

## **Notes on hydatid disease in New South Wales.**

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# NOTES ON HYDATID DISEASE IN NEW SOUTH WALES.

HYDATID disease is one of those ailments which may be studied in Australia more practically than in any other country in the world. I regret that I am unable to obtain the number of cases of hydatid disease occurring in the various parts of the colony, so I am compelled to limit my observations to those which have had a fatal termination.

The following table, showing the number of cases which terminated fatally in each colony, may be of interest:—

| Year. | N.S.W. | Vic. | S.A. | Q'ld. | Tasm. | N.Z. |
|-------|--------|------|------|-------|-------|------|
| 1880  | —      | 48   | —    | 1     | 1     | 9    |
| 1881  | —      | 48   | —    | 2     | 1     | 3    |
| 1882  | 12     | 58   | 12   | 3     | 4     | 7    |
| 1883  | 10     | 56   | 6    | 4     | 4     | 1    |
| 1884  | 20     | 59   | 13   | 8     | 6     | 3    |
| 1885  | 28     | 47   | 5    | 3     | 2     | 3    |
| 1886  | 23     | 51   | 18   | 0     | 2     | 4    |
| 1887  | 27     | 51   | 9    | 1     | 3     | 3    |
| 1888  | 22     | 53   | 13   | 0     | 2     | 5    |
| 1889  | 24     | 61   | 11   | 3     | 5     | 2    |
| 1890  | 35     | 53   | 8    | 2     | 0     | 3    |
| 1891  | 33     | 58   | 12   | 3     | 3     | 3    |
| 1892  | 33     | 63   | 12   | 0     | 8     | 13   |
| 1893  | 49     | 65   | —    | —     | —     | 8    |

In Western Australia there was 1 death in 1888, but none in the other years.

The statistics which I am about to quote are for the years 1890-91-92, and the populations those of the census of 1891.

The population of New South Wales was (excluding Aborigines and half-castes) 1,123,954. The total number of deaths from all causes (in the three-year period) was 44,914; while the fatal cases of hydatid disease numbered 101. Hydatid disease, therefore, caused one death in every 444.

The deaths occurred in the following districts:—

### SYDNEY (City)—

| District.              | Males. | Females. | Total. |
|------------------------|--------|----------|--------|
| Sydney Hospital ..     | 2      | 5        | 7      |
| St. Vincent's Hospital | —      | 2        | 2      |
| Fitzroy Ward ..        | 2      | 2        | 4      |
| Denison Ward ..        | 1      | —        | 1      |
| Total ..               | 5      | 9        | 14     |

### SUBURBAN DISTRICTS.

| District.                 | Males. | Females. | Total. |
|---------------------------|--------|----------|--------|
| Prince Alfred Hospital..  | 13     | 3        | 16     |
| North Shore Hospital ..   | 1      | 1        | 2      |
| Lewisham Hospital ..      | 1      | —        | 1      |
| Glebe Children's Hospital | 1      | 1        | 2      |
| Paddington .. ..          | 2      | —        | 2      |
| Balmain .. ..             | 1      | —        | 1      |
| Rockdale .. ..            | 1      | —        | 1      |
| Leichhardt .. ..          | 1      | —        | 1      |
| Waterloo .. ..            | —      | 1        | 1      |
| Burwood .. ..             | —      | 1        | 1      |
| North Sydney .. ..        | —      | 2        | 2      |
| Total .. ..               | 21     | 9        | 30     |

### COUNTRY DISTRICTS.

| District.             | Males. | Females. | Total. |
|-----------------------|--------|----------|--------|
| Lismore .. ..         | —      | 1        | 1      |
| Macleay (Hospital) .. | 1      | —        | 1      |
| Inverell .. ..        | —      | 1        | 1      |
| Glen Innes .. ..      | —      | 1        | 1      |
| Armidale .. ..        | —      | 1        | 1      |
| Tamworth .. ..        | —      | 3        | 3      |
| Manilla .. ..         | —      | 1        | 1      |

## COUNTRY DISTRICTS—continued.

| District.                  | Males. | Females. | Total. |
|----------------------------|--------|----------|--------|
| Barraba .. ..              | 1      | —        | 1      |
| Narrabri (Hospital) ..     | 1      | —        | 1      |
| Murrurundi .. ..           | —      | 1        | 1      |
| Murrurundi (Hospital)      | 1      | —        | 1      |
| Maitland, West ..          | 1      | 2        | 3      |
| Newcastle .. ..            | 1      | —        | 1      |
| Newcastle (Hospital) ..    | 1      | —        | 1      |
| Newcastle (Hosp. for Ins.) | —      | 1        | 1      |
| Braidwood .. ..            | 1      | —        | 1      |
| Cooma .. ..                | 1      | —        | 1      |
| Cooma (Hospital) ..        | 1      | —        | 1      |
| Liverpool .. ..            | —      | 1        | 1      |
| Windsor .. ..              | —      | 1        | 1      |
| Bathurst .. ..             | 1      | 2        | 3      |
| Mudgee .. ..               | —      | 1        | 1      |
| Hill End (Hospital) ..     | 1      | —        | 1      |
| Orange .. ..               | —      | 2        | 2      |
| Orange (Hospital) ..       | —      | 1        | 1      |
| Wellington .. ..           | 1      | —        | 1      |
| Dubbo .. ..                | —      | 1        | 1      |
| Nyngan .. ..               | 1      | —        | 1      |
| Coonamble (Hospital)       | 2      | 1        | 3      |
| Brewarrina (Hospital)      | 1      | —        | 1      |
| Blayney .. ..              | 1      | —        | 1      |
| Forbes (Hospital) ..       | 1      | —        | 1      |
| Grenfell .. ..             | —      | 1        | 1      |
| Young .. ..                | 1      | —        | 1      |
| Temora .. ..               | 1      | —        | 1      |
| Junee .. ..                | 1      | —        | 1      |
| Wagga Wagga .. ..          | 1      | —        | 1      |
| Albury .. ..               | —      | 1        | 1      |
| Deniliquin .. ..           | —      | 2        | 2      |
| Hay .. ..                  | 1      | 1        | 2      |
| Hay (Hospital) .. ..       | —      | 2        | 2      |
| Wentworth .. ..            | —      | 1        | 1      |
| Milparinka .. ..           | 1      | —        | 1      |
|                            | —      | —        | —      |
| Total                      | 25     | 32       | 57     |

Reference to the accompanying map shows that most of the fatal cases occurred in towns situated on the western slopes of the Great Dividing Range.

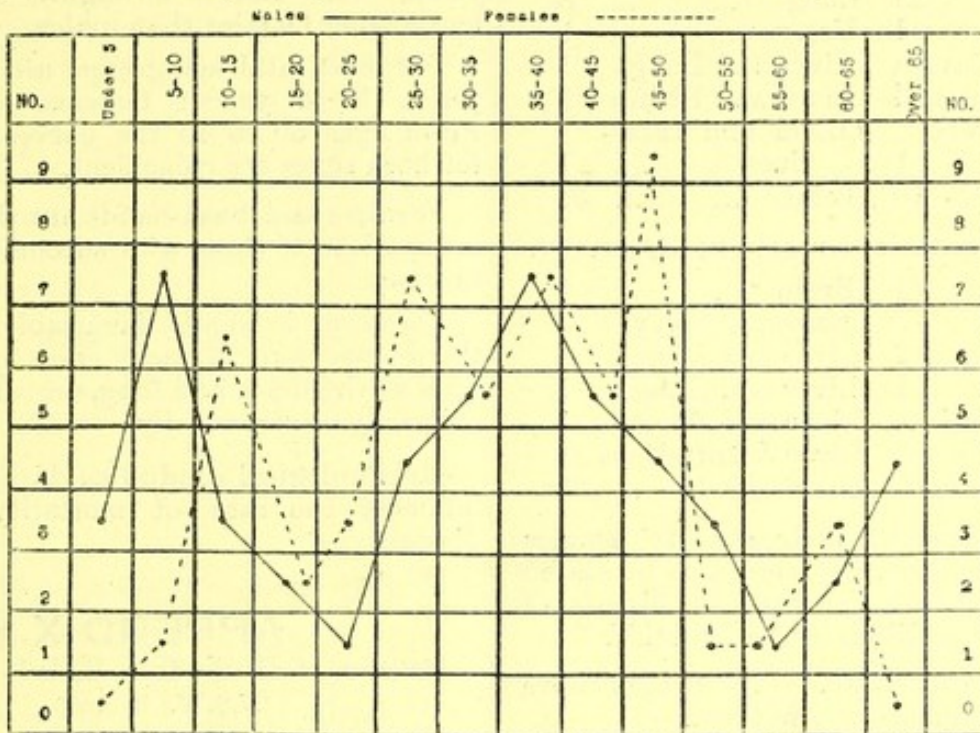
AGE AND SEX.—The following table shows the age of each person dying from hydatid disease during 1890-91-92, distinguishing males and females:—

| Age. | M. | F. | Total. | Age. | M. | F. | Total. |
|------|----|----|--------|------|----|----|--------|
| 1    | —  | —  | —      | 41   | 1  | 1  | 2      |
| 2    | 1  | —  | 1      | 42   | 1  | 1  | 2      |
| 3    | 2  | —  | 2      | 43   | —  | —  | —      |
| 4    | —  | —  | —      | 44   | —  | 1  | 1      |
| 5    | 2  | —  | 2      | 45   | —  | 1  | 1      |
| 6    | —  | —  | —      | 46   | —  | 3  | 3      |
| 7    | 2  | 1  | 3      | 47   | —  | 2  | 2      |
| 8    | 2  | —  | 2      | 48   | 3  | 1  | 4      |
| 9    | 1  | —  | 1      | 49   | 1  | 2  | 3      |
| 10   | —  | 1  | 1      | 50   | 1  | —  | 1      |
| 11   | 2  | 2  | 4      | 51   | 1  | —  | 1      |
| 12   | 1  | —  | 1      | 52   | 1  | —  | 1      |
| 13   | —  | 1  | 1      | 53   | —  | —  | —      |
| 14   | —  | 2  | 2      | 54   | —  | 1  | 1      |
| 15   | —  | —  | —      | 55   | —  | —  | —      |
| 16   | —  | 1  | 1      | 56   | 1  | —  | 1      |
| 17   | 1  | —  | 1      | 57   | —  | —  | —      |
| 18   | 1  | —  | 1      | 58   | —  | —  | —      |
| 19   | —  | 1  | 1      | 59   | —  | 1  | 1      |
| 20   | —  | 1  | 1      | 60   | —  | 2  | 2      |
| 21   | —  | —  | —      | 61   | 1  | 1  | 2      |
| 22   | —  | —  | —      | 62   | —  | —  | —      |
| 23   | —  | 1  | 1      | 63   | —  | —  | —      |
| 24   | 1  | 1  | 2      | 64   | 1  | —  | 1      |
| 25   | —  | 2  | 2      | 65   | 1  | —  | 1      |
| 26   | 1  | 3  | 4      | 66   | 2  | —  | 2      |
| 27   | 2  | —  | 2      | 67   | —  | —  | —      |
| 28   | —  | 1  | 1      | 68   | —  | —  | —      |
| 29   | 1  | 1  | 2      | 69   | —  | —  | —      |
| 30   | 1  | 1  | 2      | 70   | —  | —  | —      |
| 31   | 2  | 3  | 5      | 71   | —  | —  | —      |
| 32   | 2  | 1  | 3      | 72   | —  | —  | —      |
| 33   | —  | —  | —      | 73   | —  | —  | —      |
| 34   | —  | —  | —      | 74   | —  | —  | —      |
| 35   | 2  | —  | 2      | 75   | —  | —  | —      |
| 36   | —  | 2  | 2      | 76   | —  | —  | —      |
| 37   | —  | 1  | 1      | 77   | —  | —  | —      |
| 38   | 2  | 1  | 3      | 78   | 1  | —  | 1      |
| 39   | 3  | 3  | 6      | 79   | —  | —  | —      |
| 40   | 3  | 2  | 5      | 80   | —  | —  | —      |

## AGES IN GROUPS.

| AGE-GROUP. | MALES. | FEMALES. | TOTAL. |
|------------|--------|----------|--------|
| Under 5    | 3      | 0        | 3      |
| 5—10       | 7      | 1        | 8      |
| 10—15      | 3      | 6        | 9      |
| 15—20      | 2      | 2        | 4      |
| 20—25      | 1      | 3        | 4      |
| 25—30      | 4      | 7        | 11     |
| 30—35      | 5      | 5        | 10     |
| 35—40      | 7      | 7        | 14     |
| 40—45      | 5      | 5        | 10     |
| 45—50      | 4      | 9        | 13     |
| 50—55      | 3      | 1        | 4      |
| 55—60      | 1      | 1        | 2      |
| 60—65      | 2      | 3        | 5      |
| 65—70      | 3      | 0        | 3      |
| Over 70    | 1      | 0        | 1      |
| Total—     | 51     | 50       | 101    |

Chart showing the number of deaths from Hydatid Disease at each age group, distinguishing Males and Females, 1890-91-92 (N.S.W.)



As will be seen from the above chart, the curve for males differs from that for females. For males there is a rise until 10 years is reached, then a gradual decline to 25; again a rise to 40, then a decline to 60, after which there is a very slight rise. The maximum is reached at ages 5-10 and 35-40 years.

For females no cases are recorded under the age of five years. The rate rises to 15, then declines to 20, rising again to 30. During the next period there is a slight decline, but a rise is again noticed at 35-40. At 40-45 there is again a slight lowering of the rate, which quickly rises at the next period, when it reaches its maximum. From this there is a rapid decline, no cases being recorded after the age of 65.

Of the 101 deaths during 1890-92, slightly over one-half (viz., 51) were of males, and 50 of females. They were distributed as follows:—

|         | Metropolis. |           | Country. |            |
|---------|-------------|-----------|----------|------------|
| 1890 .. | 9 males,    | 5 females | 6 males, | 15 females |
| 1891 .. | 9 "         | 7 "       | 8 "      | 9 "        |
| 1892 .. | 8 "         | 6 "       | 11 "     | 8 "        |
|         | 26          | 18        | 25       | 32         |

The population in 1891 consisted of 608,003 males and 515,951 females. There was, therefore, among males one death for every 35,176 male inhabitants, and among females one for every 30,957 inhabitants (females.) Hydatid disease is, therefore, slightly more prevalent among females than among males. The proportion is about seven to six.

OCCUPATION.—Of the 51 males no less than 23 had no specified occupation. Of the other 28 the occupations were:—

|                          |        |            |       |
|--------------------------|--------|------------|-------|
| Labourers                | ... 11 | Painter    | ... 1 |
| Farmers                  | ... 3  | Miner      | ... 1 |
| Bushmen                  | ... 2  | Bricklayer | ... 1 |
| Jockey                   | ... 1  | Butcher... | ... 1 |
| Solicitor                | ... 1  | Traveller  | ... 1 |
| Runner                   | ... 1  | Stonemason | ... 1 |
| Carter                   | ... 1  | Engineer   | ... 1 |
| Cordial manufacturer, 1. |        |            |       |

Of the 50 females the occupations are stated as follows:—

|                                   |   |              |       |
|-----------------------------------|---|--------------|-------|
| Married women                     | 6 | Widow        | ... 2 |
| Domestic servant                  | 3 | Private life | ... 1 |
| House duties                      | 3 | Nurse        | ... 1 |
| No occupation or unspecified, 34. |   |              |       |

PATHOLOGY.—By far the most common seat of the disease is the liver. In most cases the liver alone was affected, while in many others the liver together with another organ was the seat of the trouble. Among males the disease was found in the following organs:—

|                 |        |                  |        |
|-----------------|--------|------------------|--------|
| Liver           | ... 22 | Brain            | ... 6  |
| Lung            | ... 4  | Abdominal Cavity | 2      |
| Liver and Brain | 2      | Liver and Lung   | 1      |
| Pericardium     | 1      | Unspecified      | ... 13 |
| Total 51.       |        |                  |        |

Among females the order was :

|                  |    |                  |     |    |
|------------------|----|------------------|-----|----|
| Liver ...        | 29 | Lung ...         | ... | 3  |
| Brain ...        | 1  | Uterus ...       | ... | 1  |
| Abdominal Cav.   | 1  | Liver and Lung   |     | 1  |
| Liver and Spleen | 1  | Liver and Pleura |     | 1  |
| Liver and Peri-  |    | Liver and Intes- |     |    |
| cardium...       | 1  | tines ...        |     | 1  |
| Unspecified      | 10 | Total ...        | ... | 50 |

For both sexes the order was as follows :—

|                 |    |                    |     |    |
|-----------------|----|--------------------|-----|----|
| Liver ...       | 51 | Brain ...          | ... | 7  |
| Lung ...        | 7  | Abdom. Cavity      |     | 3  |
| Liver and Lung  | 2  | Liver and Brain    |     | 2  |
| Pericardium     | 1  | Liver and Spleen   |     | 1  |
| Liver and Peri- |    | Liver and Pleura   |     | 1  |
| cardium         | 1  | Liver & Intestines |     | 1  |
| Uterus ...      | 1  | Unspecified ...    | ... | 23 |

Of these cases one male and six females died after operation. It may also be stated that many of these persons had disease of other organs in addition to the hydatids.

SEASON OF THE YEAR.—The deaths were recorded in the months as follows :—

|                   | M. | F. | Total. |
|-------------------|----|----|--------|
| January .. .. .   | 2  | 5  | 7      |
| February .. .. .  | 7  | 3  | 10     |
| March .. .. .     | 3  | 2  | 5      |
| April .. .. .     | 4  | 3  | 7      |
| May .. .. .       | 4  | 3  | 17     |
| June .. .. .      | 4  | 7  | 1      |
| July .. .. .      | 7  | 2  | 9      |
| August .. .. .    | 2  | 1  | 3      |
| September .. .. . | 2  | 7  | 19     |
| October .. .. .   | 6  | 4  | 0      |
| November .. .. .  | 4  | 3  | 7      |
| December .. .. .  | 6  | 10 | 16     |

The season of the year appears to have little, if any, influence upon the mortality rate of the disease. Nor are meteorological conditions important factors in its production.

SUMMARY.—Hydatid disease is met with chiefly on the western slopes of the Great Dividing Range or in districts supplied with water from rivers and creeks having their origin in the western slopes. Of 57 deaths occurring outside the metropolitan area (Sydney and suburbs), no less than 43 were in districts so situated. Of the towns receiving water from the eastern slopes (excluding the Metropolis), there were 13 deaths, while the remaining one occurred at Milparinka, in the extreme north-west of the colony. In the metropolis 44 deaths occurred, of which no less than 30 are reported from the various hospitals of the city and suburbs.

The mean age at death is a little over 33 years. The disease is slightly more prevalent among females than males.

The most fatal age-groups are: males 5-10 years, 35-40 years; females, 45-50 years. From ages 30 to 45 the curves (see chart) for both sexes are coincident.

Farmers and bush-hands are the principal occupations of those who succumb to hydatid disease.

The liver is almost invariably the seat of the disease, but in many cases other organs, such as the brain and lung, are affected either primarily or secondarily.

Meteorological conditions do not appear to influence the rate of mortality from the disease.

## APPENDIX.

Statistics of Deaths from Hydatid Disease in N.S.W. in 1893.

|                         | Males. | Females. | Total. |
|-------------------------|--------|----------|--------|
| *Sydney .. .. .         | 6      | 1        | 7      |
| *Suburbs .. .. .        | 6      | 6        | 12     |
| Parramatta .. .. .      | 0      | 1        | 1      |
| *Brewarrina (Hospital)  | 1      | 0        | 1      |
| *Albury .. .. .         | 3      | 2        | 5      |
| Moss Vale .. .. .       | 1      | 0        | 1      |
| Corowa .. .. .          | 1      | 0        | 1      |
| Goulburn .. .. .        | 1      | 0        | 1      |
| *Nimitybelle .. .. .    | 1      | 0        | 1      |
| *Tamworth .. .. .       | 1      | 0        | 1      |
| *Tamworth (Hospital)    | 1      | 1        | 2      |
| Cootamundra .. .. .     | 1      | 1        | 2      |
| Broken Hill .. .. .     | 2      | 1        | 3      |
| *Dubbo .. .. .          | 1      | 0        | 1      |
| *Forbes .. .. .         | 1      | 0        | 1      |
| *Newcastle (Hospital)   | 1      | 0        | 1      |
| *Young (Hospital) .. .  | 1      | 0        | 1      |
| Narrandera (Hospital)   | 1      | 0        | 1      |
| Bourke (Hospital) .. .  | 1      | 0        | 1      |
| *Mudgee .. .. .         | 0      | 2        | 2      |
| *Orange .. .. .         | 0      | 1        | 1      |
| Greta .. .. .           | 0      | 1        | 1      |
| *Armidale .. .. .       | 0      | 1        | 1      |
| *Hay (Hospital) .. .. . | 0      | 1        | 1      |

\*In these Districts deaths from the Disease are recorded during 1890-92.

PARTS OF BODY AFFECTED :—

|                          | Males. | Females. | Total. |
|--------------------------|--------|----------|--------|
| Liver .. .. .            | 18     | 8        | 26     |
| Abdomen .. .. .          | 2      | 5        | 7      |
| Lung .. .. .             | 4      | 0        | 4      |
| Brain .. .. .            | 1      | 1        | 2      |
| Liver and Lung .. .. .   | 1      | 1        | 2      |
| Liver and Kidney .. .. . | 1      | 0        | 1      |
| Intestines .. .. .       | 1      | 0        | 1      |
| Pleura .. .. .           | 0      | 1        | 1      |
| Hip .. .. .              | 0      | 1        | 1      |
| Unspecified .. .. .      | 3      | 1        | 4      |

Total number of Deaths from Hydatid Disease in N.S.W. 49.