

STILLBIRTHS AND PREMATURE BIRTHS

OCCURRING IN WILLESDEN

IN THE YEARS 1917 TO 1927.

INCLUDING

NEONATAL DEATHS.

by

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STILLBIRTHS.

During the years 1917 to 1927 in Willesden 849 babies were born dead and 34,021 babies were born alive. Of the latter 645 died before they were one week old, 153 died before they were two weeks old, while in three weeks the number had risen to 844 and in less than one month 1,005 of the babies born alive had died.

As will be shown later in this report many of these infants who died during this first month of life owed their deaths to conditions, such as prematurity, associated with antenatal life and which in other cases had proved fatal to the foetus during this pre-natal period. Thus with the removal or reduction in the incidence of these cases would inevitably come a fall both in the number of stillbirths and in the infant mortality.

The total number of foetal and neonatal deaths during the past 11 years in Willesden has thus amounted to 1,854 so accounting for 79.3 per cent of the whole number of infant deaths occurring before birth, during birth and during the 12 months following birth.

The seriousness of still births in Willesden is well indicated in the following tables when it will be seen that in the last 11 years the fall in the deaths of infants under 1 year has not been accompanied by a similar fall in the number of neonatal deaths while there is a definite rise in the number of stillbirths:-

Table 1.

| <u>Year.</u> | <u>No. of Live Births.</u> | <u>Deaths of Infants under 1 year.</u> | <u>Neonatal Deaths.</u> | <u>Stillbirths.</u> |
|--------------|----------------------------|--|-------------------------|---------------------|
| 1917. | 2,895. | 311. | 139. | 55. |
| 1918. | 2,659. | 261. | 81. | 39. |
| 1919. | 2,924. | 240. | 105. | 73. |
| 1920. | 4,396. | 275. | 134. | 90. |
| 1921. | 3,562. | 260. | 102. | 83. |
| 1922. | 3,269. | 187. | 74. | 96. |
| 1923. | 3,181. | 164. | 63. | 91. |
| 1924. | 2,916. | 205. | 91. | 73. |
| 1925. | 2,867. | 168. | 73. | 82. |
| 1926. | 2,784. | 146. | 60. | 77. |
| 1927. | 2,568. | 151. | 83. | 90. |

Table II.

Showing deaths of infants under 1 year, neonatal deaths, stillbirths expressed as rate per 1,000 live births.

| <u>Year.</u> | <u>Infant Mortality Rate.</u> | <u>Neonatal Death Rate.</u> | <u>Stillbirth Rate.</u> | <u>Birth Rate.</u> |
|--------------|---------------------------------------|-------------------------------------|-----------------------------|------------------------|
| 1917 | 107 | 48.0 | 19.0 | 16.6 |
| 1918 | 98 | 30.5 | 14.7 | 15.8 |
| 1919 | 82 | 35.9 | 25.0 | 17.4 |
| 1920 | 63 | 30.5 | 20.5 | 26.6 |
| 1921 | 73 | 25.8 | 23.3 | 21.3 |
| 1922 | 57 | 22.6 | 30.0 | 19.4 |
| 1923 | 52 | 19.1 | 28.9 | 18.9 |
| 1924 | 70 | 24.0 | 25.0 | 17.2 |
| 1925 | 59 | 25.5 | 28.7 | 17.0 |
| 1926 | 52 | 21.6 | 27.7 | 16.8 |
| 1927 | 59 | 32.4 | 35.1 | 14.7 |

It will be seen that in the last 11 years while there has been a fall in the Infantile Mortality Rate of 44.9 per cent. there has been a rise of 45.7 per cent. in the Stillbirth Rate.

Table III.

The following table gives an estimate of the number of stillbirths per 100 live births in these years:-

| <u>Year.</u> | <u>Live Births.</u> | <u>Stillbirths.</u> | <u>Stillbirths per 100 live births.</u> |
|--------------|---------------------|---------------------|---|
| 1917 | 2,895 | 55 | 1.9 |
| 1918 | 2,659 | 39 | 1.6 |
| 1919 | 2,924 | 73 | 2.5 |
| 1920 | 4,396 | 90 | 2.1 |
| 1921 | 3,562 | 83 | 2.3 |
| 1922 | 3,269 | 96 | 3.0 |
| 1923 | 3,181 | 91 | 2.9 |
| 1924 | 2,916 | 73 | 2.5 |
| 1925 | 2,867 | 82 | 2.9 |
| 1926 | 2,784 | 77 | 2.8 |
| 1927 | 2,568 | 90 | 3.5 |

It is of interest to note in passing ^{that} this table supports the assertion sometimes made that high fertility is generally associated with a low still-birth rate.

For purposes of comparison the statistics of certain London Boroughs, Liverpool and Birmingham were collected. The same result is shewn namely, that where the birth rate is falling the percentage of stillbirths is rising. See ^{attached} Table

Further, in Willesden in 1927, while the birth rate is the lowest on record the percentage of stillbirths is the highest.

Table showing the per cent of Stillbirths in various areas between 1914 - 1926.

| Population | Name | 1914 | | | 1918 | | | 1919 | | | 1920 | | | 1921 | | | 1922 | | | 1923 | | | 1924 | | | 1925 | | | 1926 | | | Average for 10 years. | | |
|---------------|-------------|--------------------|------------|------------------|--------------------|------------|------------------|--------------------|------------|------------------|--------------------|------------|------------------|--------------------|------------|------------------|--------------------|------------|------------------|--------------------|------------|------------------|--------------------|------------|------------------|--------------------|------------|------------------|--------------------|------------|------------------|-----------------------|------|-----|
| | | No. of Live Births | Birth Rate | % of Stillbirths | No. of Live Births | Birth Rate | % of Stillbirths | No. of Live Births | Birth Rate | % of Stillbirths | No. of Live Births | Birth Rate | % of Stillbirths | No. of Live Births | Birth Rate | % of Stillbirths | No. of Live Births | Birth Rate | % of Stillbirths | No. of Live Births | Birth Rate | % of Stillbirths | No. of Live Births | Birth Rate | % of Stillbirths | No. of Live Births | Birth Rate | % of Stillbirths | No. of Live Births | Birth Rate | % of Stillbirths | | | |
| 100 - 100,000 | Finsbury | 1572 | 20.7 | 1.2 | 1275 | 17.1 | 1.3 | 1582 | 20.2 | 1.5 | 2540 | 32.4 | 2.8 | 1973 | 25.7 | 2.8 | 1934 | 25.2 | 3.1 | 1844 | 23.9 | 2.8 | 1662 | 21.5 | 2.5 | 1754 | 22.6 | 2.3 | 1659 | 21.4 | 2.8 | 1780 | 23.1 | 2.3 |
| | East Ham | 2634 | 18. | 2.1 | 2205 | 15.3 | 2.7 | 2449 | 16.2 | 1.8 | 3489 | 23.2 | 1.7 | 2915 | 30.3 | 2.7 | 3063 | 21.0 | 2.4 | 2838 | 19.4 | 1.6 | 2700 | 18.3 | 1.6 | 2533 | 17.3 | 2.7 | 2505 | 17.1 | 2.0 | 2733 | 18.6 | 2.1 |
| | Greenwich | 1967 | 19.36 | 2.4 | 1763 | 16.88 | 2.3 | 1968 | 15.62 | 3.0 | 3413 | 24.67 | 2.9 | 2366 | 22.7 | 2.2 | 2185 | 21.0 | 2.4 | 2276 | 20.54 | 2.3 | 2258 | 20.19 | 1.4 | 2108 | 18.92 | 1.0 | 2024 | 17.95 | 2.4 | 2233 | 20.1 | 2.2 |
| | Paddington | 2091 | 15.31 | - | 2017 | 15.31 | - | 2316 | 15.44 | 2.2 | 2648 | 22.73 | 2.9 | 2859 | 19.63 | 2.8 | 2731 | 18.79 | 2.2 | 2670 | 17.52 | 2.6 | 2505 | 17.11 | 3.0 | 2337 | 15.88 | 2.6 | 2248 | 15.32 | 2.8 | 2437 | 17.3 | 2.6 |
| 100 - 150,000 | Hammermill | 2235 | 17.7 | 1.9 | 2962 | 15.5 | 2.7 | 2225 | 16.8 | 3.1 | 3233 | 24.3 | 2.4 | 2714 | 27.1 | 2.4 | 2688 | 20.5 | 2.6 | 2676 | 20.2 | 2.9 | 2326 | 17.9 | 3.1 | 2258 | 15.5 | 2.7 | 2136 | 16.3 | 2.4 | 2544 | 18.4 | 2.6 |
| | Tulham | 2971 | 18.4 | 2.3 | 2672 | 16.7 | 3.1 | 3000 | 18.6 | 3.0 | 4327 | 27.2 | 2.1 | 3528 | 22.1 | 2.2 | 3242 | 20.3 | 3.0 | 3123 | 19.3 | 2.1 | 2967 | 18.2 | 2.6 | 2771 | 16.9 | 2.2 | 2691 | 16.2 | 2.8 | 3129 | 19.4 | 2.5 |
| | Battersea | 2960 | 17.7 | 1.6 | 2700 | 16.1 | 1.9 | 3075 | 18.5 | 2.2 | 4669 | 28.1 | 1.9 | 3742 | 22.1 | 2.3 | 3665 | 21.1 | 2.2 | 3434 | 20.1 | 2.4 | 3139 | 18.4 | 2.5 | 3184 | 18.5 | 2.7 | 2969 | 17.3 | 2.4 | 3353 | 18.9 | 2.3 |
| | Lewisham | 2686 | 14.9 | - | 2362 | 13.8 | 2.7 | 2910 | 16.6 | 2.2 | 3984 | 22.8 | 2.5 | 3403 | 19.4 | 2.2 | 3208 | 18.1 | 2.7 | 3297 | 18.1 | 2.5 | 3066 | 16.3 | 2.6 | 2907 | 15.6 | 3.0 | 2885 | 15.3 | 3.1 | 3074 | 17.1 | 2.6 |
| | Kensington | 2161 | 14.8 | 3.0 | 2257 | 13.3 | 3.1 | 2663 | 16.1 | 2.2 | 3606 | 24.3 | 4.0 | 3140 | 18.7 | 3.1 | 2919 | 17.6 | 2.2 | 2837 | 17.5 | 3.1 | 2744 | 16.2 | 3.6 | 2605 | 15.8 | 3.3 | 2547 | 15.1 | 2.3 | 2768 | 17.0 | 3.0 |
| | Croydon | 2861 | 15.3 | 1.8 | 2626 | 13.9 | 1.9 | 2965 | 15.4 | 2.4 | 4351 | 22.6 | 2.8 | 3631 | 18.9 | 2.6 | 3505 | 18.2 | 2.8 | 3370 | 17.4 | 2.6 | 3456 | 17.6 | 2.6 | 3406 | 17.1 | 3.0 | 3477 | 16.9 | 3.0 | 3365 | 17.3 | 2.5 |
| Willender | 2895 | 16.5 | 1.8 | 2659 | 15.8 | 1.4 | 2924 | 17.4 | 2.1 | 4396 | 26.6 | 2.1 | 3562 | 21.3 | 2.3 | 3269 | 19.4 | 2.9 | 3181 | 18.9 | 2.9 | 2916 | 17.2 | 2.4 | 2867 | 17.0 | 3.8 | 2784 | 16.8 | 3.0 | 3145 | 18.7 | 2.5 | |
| 100 - 200,000 | St. Pancras | 3796 | 18.2 | 2.8 | 3318 | 16.8 | 3.1 | 3824 | 16.7 | 3.5 | 5936 | 25.4 | 3.0 | 4764 | 22.4 | 3.6 | 4559 | 21.5 | 3.2 | 4448 | 20.3 | 2.8 | 4112 | 18.8 | 2.1 | 3880 | 17.9 | 3.4 | 3612 | 16.7 | 3.8 | 4215 | 19.5 | 3.1 |
| | Hackney | 2780 | 17.1 | 3.5 | 3266 | 14.8 | 3.3 | 4141 | 21.0 | 3.0 | 6010 | 26.6 | 2.8 | 4978 | 22.2 | 2.6 | 4763 | 21.0 | 3.1 | 4433 | 19.6 | 3.2 | 4214 | 18.5 | 3.4 | 4093 | 17.9 | 3.6 | 3949 | 17.2 | 3.1 | 4263 | 19.6 | 3.2 |
| 100 - 250,000 | West Ham | 6701 | 24.6 | - | 6021 | 22.9 | - | 7132 | 24.7 | - | 9723 | 32.4 | - | 8242 | 27.3 | - | 7959 | 26.1 | - | 7803 | 24.8 | 3.0 | 7202 | 22.6 | 2.8 | 7017 | 22.0 | 2.8 | 6710 | 21.2 | 3.3 | 7451 | 24.9 | 3.0 |
| 100 - 350,000 | Liverpool | 17906 | 22.6 | 2.2 | 17183 | 21.5 | 1.8 | 18694 | 23.2 | 2.0 | 25039 | 30.9 | 3.4 | 21904 | 26.8 | 3.5 | 21467 | 26.1 | 3.4 | 20695 | 24.9 | 3.6 | 20559 | 24.6 | 3.6 | 19592 | 23.3 | 3.7 | 19772 | 23.3 | 3.3 | 20278 | 24.7 | 3.1 |
| 100 - 450,000 | Birmingham | 17706 | 19.7 | 3.2 | 16840 | 19.4 | 3.5 | 19335 | 20.9 | 3.6 | 25069 | 27.6 | 3.6 | 22134 | 24.1 | 3.6 | 19850 | 21.5 | 3.5 | 19069 | 20.4 | 3.3 | 18390 | 19.2 | 3.0 | 17836 | 18.8 | 3.4 | 17932 | 18.7 | 3.3 | 19426 | 21.0 | 3.4 |

Causes of stillbirths and Neonatal Deaths
in Willesden.

To consider the causes of foetal and neonatal deaths it is useful to group them according to the time of death of the child, viz. :-

- (1) Before the onset of labour, i.e., antenatal death.
- (2) During labour, i.e., intranatal death.
- (3) Within the first month of life, i.e., neonatal death.

In deaths occurring in the first group the foetus is born in a more or less macerated condition, decomposition rapidly occurring owing to the ease with which the liquor amnii penetrates its tissues.

The total number of macerated foetuses in this group for the last 11 years comprises 181.

In the second group the foetus dies during labour and is born in a fresh condition. The number in this series is 668.

In the third group, 1,005 children have succumbed during the 1st month of extra uterine life.

Causes of Death of the Macerated Foetuses.

| | <u>No.</u> | <u>Per cent.</u> |
|---|------------|------------------|
| Maternal Traumatism (injuries to the Mother - fall, shock etc.) | 41 | 22.2 |
| Toxaemia | 15 | 8.3 |
| Syphilis | 15 | 8.3 |
| Ante Partum Haemorrhage | 10 | 5.6 |
| Multiple pregnancies | 7 | 3.8 |
| Maternal respiratory diseases - | | |
| Bronchitis | 4 | |
| Pleurisy | 1 | |
| Pneumonia | 1 | |
| | 6 | 3.3 |
| Congenital Malformations | 6 | 3.3 |
| Knots and Twists on the Umbilical Cord | 6 | 3.3 |
| Anaemia of the Mother | 6 | 3.3 |
| Maternal Heart Disease | 4 | 2.2 |
| Uterine Growth | 4 | 2.2 |
| Hydramnios | 4 | 2.2 |
| Albuminuria | 3 | 1.7 |
| Pyelitis | 1 | 0.6 |
| Chronic Bright's Disease | 1 | 0.6 |
| Criminal Abortion | 1 | 0.6 |
| Uterine Displacement | 1 | 0.6 |
| Foetal Ascitis | 1 | 0.6 |
| Exophthalmic Goitre | 1 | 0.6 |
| Cause Unknown | 49 | 27.2 |

That maternal traumatism is a factor of importance in producing antenatal death is shown in the above table as trauma was responsible for 30 cases, while in 10 there was found to be weakness in the placental attachment due to maternal debility. The remaining case of trauma was associated with Albuminuria.

The important part played by toxæmia in the mother in producing foetal death by causing infarction of the placenta and thus diminishing the blood supply to the foetus is well shown in this series which contains 15 cases of macerated foetuses associated with the toxæmia of pregnancy, 13 cases with albuminuria, 1 with pyelitis, 4 with anaemia, 4 with heart disease, 7 with respiratory diseases and 1 with chronic nephritis and exophthalmic goitre.

There were 15 cases in which death was due to Syphilis, in 7 of the mothers there was a history of 1 previous stillbirth, 4 had 2, 1 had 3, 1 had 4, while in 1 there had been 6 previous stillbirths.

Of the 10 cases of Ante Partum Haemorrhage 1 was found to be directly brought on by overwork, 3 presumably the result of Toxaemia of Pregnancy, 2 in which the mother suffered from anaemia, 1 which suffered from heart disease and 1 in which there was a history of trauma. This shews that toxæmia in the mother causes infarction in the placenta with consequent loss of nourishment to the child.

Ante Partum Haemorrhage is generally considered to be more common in multiparae than in primiparae in the proportion of 4 to 1, but in these 10 cases the opposite was found. Seven of them being primiparae while only 3 were multiparae.

In the 6 foetuses shewing congenital malformations there was not found any association with maternal intoxication nor any interference with the placental functions thus proving that they are a group by themselves.

Uterine tumors were found complicating 4 of the cases causing death through interference with the attachment of the placenta.

The 4 cases of Hydramnios probably proved fatal to the foetus through obstructing its circulation.

Idiopathic disease of the foetus is represented in this series by one case of foetal ascites, no maternal cardiac or renal condition being detected.

In addition there were 6 cases with a history of knots or twists on the umbilical cord. Obviously foetal death being due to obstruction of the placental circulation.

Table I.

Causes of Intranatal Deaths.

| | |
|---|-----|
| I. Complications of labour | 305 |
| (a) Malpresentations | 116 |
| Breech | 69 |
| Breech with forceps | 22 |
| Breech with Hydrocephalus | 1 |
| Transverse | 7 |
| Transverse with forceps | 8 |
| Transverse with prolapsed cord | 1 |
| Occipito posterior | 3 |
| Occipito posterior with forceps | 1 |
| Malpresentations undefined | 1 |
| Malpresentations undefined with forceps | 4 |
| (b) Contracted pelvis with large child | 6 |
| " " forceps | 18 |
| " " induction | 1 |
| " " craniotomy | 9 |
| " " caesarean | 16 |
| (c) Premature rupture of membranes | 8 |
| (d) Obstructed labour | 1 |
| (e) Difficult forceps delivery | 91 |
| (f) Prolapse of cord | 7 |
| " " with forceps | 1 |
| (g) Cord round neck with asphyxia | 9 |
| (h) Prolonged labour | 10 |
| (i) Large child | 7 |
| (j) " " with forceps | 5 |
| (k) Uterine growth | 2 |
| " " with craniotomy | 1 |
| (l) Suffocation during labour | 2 |
| II. Prematurity | 177 |
| III. Maternal Intoxication | 107 |
| Toxaemia of pregnancy | 14 |
| Albuminuria | 13 |
| Eclampsia | 12 |
| Pyelitis | 3 |
| Heart disease | 7 |
| Tuberculosis | 9 |
| Influenza | 4 |
| Bronchitis | 3 |
| Goitre | 3 |
| Prolonged chloroform administration | 1 |
| Morphine narcosis | 1 |
| Anaemia | 29 |
| Acute suppurative pancreatitis | 1 |
| Epilepsy | 1 |
| Hemiplegia | 1 |
| IV. Maternal Traumatism | 46 |
| V. Separation of the placenta | 43 |
| VI. Foetal malpresentation | 13 |
| VII. Hydramnios | 5 |
| VIII. Postmaturity | 10 |

Table III.Causes of Prematurity Among Fresh Stillbirths.

| | | |
|--------------------------------|----|----|
| 1. Complications of Labour | | 50 |
| 2. Maternal Intoxication | | 50 |
| Anaemia | | 12 |
| Eclampsia | | 7 |
| Albuminuria | | 6 |
| Toxaemia | | 6 |
| Syphilis | | 6 |
| Influenza | | 4 |
| Chronic Nephritis | | 2 |
| Pneumonia | | 2 |
| Pyelitis | | 1 |
| Heart Disease | | 1 |
| Chronic Bronchitis | | 1 |
| Tuberculosis | | 1 |
| Ex-ophthalmic Goitre | | 1 |
| Trinitrotoluene poisoning | | 1 |
| Acute Suppurative Pancreatitis | | 1 |
| 3. Maternal Traumatism | | 28 |
| 4. Placental Circulation | | |
| Ante Partum Haemorrhage | 14 | |
| Placenta Praevia | 10 | |
| | — | 24 |
| 5. Multiple Pregnancy | | 10 |
| 6. Foetal malformation | | 7 |
| 7. Hydramnios | | 3 |
| 8. Uterine displacement | | 1 |
| 9. Cause unknown | | 4 |

Causes of Intranatal Deaths.

Table I shows that 45 per cent. of fresh stillbirths in Willesden are due to instrumental and manipulative interference during delivery resulting in fatal injury to the foetus.

Craniotomy was performed in 10 cases (3 per cent.).

In 9 additional cases labour was induced because of contracted pelvis in 3 cases, for illness of the mother and hydramnios in 2 cases respectively, for a case of eclampsia and for a brow presentation.

Two cases of pelvic contraction, 1 case of ante partum haemorrhage and 1 case of eclampsia required caesarean section.

Of the 2 deaths due to suffocation at birth, 1 occurred with a breech presentation, suffocation probably being due to delay in delivering the head,

and the child in its efforts to breathe sucking in mucous and liquor amnii. Obstruction during birth accounted for the other death from suffocation.

There was one maternal death from Pneumonia.

Table II shows the causes of the malpresentations.

Premature interruption of pregnancy occurred in 177 of the fresh stillbirths. Out of this number, 50 were found among the deaths due to complicated labours, the methods employed to expedite delivery injuring fatally the delicate incompletely developed tissues of the premature foetus. The poisons of disease curculating in the mothers' blood and so affecting the foetus accounted for 46 deaths, 14 of them being due to pregnancy toxæmias. See Table III.

The induction of a too premature labour in two instances resulted in foetal death.

That hydramnios is frequently found in association with twins ~~XXXX~~ is borne out by the fact that out of the 5 cases in this series was 1 twin pregnancy. Further that hydramnios by producing over distension of the uterus induces premature labour was proved in 2 of the cases.

In the fourth case labour was induced owing to the death of the foetus in utero.

The fifth case was a typical example of the acute type of hydramnios, pain and severe vomiting from pressure necessitating rapid delivery.

Uterine displacement by producing congestion of the vessels and inflammation may possibly account for the premature labour which was associated with it.

Postmaturity was found in 10 (3 per cent.) of the 668 fresh foetuses.

Three were associated with contracted pelvis in 2 of which the presentation had been a breech and in 1 a transverse while 4 were described as difficult forceps deliveries. One was an anencephalic monster, the deformed head being an inefficient dilator of the cervical canal so delaying the birth of the child.

In the remaining one the confinement was reported to be normal.

Maternal Toxaemia.

One hundred and seven of these stillbirths occurred in mothers suffering from some constitutional or temporary disease such as Syphilis or Toxaemia of Pregnancy, the poisons of these diseases injuring the child or the placental attachments leading in 46 cases to Premature Labour.

The statement that eclampsia is 3 or 4 times more common in primiparae than multiparae is supported by the 12 cases of eclampsia causing intranatal death, 8 of them occurring in first pregnancies.

There were 4 maternal deaths - 33.3 per cent. which is thus rather higher than the average maternal mortality of 25 per cent. In 3 out of 4 the fits were pre-eclamptic that is occurring before the onset of labour in the remaining post-eclamptic, occurring after labour. Two out of the 4 cases that proved fatal to the mother were delivered by forceps and the nature of the remaining 2 confinements was not ascertained. Caesarean Section was performed in the 2 cases that survived, induction in another, forceps were used in the remaining 4, while the remaining 1 was natural.

Trauma leading to separation of the placenta and probably associated with some underlying weakness in its site was noted in 46 foetal deaths, 18 of which were premature.

Ante Partum Haemorrhage.

Closely associated with Ante Partum Haemorrhage were found certain maternal disorders leading to disease and subsequent separation of the afterbirth thus out of the 43 cases under consideration 9 were found in association with Anaemia, 8 with Albuminuria, 4 with Cardiac Disease and 3 with Eclampsia, While in 7 no evidence of disease in the mother was forthcoming.

The cause of bleeding in Ante Partum Haemorrhage is either due to associated disease in the mother or to the expansion of the lower uterine segment to which the placenta is attached in the condition known as placenta praevia thus tending to separate the placenta from its attachment. This latter mechanical cause of bleeding seems to have been chiefly operative in the 14 cases of placenta praevia, there being only 1 case in which the health of the mother was poor.

Out of the 43 cases of Ante Partum Haemorrhage there were 2 maternal deaths (4.6 per cent.) One was twin pregnancy in which the mother suffered from heart disease.

That Ante Partum Haemorrhage is more common in multiparae than primiparae in the proportion of 4 to 1 is supported by this investigation there being 28 multiparae, 7 primiparae and 8 in which the obstetric history was unknown. It is frequently found associated

with multiple pregnancy there being in the latter a larger placental area to meet the greater demand for nourishment of the twins, thus 3 cases of Ante Partum Haemorrhage in the present series occurred in twin pregnancies. One of the twins survived but in the remaining 2 cases both twins were born dead. In 5 cases of Ante Partum Haemorrhage it was found to have occurred more than once in the same mother thus suggesting that inflammation of the lining of the uterus by weakening the attachment of the afterbirth may be a factor in its causation. The bleeding resulting from the separation of the placenta is usually soon followed by the premature onset of labour as occurred in 25 of the 43 cases of Ante Partum Haemorrhage under consideration.

Causes of Neonatal Deaths.

During the years 1917 to 1927, 1005 children died before they were 4 weeks old from the following causes:-

| <u>Cause.</u> | <u>No.</u> | <u>Per cent.</u> |
|-------------------------|------------|------------------|
| Premature Birth | 687 | 68.4 |
| Respiratory Diseases | 61 | 6.1 |
| Atelectasis | 51 | 5.1 |
| Convulsions | 36 | 3.7 |
| Gastro Enteritis | 25 | 2.5 |
| Injury at Birth | 24 | 2.4 |
| Syphilis | 13 | 1.3 |
| Suffocation, Overlaying | 9 | 0.9 |
| Tuberculosis | 1 | 0.1 |
| Rickets | 1 | 0.1 |
| Other Causes | 92 | 9.2 |

Thus, excepting suffocation and rickets, neonatal deaths can be grouped according to the following causes:-

- A. Due to Antenatal Causes.
- B. Due to Intranatal Causes.
- C. Due to Postnatal Causes.

Group A, includes prematurity atelactasis and syphilis. Prematurity, caused by poisons circulating in the maternal blood and so affecting the foetus before birth e.g., syphilis by diseased states of the uterus, e.g., endometritis, by trauma, etc., accounts for almost three-fourths of the deaths occurring during the 1st month of life and for almost half occurring during the first week of life. Thus out of the total of 687 deaths due to prematurity

| | | | | | | |
|-----|----------|--------|-----|---------------|----|-------|
| 480 | occurred | during | 1st | week | of | life. |
| 97 | " | " | 2nd | " | " | " |
| 69 | " | " | 3rd | $\frac{1}{4}$ | " | " |
| 41 | " | " | 4th | " | " | " |

Thus once the incidence of premature birth is prevented or notably reduced the problem of neonatal mortality will be largely solved.

Group B - Intranatal causes are represented by the 24 cases of birth injury and probably by a proportion of 26 cases of convulsions both pointing to interference at birth.

Group C - Postnatal causes due to infection include the -

61 cases of respiratory diseases.
25 " gastro enteritis.
5 " infectious disease.

The tissues of the newly born infant not yet fully adapted to their new surroundings form an easy prey to germs. Hence the importance of strict asepsis in the handling and feeding of the new born child.

Table showing the Duration of

| | <u>Neonatal Life.</u> | | | |
|---|--------------------------------|--------------------------------|--------------------------------|--------------------------------|
| | <u>Under</u> <u>1 week.</u> | <u>1 to 2</u> <u>weeks.</u> | <u>2 to 3</u> <u>weeks.</u> | <u>3 to 4</u> <u>weeks.</u> |
| Duration | 645 | 153 | 116 | 91 |
| Average duration in the 11 year period | 59 | 15 | 11 | 8 |
| Average per cent. duration in the 11 year period | 63.4 | 16.0 | 11.8 | 8.6 |

Thus 63.4 per cent. of the 1,005 died during the first week of life, 16.0 during 2 weeks, 11.8 during 3 weeks and 8.6 during 4 weeks.

This showing that the maximum neonatal mortality occurs during the first few days of extra uterine life pointing to an antenatal or intranatal cause.

A more detailed study of 665 neonatal deaths was made. Out of the number 379 were born prematurely, 217 were born at term, while in the remaining 69 cases the maturity at birth was unknown.

Prematurity per se was the cause of death in 289 out of the 374 premature births. The remaining causes of death all more or less intimately associated with prematurity were:-

| | |
|-----------------------------|----|
| Inanition | 18 |
| Atelectasis | 12 |
| Respiratory Diseases | 11 |
| Convulsions | 9 |
| Marasmus | 9 |
| Congenital Heart Disease | 8 |
| Icterus Neonatorum | 5 |
| Asphyxia Neonatorum | 4 |
| Suffocation | 1 |
| Pemphigus | 1 |
| Cellulitis | 1 |
| Hydramnios | 1 |
| Cause unknown | 3 |

One case of atelectasis was found in a twin pregnancy with a difficult forceps delivery causing death through a tentorial tear on Post Mortem Examination.

Of the 9 cases of convulsions 1 occurred in a twin pregnancy with a breech presentation 2 were associated with instrumental deliveries and 1 the 4th post mortem examination showed the cause of foetal convulsions to be due to congestion of the blood vessels of the brain produced during the birth of a large foetus.

In 1 case of asphyxia neonatorum the labour had been prolonged.

An investigation into the health of the mother and the nature of the confinement associated with the 379 premature births revealed that:-

| | | |
|--------------------------------|----|-------|
| Multiple pregnancy occurred in | 30 | cases |
| Poor Health of the mother in | 29 | " |
| Ante Partum Haemorrhage in | 22 | " |
| Traumatism in | 22 | " |
| Malpresentations in | 16 | " |
| Overwork and worry in | 15 | " |
| Toxaemia in | 13 | " |
| Albuminuria in | 7 | " |
| Shock | 6 | " |

All of which are predisposing factors of prematurity.

Neonatal Causes of Death.

The causes of Neonatal Deaths among the 217 full time children in this series were as follows:-

| | |
|--------------------------------|----|
| 1. Marasmus | 28 |
| 2. Convulsions | 25 |
| 3. Respiratory Diseases | 23 |
| 4. Congenital Heart Disease | 17 |
| 5. Congenital Malformations | 16 |
| 6. Atelectasis | 14 |
| 7. Gastro Enteritis | 12 |
| 8. Asphyxia and Overlaying | 11 |
| 9. Icterus Neonatorum | 10 |
| 10. Birth Injury | 9 |
| 11. Cerebral Haemorrhage | 7 |
| 12. Deficient Vitality | 5 |
| 13. Congenital Syphilis | 4 |
| 14. Intussusception | 4 |
| 15. Pemphigus Neonatorum | 3 |
| 16. Melaena Neonatorum | 2 |
| 17. Meningitis | 2 |
| 18. Septicaemia | 1 |
| 19. Gangrene | 1 |
| 20. Lack of attention at birth | 1 |
| 21. Drowning | 1 |
| 22. Cause unknown | 21 |

Marasmus.

Pregnancy Toxaemias, Tuberculosis, Ante Partum Haemorrhage and Twin Pregnancy cases were found in 4 cases where death was assigned to Marasmus.

Convulsions.

Ten of the cases of Convulsions were associated with difficult forceps deliveries and 1 with Ante Partum Haemorrhage while 3 occurred in twins and in 1 the labour was complicated by uterine fibroid and a Post Mortem examination on another case a tentorial tear was discovered to be the cause of death.

Respiratory Diseases.

Seventeen cases of Broncho Pneumonia occurred thus forming the bulk of the fatal Respiratory Diseases.

Birth Injuries.

In 5 of the 9 cases where the child had died from an injury ^{RECEIVED} at birth, forceps had been applied in 4 cases for contracted pelvis. One was a twin pregnancy.

There were 2 cases of malpresentations, 1 being a breech and 1 a brow and 2 cases of operation for a depressed fracture of the skull sustained during delivery.

Cerebral Haemorrhage.

Of these 7 cases 1 was associated with an early rupture of membranes, another with albuminuria and a third with contracted pelvis.

Deficient Vitality.

Two malpresentations, namely, 1 breech and 1 brow, 1 twin pregnancy, 1 with a history of maternal trauma were found associated with 5 of these cases.

Asphyxia.

Among the cases of Asphyxia there were 2 malpresentations breech, 1 had hydrocephalus, 1 contracted pelvis and 1 difficult labour while in 5 instances death was due to overlaying.

Duration of Life in 379 Premature and 217 Full Time Neonatal Cases.

| | <u>0-24</u> <u>hrs.</u> | <u>24-48</u> <u>hrs.</u> | <u>48-72</u> <u>hrs.</u> | <u>3-7</u> <u>days.</u> | <u>1-2</u> <u>wks.</u> | <u>2-3</u> <u>wks.</u> | <u>3-4</u> <u>wks.</u> |
|-----------|----------------------------|-----------------------------|-----------------------------|----------------------------|---------------------------|---------------------------|---------------------------|
| Premature | 165 | 70 | 41 | 29 | 23 | 21 | 10 |
| Full Time | 52 | 17 | 16 | 34 | 41 | 32 | 25 |

The highest proportion of death in both series thus occurred in the first 24 hours after birth and gradually diminished as the age of the child increases.

Premature Births.

A Premature Birth means that the child is born alive but before it has reached full maturity.

Out of 34,021 children born alive during the years 1917 to 1927 in Willesden 1,228 were premature, the premature births thus amounting to 3.3 per cent. of the total births.

See page 14

The attached table shows that if a premature infant reached the age of 1 year its chances of survival are practically the same as those of a full time infant.

It will also be seen that the Infant Mortality Rate for Premature Births has decreased for the last 3 years.

The Mortality.

Out of these 1,228 children born prematurely:-

| | | | | | | | |
|-------|-----|------|--------|------|-------|------|--------|
| | 414 | died | within | 1 | month | from | birth. |
| | 44 | " | " | 1-3 | " | " | |
| | 29 | " | " | 3-6 | " | " | |
| | 14 | " | " | 6-9 | " | " | |
| | 18 | " | " | 9-12 | " | " | |
| While | 33 | " | " | 1-5 | years | of | age. |

These figures show the following interesting facts:-

That 552 or 45% of the total number of premature infants succumbed before reaching 5 years of age.

That 519 or 42 per cent. of the total number died during the first 12 months of life.

That only 33 or 2.8 per cent. died after reaching 12 months of age.

That the greatest number of deaths occurred during the neonatal period.

That the longer a premature infant survives

Table shewing.

Comparison of death rates of Premature
and
full-time births.

[see overleaf

| Year. | No. of Live Births | No. of Premature Births |
|-------|--------------------|-------------------------|
| 1927 | 2568 | 146 |
| 1926 | 2984 | 119 |
| 1925 | 3867 | 90 |
| 1924 | 2910 | 123 |
| 1923 | 3181 | 103 |
| 1922 | 3269 | 109 |
| 1921 | 3562 | 110 |
| 1920 | 4396 | 198 |
| 1919 | 2924 | 112 |
| 1918 | 2659 | 42 |
| 1917 | 2595 | 42 |

its birth, the more likely is it to ultimately survive.

The Influence of Feeding on the Mortality
amongst Premature Infants.

In this series 821 were breast fed.
 153 " Artificially fed.
 179 " breast fed for a
 varying length of
 time and then
 artificially fed.

While in 75 cases there were no particulars of feeding obtained.

Further 155 or 23 per cent. of the 821 breast fed babies died before reaching 5 years of age. 140 or 91 per cent. of the 153 artificially fed babies died before reaching 5 years of age. 147 or 84 per cent. of the 175 breast and artificially fed babies died before reaching 5 years of age. While 70 or 93 per cent. of the 75 babies with no particulars of feeding died before reaching 5 years of age.

The mortality rate amongst the artificially fed babies was therefore 4 times as great as that of the breast fed babies, thus proving that breast milk is the food par excellence for the premature infant as it is most easily digested and assimilated by its delicate undeveloped organs. Further it forms a very valuable aid against bacterial invasion which the premature tissues find so hard to cope with.

Influence of Legitimacy on the Mortality of
Premature Infants.

That the premature infant requires the greatest care and patience in its handling if it is to survive is also proved by a comparison of the number of deaths occurring among 571 legitimate and illegitimate infants in this series, viz., 164 out of 540 legitimate infants died (29 per cent.) as against 21 out of 31 illegitimate infants (67 per cent.) the death rate thus being more than twice as big amongst the illegitimate prematures.

Causes of Death.

| <u>Cause.</u> | <u>No. of Deaths.</u> |
|---|-----------------------|
| Prematurity. | 330 |
| Respiratory Diseases (Broncho Pneumonia, Bronchitis etc.) | 71 |
| Gastro-enteritis | 61 |
| Marasmus | 32 |
| Convulsions | 20 |
| Atelectasis | 8 |
| Congenital Syphilis | 5 |
| T.B. | 5 |
| Congenital Heart Disease | 5 |
| Whooping Cough | 3 |
| Incomplete Digestive Organs, | 1 |
| Diphtheria | 1 |
| Cellulitis | 1 |
| Operation | 1 |
| Influenza | 1 |
| Pemphigus | 1 |
| Haemorrhage | 1 |
| Splenic anaemia | 1 |
| Spina Bifida | 2 |
| Uraemia | 1 |
| Lack of attention at birth | 1 |

Thus apart from prematurity per se respiratory diseases and gastro-enteritis account for the greatest number of deaths, the under developed respiratory system and gastro intestinal tract forming an easy prey to bacteria while the latter is in addition unprepared and ill adapted to carry out its functions.

It is interesting to note that the infant who died from uraemia lived only 24 hours after birth, thus supporting the finding of certain authorities that the mortality rate of these infants is high during the first day of life.

The Relation between Premature Birth and the Health of the Mother.

In the premature cases investigated the mother had poor health in 73 instances, Anaemia was present in 35, 9 suffered from kidney disease, 15 had heart disease, 15 were affected with Pulmonary T.B., and lastly 8 had syphilis. Thus in approximately one eighth of the mothers, poisons likely to injure the foetus were circulating in their blood.

Comparison between the Mortality Rates of
Congenitally Syphilitic Premature Babies and
of Premature Babies, dying of T.B. and born
of T.B. Mothers.

5 of the Premature Infants of the 15 Tuberculous mothers contracted the disease & died, while the remaining 10 survived, making the Mortality Rate 33 per cent.

While 5 of the 8 congenitally specific infants succumbed giving a mortality rate of 62 per cent.

Thus in this investigation the chance of survival of the premature infant of the T.B. mother who contracts the disease was found to be about twice as great as that of the congenitally specific premature.

Table showing the relation of the foetal age
of the child at birth and its chance of
survival.

| <u>Degree of Prematurity.</u> | <u>No. of Prematures.</u> | <u>Deaths.</u> | <u>Mortality Rate.</u> |
|-----------------------------------|-------------------------------|----------------|----------------------------|
| 26 | 23 | 20. | 86% |
| 28 | 36 | 28. | 77% |
| 30 | 205 | 185. | 74% |
| 32 | 92 | 63. | 68% |
| 33 | 6 | 4. | 66% |
| 34 | 440 | 142. | 32% |
| 35 | 12 | 4. | 33% |
| 36 | 209 | 43. | 20% |
| 27 | 56 | 12. | 21% |
| 38 | 87 | 13. | 14% |
| 39 | 22 | 3. | 13% |

This table, therefore, proves that the older the foetus at birth, the greater are its chances of surviving.

Any obstetrical manipulation during the birth of a premature infant is likely to jeopardise its life in so much as its tissues are ill adapted to withstand any injury, such interference often being fatal viz., the large number 177 of stillbirths occurring during labour in this investigation for which prematurity is given as the cause of death, while as many as 687 or 68.4 per cent., of neonatal deaths was ascribed to premature birth, the infant surviving the labour for only 4 weeks.

The following table shows the obstetrical interferences. An attempt was made to investigate the effect in 506 of the premature infants in this series.

| | <u>Number.</u> | <u>Deaths.</u> |
|--------------------|----------------|----------------|
| Caesarean Section. | 5 | 0 |
| Forceps | 61 | 29 |
| Induction | 15 | 5 |
| Malpresentations | | |
| Breech | 14 | 9 |
| Twin Labour | 36 | 25 |
| Ante Partum | | |
| Haemorrhage | 14 | 11 |
| Prolonged labour | 18 | 8 |

It is noteworthy that while none of the cases succumbed in which Caesarean Section was performed 5 out of the 15 cases of induction died.

Forceps results even more striking

Ante Natal Care.

Out of the 1,228 cases 50 had antenatal supervision, 27 had had no antenatal supervision, while in 1151 cases there was no history obtainable.

47!

The Nature of the Pregnancy.

| | |
|-------------------------|-----|
| Twin | 179 |
| Albuminuria | 22 |
| Toxaemia | 19 |
| Ante Partum Haemorrhage | 50 |
| Infectious Disease | 35 |
| Venereal Disease | 30 |
| Shock and Worry | 60 |
| Falls | 36 |
| General Debility | 96 |
| Normal | 347 |
| Nature unknown | 354 |

Twin Pregnancy was thus found complicating 179 of the Premature Births, the interruption being in some cases due to the ^{dis}extension of the uterus. The greater tendency to Albuminuria and Eclampsia in Twin Pregnancy has also been noted.

Ante Partum Haemorrhage is associated with Toxaemia leading to loosening of the placental attachments. Shock and falls frequently act only as an exciting cause there being usually present some weakening factor such as ill health. It follows that ante natal care should be directed to eliminate any condition predisposing to disease such as pyorrhoea alveolaris. A number of premature births amount to approximately a third of the total will remain in which no cause for prematurity can be found in the nature of the pregnancy.

Recurrence Rate of Premature Births.

That premature labour is apt to recur in the same mother is shown by the fact that out of the 1,228 cases under consideration:-

| | | | |
|-----|-----------|-----------|--------|
| 167 | had had 1 | premature | birth. |
| 60 | " | 2 | " |
| 21 | " | 3 | " |
| 12 | " | 4 | " |
| 3 | " | 5 | " |
| 2 | " | 6 | " |
| 9 | " | 7 or more | " |

This fact may be explained partly by some local disorder of the mother such as displacement, tumor or inflammation of the uterus producing congestion or by some constitutional toxæmia, syphilis, tuberculosis or chronic Bright's disease.

Recurrence rate of Premature Births showing the associated maternal condition and the nature of the labour.

1. Maternal condition found associated with premature labour occurring for the first time.

(a) Constitutional Disease.

| | |
|----------------------|----|
| T.B. | 12 |
| Heart Disease | 12 |
| Anaemia | 13 |
| Respiratory Diseases | 9 |
| Syphilis | 3 |
| Chronic Bright's | 2 |
| T.N.T. poisoning | 2 |

(b) Nature of the Pregnancy.

| | |
|-------------------------|----|
| Toxaemia | 46 |
| Albuminuria | 7 |
| Eclampsia | 6 |
| Hydramnios | 2 |
| Traumatism | 2 |
| Ante partum Haemorrhage | 24 |

(c) Nature of the Labour.

| | |
|--------------------------------|----|
| Contracted Pelvis | |
| Forceps | 51 |
| Induction | 16 |
| Malpresentation | |
| Breech | 10 |
| Uterine Displacement of uterus | 1 |

2. Maternal conditions associated with premature labour occurring for the second time.

- (a) Constitutional Diseases.
- | | |
|---------------|---|
| Syphilis | 1 |
| T.B. | 3 |
| Heart Disease | 3 |
| Anaemia | 1 |
| T.N.T. | 1 |
- (b) Nature of the Pregnancy.
- | | |
|------------------|----|
| Toxaemia | 27 |
| Placenta Praevia | 8 |
| Albuminuria | 1 |
- (c) Nature of the labour
- | | |
|-------------------|----|
| Contracted pelvis | |
| Forceps | 10 |
| Induction | 1 |
| Twin labour | 10 |

3. Maternal conditions found associated with premature labour occurring for the third time.

- (a) Constitutional ^{and Local} Diseases.
- | | |
|--------------|---|
| Syphilis | 1 |
| Endometritis | 1 |
- (b) Nature of the Pregnancy
- | | |
|-------------------------|---|
| Toxaemia | 8 |
| Ante Partum Haemorrhage | 4 |
- (c) Nature of the labour
- | | |
|-------------------|---|
| Contracted Pelvis | |
| Induction | 3 |
| Caesarean Section | 1 |

4. Conditions associated with premature labour occurring for the fourth time.

- (a) General ^{and Local} diseases.
- | | |
|--------------|---|
| Anaemia | 1 |
| Endometritis | 1 |
- (b) Nature of the Pregnancy
- | | |
|-------------------------|---|
| Toxaemia | 3 |
| Ante Partum Haemorrhage | 2 |
- (c) Nature of the labour
- | | |
|-------------------|---|
| Contracted pelvis | 1 |
| Twin Labour | 1 |

5. Conditions found associated with premature labour occurring for the fifth time.

- (a) General disease
- | | |
|--------------------|---|
| Chronic Bright | 1 |
| Chronic Bronchitis | 1 |
- (b) Nature of Pregnancy
- | | |
|----------|---|
| Toxaemia | 1 |
|----------|---|
- (c) Nature of labour
- | | |
|--|--|
| Induction for contracted pelvis in 1 case. | |
|--|--|

While one of the mothers who had had 7 premature babies was subject to Ante Partum Haemorrhage.

Table comparing the results of Ante Natal Supervision
of 4,429 cases with 50,441 which had no ante natal
care.

| | <u>Treated.</u> (At Municipal Ante Natal Clinics.) <u>Per cent.</u> <u>Stillbirths.</u> | <u>Untreated.</u> <u>Per cent.</u> <u>Stillbirths.</u> |
|---------------------|---|--|
| Toxaemia | 0.0 | 8.5 |
| Albuminuria (Acute) | 2.2 | 66.6 |
| Ante Partum | | |
| Haemorrhage | 5.1 | 44.5 |
| Contracted Pelvis | 1.0 | 20.5 |
| Malpresentations - | | |
| Breech | 0.4 | 23.2 |
| Transverse | - | 17.5 |
| Occipito | - | 9.1 |
| Venereal Disease | 7.5 | 71.4 |

The success of Ante Natal Care cannot be 100 per cent. in every case because much depends on the time of pregnancy that the mother seeks advice, also on the degree of severity of the affection and the general health of the mother.

Toxaemia and Albuminuria can usually be remedied even when the onset is acute 2 per cent. only succumbing against 66 per cent. untreated. It is difficult to estimate toxaemia from the disturbance present, ^{albuminuria being sometimes the only} it is a sign of toxin in the blood. The proportion of Toxaemias developing Eclampsia is not very large yet the cumulative effect on the mother from a succession of Toxic Pregnancies as well as on the child demands that Albuminuria should be regarded as a grave danger signal.

Eclampsia has a foetal mortality of 6.1 per cent. in treated cases.

Cases of Contracted Pelvis show the greatest success in Ante Natal Care. The relative proportion between the Head and Brim is watched and induction and cesarean section ^{recommended} at the appropriate time. The above table also shows that version in breech cases is another life saving measure.

In the treatment of venereal disease it might be thought that the figure 7.5 per cent. is rather high in treated cases but it must be remembered that in many cases the mother shows no signs of Syphilis and even in some cases the Wassermann re-action is not reliable.

Obstetric History.

Table showing the previous history of the mothers -

| <u>Macerated</u> <u>Foetuses.</u> | <u>Fresh</u> <u>Foetuses.</u> |
|--------------------------------------|----------------------------------|
|--------------------------------------|----------------------------------|

| | <u>Macerated</u> <u>Foetuses.</u> | <u>Fresh</u> <u>Foetuses.</u> |
|-------------------------|--------------------------------------|----------------------------------|
| No history given | 8 | 70 |
| No previous Stillbirths | 153 | 474 |
| 1 " " " | 15 | 59 |
| 2 " " " | 7 | 16 |
| 3 " " " | 1 | 6 |
| 4 " " " | 1 | 0 |
| 5 " " " | 0 | 0 |
| 6 " " " | 1 | 1 |
| 7 " " " | 0 | 1 |

A further investigation showed that the majority of stillbirths occurred in Primiparae and with subsequent pregnancies there was a fall in their number.

This indicates the importance of antenatal care during the first pregnancy.

House^{ing} Conditions.

An unsuccessful attempt to correlate housing conditions with stillbirths and premature births was made.

Thus in the case of stillbirths -

| | |
|-------------------------|-------------------------|
| 1 room with 5 occupants | 3 stillbirths occurred. |
| 3 rooms " 5 " | 103 " " |
| 4 " " 5 " | 42 " " |
| 2 " " 5 " | 28 " " |

In the case of premature births -

| | |
|--------------------------|-------------------------------|
| 4 rooms with 5 occupants | 42 premature births occurred. |
| 2 " " 5 " | 21 " " " |
| 2 " " 2 " | 19 " " " |
| 4 " " 2 " | 41 " " " |

So that the above conditions appear to have no direct bearing upon stillbirths and premature births.

Work of the Mother.

Housework.

| <u>Stillbirths.</u> | <u>Premature Births.</u> |
|---------------------|--------------------------|
| 562 | 841 |

Work outside the Home.

| <u>Stillbirths.</u> | <u>Premature Births.</u> |
|---------------------|--------------------------|
| 61 | 191 |

Investigation showed that most of the mothers who worked outside the home ceased to do so after the 6th month. It also showed that occupation of the mother had no bearing on the incidence of stillbirths and premature births.

Conclusions.

That Toxaemia due to morbid conditions of the mother such as Syphilis, Albuminuria, Heart, Lung and Kidney diseases is the commonest cause of Ante Natal Death.

That injury to the mother e.g., falls, etc., are only likely to endanger the life of the child in the presence of some maternal or foetal disorder.

That by promptly treating any disease detected in the mother during pregnancy ill effects on the foetus will be prevented, such early detection and treatment constituting the first great principle in the care of the Expectant Mother. Especially is this necessary for toxaemia occurring in the first pregnancy otherwise irreparable damage may be done to the maternal tissues, so that a vicious circle is instituted in each subsequent pregnancy.

That syphilis is an important cause of ante natal death, resulting in a macerated foetus. The value of ante natal treatment in Syphilis in the reduction of stillbirths is accepted.

That injury at birth accounts for the greatest number of deaths among fresh foetuses, emphasises the fact that the less need there is for manipulative interference at its birth the greater will be the chance of the survival of the child.

That the time for interference is during the ante natal period e.g., by diagnosing and treating malpresentations.

In the neonatal deaths the principal cause is Prematurity. Adequate ante natal care dealing with the underlying causes of prematurity may hope to reduce them by at least a proportion, although at present in a large number of cases of prematurity the cause is unknown. Reduction in this direction can be hoped for by greater and more individual care of premature infants.

The importance of breast feeding in the rearing of the premature infant.

That the nearer to full term the premature infant is at birth, the more likely is it to live, its tissues being better able to cope with extra uterine existence.

In conclusion the reduction in the number of stillbirths and premature births can only be effected through efficient supervision of the Expectant Mother and her Unborn Child, throughout the whole of her pregnancy.

