

As these tables show, a history of oyster-eating can be obtained in every case which I have been able to investigate. The remaining cases are as follows:—

1. M. E., Hobson Street, admitted to Hospital 13th June.
2. C. G., Hobson Street, admitted to Hospital 14th June.
3. E. M., Waihi, admitted to Hospital 10th June.
4. K. S., Helensville, admitted to Hospital 7th June.
5. M. S., Helensville, admitted to Hospital 9th June.
6. J. M., Helensville, admitted to Hospital 1st June.
7. H. E. W., Avondale, admitted to Hospital 10th June.
8. E. B., s.s. "Manapouri," admitted to Hospital 1st June.
9. G. H., s.s. "Waihora," admitted to Hospital 17th June.

The first two I have been unable to trace. They may well have been infected from the general source, judging by the dates of their illness. The country cases may possibly be a repetition of Nos. 15 and 16 in the table. I shall make inquiries when I am in those parts. Case 8 is unlikely to have had any origin in Auckland, as the boat had been away a month. Case 9, however, might have been part of the Auckland outbreak, as only a fortnight elapses between the visits of the boat to this port.

Oysters are so universally eaten that it is not in itself a very striking fact that such a history should be obtained in these twenty cases. When, however, we consider the uniformity in the dates of the attacks, the fact that all ate oysters about the same time, the unusual time of year for such an outbreak, that cases coming from places so far apart as Waitara, Tuakau, and Warkworth should have this history in common, and that two of the patients were actually engaged in the oyster trade, it appears to me that the only reasonable conclusion is that oysters were the common source of the infection, and that all may be put, therefore, into the same category as the three lads—Nos. 1, 2, and 3—where undoubtedly this was the case.

As a contrast, I may mention the histories of three cases admitted to the Hospital in July.

1. Had eaten oysters (stewed) about three months before his illness.
2. Never ate oysters.
3. Only remembered eating oysters during the first week of her attack, when they were taken as being suitable for an invalid.

SOURCE OF OYSTERS.

While it was without much difficulty that one could arrive at the verdict that oysters had disseminated the infection, the next step in the inquiry—the tracing of the oysters back to a common source of pollution—has given far more trouble; indeed, I cannot pretend to have come to a satisfactory solution. The dealers are naturally on their guard, much damage having already been done to the trade, and even when they are willing to give every assistance it is hard to get accurate information as to events which happened three months beforehand. There is one definite date—25th May, the day on which the three lads bought the bottle of oysters at W.'s shop—therefore infected oysters were in Auckland at that time.

It will be seen from the tables that the suspected oysters were bought at eight different dealers. If, therefore, all these cases are genuine instances of oyster-borne infection, we must conclude that there is some widely distributed area where the beds are polluted, as most of the dealers have their own staff of pickers. On the other hand, by ignoring certain cases it is possible to give the outbreak the appearance of having a much more localised origin.

Pollution may have occurred—(1) at the oyster-beds, (2) during picking and shipment, (3) at the hands of the retail dealer. It will be as well to take each of these possibilities into separate consideration.

THE OYSTER-BEDS.

Mr. Rose, Collector of H.M. Customs, who acts as Commissioner for Oyster-beds, kindly supplied the following facts as regards the sources from which the supply is drawn:—

There are five divisions of the coast-line recognised as oyster-fisheries,—

1. Waitemata Harbour, embracing Coromandel, Great Barrier Island, and north as far as Whangarei.
2. Russell South, part of the Bay of Islands, and all the small harbours down coast-line to Whangarei.
3. Russell North, from the above to the North Cape.
4. Kaipara Harbour.
5. Manukau Harbour.

Only in the case of the Manukau Harbour are beds leased to individuals. Elsewhere certain persons are licensed to pick, and can do so on any part of the beds. Waitemata Harbour has been closed for oysters this season—a good deal of smuggling takes place, however.

Russell South supplied the greater part of the oysters sold in Auckland early in the season. It was, however, closed on 23rd May by the Government, but, as a number of oysters had been already picked, shipments continued to come down till the beginning of June. A return kindly supplied by the accountant of the Northern Shipping Company, which does almost the entire carrying trade in oysters from Russell, shows that the usual shipments were brought down on 25th May and 1st June, and a small number on 7th June, after which no more were carried. At the time (25th May) that the infected oysters were on sale all the dealers whose names appear in tables were being supplied from these Russell beds. Yet it is difficult to conceive any general infection of the oysters growing in these parts: the coast is so very sparsely populated, and there are no long tidal creeks. Russell Township is the largest settlement, but few oysters grow in its immediate vicinity. The beds most in use are those in Whangaruru Harbour, a part of the country with only a few houses scattered about.

Russell North beds have supplied very few oysters to Auckland this season, and the dealers chiefly concerned in this investigation have not had any. The chances of these beds being contaminated are extremely remote.

Kaipara Harbour has been open to the pickers all the season, but only came into use when the Russell beds were closed. A return supplied to me by the Traffic Manager of the Railways shows that the first oysters from Kaipara were consigned at Helensville on 30th May. As this was after the date on which we know the infected oysters were sold, we need not consider these beds further, although at first I was suspicious of them owing to the fact of there having been some cases of enteric at Helensville early in June.

Manukau Harbour has supplied oysters all through the season. These beds are the ones popularly supposed to be the cause of the outbreak, and it must be confessed that here we have in some parts of the harbour sufficient danger of pollution to make it a serious question whether the oysters are safe for consumption. These beds are leased mostly to residents of Onehunga. One Auckland dealer (B.) has a bed—that on Weakes's Island—but it is so situated that there is little risk of contamination, being well down the harbour and opposite the Heads, and there are few houses inshore from it. An Onehunga dealer (W.) owns a bed in the upper reaches of the Mangere Creek above the bridge, and sub-rents the next bed (D.'s). From these two beds he supplied several dealers in Auckland during May and June, as well as his own local trade. Sixty-six sacks were taken from D.'s bed between 13th May and 24th June. A glance at the accompanying rough map will show that all the beds above Mangere Bridge are in some danger from the various businesses established about these shores. Neither Otahuhu nor Onehunga have any drainage system, so the pollution from these townships is a less serious item; but we have to consider the following:—

The Freezing Company's slaughter-yards, &c., the Chemical-manure Works, a soap-boiling establishment, and a tannery are situated on the shores at the head of the Mangere Creek, and the drainage from these, with a fair number of employees' residences, enters this shallow inlet, which at low tide is a mere stretch of bare mud. Just opposite D.'s bed (No. 2 on map) a small glue-works discharges a continual stream of offensive washings, &c., from the scraps of hides, &c., used for boiling down. A few yards away is a small slaughter-yard, also draining on to the shore. The woollen-mills employ from seventy to eighty hands, and have for their use a well-arranged