

Record of 561 Consecutive Autopsies on Native Mine Workers.

BY DR. W. O. FISCHER,
Medical Research Officer, Rand Mines, Limited.

The tables given hereunder record a further 561 autopsies performed since the publication of the author's report on 1,402 autopsies (*JOURNAL OF THE MEDICAL ASSOCIATION OF SOUTH AFRICA*, September 28th, 1929). These autopsies cover the period from the date of the preliminary report to the 31st December, 1931.

It will be noted from the tables that there is but a slight difference in the distribution of the various findings. Noteworthy are the following differences:—

The ratio of deaths from pneumonias shows a slight increase over the preceding period (42.4 per cent. to 49.4 per cent.). On the other hand, tuberculosis shows a slight reduction (21.5 per cent. to 16.04 per cent.). The anatomical distribution of the lesions found in lobar pneumonia remains approximately the same (Table III). Acute miliary tuberculosis is the dominant type of tuberculosis encountered in these autopsies, and was found in 50 per cent. of the cases of tuberculosis which came to autopsy. This is, however, due to the fact that all cases of tuberculosis of a non-fulminating type are repatriated if they are able to travel, and the vast majority of cases that come to autopsy are consequently of a fulminating type.

There is a relative increase in the number of malignant tumours found at autopsy. In the period 1922-1928, these tumours constituted 0.92 per cent. of all the autopsies. In the present period they constitute 1.6 per cent.

In the last report it was suggested that the actual percentage of natives infected with bilharzia is much higher than one would assume from the post-mortem protocols. It was suggested that methodical examination would reveal a much higher percentage. This was confirmed by a careful search in 326 consecutive post-mortems carried out during the period under review. The results are set forth in Table VII.

Of the series of autopsies now reported, 121 were performed by Dr. A. B. Dodds, 22 by Dr. A. O. Dreosti, 6 by various other medical officers, and the remaining 412 by the author.

TABLE I.
PRINCIPAL CAUSES OF DEATH, AS REVEALED AT AUTOPSY.

| YEAR | AUTOPSIES PER YEAR | FORMED PER AUTOPSIES | GENERAL TUBERCULOSIS | PULMONARY TUBERCULOSIS | TUBERCULOSIS OF KIDNEYS | TUBERCULOSIS OF GLANDS | TUBERCULOSIS OF PERITONEUM | TUBERCULOSIS OF MENINGES | TUBERCULOSIS TOTAL | Lobar Pneumonia | Bronchopneumonia | Bacillary Dysentery | Amoebic Dysentery | Amoebic Abscess of Liver | Bacillary Dysentery | Amoebic Dysentery | Hydatid Disease | Ankylostomiasis | Epidemic Cerebro-spinal Meningitis | Phenomocoacial Menigitis | Abscess of Brain | Gumma of Brain | Cerebral Hemorrhage | Carcinoma | Sarcoma | Lymphosarcoma | Cirrhosis of Liver | Chronic Nephritis | Acute Pericarditis | Miscellaneous | | | | | | |
|--------------------------------|--------------------|----------------------|----------------------|------------------------|-------------------------|------------------------|----------------------------|--------------------------|--------------------|-----------------|------------------|---------------------|-------------------|--------------------------|---------------------|-------------------|-----------------|-----------------|------------------------------------|--------------------------|------------------|----------------|---------------------|-----------|---------|---------------|--------------------|-------------------|--------------------|---------------|---|----|----|----|-----|-----|
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1929 | 223 | 5 | 3 | 7 | — | 3 | 2 | 2 | — | 6 | — | 2 | — | 45 | 90 | 205 | 72 | 49 | 2 | 4 | — | 2 | 1 | 22 | 12 | 3 | — | 1 | 7 | — | 1 | 14 | 7 | 68 | | |
| 1930 | 182 | 1 | 5 | 4 | — | 1 | — | — | — | 6 | — | 2 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | | | |
| 1931 | 156 | 2 | 4 | 1 | — | 3 | — | — | — | 7 | — | 2 | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | | | |
| TOTAL | 569 | 8 | 12 | 8 | 1 | — | 6 | 2 | — | 6 | — | 2 | — | 45 | 90 | 205 | 72 | 49 | 2 | 4 | — | 2 | 1 | 22 | 12 | 3 | — | 1 | 7 | — | 1 | 14 | 7 | 68 | | |
| TOTAL YEARS 1922/1928 | 1,402 | 42 | 48 | 30 | 22 | 2 | 3 | 7 | 6 | 2 | 2 | 2 | 136 | 302 | 468 | 125 | 120 | 15 | 3 | 4 | 15 | 4 | 1 | 102 | 14 | 8 | 4 | 2 | 11 | 1 | 1 | 5 | 10 | 20 | 167 | |
| TOTAL 10 YEARS 1922/1931 | 1,963 | 50 | 60 | 38 | 23 | 2 | 9 | 9 | 12 | 2 | 2 | 4 | 181 | 392 | 673 | 197 | 870 | 169 | 17 | 7 | 4 | 15 | 6 | 2 | 124 | 26 | 11 | 4 | 3 | 18 | 1 | 2 | 6 | 24 | 27 | 235 |

TABLE II.

PER CENT. OF TOTAL AUTOPSIES PERFORMED.

| Year. | Lobar Pneumonia and Bronchopneumonia Per cent. | Tuberculosis, Per cent. | Enteric Fever, Per cent. | Epidemic Cerebro-spinal Meningitis, Per cent. |
|-----------------|--|-------------------------|--------------------------|---|
| 1929 | 44.8 | 17.9 | 7.2 | 5.8 |
| 1930 | 55.5 | 12.1 | 7.7 | 3.8 |
| 1931 | 48.7 | 17.9 | 12.2 | 1.3 |
| Total 1929-1931 | 49.4 | 16.04 | 8.7 | 3.9 |
| Total 1922-1928 | 42.2 | 21.5 | 8.6 | 7.3 |
| Total 1922-1931 | 44.3 | 19.97 | 8.6 | 6.3 |

TABLE III.

ANATOMICAL SITES OF LESIONS IN PNEUMONIAS, AS FOUND AT AUTOPSY.

Left Lobar Pneumonia.

| Lobes Affected. | Cases. | Per cent. | Previous Series, Per cent. |
|------------------|--------|-----------|----------------------------|
| Both lobes ... | 34 | 85.0 | 71.3 |
| Lower lobe alone | 5 | 12.5 | 25.9 |
| Upper lobe alone | 1 | 2.5 | 2.8 |

Right Lobar Pneumonia.

| Lobes Affected. | Cases. | Per cent. | Previous Series, Per cent. |
|--------------------------|--------|-----------|----------------------------|
| All lobes ... | 47 | 53.4 | 57.2 |
| Lower lobe alone | 2 | 2.3 | 10.7 |
| Upper lobe alone | 4 | 4.5 | 8.6 |
| Middle lobe alone | 0 | 0 | 1.6 |
| Lower and upper lobes... | 21 | 23.9 | 14.4 |
| Lower and middle lobes | 12 | 13.6 | 5.3 |
| Middle and upper lobes | 2 | 2.3 | 2.1 |

Double Lobar Pneumonia.

| Lobes Affected. | Cases | Per cent. | Previous Series Per cent. |
|--|-------|-----------|---------------------------|
| All lobes of both lungs... | 4 | 5.2 | 8.7 |
| All lobes of right lung and left lower lobe ... | 17 | 22.1 | 17.3 |
| All lobes of right lung and left upper lobe ... | 2 | 2.6 | 5.8 |
| Right lower and upper and left lower lobe ... | 10 | 12.9 | 15.6 |
| Right lower and upper and left upper lobe ... | 2 | 2.6 | 0 |
| Right lower and middle and left lower lobe ... | 2 | 2.6 | 1.7 |
| Right lower and middle and left upper lobe ... | 0 | 0 | 1.2 |
| Right middle and upper and left lower lobe ... | 0 | 0 | 0.6 |
| Right middle and upper and left upper lobe ... | 0 | 0 | 0 |
| Right lower and left lower lobe ... | 8 | 10.4 | 11.6 |
| Right lower and left upper lobe ... | 3 | 3.9 | 1.2 |
| Right upper and left lower lobe ... | 3 | 3.9 | 0.6 |
| Right upper and left upper lobe ... | 1 | 1.3 | 1.2 |
| Both lobes of left lung and right lower lobe ... | 5 | 6.5 | 10.98 |
| Both lobes of left lung and right middle lobe | 0 | 0 | 0.6 |
| Both lobes of left lung and right upper lobe ... | 6 | 7.8 | 3.5 |
| Both lobes of left lung and right lower and middle lobes | 3 | 3.9 | 4.04 |
| Both lobes of left lung and right lower and upper lobes ... | 11 | 14.3 | 12.7 |
| Both lobes of left lung and right middle and upper lobes ... | 0 | 0 | 2.9 |

TABLE IV.

DISTRIBUTION OF TUBERCULOUS LESIONS, AS FOUND AT AUTOPSY.

| | Type. | Cases. | Per cent. | Previous Series, Per cent. |
|----|--|--------|-----------|----------------------------|
| 1 | Acute miliary tuberculosis | 45 | 50.0 | 45.0 |
| 2 | Pulmonary tuberculosis ... | 12 | 13.3 | 15.9 |
| 3 | General tuberculosis ... | 8 | 8.9 | 13.9 |
| 4 | Pulmonary tuberculosis with silicosis. | 8 | 8.9 | 9.9 |
| 5 | Abdominal tuberculosis ... | 1 | 1.1 | 7.3 |
| 6 | Tuberculosis of glands ... | 2 | 2.2 | 2.3 |
| 7 | Tuberculous meningitis ... | 6 | 6.7 | 1.98 |
| 8 | Tuberculous pericarditis ... | 6 | 6.7 | 0.99 |
| 9 | Tuberculosis of kidneys ... | 0 | 0 | 0.7 |
| 10 | Tuberculosis of vertebrae | 2 | 2.2 | 0.7 |
| 11 | Tuberculous abscess of liver | 0 | 0 | 0.7 |
| 12 | Tuberculoma of brain ... | 0 | 0 | 0.7 |

TABLE V.

COMPLICATIONS FOUND AT AUTOPSY IN 49 CASES OF
ENTERIC FEVER.

| | Cases. | Per cent | Previous Series Per cent. |
|-----------------------------------|--------|----------|---------------------------|
| Peritonitis following perforation | 9 | 18.4 | 20.2 |
| Peritonitis without perforation | 0 | 0 | 1.7 |
| Intestinal haemorrhage | 2 | 4.1 | 6.7 |
| Ulcerative typhoid appendicitis | 1 | 2.0 | 1.7 |
| Abscess of spleen | 1 | 2.0 | 1.7 |
| Typhoid septicaemia | 0 | 0 | 0.83 |
| Broncho-pneumonia | 17 | 35.6 | 46.6 |
| Acute nephritis | 3 | 6.1 | 10.0 |
| Acute typhoid meningitis | 0 | 0 | 1.7 |

TABLE VII.

BILHARZIASIS.

| | | | |
|------------------------|-----|-----|------|
| (a) East Coast natives | 185 | 123 | 66.5 |
| Union natives ... | 141 | 3 | 2.1 |
| Previous series ... | 735 | 258 | 35.1 |

(b) The organs affected and species found in the 123 cases of bilharziasis amongst East Coast natives.

| Organs Affected. | Cases. | Per Cent. | Schistosomum. | | |
|----------------------------------|--------|-----------|---------------|-----------|------------------------------------|
| | | | Hæmatob. | Mansonii. | Schist. Hæmatob. + Mansonii. |
| Bladder alone .. | 98 | 79.6 | 93 | — | 5 |
| Bladder and liver | 16 | 13.0 | 14 | — | 2* |
| Bladder, liver and lungs .. | 1 | .8 | — | — | 1 |
| Liver alone ... | 5 | 4.1 | — | 5 | — |
| Bladder, ureters and urethra ... | 1 | .8 | 1 | — | — |
| Bladder and appendix | 1 | .8 | 1 | — | — |
| Bladder and cæcum .. | 1 | .8 | — | — | 1 |

TABLE VI.
MALIGNANT TUMOURS.

| Year. | Carcinoma of Liver. | Carcinoma of Bladder. | Total of Carcinoma. | Sarcoma (round-celled.) | Lymphosarcoma. | Total of Malignant Tumours |
|---------------------------|---------------------|-----------------------|---------------------|-------------------------|----------------|----------------------------|
| | | | | | | |
| 1929 | 2 | (1)* | 3 | — | 1 | 4 |
| 1930 | 1 | — | 1 | — | — | 1 |
| 1931 | 4 | — | 4 | — | — | 4 |
| Total ... | 7 | (1)* | 8 | — | 1 | 9 |
| Total 1922-1928 | 9 | 1 | 11 | 1 | 1 | 13 |
| Total 10 years, 1922-1928 | 16 | 2 | 19 | 1 | 2 | 22 |

*Accidental finding in an East Coast native, who died of pulmonary tuberculosis; reported under that heading.

In two cases of primary liver carcinoma there were metastases in the lungs; in one case in the pons.