening medicine the night before treatment.
3. Avoid excessive cold and heat and heavy work or exercise on day of treatment.
4. During courses of treatment do not take alcohol, strong tea or a large quantity of vinegar or pickles, no shell fish or tinned goods and very little meat. Eat plenty of bread, jam, vegetables and fruit and drink plenty of plain water and milk.
5. If you suffer from severe headache, vomiting, rashes and stomach pains after treatment, take a little bicarbonate of soda in some hot water, and report this at your next attendance at the clinic.
6. Bring a specimen of your water for examination every time.

The length of treatment necessitates frequent endeavours to keep up enthusiasm and explanations as to the need of prolonged attendances.

The clerk goes through the clinic cards at regular
intervals. and if any patients have ceased to attend, cards are sent giving an appointment at the clinic to see the Medical Officer.

If after two cards, the patient has not reported, a visit by the district health visitor is made. The reason for non-attendance is ascertained, and the need for prolonged treatment again explained.

If the patient still does not attend, a visit by the Clinic Nurse, who is known to the patient, is made if it can be arranged.

By this means, the efficient following up of cases is carried out and particular attention is paid to the Syphilitic pregnant women.
CHAPTER IV.

The diagnosis and manifestations of Syphilis.

**TABLE IV.** Analysis of Syphilitic Cases attending the Auxiliary Treatment Centre.

<table>
<thead>
<tr>
<th>Case Type</th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Primary Genital Syphilis</td>
<td>2</td>
<td>1.8</td>
</tr>
<tr>
<td>2. Primary Genital Syphilis with secondary Symptoms</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Secondary Syphilis with no signs of Primary Lesion</td>
<td>3</td>
<td>2.7</td>
</tr>
<tr>
<td>4. Tertiary Syphilis</td>
<td>19</td>
<td>17.2</td>
</tr>
<tr>
<td>5. Latent Syphilis</td>
<td>84</td>
<td>76.3</td>
</tr>
<tr>
<td>6. Neuro-Syphilis (Tabes. C.P.I. etc.,)</td>
<td>2</td>
<td>1.8</td>
</tr>
</tbody>
</table>

**TABLE V.** Manifestations of Tertiary Syphilis.

<table>
<thead>
<tr>
<th>Manifestation</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Gummata</td>
<td>9</td>
</tr>
<tr>
<td>2. Syphilitic Onychia</td>
<td>1</td>
</tr>
<tr>
<td>3. Aortic Regurgitation</td>
<td>1</td>
</tr>
<tr>
<td>4. Aneurysm</td>
<td>1</td>
</tr>
<tr>
<td>5. Late Syphilitic rashes</td>
<td>7</td>
</tr>
<tr>
<td>a. Circinate Syphilide</td>
<td>4</td>
</tr>
<tr>
<td>b. Leuco derma</td>
<td>1</td>
</tr>
<tr>
<td>c. Nodular Cutaneous Syphilides</td>
<td>2</td>
</tr>
</tbody>
</table>

**TABLE VI.** Manifestations of Neuro-Syphilis.

<table>
<thead>
<tr>
<th>Manifestation</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Transient Convulsions</td>
<td>1</td>
</tr>
<tr>
<td>2. Tabes Dorsalis</td>
<td>1</td>
</tr>
</tbody>
</table>

**TABLE VII.** Manifestations of Secondary Syphilis.

<table>
<thead>
<tr>
<th>Manifestation</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Condylomata Lata</td>
<td>2</td>
</tr>
<tr>
<td>2. Early Syphilitic Rashes</td>
<td>3</td>
</tr>
</tbody>
</table>

In a clinic chiefly composed of maritally infected women, the diagnosis rests to a large extent on the results of the Wassermann Test.
This is proved by the analysis of Syphilitic cases attending the Clinic given in Table IV.

The term Latent Syphilis is applied to those cases in which there is no history of symptoms or signs of Syphilis. The patient feels well and gives no history of a Primary Sore or Secondary Syphilitic manifestations. The Wassermann in these cases has been done for the following reasons:

1. A history of miscarriages.
2. A history of still births or a macerated foetus.
3. Child attending with Congenital Syphilis.
4. Wassermann taken as routine in women attending the Clinic complaining of discharge.

In the above Analysis, it is seen that 76.3% of the patients attending the Auxiliary Centre are suffering from Latent Syphilis.

Dr. A.C. Roxburgh at a small clinic run by the Battersea Borough Council found during the years 1924-5-6-7 that 53 or 2.2% of the women attending the Ante-Natal Clinics had Syphilis. Of this number 94.3% had no outward evidence of Syphilis and the diagnosis was made by the result of the Wassermann reaction alone.

Levenson & Goldenburgh in a series of 1,958 patients suffering from Syphilis, found that nearly 50% had no knowledge of Primary or Secondary lesions.

Thomas Anwyl Davies in his clinic found 31.95% suffered from Latent Syphilis.

S. Hubert found that 75% of the women gave no history of symptoms or signs of syphilis against 52% of the men in a series of 759 cases.

Only a few cases in my clinic gave a clinical history of Syphilis. At the best, a history is not very reliable in a class of patient which is not in the habit of noticing or seeking
Medical advice for slight symptoms. An explanation of the high percentage i.e. 76.3% probably also lies in the fact that only maritally infected women are treated at the Auxiliary Clinic and the Amateur or Professional Prostitute is referred to the Venereal Disease Clinic at the Swansea General Hospital.

The percentage of Latent Cases agrees very closely with the figures given by Hubert. The discrepancy between Anwyl Davies's and my percentage is probably due to the fact that all classes of patients are treated at the Whitechapel Clinic and no selection is made.

The large number of Latent Cases is rather a startling fact as it means that there are many women going about who are quite unaware that they have Syphilis. These women are capable of giving birth to Congenital Syphilitic children, and probably in later years, they suffer from chronic ill-health due to lack of specific treatment.

These women can give no history of a Primary Sore, probably because this was painless, small or a mere abrasion and may have been situated on the Cervix.

Fairbairn states that 'Syphilis in the Female presents certain points of divergence from that in the male; absence of the usual signs of the Primary and Secondary stage is so common that more often than not, no primary is seen, and no history of its ever having been present is obtained.'

I quite agree with this statement, and the high percentage of Latent Cases attending my Clinic emphasises the fact that all women attending Ante-natal Clinics should have the blood-serum tested for Syphilis, as Syphilis in women, in pregnant
women especially, may be a very mild disease. The absence of signs or history is of no clinical value, as it commonly happens that the birth of a Syphilitic foetus is the only evident symptom and the first one to attract attention to the disease in the mother. If the work is to be preventive and aims at eradicating Congenital Syphilis then the disease must be diagnosed before or during pregnancy, and this, in the majority of cases, can only be done by the Wasserman Reaction.

II of the total number of 19 Tertiary cases gave no history of Primary or Secondary manifestations of Syphilis, thus the number of patients having no knowledge of the early specific manifestations is 95 or 86.3% of the Syphilitic women attending my Clinic.

This further bears out the findings of Anwyl-Davies, Hubert, Levenson and Goldenburgh, Fairbairn and Roxburgh.

The manifestations of Tertiary Syphilis in patients attending my Clinic are shown in Table V.

Syphilitic Onychia is rather an uncommon Manifestation of Tertiary Syphilis. In this case, the patient had marked hypertrophy of the nails and they were partially separated from the nail-beds. The condition was painful and responded well to intensive Anti-Syphilitic treatment.

Gummata were the commonest signs of late Syphilis. These were situated:

1. Over the Right Sterno-clavicular joint. 1
2. Gummatous infiltration of the Nasal bone with Necrosis. 1
3. Gummata of the leg. 7

The Gummata situated on the legs and over the Sterno-Clivicular joint had broken down and formed sharply punched out
ulcers with grey, sloughing floors. These healed up quickly when once Anti-Syphilitic Treatment was administered. These exhibited the true characteristics of gummatous ulcers which are:

1. Painlessness.
2. Chronicity.
3. Punched out edge - not undermined.
5. Slight indurated area round ulcer.
6. Wassermann positive.

The case with the gummatous infiltration of the nasal bone was interesting. She was 54 years of age, and gave a six months history of Post-nasal discharge, and "pieces of bone coming down the back of the nose". On examination, the breath was very offensive and the bridge of the nose was depressed. The Wassermann was strongly positive. I did a Wassermann on six of her children and all were negative. She gave no history of Primary or Secondary Manifestations. Intensive Anti-specific treatment was given. After two courses of Neokharstven and Micržol, the post-nasal discharge and foetor oris completely disappeared.

The two cases of Cardio-vascular involvement were in women of between 50 and 60 years of age. The Aneurysm was of the Transverse Part of the Arch of the Aorta and showed the typical signs of tracheal tugging and hoarseness due to pressure on the Left Recurrent Laryngeal Nerve. She also had severe pain due to pressure. The Wassermann was strongly positive. This patient was referred to the Poor Law Hospital where she still is.

The other patient with Aortic Regurgitation had also a strongly positive Wassermann. She complained chiefly of headache, dizziness and dyspnoea on exertion.
There were seven cases of Late Syphilitic skin manifestations. The four cases of Circinate Syphilide showed the papular eruption grouped in circular patches, varying in size from one to four inches, with areas of normal skin between the patches.

The case of Leucoderma showed the areas of deeply pigmented skin surrounded by irregular light, unpigmented areas on the neck, and not on the anterior auxiliary folds. When this is seen, it is always suggestive of Syphilis, and the Wassermann should be taken as in this case, when it was found to be positive.

The two cases of Nodular Cutaneous Syphilides consisted of reddish brown papules arranged in circles and segments of circles and showed the central healed, pigmented scars and the spreading edge. The Wassermann was positive.

The two cases of Neuro-Syphilis exhibited.

1. Transient Convulsions Simulating Epilepsy
2. Tabes Dorsalis.

The Epileptiform Convulsions started with clonic movements but no aura. The patient rapidly became unconscious and remained so for some time. These fits started when the patient was 42 years old. The Wassermann Reaction was taken and found to be strongly positive. After four years intensive treatment with Arsenic, Bismuth and Tryparsamide, the fits are continuing, although at less frequent intervals. The patient refused to submit to a Lumber Puncture.

The patient with Tabes Dorsalis exhibited all the charact-
eristic features of this disease which are:

1. Numbness of the feet and feeling of walking on Cotton Wool.
2. Gastric Crises at frequent intervals.
3. Argyll-Robertson Pupils.
5. Ataxic gait - the patient walked with the aid of two sticks, with the body thrown forward and the legs wide apart. The feet were lifted high and slapped on the ground.

A Lumbar Puncture was done and showed increase in the number of Lymphocytes. The Wassermann was positive and so was Lange's Colloidal Gold Curve, being 1244432100.

The disease was fully developed when the patient first attended the Clinic. She was therefore sent into the Swansea General Hospital for treatment and re-education.

Two of the Tertiary cases had Argyll-Robertson Pupils and one had exaggerated knee jerks. Therefore in these three cases there was Syphilitic involvement of the Central Nervous System. The Optic discs were examined and found to be normal, and so courses of Tryparsamide alternating with courses of Arsenic and Bismuth were given to these three cases. Two of the cases have been under observation for the last two years, and the third for one year, during which time no further involvement of the Central Nervous System has occurred. The Wassermann of the Cerebro-Spinal Fluid was negative in these cases, though the Blood Wassermann was positive.

The two cases of Primary Sore were interesting in that one had a negative Wassermann, and the other one positive. In both cases Spirochaeta Pallida were found in the Serum on Dark Ground Examination.
The case with the Negative Wassermann had the Primary Sore situated on the Fourchette. The chancre was ulcerative in character and oval in shape. It had a well-defined, regular, circumscribed outline and was raised above the surrounding tissues. The edge was thickened and not undermined. The base was covered with a greyish slough. The Inguinal glands were enlarged and on palpation were hard, shotty, painless and had the typical india-rubber feel. There was no oedema of the vulva. The patient complained of pains in the joints, headache, malaise and debility. She was given injections of Arsenic and Bismuth twice a week. In one week the Primary Sore had disappeared, but the feeling of lassitude and debility continued. After one month, the patient felt well, but, unfortunately refused to continue her treatment at the Clinic. Several home-visits by the health visitor were made, but all efforts to persuade her to continue treatment were unsuccessful.

The other case, had the Primary Sore situated on the Labia Majora, and was accompanied by marked oedema of the parts. The inguinal glands were typical of Syphilitic infection. The Wassermann Reaction was positive, but she had no rash. Intense Anti-specific treatment was given twice a week - the Primary Sore disappearing in less than a fortnight.

There were five cases of Secondary Syphilis. These were:

1. Condylomata Lata  2. cases  
2. Early Syphilitic Rashes  3 "

The Condylomata Lata in both cases were situated round the Anus. In appearance, they were flat-topped and of a bluish-grey colour, The Wassermann Reaction was positive.
The Early Syphilitic rashes were characteristic in that they were a dull, coppery red colour and also bilateral and symmetrical. Two were macular syphilides, and the third was papular in character. The Wassermann Reaction was positive in these three cases.

The above is an analysis of the type of cases attending my Clinic. The great majority of the patients, 76.3% suffer from Latent Syphilis, and only 17.2% from Tertiary Syphilis, so that in most of the women attending, the diagnosis was only made by the result of the Wassermann Reaction.

1.8% of the cases had Primary Lesions which is much below the figure of 14.55% found by Anwyl-Davies in the Whitechapel Clinic. As stated, before, this may be due to all types of cases attending the Clinic, no selection being made, and again, contacts are referred from the Male Clinic. In Swansea, the men are treated at the Swansea General Hospital and all contacts are referred to the Women's Department in the same hospital, so that none are referred to the Auxiliary Clinic. Therefore women with Primary lesions are not so likely to be seen at my Clinic.

The percentage of Secondary Syphilitic cases attending my Clinic was 2.7% as against 22.78% at the Whitechapel Clinic. This again is explained by the fact that contacts are referred from the Male side to the Women's Department at the Swansea General Hospital. Also a large number of these cases consult the Private Practitioners who usually refer the women to the Swansea General Hospital. Practically all the cases attending my
Clinic have been referred from the Maternity and Child Welfare Clinics, and very few have been sent by the Private Practitioners, and so the large number of Latent and Tertiary Syphilitic cases attending my clinic can be explained.
CHAPTER V.
The Value of the Wassermann Reaction.

TABLE VIII The strength of the Wassermann Reaction in patients with Syphilis on their first visit to the Clinic.

<table>
<thead>
<tr>
<th>Wassermann Reaction</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>strongly positive</td>
<td>26</td>
<td>23.6%</td>
</tr>
<tr>
<td>positive</td>
<td>45</td>
<td>40.9%</td>
</tr>
<tr>
<td>weak positive</td>
<td>36</td>
<td>32.7%</td>
</tr>
<tr>
<td>negative</td>
<td>3</td>
<td>2.7%</td>
</tr>
</tbody>
</table>

TABLE X. History of Patients with Wassermann Reaction weak Positive.

1. History of 1 miscarriage
2. History of several miscarriages
3. History of still-births
4. History of miscarriage and still-birth
5. Child attending with Wassermann Reaction Positive
6. " " " " strongly positive
7. " " " " weak positive
8. No obstetric or other history suggestive of syphilis; but on repetition, the Wassermann Reaction is still weak positive.
9. Wassermann Reaction weak positive, becoming positive after treatment with Arsenic and Bismuth

While I have been in charge of the Clinic, I have taken the Wassermann Reaction on 1459 patients. Blood for examination is taken as a routine on all who attend. Of these 190 were found to be positive, about 13.6%. Of this number, 6.1% were suffering from Congenital Syphilis and 7.5% from Acquired.

A diagnosis of Syphilis has only been made in the presence of a Positive Wassermann Reaction, so that the minimum incidence of the disease has been obtained. Several cases with a negative Wassermann have been treated as Syphilis on account of the history pointing to a diagnosis of such, and results have justified this procedure. However, these cases have not been included in the Table. I feel certain, however, that the actual
incidence in the series is not much greater than that indicated by the number of positive reactions.

P. Fildes and R. J. Parnell did a Wassermann on 1,414 cases of Syphilis or suspected Syphilis and obtained a Positive result in 81.8% of them. 12.8% of the 18.2% of cases which gave a negative reaction, showed clinical signs of Syphilis. The series of cases on which these figures were based, contained a considerable proportion of early cases, and those which had received Anti-specific treatment, so that the figures are apt to be misleading.

H. M. Turnbull compared the Wassermann Reaction with the subsequent findings at the Post-Mortem Examination. He came to the conclusion that in only 3% of a series of 98 cases was Syphilis not diagnosed during life, although certainly present as proved by the Post Mortem Findings.

Thus we can say, in the presence of a positive Wassermann providing one can exclude such diseases as Scarlet Fever, Yaws etc., Syphilis is certainly the diagnosis.

Neisser by his experiments has proved that not only the probability of infection but also the symptoms of syphilis depend upon the site of inoculation. As this may be in utero in women, it may account for the different course which the disease takes in women to men, as the uterus is an unsuitable medium for the Spirochaeta Pallida.

Lees states that recently Routh has expounded the theory that the attention of the virus in Syphilitic pregnant women may be due to Spirilloylsis of the organisms set up by the chorionic ferments. It may be that while the Spirochaete is
subject to the influence of the ferments, Syphilis is quiescent and non-virulent. Subsequent to pregnancy, the ferments disappear and the Spirochaete redevelopes and resumes its activity.

This theory explains the many variations of the Wassermann Test during pregnancy and also explains why it is possible for a mother to give birth to a child with a negative Wassermann, while she herself has a positive Blood.

A negative Wassermann does not exclude Syphilis, and if the history definitely points to such a diagnosis, the woman should be treated as such. These cases are few however, and in the great majority, it can be said that the presence of Syphilis, the Wassermann Reaction is positive.

In my own Clinic, 3 out of 110 or 2.17% Syphilitic patients had a negative Wassermann. This closely agrees with the findings of H.N. Turnbull, who stated that in only 3% of the cases was the Wassermann negative although the patient was later proved to have Syphilis at the Post-Mortem Examination.

In Table VIII the strength of the Wassermann Reaction in patients with Syphilis on their first visit to the Clinic is given.

Everyone is in agreement that one should treat patients with strongly positive or positive Wassermann Reactions. There is, however, difference of opinion as to whether one should treat the patient with a weak positive or doubtful Wassermann Reaction. In my clinic, I have made it the rule to repeat the Wassermann after a Provocative Injection of .45 gram
If the Wassermann is negative, I regard the case as non-specific. If however, the Wassermann is still weak positive, I treat the case as being Syphilitic on account of the results tabulated in Table IX.

In the Table, it is seen that out of 36 patients with a weak positive Wassermann, 15 or 41.1% gave a history of miscarriage or still-birth. Two of the patients had children attending with a strongly positive Wassermann. One of these cases was interesting, in that the mother brought the baby to the clinic at the age of one month with a typical specific maculo-squamous rash and snuffles. The Wassermann Reaction of the baby was strongly positive, while that of the mother was weak positive. The mother had had no previous miscarriages or children. She had felt well during the pregnancy, and had not had rashes, or sore throats. Both were given treatment, the baby's condition clearing up rapidly.

In the other case, the child, age 9 years was referred from the Medical Inspection Clinic suffering from Interstitial Keratitis and she had typical Hutchinson Teeth. The Wassermann was strongly positive. The mother's blood was taken and the Wassermann was found to be weak positive. She had had four children - the first being still-born. The child attending the Clinic was her second child. The third child had died at the age of 6 months from "fits and gastro-enteritis". The fourth child she did not bring to the clinic although asked to do so. She had had no miscarriages.

One child attended with the Wassermann Reaction positive while the mother's was weak positive. This child was referred to the Clinic because of recurrent boils at the age of three
months. On treatment being given, the skin condition cleared up rapidly. The mother gave a history of one miscarriage before this her only child. She had no history suggestive of syphilitic infection and stated she had always been well.

There were two cases in which the Wassermann Reaction of the mother and child were weak positive.

One child was referred because of a history of fits at the age of 1 year 7 months. There were no congenital stigmata but the Wassermann Reaction was weak positive, and remained so when the blood test was repeated. The Mother’s Wassermann Reaction was also weak positive. The mother gave a history of headaches and had had one miscarriage. She had three children, the small patient being the second. She refused to bring the other children to the clinic, stating they were quite well.

In the other case, the mother was found to have a weak positive Wassermann Reaction during the seventh month of her pregnancy, and was given injections of Neokharsivan weekly till her confinement. The baby was brought when seven weeks old, and although he appeared healthy, the Wassermann Reaction was weak positive.

Therefore, of the 36 patients with weak positive Wassermans, 5 or 13.2% had children with Congenital Syphilis.

In two cases, the Wassermann reaction was weak positive, but became positive after one course of treatment with Arsenic and Bismuth, thus proving that the patients definitely had Syphilis.

14 or 38.8% of the 26 patients with weak positive
Wassermann Reactions had no history which suggested syphilis; the blood test being taken as routine when they attended the Clinic with Gonorrhea or non-venereal disease. 10 of this number, however, were Primigravidae, and two were nulliparae. Therefore, 71.4% of these women were primigravidae, and received treatment during their first pregnancy. All these patients went to term and had live babies. Four of these women were confined in the Greig House Maternity Hospital and the Wassermann Reaction on the Placental Blood in these cases was negative. Eight of the ten mothers brought their babies up to the Clinic at intervals of three to six months after the confinement for observation and a blood test. In all cases the Wassermann Reactions of the children were negative.

If treatment had not been given to the mothers ante-natally the history might have resembled that of the multiparae. 24. of the 36 women were multiparae and of this number 62.5% gave a history of miscarriage and still-birth and 20.8% had Congenital Syphilitic children.

Three of the cases in Table VIII giving the results of the Wassermann Reactions in Syphilitic patients had Negative Wassermanns although I treated them as being Syphilitic. The history of these cases is given below and my reasons for giving them treatment:

a. A woman with Primary Chancre, in the serum of which, Spirochaeta Pallida were seen on Dark Ground Illumination.

b. This patient has a child attending with a positive Wassermann and also has a history of five miscarriages occurring after the birth of the child attending the Clinic. She has had no other children. Although the
Wassermann was negative, even after a Provocative Injection of .45 gram Neo-kharsivan, I consider the woman to be syphilitic and am treating her as such.

c. I also have a second patient attending the Clinic with a negative Wassermann although her eldest child, who was illegitimate, has a strongly positive Wassermann. She has had no miscarriages and since her marriage, has had four apparently healthy children, whose Wassermann Reactions are Negative. The patient herself is Anaemic and suffers from vague ill-health. I have begun treatment with Arsenic and Bismuth, and she is already feeling better for the injections.

It is uncommon to find the child's blood positive while the mother's blood is negative and is difficult to explain.

Colles' Law states that a mother, though not herself apparently Syphilitic, can suckle her syphilitic child and yet not develop syphilis. This is true and the generally accepted opinion is that this is due to the woman already suffering from Syphilis which may be latent.

In the above two quoted cases, in which the two mothers have negative Wassermans, while the children have positive Wassermans, the explanation may lie in the seat of inoculation.

Neisser has shown experimentally that not only the probability of infection, but also the symptoms exhibited if infection does result, depends to a great extent on the site of inoculation. He found that inoculation of the skin with the Syphilitic Virus was most frequently successful. Infection by the subcutaneous route was possible, but was uncommon, only four being successful in over 100 subcutaneous inoculations. All intraperitoneal inoculations were unsuccessful.

It may be that women are frequently infected per
u tero, and so the clinical picture may be different from infections by the vulvar or cutaneous routes.

This may account for the prevalence of Latent Syphilis in women, and may also be an explanation of the large number of Syphilitic women with weak positive Wassermanns and for the few with negative Wassermanns.

I have also had three women attending the Clinic with negative Wassermanns to all of whom I have given anti-specific treatment. They were referred to me from the Ante-Natal Clinic with a history of miscarriage, still-birth and neo-natal death - none had living children. The obstetric history of these cases was:

1. 4 miscarriages at 2 mths, 3 mths, 5½ mths and 2½ mths.

2. One still-born child, one miscarriage, and the third pregnancy ended with the birth of a full-time child, but he died of Marasmus at the age of 3 mths.

3. 2 miscarriages at 4 mths and 2 mths.

These women were all anxious to have a child and the repeated miscarriage, still-birth and neo-natal death could not be accounted for by obstetrical complications or albuminuria. I therefore regarded these cases as probably syphilitic and treated them as such. They all went to full-term and had healthy babies with negative Wassermanns. I asked the mothers to report at intervals of 3 months with the babies but did not continue the treatment after the confinement. I advised the mothers to attend the Clinic for further treatment should they become pregnant again. I have not included these cases in my list of patients with Syphilis as I have no proof they
are suffering from this disease, although convinced in my own mind that this is the case.

F. J. Browne lays little stress on the finding of a negative Wassermann Reaction and states that in all cases with a history of repeated still-birth, abortion or neonatal death, not to be accounted for by obstetric or other complications, he carries out Anti-Syphilitic treatment.

My own observations are in agreement with the findings of Professor Browne, and I certainly think that in a woman with such an obstetric history, anti-specific treatment is indicated.
CHAPTER VI.

The Treatment of Syphilis as carried out at the Auxiliary Centre.

1st Course of Treatment.

<table>
<thead>
<tr>
<th>Day</th>
<th>Medicine</th>
<th>Dosage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st day</td>
<td>0.3 grm Neokharisvan</td>
<td>Intravenously 2 c.c. Bicrilol Intramuscularly</td>
</tr>
<tr>
<td>8th day</td>
<td>0.3 grm</td>
<td>2 c.c. Bicrilol</td>
</tr>
<tr>
<td>15th day</td>
<td>0.45 grm</td>
<td>2 c.c.</td>
</tr>
<tr>
<td>22nd day</td>
<td>0.45 grm</td>
<td>2 c.c.</td>
</tr>
<tr>
<td>29th day</td>
<td>0.45 grm</td>
<td>2 c.c.</td>
</tr>
<tr>
<td>29th day</td>
<td>0.45 grm</td>
<td>2 c.c.</td>
</tr>
<tr>
<td>36th day</td>
<td>0.45 grm</td>
<td>2 c.c.</td>
</tr>
<tr>
<td>43rd day</td>
<td>0.45 grm</td>
<td>2 c.c.</td>
</tr>
<tr>
<td>50th day</td>
<td>0.6 grm</td>
<td>2 c.c.</td>
</tr>
<tr>
<td>57th day</td>
<td>0.6 grm</td>
<td>2 c.c.</td>
</tr>
<tr>
<td>64th day</td>
<td>Mist. Hyd. Perchlor</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Solution of Mercuric Chloride B.P.</td>
<td>m  xx</td>
</tr>
<tr>
<td></td>
<td>Potassium Iodide gr  x</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Tincture of Nux Vomica m  x</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Compound infusion of Gentian ad^\text{\textfrac{3}{5}}</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sig. \text{\textfrac{3}{5}} t.d.s. ex. aq., p.c.,</td>
<td></td>
</tr>
<tr>
<td>71st day</td>
<td>R Mist Hyd. Perchlor 3</td>
<td>t.d.s.</td>
</tr>
<tr>
<td>78th day</td>
<td>&quot; &quot; &quot; &quot;</td>
<td>3 t.d.s.</td>
</tr>
<tr>
<td>85th day</td>
<td>&quot; &quot; &quot; &quot;</td>
<td>3 t.d.s.</td>
</tr>
<tr>
<td>92nd day</td>
<td>Wassermann</td>
<td></td>
</tr>
</tbody>
</table>
2nd Course of Treatment.

1st day .3grm Kharsulphan I.M. 2c.c. Bicriol I.M.
8th day .3grm Kharsulphan I.M. 2c.c. Bicriol I.M.
15th day .3grm " " 2c.c. " "
22nd day .3grm " " 2c.c " "
29th day .3grm " " 2c.c. " "
36th day .3grm " " 2c.c. " "
43rd day .3grm " " 2c.c. " "
50th day .3grm " " 2c.c. " "
57th day .3grm " " 2c.c. " "
64th day .3grm " " 2c.c. " "
71st day .3grm " " 2c.c. " "
78th day .3grm " " 2c.c. " "
85th day .3grm " " 2c.c. " "
92nd day Mist. Pot. Iod.

Potassium Iodide gr x
Sodium Bicarbonate gr x
Aromatic Spirit of Ammonia m xx

Compound infusion of Gentian ad 3 ss

Sig. 3 ss t.d.s. p.c., ex aqua.

99th day Rx. Mist. Pot. Iod. 3 ss t.d.s.,
108th day Rx. Mist. Pot. Iod. 3 ss t.d.s.,
115th day Rx. Mist. Pot. Iod. 3 ss t.d.s.,
122nd day Wassermann.

The following courses are determined by the type of Syphilis, i.e., whether Secondary or Tertiary, and also as to which drug seems to have the most beneficial effect on the course of the disease and on the Wassermann Reaction. In Tertiary Syphilis, Iodobismuthquinine has often a very beneficial effect and may be used in place of Bicriol and is given intramuscularly.

In Neuro-Syphilis, Tryparsamide is the drug of choice, and the following is the course of treatment:

<table>
<thead>
<tr>
<th>Day</th>
<th>Drug</th>
<th>Dosage</th>
<th>Route</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>Tryparsamide</td>
<td>3grm</td>
<td>Intravenously</td>
</tr>
<tr>
<td>8th</td>
<td></td>
<td>3grm</td>
<td></td>
</tr>
<tr>
<td>15th</td>
<td></td>
<td>3grm</td>
<td></td>
</tr>
<tr>
<td>22nd</td>
<td></td>
<td>3grm</td>
<td></td>
</tr>
<tr>
<td>29th</td>
<td></td>
<td>3grm</td>
<td></td>
</tr>
<tr>
<td>36th</td>
<td></td>
<td>3grm</td>
<td></td>
</tr>
<tr>
<td>43rd</td>
<td></td>
<td>3grm</td>
<td></td>
</tr>
<tr>
<td>50th</td>
<td></td>
<td>3grm</td>
<td></td>
</tr>
<tr>
<td>57th</td>
<td>Mist. Hyd. Perchlor</td>
<td>3 _ t.d.s.,</td>
<td></td>
</tr>
<tr>
<td>64th</td>
<td>Mist. Hyd. Perchlor</td>
<td>3 _ t.d.s.,</td>
<td></td>
</tr>
<tr>
<td>71st</td>
<td>Mist. Hyd. Perchlor</td>
<td>3 _ t.d.s.,</td>
<td></td>
</tr>
<tr>
<td>78th</td>
<td>Mist. Hyd. Perchlor</td>
<td>3 _ t.d.s.,</td>
<td></td>
</tr>
<tr>
<td>85th</td>
<td>Wassermann.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Course of treatment given during Pregnancy.

1st Course of treatment.

1st day .3grm Neokharsivan Intravenously.
1st Course of treatment (contd.)

8th day .45 grm Neokharsivan. Intravenously
15th day .45grm
22nd day .45grm
29th day .45grm
36th day .45grm
43rd day .45grm
50th day .45grm
57th day .45 grm
63rd day Mist. Pot. Iod 3/0 t.d.s., ss
70th day Mist. Pot. Iod 3/0 t.d.s., ss
77th day Mist. Pot. Iod 3/0 t.d.s., ss
84th day Wassermann.

2nd Course of Treatment.

<table>
<thead>
<tr>
<th>Neokharsivan I.V. or</th>
<th>Kharsulphan I.M, or</th>
<th>Bicriol I.M.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st day</td>
<td>.3grm</td>
<td>.3grm</td>
</tr>
<tr>
<td>8th day</td>
<td>.45grm</td>
<td>.3grm</td>
</tr>
<tr>
<td>15th day</td>
<td>.45grm</td>
<td>.3grm</td>
</tr>
<tr>
<td>22nd day</td>
<td>.45grm</td>
<td>.3grm</td>
</tr>
<tr>
<td>29th day</td>
<td>.45grm</td>
<td>.3grm</td>
</tr>
<tr>
<td>36th day</td>
<td>.45grm</td>
<td>.3grm</td>
</tr>
<tr>
<td>43rd day</td>
<td>.45grm</td>
<td>.3grm</td>
</tr>
<tr>
<td>50th day</td>
<td>.45grm</td>
<td>.3grm</td>
</tr>
<tr>
<td>57th day</td>
<td>.45grm</td>
<td>.3grm</td>
</tr>
<tr>
<td>63rd days</td>
<td>Mist. Pot. Iod 3/0 t.d.s., ss</td>
<td></td>
</tr>
<tr>
<td>70th day</td>
<td>Mist. Pot. Iod 3/0 t.d.s., ss</td>
<td></td>
</tr>
<tr>
<td>77th day</td>
<td>Mist. Pot. Iod 3/0 t.d.s., ss</td>
<td></td>
</tr>
<tr>
<td>84th day</td>
<td>Wassermann</td>
<td></td>
</tr>
</tbody>
</table>

When the diagnosis of Syphilis is made, the patient is given the list of Instructions, already given in Chapter III. If the patient has dental caries, she is referred to the
Clinic Dentist for treatment.

The urine is examined, for albumen and sugar, and a chart of the patient's weight kept.

The preparations of Arsenic and Bismuth in use at my Clinic are Neo-kharsivan, Kharsulphan, Bicrilol, and Iodo-bismuthquinine.

The method of preparing and injecting the drugs is as follows:

1. **Neo-kharsivan.** The ampoule is first inspected to see that the colour is bright canary yellow, and is immersed in spirit to make sure there is no flaw in the glass. The ampoule is then broken, and the contents dissolved in 10ccs of sterile, double distilled water. The solution is filtered, drawn up into a syringe and injected slowly into one of the arm veins. A glass of glucose and lemon water is given to the patient to drink before the intravenous injection is given.

2. **Kharsulphan.** This is prepared on similar lines to the Neo-kharsivan but is dissolved in 1cc of sterile double distilled water and is injected into the buttock or arm intramuscularly or deep subcutaneously.

3. **Bicrilol.** The bottle containing the bicrilol is placed in a water-bath and kept at a temperature of about 20°C, which melts the Creocamph solvent. The bicrilol is stirred with a glass rod, before the required amount is drawn up into the syringe. A fresh needle is plunged into the patient's buttock. If blood oozes from the needle, it is taken out and inserted in another place. The syringe is then attached to the needle and the injection given. After the needle is withdrawn it is essential that deep rotatory massage be carried out over the site of the injection.

4. **Iodo-bismuthquinine.** In this case, the ampoule is heated and shaken, then the neck is filed and the contents drawn up into the syringe, and the drug is given intramuscularly into the buttock.

During the first course, I give four grams of Neo-kharsivan, commencing with 0.3 gram, and working up to weekly
injections of 0.45 gram and 0.6 gram. With this, I give 2 ccs of Bicriol which is the equivalent of 0.3 gram of metallic bismuth. I give 4 grams of metallic bismuth in a course. At the end of the course, I put the patient on a month's rest, during which time, she takes one of the following medicines:

\[ \text{Rx} \] Potassium Iodide \( \text{gr} \ \frac{x}{x} \)

Sodium Bicarbonate \( \text{gr} \ \frac{x}{x} \)

Aromatic spirit of Ammonia \( \text{m} \ \frac{x}{x} \)

Compound Infusion of Gentian \( \text{ad} \ \frac{3}{y} \ \frac{ss}{ss} \)

Sig. A tablespoonful in water three times a day after food or

\[ \text{Rx} \] Solution of Mercuric Chloride B.P \( \text{m} \ \frac{xx}{xx} \)

Potassium Iodide \( \text{gr} \ \frac{x}{x} \)

Tincture of Nux Vomica \( \text{m} \ \frac{x}{x} \)

Compound infusion of Gentian \( \text{ad} \ \frac{3}{y} \ \frac{ss}{ss} \)

Sig. A tablespoonful in water three times a day after food.

At the end of the month, the blood is taken for the Wassermann Reaction.

The next week, the patient is put on a second course of Arsenic and Bismuth - Neokharsivan or Kharsulphan and Bicriol or Iodo-bismuthquinine being used. 4 grams of each is given as before, at the end of which time, the patient is again put on a month's rest on Medicine and the Wassermann is then taken.

The courses are repeated until such time as the patient is considered cured, when the patient is put under observation.
for one year, during which period, a provocative injection of 0.45 gram Neo-kharsivan, followed on the next day by the Wassermann Test is done at intervals of three months.

The minimum period of treatment is two years, and the majority require a longer time. As long as the Wassermann remains positive, the patient cannot be considered cured. One certainly sees cases which clinically appear cured, although the Wassermann remains strongly positive. If however, these cases were left untreated, a proportion of them would later have manifestations of Syphilis. A positive Wassermann indicates that active Spirochaetes are in the body, and failure to reduce this to a Negative, should not make one conclude that the Wassermann means nothing, and tell the patient she is cured. One should treat the case with all the drugs at one's disposal until the patient is clinically and serologically cured.

Before the patient is finally discharged, it is essential that a Lumbar Puncture be done, so that the Cerebro-Spinal Fluid can be examined for the Wassermann Reaction and Lange's Colloidal Gold Curve, as in some cases, these may be positive while the blood serum is negative, and the patient may later develop symptoms of Neuro-Syphilis.

The choice of drugs depends to a great extent on the history of the patient. Personally, I give Neokharsivan and Bicriol in the first course, and Kharsulphan and Bicriol in the second course, and usually Neokharsivan and Bicriol in the third. Subsequently I decide whether Intravenous or Intram-
muscular injections will probably be the most beneficial in the case under consideration. In Tertiary Syphilis and the Wassermann fast patients, deep subcutaneous injections are probably more efficacious than intravenous because the remedy is not exuded so rapidly. I also find that in these cases, Iodo-bismuthquinine is very useful, especially when used in conjunction with Kharsulphan. The draw-back to this method is that it is more painful than the intravenous route.

In the cases of Neuro-Syphilis, Tryparsamide is a valuable drug, but care is needed in its administration. Before treatment with this drug is begun, the optic discs should be examined with the ophthalmoscope to make sure that they are normal. If they are affected, I do not use this drug, although 12 David Lees reports beneficial results in some of these cases from the use of Tryparsamide.

The dose of Tryparsamide is 3 grams weekly - eight injections completing the course. The drug is dissolved in 10 ccs, sterile double-distilled water, filtered and given intravenously.

I have used this drug in five cases, and have had no untoward effects.

In the case of pregnant women, I give weekly injections of Arsenic or Bismuth, and do not give these two drugs simultaneously, in case their combined action may be too great a strain on the already overworked kidneys. I prefer to
give Neokharsivan Intravenously to begin with during pregnancy because of the more rapid absorption and action. If there is time, full courses of Arsenic and Bismuth should be given alternately up to term. If there is intolerance to Neokharsivan, Kharsulphan or Bicriol should be used. The urine must be examined before every injection for albumen. The woman attends weekly for treatment. A course of 4 grams Neokharsivan is given, beginning with a dose of 0.3 gram later increasing to 0.45 gram and 0.6 gram. Several of the women have complained of not feeling so well after the large doses, but have felt perfectly well when the dose has been limited to 0.3 gram. Unless there has been great urgency for intensive treatment, I have given the smaller dose in these cases. If however, the patient has Primary or Secondary Manifestations, or only comes to the Clinic in the later months of her pregnancy, I give 0.3 gram Neokharsivan twice weekly. The patients have certainly felt better on the smaller dose. Several of the pregnant women complain of a feeling of nausea, and may actually vomit, immediately after the injection. I treat this by giving the drug in a greater dilution, using 20 ccs of distilled water and injecting the solution very slowly, taking three minutes if necessary. A very useful method of giving the drug in these cases is to give 2ccs of the solution, draw back 1cc of blood, then give 2ccs of the solution and so on. This method takes time, but it is certainly worth the trouble for where I have practised this, the majority of the patients have not vomited. If however the vomiting still continues or
she exhibits symptoms of intolerance Kharsulphan or Bicriol is given.

When she has finished the course of Neokharsivan, she is put on a month's rest on Mist. Pot. Iod, at the end of which time a Wassermann Reaction is taken.

If there is time, she is then given a course of Bicriol or the Neokharsivan is repeated.

The object is to begin treatment early in pregnancy, and continue right up to the parturition, using doses compatible with her safety. At one time, treatment used to be stopped about two months before term on account of the supposed susceptibility of the patient to Post-partum haemorrhage. This, I am sure, is a fallacy, for several of these Syphilitic pregnant women have been confined at the Borough Maternity Hospital while I have been in charge and there has not been one such case.

If the mother is confined at the Borough Maternity Hospital, a Wassermann Reaction is done on the Placental Blood. If this is positive, an injection of 0.075 gram Kharsulphan is given to the baby at once. If the Wassermann of the Placental Blood is negative, no treatment is given to the baby, but it is kept under observation and the mother is told to bring the child to the clinic at the end of one, three, six and twelve months for a blood test. I consider it is unscientific to give treatment to these babies with negative Wassermanns and no stigmata of Congenital Syphilis. If one did so, one would not be able to assess the value of Ante-Natal Anti-specific treatment, for if once one begins treatment, it has to be continued for two years, and one would not know if the treatment given
to the mother during her pregnancy, had been efficacious in preventing Syphilis in the child. Some state that one should give treatment to these babies with a view to preventing Congenital Syphilis, but I am opposed to this procedure.

In two cases, however, in which Ante-Natal treatment was given to the mother and the Wassermann Reaction of the Placental Blood was negative, the babies developed typical Syphilitic rashes at the ages of 6 and 10 weeks. These responded quickly, however to injections of Kharsulphan and now, they appear to be healthy. The rest of the babies with negative Wassermanns were healthy at birth and remained so while under observation.

In the case of the mothers who are confined at home, the mother is asked to report with the baby three weeks after the confinement when a specimen of blood is taken from one of the baby's scalp veins. If the Wassermann is negative, the baby is kept under observation for at least a year, the blood test being repeated at intervals. If the Wassermann is positive or stigmata of Congenital Syphilis appear, treatment is begun at once.

In all cases, the treatment of the mother is begun as soon after the confinement as possible.

It is also impressed upon the mother that treatment is essential during any subsequent pregnancy, even if she has been discharged as cured from the clinic in the meantime.
This is done because once a woman has had Syphilis, she is liable to give birth to a Syphilitic infant at every subsequent pregnancy. It is well-known that the intensity of the Syphilitic infection diminishes in years even without treatment and that a woman's later children may be born healthy. However Boas and Gammeltoft quote a case of a woman who gave birth to a Syphilitic child 20 years after being infected, and Marcus had two similar cases in which the intervals were 24 and 26 years. Boeck reports a case where a woman was infected in childhood and gave birth to a Congenital Syphilitic child 37 years after being infected.

It is therefore important that treatment should be given to the mothers during every pregnancy if one is to make sure of avoiding the birth of a Syphilitic child, even after she appears to be clinically and serologically cured.

Nabarro states in his paper, that according to the researches of Thomsen, the middle of pregnancy is the time when the Spirochaetes begin to wander through the placenta and to infect the foetus, and therefore he states that it is during this time that one should treat the patients energetically. Unfortunately, many patients do not come for treatment till the later months of pregnancy, so that much valuable time is lost.

I have had few cases of intolerance to arsenic and its derivatives. These have been:

A. Early Reactions.

1. Vomiting immediately after the injection.
2. Fainting attacks after the injection.
These occur after Intravenous and not Intramuscular medication. These cases are treated by enquiring if the patient has carried out carefully all the instructions given on the paper, and stressing that this must be done. The drug is given in greater dilution, using 20ccs of sterile, double-distilled water, and is given very slowly. A very useful method is to give two ccs of the solution, draw-back one cc of blood, give two ccs of the solution and so on until the whole has been injected. She is also told to take Bicarbonate of Soda in water when at home.

I have not had a single case of Vasodilator reaction.

During the first 24 hours a few patients have complained of headache and vomiting. The symptoms are treated on the same lines as the Immediate Reactions.

I have had no late reactions following the Arsenical Treatment.

There have been no ill-effects following the administration of Bicrjol, Iodo-bismuthquinine or Tryparsamide.
CHAPTER VII

The effect of Syphilis in the Causation of Foetal and Infant deaths and the results of Anti-Specific Treatment.

TABLE X. The importance of Syphilis as a cause of Foetal and Infant death in untreated women.

<table>
<thead>
<tr>
<th>Description</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of women with history of 1 or more pregnancies</td>
<td>85</td>
</tr>
<tr>
<td>before Anti-Syphilitic treatment given</td>
<td></td>
</tr>
<tr>
<td>Total pregnancies</td>
<td>404</td>
</tr>
<tr>
<td>No. of pregnancies terminating in Live-Births</td>
<td>261</td>
</tr>
<tr>
<td>Percentage of total pregnancies terminating in Live-births</td>
<td>64.6%</td>
</tr>
<tr>
<td>No of pregnancies terminating in abortion</td>
<td>91</td>
</tr>
<tr>
<td>Percentage of total pregnancies terminating in abortion</td>
<td>22.5%</td>
</tr>
<tr>
<td>No of pregnancies terminating in still-births</td>
<td>52</td>
</tr>
<tr>
<td>Percentage of total pregnancies terminating in still-births</td>
<td>12.8%</td>
</tr>
</tbody>
</table>

Table XI. A Survey of the number of healthy and Congenital Syphilitic children born of Syphilitic mothers before treatment.

<table>
<thead>
<tr>
<th>Description</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wassermann Reaction performed on children born before treatment given to mother</td>
<td>146</td>
</tr>
<tr>
<td>Wassermann Reaction Positive</td>
<td>59</td>
</tr>
<tr>
<td>Wassermann Reaction Negative</td>
<td>87</td>
</tr>
</tbody>
</table>

Therefore 40.4% of 146 children examined born of syphilitic parents suffered from Congenital Syphilis.

TABLE XII Record of the Infant Mortality occurring in the 261 children born of Syphilitic mothers.

Infant Deaths: -

(a) During 1st week                                  13 = 4.9%
(b) Between 1st week and 6 months                    24 = 9.2%
(c) Between 6 months and 1 year                      12 = 4.5%

Total number of Infant Deaths under 1 year = 49
Therefore percentage of Infant deaths under 1 year = 19%

Cause of Infant Deaths where ascertained.

(a) "Fits"                                            15
(b) Measles.                                          1
(c) Meningitis                                       1
(d) Pneumonia                                        7
5. Gastro-Enteritis.
6. Whooping Cough
7. Prematurity

212 of the children born of Syphilitic parents survived the first year, i.e. 81.2%.

Syphilis has been regarded as an important factor in the causation of Foetal and Infant Death. To prove the validity of this statement, an analysis has been made of the results of the pregnancies before Anti-Syphilitic treatment has been given to the mother (vide Table X). Syphilis is also said to be responsible for a large number of the Premature Births. It has been impossible, however, to ascertain with any degree of accuracy whether any of the children were premature, for the mothers have often been uncertain, and when in doubt, said that they went to full-term.

I have decided therefore, not to make a separate table for Premature Children as this would only be misleading, and I could not vouch for its accuracy.

The term Abortion means that pregnancy terminated before the 28th week. Still-born is applied to a dead foetus born after the 28th week. A live-birth means the birth of a live child after the 28th week.

In the above tables it has been assumed that all the 85 women were suffering from Syphilis from the time of their first pregnancy. Some of the women may not have contracted Syphilis till after the birth of one or more children, so that the actual number of Wassermann Negative children born of Syphilitic parents may be smaller than that given in the Table XI. This, however,
cannot be corrected.  

Amand Routh found that the abortion rate among the population was about 20%, while the incidence of Still-birth among the population was about 3%.

Eden states that 16% of pregnancies of the entire population terminate by abortion.

Pye-Smith in his series of 485 pregnancies found that the incidence of abortions was 12.99%, and of still-births 15.05% in Syphilitic women.

Anwyl-Davies at the St. Thomas Clinic found that in 300 women before Anti-Syphilitic Treatment was administered, the incidence of abortion was 17.5% and of still-births 16.1%.

In my Clinic, the incidence of abortions in untreated women was 22.5%, which is higher than the figure of 20% given by Routh as the abortion rate among the total population and also the figure 16% given by Eden.

In untreated Specific women, Anwyl-Davies found the abortion rate to be 17.5% and Pye-Smith found it to be 15.05%.

It has recently been stated that Maternal Syphilis is of no special importance as a cause of abortion. This is certainly borne out by the findings of Pye-Smith and Anwyl-Davies.

In my Clinic, however, the incidence of abortion was greater in the untreated Syphilitic mothers, being 22.5%, as against the figures varying from 16% - 20% given as the abortion rate amongst the general population.

I do think that in Syphilis one does get a higher incidence of abortions, but not to the extent that was formerly believed, as borne out by the above figures.

Routh gives the incidence of still-births in the general
population as \( \frac{3}{2} \% \).

Pye-Smith in his series of 485 untreated Syphilitic women found the incidence of still-births to be 15.05\%. Anwyl-Davies in his series, found the rate to be 16.1\%.

Holland found among 300 foetuses, that there were 42 cases of proven Syphilis, and 6 of "probable" Syphilis, or 16\% in all.

Browne in his series of 200 cases, examined Post-Mortem found evidence of Syphilis in 35 instances, i.e. 17\%.

Cruikshank found the incidence of still-births in pregnant women to be 18.07\%.

Williams in 10,000 pregnancies found there were 7.05\% still-births due to Syphilis and of those born alive 3.5\% suffered from Congenital Syphilis.

In my Clinic, the incidence of still-births in untreated mothers was 12.8\%, which is four times greater than that given by Routh for the general population. My findings agree with those of Pye-Smith, Anwyl-Davies, Holland, Browne, and Cruikshank, and therefore one concludes that Maternal Syphilis is an important cause of Still-birth.

In my clinic, the percentage of live-births was 64.4. Anwyl-Davies found 65.4\% of 739 pregnancies ended in live-births while Pye-Smith found 71.9\% ended in live births in 485 pregnancies. My figure agrees very closely with that given by Anwyl-Davies and Pye-Smith, and thus one can conclude that 65-70\% of pregnancies in Syphilitic women end in the birth of a live child.

In my series, 40\% of the 146 children examined were suffering from Congenital Syphilis. Anwyl-Davies only found 6.4\% of the children of untreated mothers had Congenital Syphilis. This figure is remarkably low. He records deaths in 18.1\% of his cases, but he does not state whether these cases suffered from Congenital Syphilis.
Congenital Syphilis or no.

Nabarro in his paper gives the following table from Stokes "Modern Clinical Syphilology":

<table>
<thead>
<tr>
<th>Author</th>
<th>Year</th>
<th>Cases</th>
<th>Treatment given to mothers</th>
<th>Stage of Syphilitic children</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adams (quoted 1917 by Roberts)</td>
<td>1918-22</td>
<td>108</td>
<td>Caly and Mercury injections</td>
<td>24</td>
</tr>
<tr>
<td>Williams</td>
<td>1920</td>
<td>157</td>
<td>None</td>
<td>53</td>
</tr>
<tr>
<td></td>
<td></td>
<td>103</td>
<td>2-3 injections</td>
<td>35</td>
</tr>
<tr>
<td></td>
<td></td>
<td>103</td>
<td>1 course (4-6 injections)</td>
<td>7.4</td>
</tr>
<tr>
<td>Ross and Gammeltoft</td>
<td>1922</td>
<td>158</td>
<td>None</td>
<td>99</td>
</tr>
<tr>
<td></td>
<td></td>
<td>111</td>
<td>Mercury only</td>
<td>71</td>
</tr>
<tr>
<td>Galliot (quoted by Findlay)</td>
<td>1923</td>
<td>28</td>
<td>Neo-Arsphenamin</td>
<td>8</td>
</tr>
<tr>
<td>Roden</td>
<td>1923</td>
<td>28</td>
<td>Neo-Arsphenamin</td>
<td>7</td>
</tr>
</tbody>
</table>

Nabarro also states that Whitridge Williams in 1920, published an extensive series of cases of children born to syphilitic mothers, some treated, others untreated. Of the 499 mothers who had positive Wassermanns:

- 169 who had not had treatment had 48.5% syphilitic children.
- 102 who had inefficient treatment had 39.2% syphilitic children.
- 178 who had efficient treatment had 6.7% syphilitic children.

In the children of untreated mothers examined at my Clinic, 40.4% were found to be suffering from congenital syphilis. This figure agrees closely with the incidence of 48.5% found by Whitridge Williams and of 54% given by Beck. It is, however,
much lower than the figures of 79% and 99% given by Adams and Boas and Gammeltoft respectively, but I am convinced that in my clinic the percentage of healthy children born to untreated Syphilitic mothers is much lower than that given by these last three investigators.

In Table XII at the beginning of the chapter it will be seen that the Infant Mortality Rate under 1 year was 19%, or 49 of the 261 children born of Syphilitic mothers. Pye-Smith in his clinic at Southwark and Bermondsey found the following results:

<table>
<thead>
<tr>
<th>Total number of Live-Births born of Syphilitic parents</th>
<th>349</th>
</tr>
</thead>
<tbody>
<tr>
<td>Survived 1st year.</td>
<td>215 (61.6%)</td>
</tr>
<tr>
<td>Infant deaths.</td>
<td>134 (38.2%)</td>
</tr>
<tr>
<td>a) Died during 1st week.</td>
<td>57 (16.3%)</td>
</tr>
<tr>
<td>b) Died between 1st week - 6 months.</td>
<td>62 (17.7%)</td>
</tr>
<tr>
<td>c) Died between 6 months - 1 year.</td>
<td>15 (4.2%)</td>
</tr>
</tbody>
</table>

Cruikshank in Glasgow has drawn up a table giving the following figures:

<table>
<thead>
<tr>
<th>Period of Life</th>
<th>Born of Syphilitic Mothers</th>
<th>Born of non-Syphilitic mothers</th>
</tr>
</thead>
<tbody>
<tr>
<td>During 1st fortnight, death rates among infants were</td>
<td>11.75%</td>
<td>9.5%</td>
</tr>
<tr>
<td>During the 1st month of life, death rates were</td>
<td>9.60%</td>
<td>8.22%</td>
</tr>
<tr>
<td>During 2nd and 3rd months of life, death rates were</td>
<td>3.9%</td>
<td>2.45%</td>
</tr>
<tr>
<td>During 4th and 5th and 6th months of life, death rates were</td>
<td>3.68%</td>
<td>0.80%</td>
</tr>
<tr>
<td>During 7th-12 months of life, death rates were</td>
<td>0.48%</td>
<td>1.30%</td>
</tr>
</tbody>
</table>

Feldman states that the infant mortality among the population as a whole is about 8%.

In my series, the infant mortality rate among Congenital Syphilitic Children was over twice this number, and Pye-Smith in his series found the mortality rate to be almost five times as great.

Therefore, one concludes that Congenital Syphilis lowers the
resistance of the child and renders it more liable to death from intercurrent infection, and with a history of repeated Neo-Natal death, a Wassermann Reaction in the mother is indicated. It is also seen that the greatest number of these infant deaths occurred during the first 6 months of life.

In comparing the above figures, it is found that history of still-birth and Neo-Natal death is more diagnostic of Maternal Syphilis than is a history of miscarriages, as the number of miscarriages in Syphilitic women is only slightly greater than that in the total population, while the incidence of still-birth and Neo-Natal death is greatly increased. This is a striking fact, and is in agreement with the results of most recent investigations which state that Maternal Syphilis is of no special importance as the cause of abortion. Maternal Syphilis is however, an important factor in the causation of still-birth and Neo-Natal death, especially during the first six months of life.

It has generally been taught that the obstetric history of a woman with Syphilis was one of repeated abortions, followed by a Premature Still-birth, a still-birth, the birth of a viable child dying during the first few weeks, the birth of a Congenital Syphilitic child, and finally the birth of a healthy child.

This however, has not been borne out in this series, for a history of still-birth and Neo-Natal death has been more diagnostic of Syphilis than a history of miscarriage, and in some cases, a healthy child has been followed by a still-birth or a Congenital Syphilitic child.
CHAPTER VII

The Results of Anti-Syphilitic Treatment given during Pregnancy.
TABLE XIII

<table>
<thead>
<tr>
<th>Healthy Infants</th>
<th>Syphilitic Infants</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of</td>
<td>13</td>
</tr>
</tbody>
</table>

1. Syphilis well treated with Arsenic & Bismuth during pregnancy. None previous to pregnancy
2. Syphilis diagnosed during pregnancy. No treatment given
3. Syphilis imperfectly treated during pregnancy with Arsenic & Bismuth. None given previously
4. Syphilis imperfectly treated before and during pregnancy with Arsenic & Bismuth
5. Syphilis well treated with Arsenic & Bismuth before and during pregnancy

TABLE XIV of the mothers who received Treatment Ante-Nataly, the following 36 children reported at intervals for observation, and to have the Wassermann Reaction taken:

<table>
<thead>
<tr>
<th>Alive 1 month after Birth</th>
<th>Alive 3 months after Birth</th>
<th>Alive 5 months after Birth</th>
<th>Alive 12 months after Birth</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) Wassermann Negative</td>
<td>(a) Wassermann Negative</td>
<td>(a) Wassermann Negative</td>
<td>(a) Wassermann Negative</td>
</tr>
<tr>
<td>(b) Wassermann Positive</td>
<td>(b) Wassermann Positive</td>
<td>(b) Wassermann Positive</td>
<td>(b) Wassermann Positive</td>
</tr>
<tr>
<td>12</td>
<td>8</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Total of Healthy Children</th>
<th>Total of Syphilitic children</th>
</tr>
</thead>
<tbody>
<tr>
<td>28</td>
<td>11</td>
</tr>
</tbody>
</table>

In order to judge the results of Anti-Syphilitic treatment given among those who had received Ante-Natal treatment and compare with them cases...
During pregnancy, it was decided to follow up the cases which had syphilis before or during pregnancy.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Healthy Syphilitic Misc. S. B. Children</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Misc. S.</td>
<td>10.5%</td>
<td>18%</td>
<td>18%</td>
<td>10.5%</td>
<td>18%</td>
<td>18%</td>
<td>10.5%</td>
</tr>
<tr>
<td>Misc. S. B.</td>
<td>12.5%</td>
<td>6.2%</td>
<td>6.2%</td>
<td>12.5%</td>
<td>6.2%</td>
<td>6.2%</td>
<td>12.5%</td>
</tr>
<tr>
<td>Misc. S. B.</td>
<td>4.2%</td>
<td>36%</td>
<td>36%</td>
<td>4.2%</td>
<td>36%</td>
<td>36%</td>
<td>4.2%</td>
</tr>
<tr>
<td>Misc. S. B.</td>
<td>73%</td>
<td></td>
<td></td>
<td>73%</td>
<td></td>
<td></td>
<td>73%</td>
</tr>
<tr>
<td>Misc. S.</td>
<td>100%</td>
<td></td>
<td></td>
<td>100%</td>
<td></td>
<td></td>
<td>100%</td>
</tr>
<tr>
<td>Misc. S.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Misc. S. = Miscarriages before, Misc. S. B. = Miscarriages before or during, Misc. S. B. = Miscarriages before or during pregnancy.
untreated before or during pregnancy.

Before this could be done, however, one must decide whether the Wassermann Reaction on the Placental Blood and Infant is to be taken as diagnostic of Syphilis or not.

There is some difference of opinion as to the value of the Wassermann Test in the blood of infants, and especially the foetal blood as obtained from the Placenta.

S.M.Ross and A.F.Wright state that they have found that a Positive Wassermann in infants is evidence of Syphilis.

Cruikshank found there was agreement between the bloods of the Mother and child at birth in 94.6% of cases, and of 5.4% of cases in which the reaction failed to agree, in only 3.18% of the whole series was there a positive reaction in the mother, and a negative one in the child.

Cruikshank in his paper gives the findings of Fildes in 1915 who "challenges the fact that a positive reaction at birth signifies Syphilis".

In the 1,015 sera from the cords of infants at birth which he originally examined, there was found to be a Positive reaction in 1.3% of cases, while in the sera of infants of the same series, re-examined at periods varying from 2-4 months after birth, the Wassermann Reaction became positive in 0.45% (i.e. in 3 cases). The mother's blood in all 3 cases gave a positive reaction, but the placental blood of these three infants had been clearly negative at birth, and the infants themselves had been healthy. At the time of re-examination, two (aged 2½ months) still appeared healthy, but the third (aged 2 months) showed signs of Congenital Syphilis, and was under treatment".

Kolmer after studying the significance of the Wassermann
Reaction in Congenital Syphilis makes the following statement:

"The Wassermann Reaction at Birth in cases where Syphilis of the mother is suspected, is of prognostic value. A large number of the children reacting positively develop symptoms of Syphilis, while the majority of those reacting negatively remain healthy. An examination of the mother alone does not warrant an absolutely definite prognosis for the child, but in general it may be said that a positive reaction is not a favourable prognostic sign for the child".

Nabarro and Routh state that in children a strong positive Wassermann always means Syphilis, while a negative Wassermann does not preclude the disease. Under one year of age, the Wassermann test was performed on both mother and child.

Browne took the Wassermann Reaction in 100 cases, and stated that there was a close agreement between the Wassermann Reaction in the mother, and that of the child at birth. He therefore concludes that the Wassermann Reaction on the Placental Blood is a reliable means of diagnosing Syphilis in the child.

My own findings have been that the Wassermann Reaction on the Placental Blood and infants under 1 year, when positive, is diagnostic of Syphilis. I have had 3 cases however, in which the children developed signs of Congenital Syphilis although the Wassermann was negative. In two of these cases, the mothers had had treatment Ante-Natally, the blood being negative when tested after the confinement, though having been positive when first taken. The third mother had no previous treatment, and on examination, her blood was found to be positive. I therefore agree with Nabarro, that under one year, the Wassermann of the mother and child should be taken, especially is this the case if the child is suspected to be suffering from Congenital Syphilis,
and the Wassermann is negative.

In table XIII a positive Wassermann has been taken as indicating that the child is suffering from Congenital Syphilis, and a negative Wassermann that the child has escaped Syphilis, unless showing definite stigmata of the disease.

It has not been possible to follow up all the cases, some of which have ceased to attend the Clinic.

In Table XIII. groups 1 and 5 well illustrate the results of Anti-Syphilitic treatment given during pregnancy. In these two groups, where the women were well treated Ante-Natally, the number of Syphilitic children was reduced to 19% and 25%, while in those cases which did not receive treatment, or were imperfectly treated 36% of the children were born with Syphilis. This further bears out the findings at the beginning of Chapter VII. in which 40.4% of 146 children born of untreated Syphilitic mothers suffered from Congenital Syphilis.

The above figures are very striking in that of the children born to mothers well treated during pregnancy, 19% suffered from Congenital Syphilis, while of the children born to mothers well treated before and during pregnancy, 25% suffered from Congenital Syphilis. The treatment given during pregnancy appears to be the important factor, in determining whether a healthy child is born rather than the treatment given before pregnancy began in the Syphilitic mothers. Therefore one's aim should be to begin treatment as early in the pregnancy as possible and continue till the woman is confined. It also emphasises the importance of giving a course of treatment to a woman who has had or has Syphilis during every subsequent pregnancy.

The percentage of Miscarriages in all the series in Table XIII is seen to be well within the figure 20% which is taken
as the average for the total population. It is the highest however in the series of cases which had received no treatment during or before pregnancy. This again supports my findings in Chapter VII. Table X, that in Syphilis, one does get a slightly increased incidence of Miscarriages.

The low incidence of miscarriage in those women who were well treated during pregnancy may be due to the fact that the majority of these women did not attend the Clinic till between the 4th and 6th month, and so Syphilis was not diagnosed till the middle of pregnancy. The tendency to miscarriage is much less after the 4th month, and this may account for the low number of abortions.

The still-births recorded were in the two series of cases which had been well treated during pregnancy. The incidence was 6.2% and 3.8% respectively, or 4.7% when taken together, but as the incidence for the general population is taken as 3%, it is not greatly increased. The series, however, is too small for any importance to be attached to the difference.

Nabarro in his paper gives the following table of the Results of Treatment of the Mother.

<table>
<thead>
<tr>
<th>No. of cases</th>
<th>Healthy</th>
<th>Syphilitic Misc or S.B.</th>
<th>Misc or S.B.</th>
<th>Children</th>
<th>Children</th>
<th>or died after birth</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Mother well treated with &quot;914&quot; and mercury during this pregnancy</td>
<td>12.</td>
<td>12.</td>
<td>0.</td>
<td>0.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Mother imperfectly treated during this pregnancy with &quot;914&quot; and Mercury</td>
<td>5.</td>
<td>5.</td>
<td>0.</td>
<td>0.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Mercury only during this pregnancy</td>
<td>1.</td>
<td>1.</td>
<td>0.</td>
<td>0.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Mothers well treated with &quot;914&quot; and Mercury</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Contd:-

<table>
<thead>
<tr>
<th></th>
<th>No. of Cases</th>
<th>Healthy Children</th>
<th>Syphilitic Children</th>
<th>Misc. or S.B. or died after birth</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.</td>
<td>before and during pregnancy</td>
<td>5</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>5.</td>
<td>Mothers well treated with &quot;914&quot; and Mercury before this pregnancy and no Treatment during this pregnancy.</td>
<td>5</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>6.</td>
<td>Mothers imperfectly treated in a previous pregnancy and not at all in this pregnancy.</td>
<td>7</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>7.</td>
<td>Mothers imperfectly treated in a previous pregnancy and with Hg. in this pregnancy.</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

Total | 36 | 32 | 3 | 1 |

8. Mothers treated elsewhere during this pregnancy | 21 | 13 | 8 | 0 |
9. Mothers treated elsewhere during former pregnancy and not at all in this pregnancy | 19 | 12 | 4 | 3 |

Grand Total | 76 | 57 | 15 | 4 |

Nanbarro in his series found that 88.8% of the children were born healthy whether well or imperfectly treated before or during the pregnancy and of those well treated ante-natally 100% had healthy children. This is a much higher figure than in my series, where only 73% of the children were healthy who were born to women well treated during pregnancy, and 50% where the mothers were well treated before and during pregnancy.
The Table giving the latest figures of Boas and Gammeltoft is also in Nabarro's paper and is as follows:

<table>
<thead>
<tr>
<th>Treatment of Mother</th>
<th>No of Cases</th>
<th>Syphilitic Cases</th>
<th>Healthy Infants</th>
<th>Percentage of Healthy Infants</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Syphilis not treated</td>
<td>201</td>
<td>194</td>
<td>7</td>
<td>96.5%</td>
</tr>
<tr>
<td>2. Mercury before pregnancy</td>
<td>87</td>
<td>78</td>
<td>9</td>
<td>90.0%</td>
</tr>
<tr>
<td>No. treatment during pregnancy.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Salvarsan before pregnancy</td>
<td>15</td>
<td>12</td>
<td>3</td>
<td>80.0%</td>
</tr>
<tr>
<td>No. treatment during pregnancy.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Mercury during pregnancy</td>
<td>111</td>
<td>80</td>
<td>31</td>
<td>72.0%</td>
</tr>
<tr>
<td>5. Salvarsan before pregnancy</td>
<td>26</td>
<td>7</td>
<td>19</td>
<td>27.0%</td>
</tr>
<tr>
<td>Mercury during pregnancy.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Salvarsan during this pregnancy</td>
<td>98</td>
<td>19</td>
<td>79</td>
<td>19.5%</td>
</tr>
<tr>
<td>7. Salvarsan before and during pregnancy</td>
<td>7</td>
<td>1</td>
<td>6</td>
<td>14.5%</td>
</tr>
</tbody>
</table>

The large proportion of Congenital Syphilitic children born to untreated mothers, i.e. 96.5% is very striking, and is certainly much larger than in my own clinic, where the incidence was 40.4%.

His figures giving the percentage of healthy children born as the result of Arsenical treatment are in close agreement with those in my series.

Boas and Gammeltoft found that women well treated with Arsenical injections during or before and during pregnancy, only had 19.5% and 14.5% of Congenital Syphilitic children respectively. In my Clinic, in mothers similarly treated, the percentage of Syphilitic children was 19% and 18.7% respectively. This proves the value of Anti-specific treatment during pregnancy in preventing the birth of Congenital Syphilitic children.

It is interesting to note in Boas and Gammeltoft's
table that in those women treated with Arsenic before pregnancy, and to whom Mercury only was given Ante-nataly, 27% had Syphilitic children and where no treatment was given during the pregnancy, 80% gave birth to Syphilitic children. This proves that treatment before pregnancy is not sufficient and that Arsenical injections must be given Ante-nataly. If there is only time to give one course, then Arsenic is the drug of choice, unless the patient shows intolerance to this drug when Bismuth should be used. As far as possible, these women were followed up after their confinements, and a Wassermann Reaction was done on the babies at intervals of 3, 6 and 12 months with the following results:

Of the Mothers who received Treatment Ante-Nataly, the following 36 children reported at intervals for observation and to have the Wassermann Reaction taken:

1. Alive 1 month after birth
   (a) Wassermann Negative 12
   (b) Wassermann positive 5

2. Alive 3 months after birth
   (a) Wassermann Negative 8
   (b) Wassermann positive 3

3. Alive 6 months after Birth
   (a) Wassermann Negative 4
   (b) Wassermann Positive 2

4. Alive 12 months after Birth
   (a) Wassermann Negative 4
   (b) Wassermann Positive 1

Total of Healthy children 28
Total of Syphilitic children 11 39.

71.7% of the children were born healthy whose mothers received Ante-Natal treatment and only 28.2% were born with Congenital Syphilis.
This again proves the value of the Ante-Natal treatment of Syphilis, for where the mothers were untreated, the incidence of Congenital Syphilis was 40.4%.

There were only two deaths recorded in the above series, one was due to Prematurity at the age of 3 weeks and the other of Pneumonia at the age of 7 months, therefore the Infant Mortality Rate under 1 year was 5.1% which is less than that of 8% taken as the general Infant Mortality under 1 year, and is much less than the Infant Mortality rate of 19% where the mothers had no treatment.

Thus Ante-Natal treatment of the mother has an important effect on the infant mortality rate, reducing it to within normal limits and so avoids this wastage of infant life.

In my Clinic, a Positive Wassermann is taken as an indication of Syphilis and treatment is begun at once. It is thus impossible to say whether a Positive Wassermann taken soon after birth, would become negative if no treatment were given.

Cruikshank in his series of over 400 cases found that 44 cases in which the blood had given a strongly positive Wassermann Reaction at birth, gave a negative reaction when the child was re-examined at periods varying from 7 weeks - 20 months. In 38 cases, the mother's reaction remained positive. In three it was doubtful and in 3 it had changed from positive to negative.

Therefore in 44 cases out of 400 or 11% the Positive Wassermann Reaction in the Infant had changed to Negative when re-examined at periods varying from 7 weeks - 20 months.
and thus he concludes that the Wassermann Reaction in the new-born is of little value in proving the presence of Congenital Syphilis.

In my Clinic, I have taken a Positive Wassermann in infants as being diagnostic of Syphilis and have treated it as such at once. Two babies, whom the mothers failed to bring for treatment, developed the typical snuffles and rash of Congenital Syphilis. I therefore, do not think it permissible to wait over a year to see if the Wassermann turns negative before giving treatment. If one does, the child may develop all the stigmata of Congenital Syphilis and one's aim must be preventive rather than curative. Therefore with a Positive Wassermann, either in the Placental Blood or infant, one should begin treatment at once.

Pye-Smith in his paper gives the following Table illustrating the results of Ante-Natal treatment in Syphilis.

<table>
<thead>
<tr>
<th></th>
<th>Untreated</th>
<th>Treated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Pregnancies</td>
<td>485</td>
<td>222</td>
</tr>
<tr>
<td>Live-births</td>
<td>71.96%</td>
<td>91.8%</td>
</tr>
<tr>
<td>Abortions</td>
<td>12.99%</td>
<td>4.5%</td>
</tr>
<tr>
<td>Still-births</td>
<td>15.05%</td>
<td>3.6%</td>
</tr>
</tbody>
</table>

Full details available at one year.

<table>
<thead>
<tr>
<th></th>
<th>Untreated</th>
<th>Treated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total pregnancies</td>
<td>485</td>
<td>74</td>
</tr>
<tr>
<td>Survived 1st year</td>
<td>44.83%</td>
<td>81.03%</td>
</tr>
<tr>
<td>Infant Deaths</td>
<td>27.63%</td>
<td>10.81%</td>
</tr>
<tr>
<td>Abortions</td>
<td>12.99%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Still-births</td>
<td>15.05%</td>
<td>8.11%</td>
</tr>
</tbody>
</table>

In studying the above Table it is seen that the incidence of still-births amongst untreated mothers is 15.05% which is a little higher than the figure of 12.8% found at my Clinic in the same type of patient. In treated cases the incidence of still-births was within normal limits.
Pye-Smith found the Infant Mortality to be 27.63% in untreated cases and 10.81% in treated cases. This same marked difference is seen in my series where the infant mortality is 19% in untreated and 5.1% in treated cases.

A study of the above Tables results in the following conclusions:

1. The incidence of Abortions in untreated Syphilis is slightly increased, but not to the extent that was formerly believed.

2. Syphilis is an important cause of still-birth and Neo-Natal death. A marked reduction in these figures is seen as the result of Ante-Natal Treatment.

Therefore one concludes that Ante-Natal treatment is important if one is to avoid the birth of Congenital Syphilitic children and to diminish the numbers of still-births and Neo-Natal deaths and so reduce the Infant Mortality.
The Wassermann Reaction in the mother and children analysed to discover if it is in agreement.

When syphilis is diagnosed in the mother, she is asked to bring her children for a blood test. The results of these Wassermanns have been collected and are given in the following table.

**TABLE XIV** A survey of the Wassermann Reaction in mother and child born before treatment given to mother.

<table>
<thead>
<tr>
<th>Wassermann Weak Positive in mother, Wass. Negative in child</th>
<th>32</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot; &quot; &quot; &quot; &quot; &quot; &quot; &quot; Wk. Positive in child</td>
<td>3</td>
</tr>
<tr>
<td>&quot; &quot; &quot; &quot; &quot; &quot; Positive in child</td>
<td>0</td>
</tr>
<tr>
<td>&quot; &quot; &quot; &quot; &quot; &quot; Strong Positive in child</td>
<td>3</td>
</tr>
<tr>
<td>&quot; Positive in mother, Wassermann Negative in child</td>
<td>41</td>
</tr>
<tr>
<td>&quot; &quot; &quot; &quot; &quot; &quot; Wk. Positive</td>
<td>4</td>
</tr>
<tr>
<td>&quot; &quot; &quot; &quot; &quot; &quot; Positive in &quot;</td>
<td>8</td>
</tr>
<tr>
<td>&quot; &quot; &quot; &quot; &quot; &quot; Strong Positive in child</td>
<td>9</td>
</tr>
<tr>
<td>&quot; Strong Positive in mother, Wass. Negative in child</td>
<td>14</td>
</tr>
<tr>
<td>&quot; &quot; &quot; &quot; &quot; &quot; Wk. Positive</td>
<td>2</td>
</tr>
<tr>
<td>&quot; &quot; &quot; &quot; &quot; &quot; Positive in child</td>
<td>2</td>
</tr>
<tr>
<td>&quot; &quot; &quot; &quot; &quot; &quot; Strong Positive in child</td>
<td>10</td>
</tr>
<tr>
<td>&quot; Negative in mother, Wass. Wk. Positive in child</td>
<td>12</td>
</tr>
<tr>
<td>&quot; &quot; &quot; &quot; &quot; &quot; Positive in child</td>
<td>4</td>
</tr>
<tr>
<td>&quot; &quot; &quot; &quot; &quot; &quot; Strong Positive in child</td>
<td>2</td>
</tr>
</tbody>
</table>

In the above table, 21 or 14.3% of the total number of Wassermann Reactions are in agreement in the mother and child. Cruikshank found the Wassermann Reaction to agree in mother and child in 94.9% in 408 cases, and of the 5.4% of cases in which the reaction failed to agree, in only 3.18% of the whole series was there a positive reaction in the mother and a negative one in the infant.
Browne found there was close agreement between the Wassermann Reaction in the mother and that in the child at birth.

In my series, only 14.3% of the Wassermann Reactions were in agreement between mother and child, and therefore I agree with Fildes in his statement that in the majority of cases, women with a positive reaction do not induce a positive reaction in their infants.

59 or 40.4% of the cases suffered from Congenital Syphilis, which further supports the conclusions arrived at by Fildes.

Cruikshank gives the findings of Boas and Thomsen in his paper, which are that in 83 new-born infants of Syphilitic mothers, the Wassermann Reaction was positive in only 35.22%. Of these infants with a positive Wassermann, 87.09% either developed Syphilis or died later with Syphilitic manifestations in various organs, while the remaining 12.91% showed no symptoms during periods of observation varying from 3 to 9 months.

Of the infants showing a negative reaction at birth 73.68% showed no evidence of Syphilis during the first 3 months of observation, 3.49% died with evidence of syphilis in internal organs, and 2.88% developed symptoms of syphilis and gave a positive Wassermann Reaction.

The percentage of Congenital Syphilitic children in my series and in that of Boas and Thomsen are in close agreement, and therefore a positive Wassermann in the mother does not necessarily imply a positive Wassermann Reaction in the child.

On looking over the table, it is interesting to notice the
strength of the Wassermann Reactions in the mother and child, for in the children with Congenital Syphilis, only 21 or 35.5% is the strength of the reaction the same in both mother and child.

It is also seen that 6 or 15.7% of the children born to women whose Wassermann Reactions were Weak Positive, suffered from Congenital Syphilis, and of this number 7.8% had strongly positive Wassermanns. This proves the importance of treating pregnant women whose Wassermann Reactions are Weak Positive.

It is also interesting to note that the mothers of 18 children with Congenital Syphilis had negative Wassermanns. The question at once arises, is this the result of Spermatic infection and has the mother, although given birth to a Congenital Syphilitic child, escaped Syphilis?

This is a difficult question to answer, but I think the most likely explanation lies in the experiments of Neisser (see Chapter V) in which he proved that the clinical picture depends on the seat of inoculation. It may be because women are frequently infected per utero that, just as in subcutaneous inoculation of animals, the picture is so different from that which occurs from vulvar or cutaneous infection.

Another explanation may be that the Wassermann Reaction does not depend upon the presence of an anti-substance, but is a quantitative and not a qualitative or specific test. Its value lies in the fact that it is positive only in Syphilis except in certain diseases which can be easily diagnosed, such as Scarlet Fever, Yaws and certain other Tropical Diseases. It is feasible that in a woman in whom Syphilis is latent or
non-active this so called Wassermann "Antigen" may be poorly
developed in the tissues, and this may account for the Wassermann
being negative in women who definitely have Syphilis.

It may also be asked, was the Wassermann Test efficiently
carried out? The answer is in the affirmative, for the Pathologist
who carries out the test, is extremely competent, and the results
certainly tally. Also, in these cases where the children were
positive and the mothers negative, Provocative injections of
0.45grm Neokharsivian were given to the Women and the
Wassermann repeated.

Therefore, the probable explanation of the Wassermann
Reaction being negative in these Syphilised women lies in the
fact that women are frequently infected per utero, and the
Wassermann Reaction is a complex biochemical reaction and
is not a specific test.

This is a much more likely hypothesis than the theory
of Spermatic infection, for it is scarcely feasible that a
woman should bear and give birth to a Congenital Syphilitic
Child and yet be immune to the disease.

Thus one may say, that the Wassermann Reaction in these
mothers may be negative, although they are definitely syphilised,
and require treatment for their own health, and to avoid the
birth of future congenital Syphilitic children.

3 or 3.6% of the 83 children whose Wassermanns were
negative at birth, developed the typical stigmata of Congenital
Syphilis and the Wassermann Reactions became positive. (Vide Chapt.VIII)

Boas and Thomsen found in their series that 2.86% of the
children with a negative Wassermann at birth, developed symptoms
of Syphilis. This number is in close agreement with my findings and therefore one can say that a small percentage of the children whose Wassermann Reactions are negative develop Congenital Syphilis.

It is interesting to compare this with the Shick Test in Diphtheria in which the children of Schick negative mothers are also Schick negative during the first few months of life. After this time a number of them become Schick positive, probably because the immunity they have inherited only acts for a short time. It is interesting to note that the greatest incidence of Schick positive children lies between the ages of 2-5 years. After this age, the incidence falls, probably because at school, they are subject to small doses of the Diphtheria Bacilli, which gradually causes them to become immune.

The same may apply to Syphilis and a small percentage of children may be born with a negative Wassermann as the result of the treatment given the mother who later develop Congenital Syphilis and the Wassermann Reaction becomes positive. This is the reason why it is so important to examine these children at intervals of 3, 6 and 12 months during the first year, and if possible, twice a year afterwards till they have passed puberty. I have not been in charge of the Clinic long enough to do this, but it certainly would be valuable to keep a record of these children and to see if any develop symptoms of Congenital Syphilis at the critical age of 8-10 years.

It is also advisable, when one suspects Congenital Syphilis in the infant, to take the Wassermann Reaction in
A positive Wassermann Reaction is valuable evidence of the presence of Syphilis, but a negative Wassermann does not preclude Syphilis, although the proportion of cases is very small.

Turnbull estimated that in only 3% of cases was the Wassermann Reaction negative during life, although Syphilis was found to be present at the Post-Mortem Examination.

One concludes therefore, that children with negative Wassermans born of Syphilitic parents, should be kept under observation but no anti-syphilitic treatment should be administered until stigmata of Congenital Syphilis appear.

Kolmer states that the majority of babies with a negative Wassermann at birth remain healthy. An examination of the mother alone does not warrant an absolutely definite prognosis for the child, but in general, it may be said that a positive reaction is not a favourable prognostic sign for the child. I am in agreement with Kolmer for only 3.6% of the Wassermann negative infants developed Syphilis in my series.

My own conclusions are that the Wassermann Reaction in the mother and child do not agree in the majority of cases, and that a positive Wassermann in the mother, does not necessarily induce a positive one in the child. Also, the majority of children born with a Negative Wassermann are healthy and remain so, but it is essential to keep them under observation till they have passed the age of puberty.

One must also conclude that a mother with a negative Wassermann who has given birth to a Congenital Syphilitic child is herself suffering from Syphilis, and must be treated as such.
A Survey of the Manifestations of Congenital Syphilis and the age at which they appear.

TABLE XIV. Sources from which patients with Congenital Syphilis were referred.

<table>
<thead>
<tr>
<th>Source</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Mother attending Clinic with Syphilis.</td>
<td>42</td>
</tr>
<tr>
<td>2. School Medical Inspection Clinic</td>
<td>35</td>
</tr>
<tr>
<td>3. Routine School Medical Inspection</td>
<td>14</td>
</tr>
<tr>
<td>4. Infant Welfare Clinic</td>
<td>20</td>
</tr>
<tr>
<td>5. Referred from School Eye Clinic</td>
<td>9</td>
</tr>
<tr>
<td>6. Private Practitioners</td>
<td>3</td>
</tr>
<tr>
<td>7. Tuberculosis Institute</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td><strong>124</strong></td>
</tr>
</tbody>
</table>

TABLE XV. Manifestations of Syphilis which caused children to be referred to Clinic and age at which these first appeared.

<table>
<thead>
<tr>
<th>Condition</th>
<th>0-6mths</th>
<th>7-12mths</th>
<th>1-2yr</th>
<th>3-4yr</th>
<th>5-6yr</th>
<th>7-8yr</th>
<th>9-10yr</th>
<th>11-12yr</th>
<th>13-14yr</th>
<th><strong>Total</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Interstitial Keratitis.</td>
<td>1</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>21</td>
</tr>
<tr>
<td>Hutchinson Teeth.</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cerebral Palsy.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diplegia.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Depressed bridge of nose.</td>
<td></td>
<td></td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>Blindness.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corneal opacities.</td>
<td>1</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Marasmus.</td>
<td>3</td>
<td></td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>Gummata.</td>
<td></td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>Snuffles.</td>
<td>4</td>
<td></td>
<td>1</td>
<td></td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Elephantitis.</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>Convulsions.</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Palsy.</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>Phagades.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Specific Synovitis.</td>
<td>1</td>
<td></td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>Mental Deficiency</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enlarged Cervical Glands.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recurrent Conjunctivitis.</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>Disseminated Choroiditis.</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>Malnutrition.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td>9</td>
<td>8</td>
<td>6</td>
<td>1</td>
<td>3</td>
<td>3</td>
<td>6</td>
<td>6</td>
<td>9</td>
<td>11</td>
</tr>
</tbody>
</table>

The remaining 35 children, not accounted for in the above.
Tables, were discovered through the mother or other members of the family attending the clinic with syphilis though the children themselves did not exhibit signs of the disease.

The birth of the congenital syphilitic child is a tragedy, which it is hoped, will be prevented. However, there is still a great deal of suffering and incapacity due to this disease, and it is one's aim to diagnose and treat it as early in life as possible.

The incidence of congenital syphilis is stated to be 28% by Browning, 10.8% by Elliott, and 3.3% by Churchill and Austin. Thus one may say that the incidence in the general population lies between 3 and 10%.

In Table XIV it is seen that 78% or 62.9% of the congenital syphilitic children were referred by members of the Public Health Staff.

58% or 46.7% were school children referred by the School Medical Officers. In addition, 27 children of school age are attending the clinic. These latter were discovered through the mother attending the clinic. Therefore, 85 school children attend the auxiliary centre with congenital syphilis. The total number of school children in Swansea is 26,938, therefore only 1.31% of the school children are known to be syphilitic.

20% or 16.1% of the children attending the clinic and referred by the Infant Welfare Centres are known to be suffering from congenital syphilis. In addition, 15 children below 5 years of age have been discovered through the mother, and thus, 35 children below school age are attending the auxiliary centre. The total number of children attending the Infant Welfare
Centres is 4,916. Only 20 of these or 0.4% are attending my clinic.

My figures of 0.31% and 0.4% are very low when compared with those of Browing, Elliott, Churchill and Austin. These investigators however, did the Wassermann Reaction as a routine on their series of children, and also the incidence of Syphilis is higher in Glasgow than in most other parts of the country. In Swansea, the Wassermann is only taken where the children exhibit the stigmata of Congenital Syphilis. If the blood test was done as a routine on all School children, I am sure many would be found to be suffering from Congenital Syphilis in the Latent Form. Many School Children in Swansea are probably suffering from Congenital Syphilis which has not been diagnosed, and no blame can be attached to the School Medical Officers, as these children may show no stigmata of the disease, which may remain permanently in the latent form. The only way to discover these latent cases, would be to do a Wassermann on every school child which is not practicable and incidentally many parents would probably object.

If these children have not exhibited signs of Syphilis by the time they are 14 years of age, it is not very likely they will do so later. If the Wassermann is taken when the children are grown up, it may only then be discovered that they are suffering from Latent Syphilis, and the fact that it is congenital, may not be suspected. It is quite feasible that many of the women found to be suffering from Latent Syphilis may in reality be Congenital Syphilitics, and may not have acquired it. Some authorities assert that Syphilis can be
passed on to a third generation, so that it is worth while treating these women. I have not got a case which proves this, but I have a family in which the grandmother is attending with the Wassermann Reaction positive, the daughter-in-law is also attending with a positive Wassermann, and the grand-son was born prematurely and suffering from Congenital Heart Disease. The Wassermann of the Placental Blood was negative. The baby did not thrive, and it was not expected that he would live. However he at once began to improve when injections of Kharsulphan were given and is now well up to the average weight at the age 10 months. The question arises, was the father of the baby suffering from Congenital or Acquired Syphilis? The degree of infectivity of Congenital Syphilis is remarkably low, but there are a few cases on record in which a wet nurse has contracted a chancre on the nipple from suckling a tainted infant. It makes one ponder as to whether the father was suffering from Congenital Syphilis and infected his wife, who gave birth to a presumably Syphilitic child. Most people would agree that in all probability he was suffering from Acquired Syphilis. I did not see the husband, so I do not know if he had a history pointing to Acquired Syphilis. The ban of secrecy imposed on the Clinic hampers the investigations as all precautions are taken to avoid the mother discovering the true nature of the disease. I have another family in which the grandmother has a strongly positive Wassermann but the daughter and grand-daughter have Negative Wassermans and are healthy. So this case does not help to solve the problem as to whether Congenital Syphilis can be passed on to a third generation. My own observations
have led me to believe that Congenital Syphilitics do not pass the disease on to their children. This may occur in a few exceptional cases, although I have not come across a case which proves this hypothesis. In Table XV it is seen that the ages at which Congenital Syphilis is most likely to make itself manifest are under 1 year and between the ages of 5 and 12.

Under 1 year, 19 or 21.3% of the total number of Congenital Syphilitic children showed symptoms of the disease.

Between the ages of 5 and 12 years, 55 or 61.7% developed the stigmata of Syphilis. At this age period, the greatest number became manifest at the ages of 7 and 8 years, when the total number was 20 or 22.4%.

Thus, one can say, that signs of Congenital Syphilis appear under 1 year of age, in the great majority of cases. If the stigmata do not appear then, they are likely to appear between the ages of 5 and 12 years particularly when the child is 7 or 8 years old. On looking at the list of defects, it is seen that most cases were referred on account of Interstitial Keratitis, there being 21 cases and 4 cases of Corneal Opacity as the result of it, making 25 cases in all or 26% of the list of defects. This, the most important manifestation of Syphilis, is the least influenced by treatment. Impaired vision is often the result with the consequent crippling of the patient's wage-earning capacity.

The next most frequent manifestation of Syphilis in my series was the Specific rashes; there being 12 cases or 13.4% of the total number showing stigmata. 5 cases or 41.6% occurred under the age of 6 months, the majority occurring
between the third and eighth week of life.

The rash in congenital syphilis is very characteristic. It may be erythematous, macular, scaly, papular, pemphigoid, and in older children may be psoriasiform in character. The colour is usually that of copper. On the legs, it tends to affect the flexor and internal aspects more than the lateral surfaces, and it is also frequently seen on the lower part of the abdomen, forearms, and round the mouth, nose and eyes. It is usually dry, and scaly, but on the buttocks it may become moist and eczematous, in character. The rash may be scanty or profuse.

I have only had one child with Syphilitic Pemphigus. This child was born with the rash, and died age 4 days. The prognosis for pemphigoid eruptions is always serious, particularly if this the case if the child is born with the rash when it is fatal in the first few days of life.

There were 4 cases of snuffles in my series, and 13 cases of depressed bridge of nose or saddle-nose, which is the result of snuffles in my series of 89 cases or 19.1%. Snuffles is due to inflammation of the nasal mucus membrane and may show itself only by dryness of the mucus membrane with snoring breathing, and in other cases there may be profuse purulent discharge. I have had no cases of haemorrhagic discharge. Ulceration may follow the inflammation, with necrosis of the nasal cartilages, which leads to the well-known "saddle-nose" deformity. Snuffles and the consequent "saddle-nose" deformity is a frequent manifestation of Congenital Syphilis and is of diagnostic importance. In the routine examination of children its presence or absence should be noted.

The presence of Hutchinson teeth is also diagnostic and led to the discovery of the disease in 7 or 7.8% of the cases. The
characteristic appearance is only found in the permanent teeth, the upper central incisors being peg-shaped and later they become notched. The permanent pre-molars are also frequently dome-shaped.

There were two cases of Blindness in my series due to Congenital Syphilis. The Departmental Committee on the Causes and Prevention of Blindness, after examining various sets of statistics, concluded that "it would be correct to estimate that Syphilis is the direct cause of not less than from 10 - 15% of the blindness at present existing in this country". The number of blind persons on the Register in England and Wales on March 31st 1927 was 46,822. Blindness is defined as "too blind to perform work for which eye-sight is essential". Syphilis causing blindness is in the majority of cases the Congenital and not the Acquired type. The above figures do not include the partially blind due to Interstitial Keratitis. One has only to study the above figures to realise the amount of suffering and incidentally, the economic loss, due to Congenital Syphilis.

In my series, I had 3 cases of Marasmus, and 3 cases of Malnutrition in the children with a positive Wassermann.

Yerington and Holsclaw in a series of 100 marasmic infants in whom no physical signs of syphilis were detected, only obtained a positive Wassermann in 8.

42 cases were referred to my Clinic on account of Marasmus or because the child was not thriving, but only 3 cases were found to be suffering from Syphilis, i.e. 7.1%. This is a very low incidence and is no proof that Syphilis is an important
cause of Marasmus. However, in marasmic children it is as well to take the Wassermann to exclude Syphilis, especially if they do not respond to treatment.

Gummata may occur in Congenital as well as Acquired Syphilis. In my series, I had 4 that is 4.4%. The Gummata were situated:

1. Gumma of the palate with necrosis of the bone and perforation.
2. Gumma over the right Sterno-clavicular joint.
3. Two cases of Gummata of the nasal Cartilages with perforation.

All these cases occurred between the ages of 8 and 12 years and are late manifestations of Congenital Syphilis.

Rhagades is an important and diagnostic sign of Congenital Syphilis, although there were only 2 cases, or an incidence of 2.2% in my series. In this the mucus membrane of the lips is at first reddened and later becomes dry, cracked and fissured or rhagades appear. These fissures are very deep and frequently extend to the skin and after healing, leave permanent scarring which is diagnostic of Congenital Syphilis.

I had 2 cases or an incidence of 2.2% of convulsions which led to the children being referred to my Clinic. Gummata of the Brain and Meninges in Congenital Syphilis are rare, however there is no doubt that the incidence of convulsions is slightly higher in the Syphilitic than the non-syphilitic child.

I had 1% or one case of Cerebral Diplegia with marked Mental Deficiency. It is known that Spirochaetes in Congenital Syphilis attack the Cerebral capillaries, causing proliferation
of the endothelium and connective tissue with colloid degeneration of the vessel wall, and thus rupture of the vessel wall may result and give rise to the above condition.

32 Dean found 3% of cases of Cerebral Diplegia were suffering from Congenital Syphilis. Thus one may say that some cases of Cerebral Diplegia may be caused by Congenital Syphilis and so a Wassermann Reaction should be taken. In this case, a Lumbar Puncture was done but the Wassermann of the Cerebro-Spinal Fluid was Negative.

Only one case which was proved to be suffering from Syphilis was referred on account of being Mentally Defective. The association of Mental Deficiency and syphilis is interesting, and has been investigated. In his series of Mentally deficient children, Dean found 15% to be suffering from Congenital Syphilis. There may be a general Sclerosis of the Cerebrum due to Syphilis, which causes the Mental Deficiency. Only one case was referred to my Clinic with a history of mental deficiency but I am sure it would be worth while doing a Wassermann Reaction on every Mentally Defective child in Swansea, and if positive, to give treatment.

I have had 2 cases or an incidence of 2.2% of cases of Disseminated choroiditis in my series.

There were 2 cases of Recurrent Conjunctivitis, and 4 cases of Recurrent Blepharitis. These cases had frequent relapses until the Wassermann was taken, found to be positive, and so treatment was given. With such a history, it is wise to have the eyes examined for any visual defects. If the vision is satisfactory or the condition does not clear up in spite of
glasFes, it is well to have the blood examined for Syphilis.

One case was referred from the Tuberculosis Clinic with enlarged Cervical Glands. The Wassermann was taken and found to be positive. The condition cleared up when anti-specific treatment was given. Enlargement of the Lymph Glands may occur in Congenital Syphilis and the diagnosis often lies between tuberculosis and syphilis although both diseases may be present in the same patient.

I had one case of Syphilitic Synovitis. The boy was aged 8 years and had Hutchinson Teeth. He was referred on account of bilateral painless swelling of the knee-joints, and on the Wassermann being taken, it was found to be positive. The condition subsided rapidly on treatment being given.

Table XV clearly shows that during the first two years of life, Congenital Syphilis is apt to manifest itself by lesions of the skin, mucus membranes, and the muco-cutaneous junctions. From the age of 6 years onwards, the manifestations are of the tertiary type. On studying the Table, it is seen that the stigmata of Congenital Syphilis practically all appear before the age of 13 years, and therefore all children born of Syphilitic parents should be kept under observation till past the age of puberty.

The eye affections of Congenital Syphilis are important and often lead to impaired vision and even blindness. Therefore the prevention and cure of Congenital Syphilis is important, if only to prevent the crippling from this one manifestation alone, and as these eye affections appear chiefly between the ages of 5 and 13 years, all Congenital Syphilitic children should be kept under observation till safely past this age period.
even though they appear to be cured.
A Study of the Effect of Treatment on the Wassermann Reaction in children.

TABLE XVI. The Wassermann became Negative after the following courses of Treatment.

<table>
<thead>
<tr>
<th>1. course</th>
<th>2 courses</th>
<th>3 courses</th>
<th>4 courses</th>
<th>5 courses</th>
<th>6 courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>13</td>
<td>7</td>
<td>4</td>
<td>3</td>
<td>4</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>7 courses</th>
<th>8 courses</th>
<th>9 courses</th>
<th>10 courses</th>
<th>11 courses</th>
<th>12 courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>3</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total of cases becoming negative 52.

Number of cases in which the Wassermann remained positive after the following courses of Treatment.

<table>
<thead>
<tr>
<th>1 course</th>
<th>2 courses</th>
<th>3 courses</th>
<th>4 courses</th>
<th>5 courses</th>
<th>6 courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>19</td>
<td>13</td>
<td>7</td>
<td>5</td>
<td>2</td>
<td>7</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>7 courses</th>
<th>8 courses</th>
<th>9 courses</th>
<th>10 courses</th>
<th>11 courses</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>12 courses</th>
<th>13 courses</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>I</td>
</tr>
</tbody>
</table>

Total of cases remaining positive 55.

The value of the Wassermann Reaction in children has been fully discussed in Chapter VIII. Briefly, it may be summed up by saying that a Positive Wassermann in children is diagnostic of Syphilis providing one can exclude diseases such as Yaws, Scarlet Fever etc. A negative Wassermann, however, does not preclude Syphilis, and when the signs or symptoms point to a diagnosis of such and the Wassermann is negative, a blood test of the mother should be done.
Some authorities have noted how difficult it is to convert a Positive into a Negative Wassermann in some cases of Congenital Syphilis. The cases under treatment were investigated to see if this were true, and Table XVI gives the results.

The cases not included in the Table did not complete one course of Treatment.

In the Table, it is seen that in only one case did the Wassermann remain positive after 8 courses of treatment, and only 2 cases after 7 courses of treatment.

It is also seen that all the cases in which the Wassermann became Negative, did so before or by the time the eighth course of treatment was completed, except one case which required 12 courses before the Wassermann Reaction became negative.

On studying the above table, one is forced to conclude that in this series, it is not difficult to convert a Positive into a Negative Wassermann in the great majority of children, and in only two cases or 1.9% was this the case, one of the cases becoming negative after 12 courses of Treatment.

The case in which the Wassermann is still positive after 13 courses of treatment, is a boy aged 14 years. He attended the Clinic at the age of 9 years with Interstitial Keratitis. This cleared up and he now shows no stigmata of Congenital Syphilis. It is no longer possible for him to attend my Clinic, as no males are allowed after 14 years of age. As the Wassermann is still positive, I consider him to be a Wassermann-fast patient and as he is safely past puberty, I am not referring him to the male clinic at the Swansea General Hospital for treatment. I do not consider it is likely that the boy will again develop
signs of Syphilis and in this type of case, it is permissable to stop treatment before the Wassermann is negative, provided they have passed puberty.
CHAPTER XII.

An Outline of the Treatment given to Congenital Syphilitic children at the Auxiliary Centre

Courses of Treatment given to child of 8 years.

1st day. .15 grm Kharsulphan I.M. or .15 grm Neokharsivan I.V.
8th day .15 " " " " .15 " " " 
15th day .15 " " " " .15 " " " 
22nd day .15 " " " " .15 " " " 
29th day .15 " " " " .15 " " " 
36th day .15 " " " " .15 " " " 
43rd day .15 " " " " .15 " " " 
50th day .15 " " " " .15 " " " 
57th day .15 " " " " .15 " " " 
64th day .15 " " " " .15 " " " 

Provided the child will sit still, Neokharsivan is the drug of choice.

After this course, the child is given Mist Ferri, Iod for 4 weeks.

Rx.

Syrup of Ferrous Iodide 3/5
Compound syrup of Ferrous Phosphate 3/5
Compound syrup of Hypophosphites 3/5
Distilled water 3/5
Sig 3 t.d.s., ex., aq., p.c.

At the end of this time, the Wassermann is taken and the second course begun.

2nd Course.

1st day 1 cc Bicriol I.M.
8th day 1 cc " " 
15th day 1 cc " " 
22nd day 1 cc " " 
29th day 1 cc " " 
36th day 1 cc " " 
43rd day 1 cc " " 
50th day 1 cc " " 
57th day 1 cc " " 
64th day 1 cc " " 

2nd Course Contd:

<table>
<thead>
<tr>
<th>Day</th>
<th>Medication</th>
</tr>
</thead>
<tbody>
<tr>
<td>71st</td>
<td>Mist Ferri Iodide 3st.</td>
</tr>
<tr>
<td>78th</td>
<td>&quot;</td>
</tr>
<tr>
<td>85th</td>
<td>&quot;</td>
</tr>
<tr>
<td>92nd</td>
<td>&quot;</td>
</tr>
<tr>
<td>99th</td>
<td>Wassermann</td>
</tr>
</tbody>
</table>

3rd Course:

<table>
<thead>
<tr>
<th>Day</th>
<th>Medication</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>.15 grm. Kharsulphan I.M.</td>
</tr>
<tr>
<td>8th</td>
<td>&quot;</td>
</tr>
<tr>
<td>15th</td>
<td>&quot;</td>
</tr>
<tr>
<td>22nd</td>
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<td>29th</td>
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<td>36th</td>
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<td>43rd</td>
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<td>50th</td>
<td>&quot;</td>
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<tr>
<td>57th</td>
<td>&quot;</td>
</tr>
<tr>
<td>64th</td>
<td>&quot;</td>
</tr>
<tr>
<td>71st</td>
<td>Mist Ferri Iodide 3nt.d.s.</td>
</tr>
<tr>
<td>78th</td>
<td>&quot;</td>
</tr>
<tr>
<td>85th</td>
<td>&quot;</td>
</tr>
<tr>
<td>92nd</td>
<td>Wassermann</td>
</tr>
</tbody>
</table>

The courses are continued for at least two years or until the Wassermann Reaction becomes negative, or as in the case of the Wassermann-fast patient mentioned in the previous chapter, it is decided there is no further need for treatment. When the child is considered cured he is kept under observation for a further period of 1 year, the Wassermann being taken at intervals of 6 months preceded by a Provocative Injection of .15 grm Neokharsivan. If possible the child is kept under observation till he has passed puberty.

Courses of treatment given to a child of 6 months:

<table>
<thead>
<tr>
<th>Day</th>
<th>Medication</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>.075 grm. Kharsulphan I.M.</td>
</tr>
<tr>
<td>8th</td>
<td>.075</td>
</tr>
<tr>
<td>15th</td>
<td>.075</td>
</tr>
<tr>
<td>22nd</td>
<td>.075</td>
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<tr>
<td>29th</td>
<td>.075</td>
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<tr>
<td>36th</td>
<td>.075</td>
</tr>
<tr>
<td>43rd</td>
<td>.075</td>
</tr>
<tr>
<td>50th</td>
<td>.075</td>
</tr>
<tr>
<td>57th</td>
<td>.075</td>
</tr>
<tr>
<td>64th</td>
<td>.075</td>
</tr>
<tr>
<td>71st</td>
<td>½ gr. Hyd. cr. b.d.s</td>
</tr>
</tbody>
</table>
1st Course Contd:

78th day ½ gr Hyd. a cret. b.d.s
85th day do
92nd day do
99th day Wassermann.

2nd Course

1st day ½ cc Bicriol
8th day cc "
15th day cc "
22nd day cc "
29th day cc "
36th day cc "
43rd day cc "
50th day cc "
57th day cc "
64th day cc "
71st day ½ gr. Hyd. a cret. b.d.s
78th day do
85th day do
92 day do
99th day Wassermann.

The courses are repeated as in the case of the child aged 8 years of age.

In determining the dosage of the drugs, the age and weight of the child must be considered. On an average, 1 centigram for each Kilo of body weight is the correct dose. If the child will sit still, I prefer to give Neokharsivan intravenously for the first course, but if the child is difficult, I give Kharsulphan. For the second course, Bismuth is the drug of choice, and for the third Kharsulphan. After that one must decide which drug and which method of administration is likely to give the best results, and which is best tolerated by the patient.
Treatment should be commenced as soon as Congenital Syphilis is diagnosed, if possible as soon as the child is born and continued for at least two years or longer. One's aim should be to convert a Positive into a Negative Wassermann, and to give sufficient treatment so that no recrudescences of the disease occur. After the child is considered cured he must be kept under observation for 1 year, and the Wassermann taken after a provocative injection of Neokharsivan, at intervals of 6 months. The ideal is to keep the child under observation till past the age of puberty, for as shown in Chapter X the majority of manifestations of Syphilis appear before the age of 13 years.

If after what one considers adequate treatment, as for example the boy who received thirteen courses, the Wassermann Reaction still remains positive, the child should be kept under observation till past the age of puberty and may then be discharged. In contrast to the Congenital type, one should never discharge a patient with a positive Wassermann in Acquired Syphilis.

During treatment, the weight should be taken regularly, and is a guide as to whether the dosage is correct, and whether there is intolerance to the drug. As the child grows older, the dose of the drug should gradually be increased giving 1 centigram per Kilo of body weight. In children with persistently positive Wassermanns, probably the best results are obtained from Intramuscular therapy, as it is more slowly absorbed and excreted and so ensures more continued action of the drug. Courses of Iodides are also very beneficial in these cases.

If the child is suffering from Anaemia, debility, dentacaries or other defects, these conditions must receive
suitable treatment at the same time,

In all cases where Syphilis is diagnosed, efforts must be made to persuade the mother and the rest of the family to attend for treatment.

I have only had one child who exhibited ill effects after an injection. This was a boy of 10 years, who had a severe rigor after 0.3grm Kharsulphan. An injection of 1cc Adrenaline was given, and the child rapidly recovered.

No other toxic reactions have occurred in the children attending my Clinic as a result of the treatment.
CHAPTER XIII

A consideration of ways in which the organisation of the Auxiliary Treatment could be improved.

The chief criticism of the Clinic lies in the fact that although the women and children are treated, the husbands remain untreated. The women attending the Clinic are all married and have no suspicion of the nature of the disease from which they are suffering. If they had I feel convinced that many would refuse treatment, for a large number of married women will not attend a recognised Venereal Disease Clinic, where the stigma is likely to be attached to them. The treatment given at the Auxiliary Centre is regarded as part of the routine treatment of the Maternity and Child Welfare Clinics, and it is not generally known that it is a Venereal Disease Clinic. To preserve this secrecy it is not possible to refer the husbands to the recognised Venereal Disease Clinic at the Swansea General Hospital. This has been done in a few cases but is has generally led to the wives discovering that they were suffering from Syphilis caused trouble at the Clinic and family discord. I therefore do not consider it wise to refer the husbands to the Swansea General Hospital.

One certainly wishes to avoid the label Venereal Disease being applied to the Auxiliary Clinic, and I do not see how one could avoid this and yet send the husbands to a recognised Clinic.

One's great aim is to prevent the birth of Congenital Syphilitic children, and this can only be done by providing
Clinics which this type of woman will attend. It is interesting to note that I have not come across a case of re-infection after apparent cure.

The solution to the problem lies, I think, in the provision of a clinic run on similar lines for the husbands of the women who are attending the Auxiliary Centre.

I also consider that the Wassermann Reaction should be done on all women attending the Ante-Natal Clinics. Syphilis is in the latent form in the majority of women, and very often the result of the blood test is the only means of diagnosing the disease. I therefore advocate that this should be done at all Ante-Natal Clinics, if one is to aim at preventing the birth of Congenital Syphilitic children.

It is difficult to suggest how one could prevent the birth of Congenital Syphilitic children. It has been suggested that there should be compulsory notification of all pregnancies, or of all cases of Syphilis. I do not consider either of the suggestions practicable, for after all, how can one compel women to notify the fact that they are pregnant, and if they do not, what is to be the punishment? If syphilis were a notifiable disease, it would probably prevent many coming forward for treatment, for it is the fact that they are treated under a number and their identity is concealed, that gives many of these patients confidence and encourages them to attend the Clinic.

Probably a great deal could be done by the Health Visitors for if a case of Congenital Syphilis were discovered, a Home Visit could be paid and an effort made to persuade the mother
to attend the Clinic. Also cases of still-birth and repeated Neo-Natal deaths should be followed up and the mother persuaded to submit to a Blood Test. The work of the Health Visitors would be very valuable if attention were paid to this, and the Medical Officer in charge, when looking over the Health Visitor's cards could also note when a Blood Test was indicated, and ask the Health Visitor to arrange for this to be done. In this way the Public Health Service could render valuable aid in the prevention and cure of Congenital Syphilis.

The Venereal Disease organisation could probably be improved by starting Clinics in connection with the Maternity and Child Welfare Schemes in different parts of the country and running them on the same lines as the Auxiliary Treatment Centre. In this way, the women attending the Maternity and Child Welfare Clinics could be referred for a blood test, and be treated if positive. A large proportion of married women will not attend the recognised Venereal Disease Centre. Clinics such as mine are the only solution if one is to treat this type of patient, and it is hoped that the Public Health Authorities will start Clinics for the treatment of Venereal Disease in Women and children and run them in connection with the Maternity and Child Welfare Clinics.
CHAPTER XIV.

CONCLUSIONS.

As a result of the investigations one concludes that the incidence of Syphilis amongst women of the Working Classes in Swansea is at least 2.06% and not more than 3%, so that the disease is not so widespread as one is often led to believe.

Syphilis in the women in my series, was chiefly of the latent type i.e. 76.3% of the cases and was diagnosed only by the result of the Wassermann Reaction.

It is feasible that some of these cases were really suffering from Congenital Syphilis, which had remained latent and shown no manifestations. The majority, however, were probably suffering from the Acquired Disease and may have shown no symptoms due to being infected "per utero", which is an unfavourable medium for the Spirochaeta Pallida. It is important that these cases should be diagnosed for although they may give birth to healthy children, even without treatment, they may also bear Syphilitic children. These cases require treatment, for although they may feel well at the time, they may suffer from vague ill health or even definite manifestations of Syphilis as the years go by.

Therefore, in Ante-Natal Clinics, the Wassermann Reaction should be done as a routine on all the women attending, so that if any are found to have Syphilis, they may be referred to a suitable Clinic and treatment begun at once.

The number of women attending my Clinic with Latent Syphilis is striking, and may be partly due to the fact that it is for married and not single women and partly that the
husbands may have had some treatment before being married. Neisser has shown that the site of inoculation is important and so the prevalence of Latent Syphilis in women, may also be due to the fact that they are frequently infected "per uterum", and not by the vulva or cutaneous route.

The value of the Wassermann Reaction in women has been investigated and my conclusion is, that a positive Wassermann signifies Syphilis while a negative Wassermann does not preclude it as it has been seen that a Woman with a negative Wassermann can give birth to a child with Congenital Disease. This does not prove Spermatic infection and it is extremely unlikely that a woman can bear a syphilitic child and yet remain immune herself. The more likely hypothesis is that the woman has been infected "per uterum", or that as the Wassermann Reaction is a complex Bio-chemical Reaction and is a quantitative and not a specific test, the Wassermann may be negative when the syphilitic infection is non-active, and this so-called Wassermann "antigen" may be poorly developed in the tissues. Women with Congenital Syphilitic children or with a history of repeated abortion, still-birth and neo-natal death, for which no cause can be found, should be treated as suffering from Syphilis, although the Wassermann Reaction is negative.

I have also come to the conclusion that women with a weak-positive Wassermann, which remains so after an injection of 0.45 grm Neokharsivan, are suffering from Syphilis and require treatment. This is based on the fact that 41.1% of these women had a history of miscarriage, and still-birth, while
14.1% gave birth to children with Congenital Syphilis. Therefore to avoid this wastage of infant life, and avoid the suffering caused by Congenital Syphilis, it is important to treat women with a persistent weak positive Wassermann.

It has generally been stated that Syphilis is a common cause of abortion among women. In my series, the incidence of abortion has been found to be slightly higher, i.e. 22.5% as against 16-20% which is given as the incidence amongst the general population. This is in agreement with most recent investigators who find that Syphilis is not an important cause of abortion.

The incidence of still-birth among untreated mothers was 12.8% which is much higher than the usual 3% suggested for the general population. Therefore Syphilis is an important cause of Still-births.

The Infant Mortality Rate under one year was 19%, being particularly high during the first six months. The Rate for the general population is given as 8% so that Syphilis is an important cause of Neo-Natal death, and predisposes to Intercurrent Infection.

Therefore, one may say that Syphilis is not an important factor in the interruption of pregnancy in the early months, but its disastrous consequences are in the later months of pregnancy and during the first few months of infant life.

The good results following the Ante-Natal treatment of Syphilis is very encouraging. Where the patient had at least one full course of Arsenic or Bismuth ante-natal, 73% of the children were healthy, and had negative Wassermanns. This is in marked contrast to the women who had no ante-natal treatment. These women gave birth to children, 18% of whom
were healthy and 36% had Congenital Syphilis.

Therefore, although one cannot be sure that the child will be born healthy following the Ante-Natal Treatment of Syphilis, the probability is that it will be so. If however the child is born with Congenital Syphilis, it will not be badly affected and will soon respond to treatment.

Treatment should be begun as soon as possible in the pregnancy and continued till the woman is confined. The arsenical preparations, especially by the intravenous route are the drugs of choice but should the patient exhibit signs of intolerance, the drug may be given intramuscularly or the Bismuth preparations used.

One's great aim is to prevent rather than cure disease and this can be done in the case of Congenital Syphilis. An effort should be made to do the Wassermann Reaction on every pregnant woman, and if she has Syphilis, she should receive treatment. Congenital Syphilis is a cause of a great deal of ill health and crippling among children, and as this is to a large extent preventable, every effort should be made to eradicate it. This can only be done with the co-operation of the Medical Officers in charge of Ante-Natal Clinics, Private Practitioners and Midwives, and an effort should be made to ensure that every pregnant woman has a blood test.

It must not be forgotten however, in analysing the results of Ante-Natal treatment, that women with Syphilis especially if it is Latent, may give birth to apparently healthy children even without treatment. It is particularly important to remember this in the case of those women who
only come in the 8th month of pregnancy, and to whom only one or two injections can be given before the woman is confined. If she has a healthy child, it cannot be contributed wholely to the fact that she has had one injection ante-natally.

One can say, however, that where Syphilis is treated Ante-Natally, the incidence of Congenital Syphilis is very much lowered, and when it does occur, it is more amenable to treatment.

In my series, only 14.3% of the Wassermann Reactions in the mothers and children were found to be in agreement, so that in contrast to many recent investigators, I have not found the Wassermann in the mother and child to be the same in the majority of cases. It was not possible however, to take the Wassermann immediately after birth. If this had been done, the result may have been different.

In studying the manifestations of Congenital Syphilis, it is seen that the majority appear before puberty, particularly under 1 year and between 7 & 9 years of age. During the first two years of life, Congenital Syphilis is apt to manifest itself by lessions of the skin, mucus membranes and the mucocutaneous junctions. From 6 years onwards, the manifestations are of the tertiary type.

The eye affections, particularly Interstitial Keratitis, are important manifestations of Congenital Syphilis, and unfortunately, are very resistant to treatment. They are apt to occur about the time of the second Dentition, so that it is important to diagnose and treat Congenital Syphilis thoroughly and as early as possible.
Even when a child is considered cured, he must be kept under observation till safely past puberty in case of any of the later manifestations of Syphilis appear.

In my series, the manifestations of Congenital Syphilis were amenable to Treatment. I also did not find it difficult to convert a Positive into a Negative Wassermann, except in one case which was Wassermann-fast. Some authorities have asserted that it is difficult to obtain a negative Wassermann after treatment in Congenital Syphilis. I have not found this in my series except the one boy who still had a Positive Wassermann after 13 courses of treatment.

As in the adults, a positive Wassermann signifies Syphilis, but a Negative Wassermann does not preclude Syphilis. If a child is brought presumably suffering from Congenital Syphilis, the maternal obstetric history should be carefully enquired into, and if possible, the mother's Wassermann should be taken.

In conclusion one may say that the results of Ante-Natal treatment in the prevention of still-births, Neo-Natal deaths, and the birth of Congenital Syphilis children are very encouraging and makes one realise that no effort is too great to get all syphilised women, especially of the child-bearing age, under treatment. Particular attention should be paid to seeing that treatment is begun as early in pregnancy as possible and continued till the woman is confined. If she fails to attend, a Home Visit should be paid by the Health Visitor or Almoner, and the necessity of continuing treatment should be explained. It is also essential that she should receive a course of treatment during every pregnancy
even after she is considered clinically and serologically cured.

The women at the Auxiliary Treatment Centre attend very well on the whole. I attribute this to the fact that the Clinic is run in conjunction with the Maternity and Child Welfare Clinics and is not labelled Venereal Disease. Also, it is for married women and children only, and so they do not have to mix with the Amateur or Professional Prostitute which would prevent many women of this class attending the clinic.

The majority of the women attend with their babies after the confinement, so that it is possible to keep the children under observation.

I certainly consider that a Venereal Disease Clinic run on the lines of the Auxiliary Treatment centre, is worth while and does valuable work in preventing the birth of Congenital Syphilitic children and also preventing Stillbirths and Neo-Natal deaths. These women would certainly go untreated if they had to attend the Venereal Disease Clinic at the Swansea General Hospital. As the Auxiliary Treatment Centre is in the same building as the Maternity and Child Welfare Clinics, its true nature is not realised, and so the women attend it regularly and with confidence.

There is need for more of this type of Clinic and it could be arranged by the various Public Health Authorities. The label Venereal Disease must be avoided if one is to get hold and treat women of the working class, and so try to reduce the incidence of Congenital Syphilis.
I am much indebted to Dr. Thomas Evans, Medical Officer of Health, Swansea for permission to use the records of the Clinic.
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