**[Report 1918] / Medical Officer of Health, Liverpool Port Health Authority.**




Wellcome Collection
183 Euston Road
London NW1 2BE UK
T +44 (0)20 7611 8722
E library@wellcomecollection.org
https://wellcomecollection.org

# PORT OF LIVERPOOL.

# ANNUAL REPORT

OF THE

# MEDICAL OFFICER OF HEALTH

TO THE

# PORT SANITARY AUTHORITY.

FOR THE YEAR

## 1918.

TOGETHER WITH OBSERVATIONS UP TO JUNE, 1919.

---

[ORDERED BY THE PORT SANITARY AND HOSPITALS COMMITTEE TO BE PRINTED, 19TH JUNE, 1919.]

---

LIVERPOOL:
C TINLING AND CO., LTD., PRINTING CONTRACTORS, 53, VICTORIA STREET.

1919.

D
9

# PORT OF LIVERPOOL.


# ANNUAL REPORT

OF THE

# MEDICAL OFFICER OF HEALTH

TO THE

# PORT SANITARY AUTHORITY.

FOR THE YEAR

## 1918.

TOGETHER WITH OBSERVATIONS UP TO JUNE, 1919.

---

[ORDERED BY THE PORT SANITARY AND HOSPITALS COMMITTEE TO BE PRINTED, 19TH JUNE, 1919.]

---

LIVERPOOL:

C TINLING AND CO., LTD., PRINTING CONTRACTORS, 53, VICTORIA STREET.

1919.

# INDEX.

# PORT SANITARY AUTHORITY

OF

# LIVERPOOL.

## REPORT FOR THE YEAR 1918,

BY THE

MEDICAL OFFICER OF HEALTH.

In accordance with the duty imposed by the Local Government Board in their General Order, dated March 23rd, 1891, the following Report for the year ending December 31st, 1918, is made to the Liverpool Port Sanitary Authority.

The Report covers the work of the Authority during the year, and includes a summary of the measures adopted to discover epidemic or infectious diseases on shipboard, and to prevent their introduction into the port or further spread on shipboard, as well as the steps taken to discover and abate any conditions inimical to health existing on any ships, vessels, or canal-boats lying within the area of the port. Moreover, there is given an account of the action taken under the Regulations of the Local Government Board issued under the Public Health (Regulations as to Food) Act, dealing with foreign meat and unsound food.

The jurisdiction of the Authority is co-extensive with the limits of the port, and includes within its area not only the docks, quays, wharves, &c., belonging to the Mersey Docks and Harbour Board, the extent of which is set out below in tabular form, but also the docks of the London & North Western Railway at Garston, as well as the lower portion of the estuary of the Mersey and the sea within three miles of the coast line extending from Hoylake to Formby Point. And its powers are exercisable over any vessels lying within this area.

The estate of the Dock Board, exclusive of certain lands at Dingle, Tranmere and Seaforth, is of the following dimensions:—

TOTAL WATER AREA AND LINEAL QUAYAGE OF THE LIVERPOOL AND BIRKENHEAD DOCKS AND BASINS.

| | Water Area. | | Lineal Quayage. | |
|---|---|---|---|---|
| | Acres. | Yards. | Miles. | Yards. |
| Liverpool Docks and Basins ..... ... | 427 | 2,967 | 26 | 1,466 |
| Birkenhead Docks and Basins ... ... | 171 | 3,259 | 9 | 1,422 |
| Total ... ... | 599 | 1,386 | 36 | 1,128 |

AREA OF THE DOCK ESTATE.

| | | |
|---|---|---|
| Liverpool ... ... ... ... | 1,171¼ | acres |
| Birkenhead ... ... ... ... | 506 | ,, |
| Total ... ... | 1,677¼ | ,, |

It is not without interest to note that the Authority now enters upon its forty-fifth year, having been constituted by an Order of the Local Government Board dated June 11th, 1874.

The most important circumstance of the year under review was the very great increase in the amount of infectious sickness consequent upon the disembarkation at Liverpool of great bodies of troops from crowded convoys. The greater part of these were measles and mumps and other minor diseases, and in the second half of the year the pandemic of influenza produced extensive outbreaks on shipboard. This necessitated extensive and unprecedented disinfections on board large numbers of ships, and the greatest difficulty was experienced in finding hospital accommodation for the large numbers of civilian sick.

During the year 1918 an Order was issued under the Defence of the Realm Act by the Food Controller giving increased powers to Local Authorities for the destruction of rats and the rat-proofing of buildings, &c. Early in 1919 a revised Order (The Order Amending the Rats Order, 1918, dated March 26, 1919), specifically addressed tc Port Sanitary Authorities, was issued. These Orders are reprinted in the Appendix at the end of this Report.

## Plague.

The world-wide distribution of plague remained essentially unchanged during the year. The principal ports in India continued to be the main centres of the disease, several vessels arriving in London and elsewhere having been infected whilst at Bombay. In Colombo the disease has been of the virulent septicaemic type. Cases occurred in Alexandria, Port Said, Suez, Salonica, and other centres of the Nearer East, and considerable outbreaks were reported at St. Louis, Rufisque, and other areas of French Senegambia.

No plague-infected rats were found within the area of the port of Liverpool during the year, and no human cases occurred.

The ports scheduled as plague-infected during the year were Bombay, Calcutta, Karachi, Rangoon, Colombo, Rio de Janeiro, Bahia (Brazil), and Alexandria, and vessels from these ports were medically inspected on arrival. No cases of plague occurred on Liverpool-bound vessels during the year.

## Cholera.

In addition to its usual centres in the Middle and Further East, cholera has been widespread in Central and Eastern Europe, amongst the inhabitants of Germany, Austria, Bulgaria and Turkey, though detailed information was scanty. In Russia, Petrograd was again severely affected, and at the end of the year the disease reached Hamburg once more. Cases were also reported in Palestine. With the renewal of communication with these areas with the cessation of hostilities the further spread westward of cholera is to be anticipated, as experience shows that this disease always follows the lines of communication of masses of persons. A large outbreak occurred in Bombay at the end of the year.

## Notification of Infectious Diseases.

The notification of infectious diseases is governed by a number of Acts and Regulations, viz.:—

(*a*) The Infectious Diseases (Notification) Acts, 1889 and 1899, applies to the diseases scheduled in the Act. This Act was extended with the sanction of the Local Government Board to include Chicken Pox in August, 1904, and to Measles and German Measles in November, 1913.

(*b*) Under Section 130 of the Public Health Act, 1875, various Regulations have been made by the Local Government Board which extend the number of notifiable infectious diseases.

(1) Notification of Cases of Plague Regulations, dated September 19th, 1900.

(2) Cholera, Yellow Fever and Plague Regulations, dated September 9th, 1907.

(3) Public Health (Cerebro-Spinal Fever and Acute Poliomyelitis) Regulations, 1912.

(4) Public Health (Tuberculosis) Regulations, 1912; applies to all forms of tuberculosis.

(5) Public Health (Acute Encephalitis lethargica and Acute Polio-encephalitis) Regulations, 1918; makes these diseases notifiable during 1919.

(6) Public Health (Pneumonia, Malaria, Dysentery, &c.) Regulations, 1919. These came into force on 1st March, 1919; render notifiable acute primary pneumonia, acute influenzal pneumonia, malaria, dysentery and trench fever, and give extended powers for dealing with these and other diseases, notably the power to segregate all persons who have been in contact with cases of typhus, relapsing or trench fever, until they and their effects have been freed from vermin.

The Public Health Act, 1896, provides for penalties up to a fine of £100 for those neglecting to obey or carry out or obstructing the execution of Regulations made under Section 130 of the Public Health Act, 1875.

(*c*) Regulations of Liverpool Port Sanitary Authority made under Section 125 of the Public Health Act, 1875, dated 28th July, 1875, for the removal to hospitals of persons suffering from dangerous infectious disorders. These apply to the Masters or other persons in charge of vessels, and refer to the diseases notifiable under the Infectious Diseases (Notification) Acts, and also to cerebro-spinal fever and acute poliomyelitis.

The following diseases are therefore notifiable within the area of the Liverpool Port Sanitary Authority:—

Cerebro-Spinal Fever.
Chicken Pox.
Cholera.
Continued Fever.
Diphtheria.
Dysentery.
Enteric Fever.
Erysipelas.
Encephalitis lethargica, Acute.
German Measles.
Measles.
Malaria.
Membranous Croup.
Paratyphoid Fever.
Plague.
Pneumonia, Acute Influenzal.
Pneumonia, Acute Primary.
Polio-encephalitis, Acute.
Poliomyelitis, Acute.
Puerperal Fever.
Relapsing Fever.
Scarlet Fever or Scarlatina.
Tuberculosis (all forms).
Trench Fever.
Typhoid Fever.
Typhus Fever.
Yellow Fever.

## Infectious Diseases.

The number of cases of infectious disease arriving in the port of Liverpool, which had been steadily diminishing during the war, greatly increased in 1918 owing to the arrival of large numbers of transports conveying American troops, Chinese labour corps troops, etc. The total number of cases of infectious disease occurring on Liverpool-bound vessels during 1918 was thus 2,230, as opposed to 104 in the year 1917. This is exclusive of 6,353 cases of influenza and 353 cases of pneumonia, which occurred during the year, and were mainly connected with military forces, of which diseases records were not kept in previous years. Great difficulty was experienced in obtaining hospital accommodation for civilian cases.

## Smallpox.

Four importations of smallpox occurred during the year.

The s.s. "City of Poona" arrived on June 12th from Montreal, and Abdul Mohamed, saloon boy, was removed to New Ferry Hospital with smallpox. 133 persons on board were vaccinated, and no further cases occurred.

The s.s. "Arbeeco" arrived on December 20th from Oporto, and the Master reported a fireman to be sick. The vessel was visited by the Assistant Medical Officer, and the case was found to be one of confluent smallpox. The patient, who had never been vaccinated, was removed to hospital, and the crew, numbering 21, were vaccinated. No further cases occurred.

The s.s. "Valentin" arrived from Oporto on December 7th, and the Master reported all well. A passenger went to his home in County Durham, developing smallpox after arrival. It was not until further cases developed there that the nature of the disease was discovered, and information of the occurrence was given by the Medical Officer of Health of Newcastle. An inspection of the vessel was at once made, and all on board found well.

The s.s. "Gulf of Suez" arrived from Lisbon on December 27th, and the Master reported all well on board to the Boarding Officer of H.M. Customs. A fireman who had been sick during the voyage went to his brother's home in Bootle, where, after the usual incubation period, four cases of smallpox occurred. It was not until after these patients had been removed to New Ferry Hospital, and close enquiry was then made from them as to contact with any similar case, that the information as to the fireman having been sick was obtained. The information was at once given to the Medical Officer of Health of Bootle, and the original case was then discovered and he was removed to hospital. No further action could be taken as the vessel had proceeded to sea.

As these importations indicated a considerable outbreak of smallpox in Portugal, and as the duration of the voyage is much shorter than the incubation period of smallpox, the following precautionary measures were taken:—(*a*) Leaflets were distributed to the Masters of ships trading with Spain and Portugal, giving the symptoms of smallpox and drawing attention to the necessity of at once reporting all suspicious sickness; (*b*) all vessels from Spain and Portugal were visited daily by the Port Sanitary Inspectors during their stay in port; (*c*) the names and addresses of all persons arriving from Portugal were obtained and forwarded to the authorities of destination; (*d*) the various shipping companies trading with Portugal were circularised notifying them of the prevalence of smallpox there.

TABLE 1.

# INFECTIOUS DISEASE.

The actual number of cases of infectious sickness amongst civilians landed from vessels arriving in the port of Liverpool during the years 1917 and 1918, and the comparison with the average of the preceding 10 years, is shown in the following table:—

| Diseases. | Number of Cases. | | Average for the 10 years preceding 1917. |
|---|---|---|---|
| | 1917. | 1918. | |
| Smallpox | 1 | 2 | 5·1 |
| Scarlatina | 3 | 2 | 16·0 |
| Cerebro Spinal Meningitis | 0 | 0 | 0·1 |
| Poliomyelitis | 0 | 0 | 0·1 |
| Enteric Fever | 23 | 11 | 39·5 |
| Do. (suspected) | 0 | 0 | 4·5 |
| Diphtheria | 4 | 7 | 9·2 |
| Measles | 9 | 8 | 31·0 |
| German Measles | 3 | 4 | 1·0 |
| Whooping Cough | 0 | 0 | 0·0 |
| Erysipelas | 7 | 5 | 6·1 |
| Chicken Pox | 2 | 2 | 9·0 |
| Cholera and Choleraic Diarrhœa | 0 | 0 | 0·6 |
| Yellow Fever | 0 | 0 | 0·5 |
| Plague | 0 | 0 | 0·4 |
| Suspected Plague | 0 | 0 | 4·1 |
| Puerperal Fever | 0 | 0 | 0·0 |
| Phthisis | 20 | 21 | 46·4 |
| Tuberculosis (other forms of) | 0 | 1 | 0·0 |
| Leprosy | 0 | 0 | 0·0 |
| Totals | 72 | 63 | 175·6 |

TABLE 2.

## INFECTIOUS DISEASE.

The number of cases of infectious sickness reported to have occurred on Liverpool-bound ships during the years 1917 and 1918, and which were disposed of prior to the arrival of the vessel at this port, and the average of such cases for the preceding 10 years, are as follows:—

| Diseases. | Number of Cases. | | Average for the 10 years preceding 1917. |
|---|---|---|---|
| | 1917. | 1918. | |
| Smallpox | 8 | 6 | 17·2 |
| Scarlatina | 0 | 0 | 3·0 |
| Cerebro Spinal Meningitis | 1 | 5 | 0·6 |
| Enteric Fever | 11 | 4 | 18·0 |
| Diphtheria | 1 | 5 | 4·3 |
| Measles | 4 | 3 | 6·6 |
| German Measles | 0 | 0 | 1·0 |
| Erysipelas | 2 | 0 | 1·4 |
| Chicken Pox | 1 | 0 | 5·4 |
| Cholera and Choleraic Diarrhœa. | 0 | 0 | 5·4 |
| Yellow Fever | 0 | 0 | 3·1 |
| Plague | 2 | 0 | 2·2 |
| Suspected Plague | 0 | 0 | 1·6 |
| Phthisis | 2 | 0 | 3·2 |
| Tuberculosis (other forms of) | 0 | 0 | 0·0 |
| Totals | 32 | 23 | 73·0 |

## Influenza.

The universal epidemic of influenza which was recorded over both hemispheres throughout the year made its first appearance at the port of Liverpool in the month of March, and from that date onward the number of cases from month to month gradually increased to its maximum in October, during which month 2,485 cases were reported in connection with vessels arriving at the port. During the last two months of the year a temporary decline in the case incidence took place, as is shown in the accompanying table.

The total number of cases reported on arrival or as having occurred during the voyage was 6,353, and of these numbers 3,157 were reported as having occurred during the voyage, and though convalescent on arrival doubtless many of these were carriers of the infection, and it was absolutely impossible to isolate the large number of convalescent cases.

In the case of Lascar seamen, the conditions under which they live, their dislike for fresh air and ventilation, their ignorance of any hygienic precautions, their poor stamina, were undoubtedly responsible for the larger proportional incidence and higher mortality which they experienced.

On several vessels it was found that almost every Lascar was affected, and yet the majority of the European members escaped, and in one or two instances it was very noticeable that members of the Lascar crew who escaped were housed under very much better conditions as regards ventilation than their fellows who were infected.

The cases occurring amongst the naval and military were, when considered necessary, removed to their own hospitals.

Of the 937 cases occurring on merchant vessels whilst in the port, 491 were removed to Poor Law Infirmaries, boarding houses, &c.

Table 3 shows the number of vessels arriving with cases of pneumonia on board, and also the number of cases which had occurred during the voyage; and it will be observed that the monthly incidence follows closely that of influenza, and again reaching its maximum in October and then declining. Eighty-three cases of pneumonia were removed to various hospitals by the Military, Port Sanitary, and other bodies.

TABLE 3.

INFLUENZA, 1918.

| | No. of Vessels | | | Cases. | | | | | | Total No. of Cases. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | On Arrival | | | On Voyage | | | |
| | H. M. Ships | H.M. Transports | Merchant Vessels | Naval and Military | Europeans | Asiatics | Naval and Military | Europeans | Asiatics | |
| January ..... | — | — | — | — | — | — | — | — | — | — |
| February ..... | — | — | — | — | — | — | — | — | — | — |
| March ..... | — | 1 | — | — | — | — | 3 | — | — | 3 |
| April ..... | 1 | — | 1 | — | — | 75 | 28 | — | — | 103 |
| May ..... | — | — | 3 | — | — | 60 | — | 3 | 18 | 81 |
| June ..... | — | — | 4 | — | 1 | 107 | — | — | — | 108 |
| July ..... | 1 | 1 | 16 | 10 | 8 | 356 | 21 | 56 | 199 | 650 |
| August ..... | — | 3 | 3 | 18 | 3 | 42 | 606 | 40 | — | 709 |
| September ..... | 2 | 2 | 3 | 637 | 1 | — | 863 | 1 | 3 | 1,505 |
| October ..... | — | 28 | 24 | 1,541 | 167 | 69 | 287 | 421 | — | 2,485 |
| November ..... | 1 | 4 | 29 | 53 | 10 | 7 | — | 355 | 89 | 514 |
| December ..... | — | — | 16 | — | 30 | 1 | — | 163 | 1 | 195 |
| TOTAL ... | 5 | 39 | 99 | 2,259 | 220 | 717 | 1,808 | 1,039 | 310 | 6,353 |

PNEUMONIA, 1918.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Jauuary ..... | — | — | 1 | — | 1 | — | — | — | — | 1 |
| February ..... | — | — | — | — | — | — | — | — | — | — |
| March ..... | — | 5 | 1 | 3 | 4 | — | 3 | — | 1 | 16 |
| April ..... | — | 1 | — | — | 1 | — | — | — | — | 1 |
| May ..... | — | 1 | 2 | — | — | 3 | 2 | — | — | 7 |
| June ..... | — | 3 | — | — | — | — | 1 | 1 | 1 | 3 |
| July ..... | — | 1 | 1 | 1 | — | — | — | 1 | — | 2 |
| August ..... | — | 9 | 1 | — | — | — | 17 | 2 | — | 19 |
| September ..... | 1 | 5 | 3 | 2 | — | 1 | 10 | 2 | 1 | 16 |
| October ..... | — | 27 | 2 | 47 | 13 | — | 190 | 15 | — | 265 |
| November ..... | — | 4 | 8 | 5 | — | 1 | 3 | 8 | 1 | 18 |
| December ..... | — | — | 4 | — | — | — | — | 3 | 2 | 5 |
| TOTAL ... | 1 | 56 | 23 | 58 | 19 | 7 | 231 | 32 | 6 | 353 |

## Malarial Fever.

In the Annual Report for 1917, attention was drawn to the arrival of a number of vessels from West African ports with large numbers of the crew suffering from malaria. The notice of the Local Government Board was specially called to the circumstances.

During 1918 an Inter-Departmental Committee was constituted to make arrangements for adopting preventive measures for the vessels calling at these ports. When these measures were put in force, the Local Government Board requested the Liverpool Port Sanitary Authority to assist them by ascertaining what precautionary measures were taken on the vessels concerned. Arrangements were made to visit all vessels from the West Coast of Africa, and enquiries were made regarding the occurrence of any cases of malaria, the method of treatment adopted, and the preventive measures taken. The names and addresses of destination of all on board were obtained. These particulars were entered on a special form I. shown in the appendix.

During the year 50 vessels arrived, on board of which 338 cases of malaria had occurred; 44 were still suffering on arrival. The names and addresses of these patients, when they were not removed to hospital, were forwarded to the Medical Officer of the district to which they were proceeding.

The Local Government Board, in consequence of a few local outbreaks of malaria in several districts in this country, and further, anticipating the increasing traffic with foreign countries which is to be expected, have now made the disease notifiable under the Public Health (Pneumonia, Malaria, Dysentery, etc.) Regulations, 1919.

## Anthrax.

The incidence of the well-known animal disease anthrax amongst a community is always closely associated with the handling of infected animal material, such as the carcases of animals who have died from the disease, or animal products derived from such sources. Hides, wool, and hair are therefore sources of danger, especially those which are imported from abroad, where few, if any, precautions are taken against this disease. Imported products, such as wool, hides, and hair, from the East Indies, Russia, Siberia, Turkey, Africa, China, and many other localities, are frequently dangerous when handled or sorted, and

the dust arising during these operations frequently contains the highly resistant spores of the anthrax bacillus. These spores may be inhaled or swallowed, but more usually collect with dust in the clothing, or find an entrance into the broken skin by a cut, or bruise, or scratched pimple, or be rubbed in by the dusty fingers or clothing.

In Liverpool, notices and circular letters have been distributed to enlighten workmen and their employers as to the danger of this disease, the methods of its spread, and the need for prompt medical attention when infection occurs. The Government Departments concerned have issued Regulations regarding all these dangerous occupations, and in the Port of Liverpool additional precautions have been widely advocated.

The recent cases of Anthrax arising from the use of infected shaving brushes will be fresh in the public mind. The infection arose from the use of contaminated goat hair which had not been suitably disinfected before being manufactured into shaving brushes. The subject of the disinfection before importation of such suspected, or infected, wool, hair, etc., has engaged the careful attention of the Anthrax Committee of the Home Office, with the result that the establishment of fully equipped and adequate disinfection stations is recommended at suitable collecting stations in the countries of origin.

Legislation to have these recommendations carried into effect is now under the consideration of Parliament.

(*See Appendix* 4 *for cases* 1916 *to* 1918.)

## Venereal Diseases.

The subject of venereal diseases is one of immense importance to a seafaring, as well as a civilian population, and in pre-war days it was the practice (long established) of the boarding Medical Officers of the Port of Liverpool to hand to sufferers pamphlets giving information and advice regarding the nature of these complaints, and indicating a suitable hospital at which the patient was advised to attend. Recent developments, following upon the Report of the Royal Commission on Venereal Diseases, have greatly facilitated this work. Following the arrangements in the scheme adopted by the Liverpool City Council, and approved by the Local Government Board, information as to the facilities afforded at the various treatment centres, and the days and hours of attendance for medical advice, is freely circulated amongst

the crews of vessels arriving in Liverpool, and a suitable poster, entitled "Health of Seamen," is now exhibited in the crews quarters, or other appropriate place, on every ship. In this notice the ailments and illnesses associated with a seafaring life are set forth, and a few simple rules given by which the dangers may be avoided.

The following is a list of the days and hours of attendance at the various venereal disease treatment centres as at present arranged, doubtless various changes and re-arrangements will take place from time to time as circumstances require:—

CITY OF LIVERPOOL.

Hours of Attendance at the Venereal Disease Treatment Centres.

| | |
|---|---|
| ROYAL INFIRMARY (Pembroke Place) ... | For Men: New patients—<br>Monday, 12 noon.<br>Wednesday, 5 p.m.<br>Friday, 12 noon.<br>Continuation treatment for patients every evening 5 to 6 p.m., except Saturday, Sunday and Monday.<br>For Women: New patients,<br>Thursday, 12 noon.<br>Continuation Treatment for patients daily, 2 to 4 p.m., except Saturday<br>Monday at 5 p.m. |
| ROYAL SOUTHERN HOSPITAL (Caryl Street) | For Men: New patients—<br>Tuesday, 5 p.m.<br>Friday, 2 p.m.<br>Saturday, 1 p.m.<br>For Women:<br>Thursday, 5 p.m.<br>Continuation treatment for both Men and Women daily at 5 p.m., except Sunday. On Saturday, treatment will be given at 1 p.m. |
| DAVID LEWIS NORTHERN HOSPITAL (Entrance in Leeds Street) | For Men: New patients—<br>Mondays and Fridays, 5 to 6 p.m.<br>For Women: New patients—<br>Wednesday, 5 to 6 p.m.<br>Continuation treatment for both Men and Women every evening from 7 to 8 p.m. |

| | |
|---|---|
| Stanley Hospital ... | For men: New patients—<br>Monday and Thursday, 5 to 6 p.m.<br>Continuation treatment daily 6 to 7 p.m., except Tuesday, Saturday and Sunday.<br>For women: New patients—<br>Tuesday, 5 to 6 p.m.<br>Saturday, 12 noon.<br>Continuation treatment daily, at 11 a.m., except Sunday. |
| Cancer and Skin Hospital (Myrtle Street) | Daily, 1 to 2 p.m., and Wednesdays, 6 to 7 p.m.<br>Continuation treatment centre open daily, 9 to 10 a.m., 1 to 2 p.m., 6 to 7 p.m., Sundays, 11 to 12 noon. |

Under the Venereal Diseases Act, 1917, it is illegal for any person other than a duly qualified medical practitioner to undertake to treat a case of venereal disease, or to prescribe any remedy, or give any advice, whether the advice is given to the patient or to any other person.

## Rat Destruction, Etc.

The trapping, destruction and examination of rats from ships and dock quays have been carried out as usual during the past year.

The tables annexed give the complete returns from the year 1912 of the rats caught on ships or quays with the number sent for special examination by the City Bacteriologist. A complete return of the rats caught during the year 1918 by the Health Authorities of the City and Port of Liverpool is also given in Table 4.

We are indebted to various shipping companies who employ ratcatchers; also to the Zeba Ratcatching Company for supplying a return of rats caught and destroyed on vessels in the docks of the Port of Liverpool.

The following table gives a combined return of all rats caught and destroyed by shipping companies employing their own ratcatchers, by ratcatching companies, and by the Public Health Authorities.

| | |
|---|---|
| Port. | |
| On quays and vessels ... ... ... ... ... | 50,667 |
| City. | |
| In warehouses ... ... ... ... ... ... | 2,603 |
| In sewers and other places ... ... ... ... | 7,183 |

RAT SEARCHERS IN SPECIAL UNIFORM AND EQUIPMENT.

No plague infected rats were found within the Port of Liverpool during the year 1918.

The following series of questions has been submitted to the Medical Officer of Health by a Special Committee of the Port Sanitary Association. The replies are given.

## DEFENCE OF THE REALM.
## MINISTRY OF FOOD RAT ORDER, 1918.

---

### ORDER AMENDING THE RAT ORDER, 1918, DATED 26TH MARCH, 1919.

PRINCIPLES.

1.—Does the Order convey useful powers over and above those of any other Order hitherto issued for the purpose of ship disinfestation?

The disinfestation of ships from rats has heretofore been carried out under the Cholera, Plague, and Yellow Fever Order of 1907 of the Local Government Board. Ships liable to this process are—

(*a*) those certified to be infected with plague;

(*b*) those certified to be suspected of plague infection;

(*c*) vessels which have come from or called at a plague infected port, and which, although not certified as plague infected or suspected, are certified by the Medical Officer of Health as requiring treatment for the suppression of rats.

In the case of (*a*) and (*b*) the Order requires the work to be carried out at the expense of the owners, but in the case of (*c*) ships certified by the Medical Officer of Health, which have come from plague infected ports, the expense of the disinfestation falls upon the Port Sanitary Authority.

The Order amending the Rat Order, 1918, dated 26th March, 1919 (issued by the Ministry of Food), certainly conveys useful powers which have not hitherto been available for the disinfestation of ships, viz., that measures may be taken to disinfect rat-ridden vessels irrespective of the conditions, as regards infection, at the port of departure. *All* vessels, therefore, arriving in this port can be dealt with for rat destruction.

2.—Should the powers and facilities of this Ministry of Food Order be rendered permanent in some form as a public health measure of sanitation rather than of food preservation?

Yes, these powers would be supplementary to those already in force under the Cholera, Plague, and Yellow Fever Order, 1906, in regard to plague infected and suspected vessels.

PRACTICE.

3.—Are trapping and poisoning satisfactory methods of disinfestation of ships? Can these be considered as more than palliative measures?

Trapping and poisoning cannot be regarded as complete and satisfactory methods of disinfestation, but they have the utmost value, and are indeed necessary as auxiliary measures.

(*a*) Trapping: Samples of rats may be obtained by this means for bacteriological examination.

(*b*) Poisoning: When dead rats are discovered or found on plague infected or suspected ships it is necessary to ascertain whether they have died from plague or have been poisoned; it is therefore necessary to send samples for chemical as well as bacteriological examination.

(*c*) In circumstances where fumigation is not considered desirable or possible, poisoning and trapping may be considered as accessory measures.

4.—Is fumigation of a ship when empty of cargo the most satisfactory method of disinfestation?

Yes.

5.—Is sulphur dioxide the most suitable gas to use in fumigation?

Yes, up to the present this is the most suitable gas available. It is economical, free from risk to human life, and efficient when used in proper quantity.

6.—Is 1 lb. of sulphur burned in each 1,000 cubic feet sufficient for disinfestation?

No. The practice at Liverpool is to use $2\frac{1}{2}$ to 3 lbs. of sulphur per 1,000 cubic feet.

7.—Is a four-hour closure of spaces under sulphur dioxide as a minimum sufficient for disinfestation?

The period mentioned is short, but the practice at Liverpool is to close down the spaces for 8 to 12 hours.

8.—Given an atmosphere of sulphur dioxide from 1.5 to 3 per cent. in a hold, has the method of production, whether by machine or burning-pot, or candle, or from condensing bottle, any special significance with regard to rat destruction?

No, up to the 3 per cent. concentration which we employ the method of gas generation is immaterial.

INSPECTION.

9.—What methods of inspection and what indications should guide in the conclusion that a ship needs disinfestation?

*Indications*:

(*a*) The fact that a vessel trades with a plague infected port, and is rat infested.

(*b*) The history of the vessel, plague rats discovered at sea, an examination of the ship's records.

(*c*) Examination by Medical Officer when boarding, statements by Master might reveal indications of plague infested rats, or unusual sickness.

(*d*) Presence of rat plague or unusual mortality.

*Methods of Inspection*:

Specially trained rat searchers and catchers duly appointed for the purpose will examine for indications of rats.

10.—It is desirable that, with a view to securing to the shipowner the most convenient moment for disinfestation, information as to the necessity for disinfestation be a matter of intercommunication between Medical Officers of Health?

The most convenient time will be when the holds are empty, and therefore vessels carrying part cargo may require reference from one Port Medical Officer to another. It would be a great advantage if definite agreements were made on these matters between Port Medical Officers; already this is undertaken voluntarily to a large extent.

TABLE 4.

Table showing the number of Rats obtained on ships and quays by the Authority's rat-catchers.

| Year. | NUMBER OBTAINED. | | | NUMBER | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | EXAMINED. | | | DESTROYED. | | |
| | From Ships. | From Quays. | Total. | From Ships. | From Quays. | Total. | From Ships. | From Quays. | Total. |
| 1912 | 3,472 | 1,098 | 4,570 | 2,311 | 1,054 | 3,365 | 1,161 | 44 | 1,205 |
| 1913 | 7,943 | 958 | 8,901 | 3,280 | 938 | 4,218 | 4,663 | 20 | 4,683 |
| 1914 | 10,083 | 944 | 11,027 | 5,264 | 917 | 6,181 | 4,819 | 27 | 4 816 |
| 1915 | 9,400 | 1,256 | 10,656 | 6,204 | 1,234 | 7,438 | 3,196 | 22 | 3,218 |
| 1916 | 10,881 | 1,678 | 12,559 | 7,064 | 1,312 | 8,376 | 3,817 | 366 | 4,183 |
| 1917 | 9,174 | 1,551 | 10,725 | 6,379 | 1,457 | 7,836 | 2,795 | 94 | 2,889 |
| 1918 | *7,251 | 1,188 | 8,439 | 5,541 | 1,159 | 6,700 | 1,710 | 29 | 1,739 |
| Total..... | 58,204 | 8,673 | 66,877 | 36,043 | 8,071 | 44,114 | 22,161 | 602 | 22,763 |

* 783 of these were obtained after fumigation

TABLE 5.

CITY AND PORT OF LIVERPOOL.

## RETURN OF RATS CAUGHT, EXAMINED OR DESTROYED.

| DATE. | CITY. | | | | PORT. | | | | CITY. | | PORT. | | TOTAL CAUGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1918. | Warehouses, Stores, &c. | Sewers. | Other Sources. | Total. | Ships. | Quays. | Other Sources. | Total. | Examined. | Destroyed. | Examined. | Destroyed. | (City and Port.) |
| January ..... | 240 | 260 | 290 | 790 | 717 | 77 | 10 | 804 | 107 | 683 | 600 | 204 | 1,594 |
| February ..... | 211 | 278 | 306 | 795 | 564 | 82 | — | 646 | 109 | 686 | 513 | 133 | 1,441 |
| March ..... | 281 | 261 | 438 | 980 | 678 | 76 | 1 | 755 | 107 | 873 | 494 | 261 | 1,735 |
| April ..... | 230 | 274 | 456 | 960 | 890 | 58 | 18 | 966 | 93 | 867 | 686 | 280 | 1,926 |
| May ..... | 314 | 285 | 418 | 1,017 | 518 | 97 | 2 | 617 | 95 | 922 | 548 | 69 | 1,634 |
| June ..... | 311 | 275 | 425 | 1,011 | 733 | 158 | 15 | 906 | 113 | 898 | 795 | 111 | 1,917 |
| July ..... | 233 | 308 | 356 | 897 | 522 | 82 | 6 | 610 | 94 | 803 | 438 | 172 | 1,507 |
| August ..... | 83 | 270 | 275 | 628 | 504 | 112 | — | 616 | 83 | 545 | 475 | 141 | 1,244 |
| September ..... | 177 | 302 | 440 | 919 | 463 | 153 | 1 | 617 | 116 | 803 | 535 | 82 | 1,536 |
| October ..... | 186 | 264 | 275 | 725 | 542 | 81 | 1 | 624 | 81 | 644 | 546 | 78 | 1,349 |
| November ..... | 164 | 203 | 242 | 609 | 526 | 76 | — | 602 | 57 | 552 | 494 | 108 | 1,211 |
| December ..... | 173 | 180 | 102 | 455 | 594 | 82 | — | 676 | 29 | 426 | 576 | 100 | 1,131 |
| | 2,603 | 3,160 | 4,023 | 9,786 | 7,251 | 1,134 | 54 | 8,439 | 1,084 | 8,702 | 6,700 | 1,739 | *18,225 |

| | |
|---|---|
| Number of rats caught (City) ..... | 9,786 |
| Number of rats examined (City) ..... | 1,084 |
| Number of rats caught (Port) ..... | 8,439 |
| Number of rats examined (Port) ..... | 6,700 |
| Total Number of rats caught (City and Port) ..... | 18,225 |
| Total Number of rats examined (City and Port) ..... | 7,784 |

* These figures do not include rats caught or destroyed by various shipping firms employing their own rat-catchers or rat-catching companies.

## Chemical Analysis of Rats found Dead.

When dead rats are found upon vessels, quays or in warehouses, grave suspicion of rat plague may arise until the cause of death has been determined.

It has been the practice at this Port for some years to send sample rats found dead to the Bacteriologist to examine for plague infection. Rats are also sent to the Analyst for Chemical examination for poison.

During recent years it has occasionally happened that many rats found dead on ships and docks are discovered to have been poisoned with arsenic, phosphorus, or barium. This subject has been reported in previous years and a table is subjoined giving the results for the year 1918.

TABLE SHEWING RESULT OF CHEMICAL ANALYSIS OF RATS FOUND DEAD.

TABLE 6.

| Date. | Vessel. | Where from. | Nature of Poison Found. |
|---|---|---|---|
| 1917 | | | |
| Jan. 20 | Endymion ... ... | East London... ... ... | Arsenic. |
| ,, 27 | E. Prince's Dock | —— | Barium. |
| Feb. 3 | Elm Branch .... | Callao ... ... ... ... | Arsenic. |
| ,, 12 | Socrates ... ... | Rio de Janeiro ... ... | Barium. |
| April 10 | Galicia ... ... | South American Ports . | Phosphorus. |
| ,, 26 | Austrian ... ... | Alexandria ... ... ... | Arsenic. |
| May 18 | Thessaly ... ... | Buenos Aires... ... ... | Phosphorus. |
| June 1 | Karina ... ... | Dakar ... ... ... ... | Arsenic. |
| Aug. 3 | Tartary ... ... | Buenos Aires... ... ... | Arsenic. |
| Dec. 15 | Tartary ... ... | Rio de Janeiro ... ... | Arsenic. |
| 1918 | | | |
| Feb. 18 | Burgundy ... ... | Rosario ... ... ... ... | Arsenic |
| April 22 | Bellerophon ... | Alexandria ... ... ... | Phosphorus |
| Aug. 19 | Colonial ... ... | Trinidad .. ... ... ... | Arsenic |
| Sept. 28 | Alexandrian ... | Rio de Janeiro ... ... | Phosphorus |
| Oct. 9 | Thessaly ... ... | Rosario ... ... ... ... | Lead |

## Plague,—Infected Ships.

The question of the discharge of the cargo from plague "infected" ships has been raised from time to time. In certain quarters the method of discharging cargo into lighters has been considered to be less likely to incur risk of plague-infected rats reaching the shore than the method of allowing the vessel into dock, but at the same time taking the utmost precautions against the egress of rats.

These precautions are:—

(*a*) The vessel is breasted at least six feet from the quay.

(*b*) All ropes, hawsers, etc., are provided with rat guards, and are also parcelled and tarred daily.

(*c*) Gangways are lifted up at night.

(*d*) All cargo likely to contain rats is examined before discharge, and is either opened and searched, re-bagged, or in the case of large crates, etc., left in the hold till the completion of fumigation. Thus in the case of one vessel, 12,000 bags of cottonseed were re-bagged, and several dead rats found in the bags.

As has been pointed out in previous reports, it is impossible to destroy all the rats in a ship before the discharge of cargo, even by the use of hydrocyanic acid gas or other methods associated with risk to life.

The opinion of various persons in the Dock Board and the shipping world was obtained, and may be epitomised as follows:—

The sole advantage of discharging cargo direct into lighters would be the impossibility of rats getting ashore directly by the mooring lines; on the other hand, it would be just as easy for the rats to go ashore by the lighters as if the vessel were moored to the quay.

Further if the vessel were moored in the Mersey where the tides are very strong, she would be a source of danger to navigation, and it would be necessary for steam to be kept up in the main boilers entailing considerable expense, and also probably increased insurance rates would be demanded. Further expense would be caused by the towage and hiring of lighters, even if these were

obtainable in sufficient numbers, which is a matter of doubt; increased cost would also result from the delay necessarily caused by using this slow method which depends on the use of the ships' gear, instead of the hydraulic cranes on the quays. There is no labour skilled in the use of lighters in this manner, and there would be increased risks of loss of cargo. The time necessary to discharge cargo would be increased from three to five times, and in rough or foggy weather it would be impossible to discharge cargo at all.

An alternative suggestion was to the effect that the vessel should be moored in the centre of a dock to buoys placed there for the purpose. This would only be practicable in the East and West Floats, and even there would be gravely obstructive to traffic, and this method would still be associated with most of the difficulties mentioned above.

**Diseases incident upon Sailors.—Sanitation of Vessels.**

The diseases to which sailors are peculiarly liable fall under four headings:—

(*a*) Those which are caused by the peculiar stresses of the work.

(*b*) Those attending the vices to which sailors in foreign ports are particularly addicted: Alcoholism and venereal diseases.

(*c*) Tropical diseases, including malaria, beri-beri, etc.

(*d*) Those associated with the peculiar environment of the sailor, such as damp forecastles, contaminated water supplies, and the close association of the sick with the healthy in confined quarters on shipboard.

It is against the latter classes of disease that the efforts of the Port Sanitary Authority for improving the sanitation of vessels are directed.

The defects are classified under three headings as arising from:—

(*a*) Faulty construction.

(*b*) Wear and tear.

(*c*) Lack of cleanliness, and nuisance.

A large number of the defects, included under the third heading, that are found on British ships, arise from the crews having been paid off

and the forecastles being unoccupied. This is specially applicable to the tramp class of vessel. In the case of ships of foreign nationality, or carrying " native " crews, the crew are at the time inhabiting quarters where filth or nuisance exists.

5,679 vessels were visited by the Inspectors during the year.

## Sanitation of Vessels.

The sanitary conditions of the Mercantile Marine have a very distinct influence upon health administration on shore, and are matters of great importance to this country, because we rely upon the health environment of the seamen as a definite part of our first line of defence against imported infection. Give the sailor a healthy and sanitary ship, with properly constructed quarters and the means of keeping himself clean, provide hospital accommodation on board available when he falls sick, and we shall materially reduce the difficulties which arise in connection with sea-borne disease.

It is noteworthy that in many instances the impulse of these improvements in shipping sanitation, and in the welfare of the seamen, emanated from the shipping companies themselves, and not from any Government Department. The subject of improvements in shipping sanitation is now receiving full consideration during the construction of new vessels, and in the Government Standard ships.

Besides the care of the seamen there is that of the passengers generally, including the highly important emigration trade which in pre-war years reached great figures.

## Standard Ships.

The accommodation provided for the crews on board standard ships was, in many ways, a great advance on that previously provided, although, as indicated in previous reports, great improvements in the crew's quarters had been made in certain new ships prior to the war.

But, on standard ships, the following improvements were adopted as part of the design:—

(*a*) The seamen's and firemen's quarters were placed in the after part of the ships, instead of in the forecastle, where the effects of heavy weather are most felt.

(*b*) Much greater space per head was provided, greatly exceeding the statutory requirements of 120 cubic feet, and 15 feet of floor space per man. This allowed for the provision of separate living and sleeping quarters; those members of the crew who are sleeping during their watches off can do so without being disturbed by their fellows. In many cases the sleeping quarters are broken up into cubicles accommodating two, four, or six men.

(*c*) Bathing accommodation was provided, allowing the firemen to wash and change when coming off duty.

(*d*) Provision is made in many cases for a hospital berth; where the crew's quarters are aft, this is frequently placed in the forecastle space. In other cases it is placed on the poop deck. But in several vessels the space provided for hospital accommodation has been converted into a smoking room, etc., or only a spare berth, quite unsuitable for isolation purposes, is available for the use of sick members of the crew.

The greatly increased space per head was not always made the best use of. Sometimes too little room was left for the sleeping space, and an excessive amount allowed for the living or mess spaces. Another common defect was that the latrines opened through the washrooms into the messrooms, thus allowing the passage of offensive odours and flies from the one into the other. This condition was aggravated if the type of latrine was of the antiquated trough pattern, instead of the pedestal pattern. This condition is capable of easy improvement by closing the door from the latrine to the washhouse, and opening out a new door in the break of the poop.

Another condition frequently complained of was the non-provision of wood sheathing in the berths and sleeping quarters causing condensed moisture to form on the bare iron and consequent dampness of the quarters.

### Work of the Port Sanitary Inspectors.

The area of the Port is divided into four districts, those of the North Docks, the North Central Docks, the South Docks, and the outlying districts comprising Birkenhead and Garston. These are each in charge of an inspector who is fully qualified, both by examination and for the most part by previous sea-going experience. These visit all vessels lying within their district to examine into their sanitary state and also to enquire concerning the health of those on board, and as to the occurrence of sickness during the voyage, particularly stringent enquiries being made in the case of all vessels from ports where plague, cholera or smallpox are prevalent. Enquiries are also made as to the occurrence of sickness or mortality amongst the rats on vessels from plague-infected ports.

The Inspectors report daily to the Assistant Port Medical Officer, and vessels have frequently to be visited in the docks on both sides of the Mersey owing to reports thus received from the Inspectors.

# INSPECTION OF SHIPPING.

## Year 1918.

The Inspectors made 5,679 visits and re-visits to vessels during the year.

The following Table indicates the number of visits paid to vessels by the Inspectors during the year:—

TABLE 7.

| Nationality. | Visits. | Re-visits. | Total. |
|---|---|---|---|
| British .... ... | 3,787 | 1,635 | 5,422 |
| Norwegian ... | 24 | 21 | 45 |
| Swedish... ... | 1 | — | 1 |
| Spanish... ... | 40 | 36 | 76 |
| Danish ... ... | 4 | — | 4 |
| Japanese ... | 11 | 21 | 32 |
| Italian ... ... | 1 | 3 | 4 |
| Portuguese ... | 2 | — | 2 |
| Russian... ... | 5 | 4 | 9 |
| French ... ... | 7 | 4 | 11 |
| Dutch ... ... | 3 | 1 | 4 |
| Greek ... ... | 2 | 2 | 4 |
| American ... | 31 | 25 | 56 |
| Brazilian ... | 5 | 4 | 9 |
| Total ... | 3,923 | 1,756 | 5,679 |

TABLE 8.

THE FOLLOWING TABLE SHOWS THE NUMBER AND NATIONALITIES OF THE VESSELS ON WHICH DEFECTS WERE DETECTED DURING THE YEAR 1918.

| NATIONALITY. | Number of Ships. | Dirty Forecastles | Dirty Wash-houses, Store-houses, etc. | Foul Water Casks. | Foul Bilges. | Foul W.C.s. | Accumulations of offensive refuse. | Gear stowed in Crew's Quarters. | Damp Quarters. | Water lodging on top of Forepeak Tank. | Animals kept, causing nuisance | Leaky Decks overhead. | Defective Stoves. | Defective Bulkheads. | Defective Ports and Skylights. | Defective Ventilators. | Defective Flooring Boards. | Defective Hatches and Lockers. | Defective Chain Pipes. | Defective Hose Pipes. | Defective W.C. Fittings. | Defective Soil Pipes. | Inadequate Ventilation. | Inadequate Lighting. | Inadequate Drainage. | Bare Iron not Sheathed | W.C's. deficient in Ventilation and situation bad. | Total number of Defects. | Total Remedied. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| British ... | 510 | 1158 | 68 | ... | ... | 449 | 4 | 1 | 13 | ... | 5 | 28 | 7 | ... | 35 | 1 | .. | 1 | 5 | 5 | 2 | 1 | 27 | 1 | 2 | 1 | 1 | 1815 | 1576 |
| Norwegian ... | 7 | 33 | ... | ... | ... | 8 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 41 | 41 |
| Spanish ... | 23 | 48 | ... | ... | ... | 9 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 57 | 45 |
| Danish ... | 2 | 2 | ... | ... | ... | 3 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 5 | 5 |
| Japanese ... | 1 | 2 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 2 | 2 |
| Italian ... | 2 | 4 | ... | ... | ... | 1 | 1 | ... | 1 | ... | ... | 1 | 1 | 2 | 6 | ... | ... | ... | 2 | 2 | ... | ... | ... | ... | ... | ... | ... | 21 | 21 |
| French ... | 2 | 8 | ... | ... | ... | ... | ... | ... | ... | ... | ... | 4 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 12 | 12 |
| Greek ... | 2 | 2 | ... | ... | ... | 1 | ... | ... | ... | ... | ... | 1 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 4 | 1 |
| Brazilian ... | 3 | 6 | ... | ... | ... | 1 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 7 | 7 |
| American ... | 4 | 8 | ... | ... | ... | 2 | ... | ... | ... | ... | ... | ... | ... | 2 | ... | ... | ... | ... | ... | ... | ... | ... | ... | .. | ... | ... | ... | 12 | 12 |
| Russian ... | 2 | 3 | ... | ... | ... | 2 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | .. | ... | ... | ... | 5 | 5 |
| Total ... | 558 | 1274 | 68 | ... | ... | 476 | 5 | 1 | 14 | ... | 5 | 34 | 8 | 4 | 41 | 1 | ... | 1 | 7 | 7 | 2 | 1 | 27 | 1 | 2 | 1 | 1 | 1981 | 1727 |

# SUMMARY OF INSANITARY CONDITIONS.

TABLE 9.

| Class of Vessels. | Number Inspected. | Number on which nuisances were found. | Per cent. |
|---|---|---|---|
| FOREIGN— | | | |
| Steamers ... ... ... | 1,628 | 490 | 30·10 |
| Sailing ... ... ... | 2 | — | 0·00 |
| Total ... ... ... | 1,630 | 490 | 30·06 |
| COASTWISE— | | | |
| Steamers ... ... ... | 1,648 | 56 | 3·39 |
| Sailing ... ... ... | 645 | 12 | 1·86 |
| Total ... ... ... | 2,293 | 68 | 2·97 |

| Nationality. | Number Inspected. | Number on which Nuisances were found. |
|---|---|---|
| British ... ... ... ... ... ... | 3,787 | 510 |
| Foreign ... ... ... ... ... ... | 136 | 48 |
| | 3,923 | 558 |

## Nuisances arising through

| Defects of Orginal Construction. | Per cent of Total Defects. | Structural Defects through wear and tear. | Per cent. of Total Defects. | Dirt, and other conditions prejudicial to health. | Per cent. of Total Defects |
|---|---|---|---|---|---|
| 33 | 1·66 | 105 | 5·30 | 1,843 | 93·04 |

TABLE 10.

## SHOWING THE NUMBERS OF CATTLE, SHEEP, AND SWINE EXPORTED FROM IRELAND TO LIVERPOOL DURING THE YEAR 1918, SHOWING THE PORTS IN IRELAND AT WHICH THE ANIMALS WERE SHIPPED.

| | Cattle. | Sheep. | Swine. |
|---|---|---|---|
| Belfast ... ... ... ... ... | 2,756 | 5,881 | — |
| Cork ... ... ... ... ... | 9,589 | 6,375 | 3,815 |
| Drogheda ... ... ... ... | 24,974 | 59,772 | 1,096 |
| Dublin ... ... ... ... ... | 86,645 | 232,621 | 11,669 |
| Dundalk ... ... ... ... | 20,970 | 55,583 | 5,218 |
| Londonderry ... ... ... ... | 4,469 | 24,670 | 17 |
| Newry ... ... ... ... ... | 6,822 | 24,678 | 654 |
| Sligo ... ... ... ... ... | 1,058 | 10,376 | 820 |
| Waterford ... ... ... ... | 19,670 | 19,779 | 5,500 |
| Total ... ... | 176,953 | 439,735 | 28,789 |

TABLE 11.

## SHOWING THE TOTAL NUMBERS OF THE SEVERAL KINDS OF CATTLE, SHEEP AND PIGS. EXPORTED FROM IRELAND TO LIVERPOOL DURING THE YEAR 1918.

| CATTLE. | No. |
|---|---|
| Fat ... ... ... | 154,480 |
| Stores (for fattening) | 18,596 |
| Milch Cows ... ... | 1,580 |
| Springers ... ... | 6 |
| Other Cattle ... ... | 1,420 |
| Calves ... ... | 871 |
| Total Cattle ... | 176,953 |

| SHEEP. | No. |
|---|---|
| Fat ... ... ... | 231,304 |
| Stores ... ... | — |
| Lambs ... ... | 208,431 |
| Total Sheep ... | 439,735 |

| PIGS. | |
|---|---|
| Fat ... ... ... | 28,659 |
| Stores ... ... | 130 |
| Total Swine ... | 28,789 |

TABLE 12.

## STATEMENT SHOWING THE NUMBER OF LIVE CATTLE, &c., LANDED AND SLAUGHTERED AT THE FOREIGN ANIMALS WHARF (BIRKENHEAD, ALFRED AND WALLASEY LAIRAGES) DURING THE YEARS 1905 TO 1918 INCLUSIVE.

| Year. | Landed. | | | | Slaughtered. | | | |
|---|---|---|---|---|---|---|---|---|
| | Oxen. | Calves. | Pigs. | Sheep, Lambs and Goats. | Oxen. | Calves. | Pigs. | Sheep, Lambs and Goats. |
| 1905 | 276,725 | 5 | — | 160,105 | 276,273 | 4 | — | 163,705 |
| 1906 | 270,853 | 5 | — | 94,948 | 270,245 | 5 | — | 95,250 |
| 1907 | 214,061 | 2 | — | 97,688 | 215,821 | 2 | — | 94,714 |
| 1908 | 180,283 | — | — | 76,334 | 179,872 | — | — | 79,315 |
| 1909 | 148,233 | 2 | — | 8,053 | 147,812 | 2 | — | 8,053 |
| 1910 | 89,613 | 3 | — | 304 | 90,430 | — | — | 304 |
| 1911 | 78,232 | 2 | — | 40,338 | 79,215 | 1 | — | 39,314 |
| 1912 | 19,167 | — | — | 14,251 | 19,167 | — | — | 14,251 |
| | **143,114** | **819** | **69,016** | **335,291** | **140,854** | **810** | **67,586** | **334,880** |
| 1913 | 3,482 | — | — | — | 3,482 | — | — | — |
| | **351,276** | **930** | **104,274** | **449,344** | **90,857** | **174** | **15,498** | **131,241** |
| 1914 | — | — | — | 1,707 | — | — | — | 1,707 |
| | **333,115** | **248** | **65,242** | **357,528** | **171,716** | **121** | **16,876** | **158,562** |
| 1915 | **235,620** | — | **60,791** | **288,260** | **100,560** | — | **2,353** | **94,237** |
| 1916 | **270,117** | **2** | **84,509** | **377,753** | **137,346** | — | **2,210** | **134,794** |
| 1917 | **257,781** | **14** | **48,013** | **424,992** | **127,436** | **4** | **655** | **171,720** |
| 1918 | **178,898** | **17** | **28,723** | **446,039** | **102,174** | — | **409** | **219,915** |

Ordinary type represents Foreign. Heavy type represents Irish.

### The Aliens Act, 1905.

This Act is in abeyance during the war, and all aliens landing at our Ports are dealt with by Order in Council; the Act is now under review in Parliament, and the control of Alien immigration in future will depend upon the terms of any consequent legislation.

## SUPERVISION OF FOOD IMPORTATIONS.

The Regulations governing the inspection and admission of foodstuffs into this country were issued by the Local Government Board of England in 1908 and 1909, the former year initiating the general and systematic inspection throughout England and Wales.

The Foreign Meat Regulations deal with certain classes of meats which, although as far as one can judge are perfectly sound, yet it is undesirable to allow to enter this country. Such meats as scrap meat, trimmings, &c., may be derived from diseased or unhealthy animals, and it is clearly necessary to classify meats so as to sort out undesirable kinds and prevent their importation. This classification has been made by these Regulations, and only the perfectly wholesome varieties, and those which bear the official meat inspection stamp, can be admitted.

Under the Unsound Food Regulations, full powers are given to deal with meats and food which may be found to be unsound or unwholesome. There are three methods of disposal of such unsound products.

Firstly, the food may be so obviously bad that no further examination may be necessary, and the importers or owners may voluntarily remove the unsound food for immediate destruction under the supervision of the Port Sanitary Authority's officials.

Secondly, the food may be of such a nature that some consideration must be given to its industrial utilisation, and accordingly arrangements are made with the importer or owners to have these foods removed to premises where, under the supervision of the Medical Officer of Health, the foodstuffs may be properly utilised for many industrial purposes.

Thirdly, provision is made in cases in which some difference of opinion has arisen as to the condition of the goods or their disposal, that an application should be made to the magistrate for his adjudication.

These Regulations have been strictly carried out in the port of Liverpool, and everyone, both amongst officials and importers, has

endeavoured to meet the circumstances of each case from a broad view point; in this way the working of the Regulations during the past eight years has been carried out in a most harmonious manner. This is certainly remarkable, considering the enormous quantities and value of the foodstuffs imported at Liverpool.

Owing to war conditions the permanent inspection staff had to be reduced, but valuable services were rendered by temporary inspectors, and by mutual co-operation with the City food staff the work was carried on in a very satisfactory manner.

Customs Officers, whose duties bring them in contact with incoming vessels, ascertain the description and names of importers of all classes of meats. These officers transmit this information under the Regulations to the Food Inspectors. who are regularly on duty on the dock quays.

In the course of their routine duties Customs Officers may occasionally have reason to regard certain articles of food as unwholesome or unsound, and accordingly notify the Food Inspectors, who proceed to deal with the consignment.

The inspection of all foodstuffs landed from ships is carried out as a routine by the inspectors of the Port Sanitary Authority. The examination consists in the sampling of a portion of the consignment; the inspection of the outsides of the cases, bags, and containers, and, where necessary, they can require the packages to be opened, and their contents exposed for full inspection.

If, on a preliminary sampling, a certain degree of unsoundness is discovered, further examination may be necessary, and the aid of both the bacteriological and chemical analysts called in.

This further sampling is frequently conducted in cold store or warehouse, large numbers of which are situated in the neighbourhood of the docks. The work is carried out, not only in the central docks situated within the boundaries of the City of Liverpool, but also in Birkenhead and Bootle, the outlying districts of Liverpool, viz., Garston, where the L. & N. W. Railway Co. have opened five docks, and has an extensive import of fruit trade. The docks on both sides of the Mersey are, within the jurisdiction of the Port Sanitary Authority.

The inspection work carried out during the year was particularly arduous, large consignments of canned chilled beef have again been detained, owing to unsoundness, and were found to have a high percentage of cans blown and burst. These were carefully examined, and the rejects dealt with in the usual manner. Those which were blown and decomposed were disposed of for manure manufacture, whilst others were usefully made into poultry food after suitable treatment, as described in previous annual reports.

Large consignments of condensed milk have been found blown and burst. The tins which were blown, owing to fermentation of the sugar, have been disposed of for manufacturing purposes to the satisfaction of the Medical Officer of Health.

Carcases of mutton, lamb and quarters of beef were occasionally landed affected with moulds, black spot, and in a soft condition.

These damaged meats arrived very regularly, and it was possible in conjunction with the help of the Committee of Associated Meat Importers and a local body formed by the Food Controller, to which all meats were consigned, to systematize the examination, so that reconditioning was carried out at once on arrival, and by this expeditious treatment large quantities of meat were saved and issued for civilian consumption.

The Navy and Army Canteen Board imported large quantities of various foods for military purposes, and it has been necessary to detain large consignments on account of decomposition, e.g., tripe, livers, tongues, etc., the percentage of unsound meats in some cases being very high.

Offal, such as tripe, livers, etc., came chiefly from the United States.

Many food ships have arrived in the Port during the year which have been mined or torpedoed. Upon arrival, the damaged foodstuffs have been immediately taken in hand, with the result that enormous quantities of foodstuffs have been saved. There was one notable exception; a vessel was torpedoed in the Irish Sea and sunk off the coast; she was subsequently raised, after seven weeks, and brought

to Port, but too late to save her valuable cargo of beef, mutton, lamb, rabbits, canned chilled beef, butter, cheese, etc. The great bulk of the foods removed from the vessel in dock were sent for boiling down purposes.

In the torpedoed vessels there were large quantities of various canned goods, and immersion in the salt water caused the tins to rust, with the result that when the cans were re-conditioned, and the rust removed, small perforations or rust holes appeared, which would shortly render the food unfit for human consumption. There have been many thousands of tins in this condition. They have all been utilized for animal food.

Export notices have been served on importers of parcels of pigs' livers, scrap meat, head meat, stripped fore-quarters, which did not conform to the requirements of the Foreign Meat Regulations.

Certain brands of sterilised C.C. and other beef have been brought to this country, and the Local Government Board's desire in the matter has been acceded to by the importers, viz., that it is not desirable to bring this food for consumption in this country, and that no further consignments should be shipped. Several instances have, however, occurred where attempts have been made to introduce the "sterilised" beef as ship's stores, but the Board of Trade Inspectors have been informed of the character of these meats.

A consignment of tinned peas from Italy was found to have a large and unnecessary amount of copper added to give the peas a bright green appearance. After some correspondence the importers agreed to export the consignment. This was agreed to by the Medical Officer of Health.

The importation of green fruits has been seriously interfered with during the war. Apples from Canada and America were practically prohibited, space on steamers being required for trooping accommodation. From November the embargo was removed, and by the end of the year several thousands of barrels had arrived. Oranges and lemons were landed in large quantities during the year. The bitter oranges from Malaga arrived in a very wasty condition, and in all cases where excessive waste was shown the Ministry of Food was advised to have the cargo dealt with locally so as to save as much food as possible.

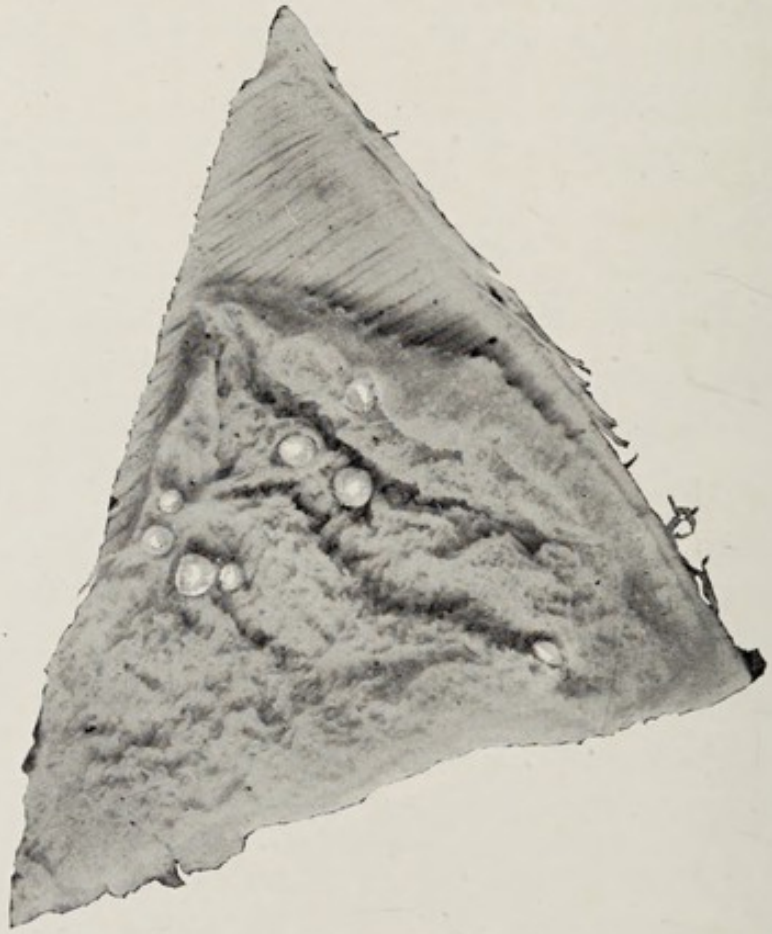
In the beginning of the year, 1,700 packages of damaged onions, oranges and lemons were destroyed, having been accidentally saturated on shipboard with a poisonous fluid.

The importation of green bananas and tomatoes from Canary Islands was prohibited, the only supply coming from the West Indies. Large quantities of cured bananas have been imported.

Several consignments of Huelva chestnuts arrived in a very mouldy condition, and were used for animal food.

During the year the whole of the dried fruit imports, including currants, raisins, sultanas, dates, figs, evaporated apples, prunes, peaches, dried pears and plums, have been imported under the authority of the Ministry of Food. The quantities imported were very large, and have included several consignments from South Australia and Cape Colony. The general condition on landing has been fairly good; some water damage was recorded. These damaged fruits have been detained, and advice given as to the sorting and cleaning of the fruit. The damaged portions were allowed to go for such purposes as vinegar-making, distilling, or animal food, to the satisfaction of the Medical Officer of Health.

On examining certain consignments of United States frozen tripe for unsoundness, there were found scattered over the surface of the mucous membrane of some of these stomachs certain pearl-like bodies of small size; these in certain cases were very numerous, and the impression was formed that they were the result of some parasitic infection (see Plate facing p. 37). Specimens were forwarded to Professor Johnstone, D.Sc., of Liverpool University, and the following is his report on these structures.



PEARL-LIKE BODIES IN TRIPE.

## REPORT ON PEARL-LIKE BODIES IN TRIPE.

"The material which the Medical Officer of Health sent me was imported tripe which had been cleaned, prepared and frozen. The pieces I examined contained hundreds of small iridescent pearl-like bodies about one-thirty-second to one-sixteenth of an inch in diameter. Sections were made, and these were seen to be true pearls, or concretions of soft material (elastic connective tissue) with a very regular lamellar structure. Because of the distortion of the tissues caused by the boiling and freezing it was difficult to make out much detail. The Medical Officer of Health, however, was able to get fresh material (cow's stomach) showing similar bodies. These were true soft pearls embedded in the sub-mucous coat. Each was surrounded by a cyst wall which consisted of flattened epithelial cells, and which appears to be the formative layer.

"No nucleus could be seen in these pearl-like bodies. I do not doubt, however, that they originated round very small parasitic organisms which may have been sarcosporidia, or perhaps eggs of some worm parasite. These intrusive bodies were probably carried in the blood stream, and became arrested in the capillaries of the sub-mucosa of the alimentary canal. Irritation set up a fibrosis round them, which resulted in the establishment of a formative capsule depositing concentric lamellae of connective tissue round the irritant. The latter, whatever it may have been, is quite destroyed and unrecognisable in the specimens sent.

"No doubt the condition is the result of an infection. I have seen somewhat similar structures in fish, where the nucleus of the pearl-like body was recognisable as the egg or larva of a Cestode parasite."

From a perusal of the table showing the total quantities of different unsound foodstuffs supervised during the year 1918, it will be seen that, as compared with 1917, there has been a great reduction, particularly in respect of cereals; this is, no doubt, due to the lessened effect of enemy action on our food-carrying ships.

TABLE 13.

SHOWING THE IMPORTS OF MEATS (EXCEPT POULTRY AND GAME) INTO THE PORT OF LIVERPOOL DURING THE YEARS 1915, 1916, and 1917.

| Description. | Years. | | |
|---|---|---|---|
| | 1915. | 1916. | 1917. |
| | £ | £ | £ |
| Bacon ... ... ... ... | 10,719,819 | 15,827,493 | 18,181,829 |
| Beef, fresh and refrigerated ... | 11,378,711 | 8,880,454 | 8,297,884 |
| Beef, salted ... ... ... | 70,777 | 67,426 | 86,563 |
| Hams ... ... ... ... | 3,383,667 | 4,114,569 | 3,983,618 |
| Mutton, fresh and refrigerated... | 2,443,754 | 2,751,913 | 2,116,322 |
| Pork, fresh and refrigerated ... | 324,167 | 966,652 | 469,406 |
| Pork, salted ... ... ... | 71,083 | 85,791 | 56,604 |
| Rabbits ... ... ... ... | 159,215 | 168,667 | 180,106 |
| Unenumerated fresh, refrigerated and salted... ... ... | 801,044 | 1,101,843 | 1,214,946 |
| Preserved, otherwise than by salting ... ... ... | 1,941,040 | 3,663,457 | 6,160,807 |
| Totals ... ... | £31,293,277 | £37,628,265 | £40,748,085 |

TABLE 14.

SHOWING THE QUANTITY OF UNSOUND MEATS SUPERVISED AND UTILISED DURING THE YEARS 1911 TO 1918.

| Year. | Beef. | | | | Mutton. | | | | Pork. | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Tons. | cwts. | qrs. | lbs. | Tons. | cwts. | qrs. | lbs. | Tons. | cwts. | qrs. | lbs. |
| 1911..... | 659 | 10 | 2 | 24 | 18 | 7 | 0 | 13 | 6 | 4 | 2 | 20 |
| 1912..... | 684 | 8 | 3 | 0 | 475 | 12 | 1 | 2 | 9 | 12 | 3 | 18 |
| 1913..... | 88 | 0 | 3 | 12 | 76 | 16 | 0 | 13 | 1 | 4 | 2 | 15 |
| 1914..... | 441 | 5 | 2 | 0 | 47 | 5 | 2 | 2 | 1 | 5 | 0 | 2 |
| 1915..... | 221 | 7 | 0 | 10 | 23 | 14 | 0 | 4 | 2 | 8 | 3 | 21 |
| 1916..... | 103 | 16 | 0 | 13 | 4 | 10 | 0 | 24 | 1 | 14 | 1 | 16 |
| 1917..... | 510 | 9 | 3 | 14 | 24 | 11 | 3 | 20 | 0 | 14 | 3 | 16 |
| 1918..... | 281 | 9 | 0 | 25 | 55 | 15 | 0 | 22 | 4 | 14 | 1 | 4 |

TABLE 15

SHOWING THE QUANTITY OF UNSOUND OFFAL SUPERVISED AND UTILISED DURING THE YEARS 1911 TO 1918.

| Year. | Beef. | Mutton. | Pork. | Veal. |
|---|---|---|---|---|
| 1911..... | 32,816 pieces. | 56,596 pieces. | 8,629 pieces. | 1,070 pieces. |
| 1912..... | 68,272 ,, | 57,163 ,, | 8,229 ,, | 196 ,, |
| 1913..... | 28,055 ,, | 66,705 ,, | 12,946 ,, | 64 ,, |
| 1914..... | 36,561 ,, | 41,298 ,, | 1,919 ,, | 44 ,, |
| 1915..... | 55,219 ,, | 185,551 ,, | 5,644 ,, | 233 ,, |
| 1916..... | 63,900 ,, | 126,110 ,, | 2,765 ,, | 15 ,, |
| 1917..... | 39,466 ,, | 13,212 ,, | 12,460 ,, | 946 ,, |
| 1918..... | 27,216 ,, | 51,755 ,, | 24 ,, | —— |

TABLE 16.

## SHOWING THE QUANTITY AND DESCRIPTION OF OFFAL CONDEMNED DURING THE YEAR 1918.

| Name of Organ. | Beef. | | Mutton. | | Pork. | | Veal. | |
|---|---|---|---|---|---|---|---|---|
| | Number. | Weight, Pounds. | Number. | Weight, Pounds. | Number. | Weight, Pounds. | Number. | Weight, Pounds. |
| Livers ... ... ... ... ... ... | 5,434 | 49,053 | — | — | — | — | — | — |
| Kidneys ... ... ... ... ... | 4,595 | 4,641 | 12,568 | 1,472 | — | — | — | — |
| Sweetbreads ... ... ... ... | 1,080 | 269 | — | — | — | — | — | — |
| Tripe ... ... ... ... ... ... | 12,734 | 114,964 | — | — | — | — | — | — |
| Skirts ... ... ... ... ... ... | 1,372 | 2,080 | — | — | — | — | — | — |
| Hearts ... ... ... ... ... | 891 | 3,335 | 39,187 | 18,229 | — | — | — | — |
| Tongues ... ... ... ... ... | 83 | 433 | — | — | 6 | 3 | — | — |
| Tails ... ... ... ... ... ... | 65 | 95 | — | — | — | — | — | — |
| Heads ... ... ... ... ... | 7 | 358 | — | — | 18 | 220 | — | — |
| Cheeks ... ... ... ... ... | 955 | 527 | — | — | — | — | — | — |
| Totals ... ... ... ... | 27,216 | 175,755 | 51,755 | 19,701 | 24 | 223 | — | — |

The organs dealt with above were rejected for various reasons, notably, decomposition and diseased conditions, such as Cysts, Inflammation, &c.

TABLE 17.

## TABLE SHOWING THE QUANTITY AND DESCRIPTION OF UNSOUND MEATS SUPERVISED* DURING THE YEAR 1918.

| Description. | Total Weight. | | | | Cause of Destruction. | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Tubercular. | | | | Brine Stained, Mouldy and Decomposed. | | | | Other causes. (Emaciation, Dropsy and Pleurisy). | | | |
| | Tons | cwts. | qrs. | lbs. | Tons | cwts. | qrs. | lbs. | Tons | cwts. | qrs. | lbs. | Tons | cwts. | qrs. | lbs. |
| Beef | 281 | 9 | 0 | 25 | | — | | | 280 | 4 | 2 | 19 | 1 | 4 | 2 | 6 |
| Mutton | 55 | 15 | 0 | 22 | | — | | | 55 | 15 | 0 | 22 | | — | | |
| Pork | 4 | 14 | 1 | 4 | | — | | | 4 | 14 | 1 | 4 | | — | | |
| Veal | 0 | 0 | 0 | 16 | | — | | | 0 | 0 | 0 | 16 | | — | | |
| Total | 341 | 18 | 3 | 11 | | — | | | 340 | 14 | 1 | 5 | 1 | 4 | 2 | 6 |

* These were destroyed or allowed to go for industrial purposes to the satisfaction of the Medical Officer.

TABLE 18.

## SHOWING QUANTITIES OF UNSOUND GENERAL FOOD-STUFFS SUPERVISED AND UTILISED DURING THE YEAR 1918.

| Description. | No. of Tins. | Weight in Pounds. | Description. | No. of Tins. | Weight in Pounds. |
|---|---|---|---|---|---|
| **Canned Goods—** | | | Mutton ... | 49 | 294 |
| Apricot Pulp ... | 2469 | 27159 | Sausages ... | 1080 | 1324 |
| Black Currant Pulp | 726 | 7986 | Ox Tongues ... | 1101 | 1603 |
| Peaches ... | 172 | 298 | Cheeks... ... | 1678 | 3069 |
| Cherries ... | 3138 | 7845 | Kidneys ... | 138 | 121 |
| Pimentoes ... | 15 | 15 | Fish in Oils ... | 1638 | 1486 |
| Mushrooms ... | 17301 | 15592 | Sardines ... | 8940 | 9989 |
| Cream Curd ... | 882 | 772 | Salmon ... | 35 | 35 |
| Tomatoe Pulp | 3049 | 33454 | Crab ... ... | 4167 | 2304 |
| Milk ... ... | 468397 | 419909 | Prawns ... | 8748 | 4374 |
| Egg Pulp ... | 3818 | 167992 | Cray Fish ... | 3415 | 1708 |
| Spaghetti ... | 1671 | 4013 | Jam ... ... | 5713 | 5713 |
| Beef ... ... | 196614 | 1052 32 | Pilchards ... | 432 | 432 |

| Description. | Packages. | Weight. | | | |
|---|---|---|---|---|---|
| | | Tons. | Cwts. | Qrs. | Lbs. |
| **Fruit** (Fresh)— | | | | | |
| Apples ... ... ... ... | 7 | — | 5 | 3 | 12 |
| Bananas... ... ... ... | 173 | 8 | 17 | | 20 |
| ,, loose ... ... ... | — | 4 | 10 | — | — |
| Grapes ... ... ... ... | 791 | 12 | 9 | 1 | 24 |

TABLE 18 – *continued.*

| Description. | Packages. | Weight. | | | |
|---|---|---|---|---|---|
| | | Tons. | Cwts. | Qrs. | Lbs. |
| **Fruit** (Fresh) *continued*— | | | | | |
| Tomatoes ... ... ... | 1,521 | 13 | 13 | 1 | 16 |
| Lemons ... ... ... ... | 2,451 | 63 | 9 | 2 | 18 |
| ,, loose ... ... ... | — | 28 | — | — | — |
| Oranges ... ... ... ... | 12,435 | 614 | 7 | 2 | 13 |
| ,, loose ... ... ... | — | 166 | — | 3 | 4 |
| Grape Fruit ... ... ... | 1 | — | — | 2 | 4 |
| Blackberries ... ... .. | 4 | — | 13 | — | — |
| Apricot Kernels ... ... | — | — | 8 | — | 12 |
| Chesnuts ... ... ... | 766 | 25 | 17 | 3 | 22 |
| Nuts ... ... ... ... | 9 | — | 4 | 1 | 4 |
| ,, loose ... ... ... | — | — | 12 | 2 | 5 |
| **Fruit** (Dried)—. | | | | | |
| Currants ... ... ... | 435 | 20 | 16 | — | 24 |
| Almonds... ... ... ... | — | — | 4 | 2 | 2 |
| Apple Rings ... ... ... | 2 | — | 2 | — | — |
| **Vegetables**— | | | | | |
| Potatoes... ... ... ... | 176 | 8 | 16 | — | 10 |
| ,, loose... ... ... | — | 114 | — | — | — |
| Onions ... ... ... ... | 5,657 | 338 | 13 | 3 | 1 |
| ,, loose ... ... ... | — | 44 | 9 | — | — |
| Turnips ... ... ... ... | 165 | 7 | 1 | 2 | 12 |
| ,, loose ... ... ... | — | — | — | — | — |
| **Cereals**— | | | | | |
| Wheat ... ... ... ... | — | 1,988 | 15 | 2 | 27 |
| Maize ... ... ... ... | — | 2,426 | 5 | 3 | 15 |
| Maize Meal ... ... ... | — | 237 | 18 | 3 | 20 |
| Oats ... ... ... ... | — | 131 | 11 | 3 | 24 |
| Barley ... ... ... ... | — | 127 | 19 | — | 27 |
| Peas ... ... ... ... | — | 25 | 10 | — | 19 |
| Beans ... ... ... ... | — | 142 | 19 | 1 | 16 |

TABLE 18—*continued.*

| Description. | Packages. | Weight. | | | |
|---|---|---|---|---|---|
| | | Tons. | Cwts. | Qrs. | Lbs. |
| **Cereals**—*continued.* | | | | | |
| Rye ... ... ... ... | — | 37 | 6 | 3 | 19 |
| Flour ... ... ... ... | — | 259 | — | 2 | 22 |
| Rice ... ... ... ... | — | 319 | 6 | — | 18 |
| Rice Flour ... ... ... | — | 1 | — | — | — |
| Oatmeal... ... ... ... | — | 1 | 4 | — | — |
| **General**— | | | | | |
| Bacon ... ... ... ... | — | 14 | 12 | 2 | — |
| Ham ... ... ... ... | — | 1 | 1 | — | 2 |
| Cheese, loose ... ... ... | — | 11 | 19 | — | — |
| Rabbits ... ... ... ... | 5,958 | 90 | 4 | 2 | 18 |
| ,, loose ... ... ... | — | 35 | — | — | — |
| Eggs, single ... ... ... | 1,193,766 | 67 | — | — | — |
| ,, dessicated ... ... | 27 | 1 | 4 | — | 12 |
| Poultry ... ... ... ... | — | — | 2 | — | 7 |
| Fish ... ... ... ... | 3 | — | 1 | 2 | — |
| Lard ... ... ... ... | — | 2 | 7 | 3 | 24 |
| Oleo Oil ... ... ... ... | — | 2 | 12 | — | 4 |
| Coffee Beans ... ... ... | — | 18 | — | — | — |
| Cocoa Beans ... ... ... | 7 | — | 10 | 2 | — |
| Tea ... ... ... ... | 120 | 6 | 4 | 2 | 6 |
| Biscuits ... ... ... ... | 97 | 1 | 4 | 1 | — |
| Milk ... ... ... ... | 108 | 31 | 14 | 1 | 4 |
| Pepper ... ... ... ... | 4 | — | 4 | — | — |
| Chillies ... ... ... ... | 2 | — | 1 | — | — |
| Custard Powder ... ... | 40 | — | 5 | — | — |
| Citron Peel ... ... ... | 1 | — | 9 | — | — |
| Citrons (in brine) ... ... | — | 3 | — | — | — |
| Lemon Peel ... ... ... | 20 | 11 | 11 | 2 | — |
| Baking Powder... ... ... | — | — | — | 3 | 14 |
| Macaroni ... ... ... | 104 | 3 | 5 | 1 | 27 |

TABLE 19.

SHOWING THE TOTAL QUANTITIES OF THE DIFFERENT UNSOUND FOODSTUFFS SUPERVISED DURING THE YEAR 1918.

| | Tons. | Cwts. | Qrs. | Lbs. |
|---|---|---|---|---|
| Beef, Mutton, Pork and Veal... | 341 | 18 | 3 | 11 |
| Offal (Beef, Mutton, etc.) ... | 87 | 7 | 0 | 15 |
| Canned Goods ... ... ... | 790 | 2 | 3 | 11 |
| Fruit and Vegetables ... ... | 1,473 | 14 | 0 | 7 |
| Cereals ... ... ... ... | 5,698 | 19 | 0 | 11 |
| General (Fish, Poultry, Rabbits, etc.) ... ... | 302 | 15 | 1 | 6 |
| | 8,694 | 17 | 1 | 5 |

TABLE 20.

## Showing comparative Value of the more important Food Stuffs imported at the principal Ports during the year 1918.

| | London. 1 | Liverpool. 2 | Hull. 3 | Glasgow. 4 | Bristol. 5 | Manchester. 6 | Southampton. 7 | Newcastle. 8 | Leith. 9 | Harwich. 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| | £ | £ | £ | £ | £ | £ | £ | £ | £ | £ |
| Animals | — | — | — | — | — | — | 47,581 | — | — | — |
| Butter | 9,030,379 | 1,105,940 | 2,690,018 | 161,829 | 29,350 | 3,957 | 911,128 | 2,072,010 | 345,643 | 122,890 |
| Cheese | 10,165,172 | 4,803,175 | 304,272 | 1,146,653 | 1,281,748 | 594,674 | 202,038 | 6,758 | 389,680 | 338,335 |
| Cocoa | 1,547,246 | 2,646,282 | — | — | 19,145 | — | 75,617 | — | — | — |
| Coffee | 1,397,252 | 322,793 | — | — | 129,907 | — | 993 | — | — | — |
| Grain | 47,446,306 | 45,444,439 | 11,444,042 | 13,824,507 | 11,843,865 | 10,221,329 | 855,139 | 1,710,190 | 2,979,932 | — |
| Eggs | 985,499 | 748,552 | 1,394,854 | 432,323 | 88,209 | 2,454 | — | 832,206 | 18,597 | 96,784 |
| Fish | 2,777,784 | 3,030,324 | 1,097,150 | — | 90,316 | — | 91,067 | 221,077 | 245,567 | 29,636 |
| Fruit | 4,085,592 | 4,141,885 | 176,749 | 596,146 | 637,212 | 356,047 | 594,476 | 45,818 | — | — |
| Lard | 1,513,694 | 4,695,634 | 1,333,706 | 287,441 | 352,344 | 708,217 | 54,780 | — | — | — |
| Margarine | 3,381,534 | 1,819,346 | 1,628,122 | 95,838 | — | — | — | 78,048 | 1,310,921 | 1,604,513 |
| MEAT :— | | | | | | | | | | |
| Bacon | 7,392,309 | 18,181,829 | 5,245,770 | 1,908,899 | 1,876,713 | 1,683,326 | 146,876 | 1,701,000 | 193,918 | 226,459 |
| Beef, Fresh | 12,150,799 | 8,297,884 | 5,507 | 667,514 | 805,804 | — | 1,771,232 | — | — | — |
| ,, Salted | — | 86,563 | | | — | — | — | — | — | — |
| Hams | 1,351,574 | 3,983,618 | — | 1,332,891 | 121,409 | 363,585 | 30,633 | — | — | — |
| Mutton, Fresh | 7,564,413 | 2,116,322 | — | 90,027 | 101,137 | — | 238,676 | — | — | 11,060 |
| Pork, Fresh | 278,502 | 469,406 | 9,253 | — | — | — | — | — | — | — |
| ,, Salted | | 56,604 | | — | — | — | — | 3,360 | — | — |
| Rabbits | 486,454 | 180,106 | — | — | — | — | — | — | — | — |
| Unenumerated | 1,098,121 | 1,214,946 | 42 | — | — | — | — | — | — | 2,053 |
| Preserved | 5,722,717 | 6,160,807 | 277,750 | 216,869 | 619,881 | 183,348 | 510,617 | — | — | — |
| Milk, Condensed | 2,574,888 | 2,269,994 | 401,019 | — | 242,908 | 162,087 | — | 71,796 | 157,835 | 114 |
| Poultry and Game | 325,091 | 408,959 | — | — | — | — | 32,291 | — | — | 382 |
| Sugar | 17,276,244 | 12,331,732 | 72,470 | 893,202 | 951,194 | 1,075,532 | 260,681 | 31 | 303,421 | 5 |
| Vegetables | 1,161,597 | 843,861 | 522,652 | 307,349 | 171,208 | 187,281 | 1,269,241 | 50,609 | 30,486 | 29,306 |

The City Bacteriologist has received 34 samples and the Chemical Analyst 22 samples of food for examination during the year.

The importation of small quantities of foreign meats of Classes I and II still continues. These, owing to their condition or preparation, have not the usual "official certificate" attached, or may contain prohibited preservatives. There were 8 export notices served in connection with these; the meats included such articles as pork loins, head meat, scrap meat, maws, pork tripe, sausage meats, and neck ribs.

A very large amount of assistance has been given to the Naval and Military Authorities. This important work was continually increasing, and has placed a heavy strain on the staff.

---

## GENERAL OBSERVATIONS.

Scope and Objects of Port Sanitary Administration.

The importance of the work carried out at the ports is not fully realised. The ports of Great Britain, which are the national barriers of defence against disease, link her intimately with foreign countries, with Dominions, and with Colonies, in every part of the civilised globe. She has therefore a greater concern than countries with less extensive shipping communications with outbreaks of disease in any part of the world connected by sea, whether near or distant. The presence of smallpox or plague, or any other infection, whether in India, in China, in South America, Canada, United States, or elsewhere, means the introduction of these diseases sooner or later into British ports; the greater the commerce the greater the risk.

Ports may be, and in this country usually are, so administered that the inevitable arrivals of infection shall be properly dealt with and rendered harmless; otherwise, in addition to being centres of exchange for commerce, they would become centres of exchange and diffusion for disease. These basic facts have been recognised for centuries, from the days when the Black Death reached South-East Europe from Asia, in the fourteenth century, onwards to the time of John Howard. He, and other writers of his time, describe the then condition of the seamen and their surroundings, the close, dark and confined quarters, the plagues of vermin—rats, lice, beetles, and so forth—the filth, the bad clothing, and starvation, which were not only the common causes of disorder and mutiny, but found reflex in the insanitary and degrading conditions of the maritime towns in those days. It was at

that time that the then Government decided that no ships or vessels would be allowed to enter the Port of London unless they brought with them a certificate of health from the port authorities whence they came. This was, no doubt, the origin of our Bills of Health. Other Orders authorising vessels to be detained on their arrival from foreign ports were issued, which gradually led to the establishment of English quarantine. A partial explanation of the cumbersome methods of procedure may be found in the imperfect sanitary knowledge, and still more in the imperfect administrative methods which lent colour to the then prevailing belief that health interests and commercial interests were antagonistic, an impression than which nothing could be more false.

The Quarantine Act of 1825, which was designed to relieve matters, proved ineffective in practice and vexatious in operation, but it lingered on until 1896, when it was finally repealed.

The growing magnitude of our foreign trade, and the unnecessary difficulties of carrying it on which the ill-considered methods of many foreign ports occasion, led the British Government to take the important step of arranging an International Conference upon the subject. This was a step towards greater uniformity of procedure, and resulted in the present system of medical supervision of imported infections, based upon the conditions of the ship as well as upon the health of the persons on board, and not upon the health of the port from which the vessel had sailed.

A further valuable advance was also made whereby an interchange of information was provided for between foreign countries and our own in regard to prevailing infectious diseases in different countries, but this arrangement exists only between the various Governments which signed the Convention resulting from the International Conference.

ernational
eements.

The most recent of these International Agreements is that reached at the Paris International Sanitary Convention of 1911-12, which provided, amongst other measures, for the interchange of information regarding the presence of plague or cholera within the areas of the countries signing the Convention, and which also provided for measures to be taken by the same countries in the case of plague-

infected rats being found on shipboard. One of the weak points, however, in agreements of this character is that they influence only those countries which participate in and agree to abide by them, and these countries, being as a rule the most enlightened and the most advanced, are the least dangerous from the point of view of international infection.

Absence of a good standard of sanitary administration is usually accompanied by want of appreciation of the *degree* of risk or the *amount* of danger associated with infection in the various localities. In other words, mal-administration and ignorance are usually associated. For example, no one doubts that the methods adopted when plague is introduced into the average British port rob the incident of any really serious significance so far as dangers to the public health are concerned. The same observation would apply no doubt to Japanese, or United States, and many other ports; but, on the other hand, there are ports in which we know the administration is not effective, and consequently plague at such a port is a menace, not only to that port, but to its shipping, and through its shipping to all other ports with which it trades. It is in ports such as these that archaic methods, reminiscent of the old Quarantine Acts, are still in operation, to the great harassing of shipping and obstruction of commerce.

The results of the work of Port Sanitary Authorities in controlling infections such as cholera and plague have inspired such confidence abroad that no foreign country has ever thought it necessary to take any exceptional precautions against British shipping, or to quarantine our vessels on arrival in their harbours; but in certain individual foreign ports much delay and loss have arisen consequent upon undue timidity, or indefiniteness, or insufficiency of international agreements, or with those which have only partially assented to those agreements.

Standing in a category almost alone, another illustration of the valuable results of Port Sanitary Administration in the protection of the country generally is seen in the case of smallpox. The prompt diagnosis and isolation of cases, the vaccination of crews of vessels and all contacts who will accept it, has reduced the chances of the spread of this disease to a minimum.

ommerce nd the anitary onditions of orts.

The object of an agreement is to safeguard the mutual interests of the parties concerned. If some of the parties are in ignorance or suspicious as to the circumstances of the other, no satisfactory arrangement can be come to. It is clear that the first essential in safeguarding international health interests is a thorough and mutual understanding of the sanitary conditions of the various ports concerned. Vessels arriving from a notoriously insanitary port are justifiably liable to more exacting restrictions than those arriving from a notably healthy port: one of the problems we have to solve is how these variations shall be met. British, Foreign, Colonial and Dominion ports differ very considerably in administrative standards, and, apart from this, inward vessels may come under suspicion on account of the prevalence of disease at the port from which they sailed. Nothing but advantage would result from the perfection of a system by which the sanitary conditions of all important ports shall be common property and common knowledge amongst all of them throughout the world; by this means confidence would replace suspicion and doubt. We owe a great deal to the United States, as well as to our own Local Government Board, for the diffusion of useful information in these respects, but it falls short, far short, of the knowledge which ought to be in mutual possession. It is in the interests of international health, as well as of shipping, that the importance of a swift and unrestricted communication between ports should be recognised, and it is unpardonable that commerce should be hampered by avoidable disease, or because one port is regarded as a bogey by another port.

One illustration in connection with the port of Liverpool may be given; no doubt there may be many such in connection with other British ports. The arrival of persons affected with plague at Liverpool has occasionally given rise to delays, costly and vexatious, to outward bound vessels on their arrival at certain ports in the Southern States of America, and entails much correspondence and interchange of views with the Consular representatives, Local Government Board, Foreign Office, American Authorities, and Shipping Companies. The view of the Health Department of New York, at which it was apprehended similar restrictions might be imposed, is shown by an extract from the official report, which points out that there may be differences in the problem presented by West Indian and South American ports to those at New York. "Our commerce with Liverpool," they state, "is great

" in volume and value, the steamers are huge passenger liners, and the " circumstances in Liverpool do not warrant the employment of " measures asked for elsewhere, as the result would be to inflict an " enormous damage to the commerce of the port of New York, not " justified by the damage against which it is our duty to guard."

Obviously, if it were possible to enlighten all the ports in the world with which all the ports in Great Britain deal to the same extent as the understanding between the port of Liverpool and the port of New York, it would be to the advantage of all the nations of the world. One of the first duties of the new Ministry of Health should be to set this matter on a proper basis, and to establish confidence between the nations. No other body than one such as a Ministry of Health dominated solely by the duty to prevent disease can accomplish this. A Central Bureau of Information, whose business it should be to promote the necessary interchange of knowledge, is a vital need which should be met without further delay.

One of the first essentials is that official guidance for the Consular body should be available on health matters. The Consular body have very important functions imposed upon them in reference to these matters, but it is the general experience of Port Medical Authorities that the amount of intelligent interest taken in public health matters by the members of that body has a very wide individual variation.

The United States Consulate, as we all know, and one or two others, evince a great interest in all health matters, but the great majority seldom trouble about them unless something new and unusual happens, when those who have hitherto taken but little interest evince an altogether exaggerated and unnecessary anxiety and alarm difficult to allay, but which happily is wholly absent from those who have a knowledge of the facts and have kept in touch with those responsible for public health administration.

It may be here remarked that the Consular body is normally very much larger than would generally be supposed. In Liverpool, prior to the war, there were representatives of no less than 38 foreign Governments, only a small minority of whom are parties to the Conventions quoted. It is obvious that in times of excitement considerable mischief can be done, especially to shipping and commerce,

by unnecessary delays in clearing outgoing vessels in foreign ports by refusal or hesitation to sign Bills of Health, or endorse essential documents.

An International Bureau of Hygiene has been established in Paris under the International Sanitary Convention, the object being to publish information of international interest regarding infectious diseases and hygiene generally.

The English Local Government Board has issued a short summary of information regarding the presence of plague, cholera and smallpox in certain foreign ports, and amongst various valuable publications Dr. Bruce Low's report on the world-wide prevalence of smallpox and other diseases has been most helpful.

An international interest in the extermination of plague and disease-carrying rats and other vermin is greatly needed. Fumigation of vessels in order to clear them of rats must be arranged for regularly, and be carried out by a recognised and systematic method. Certificates of satisfactory fumigation will be issued by the responsible Health Authority's Medical Officer. This will avoid the annoyances which have frequently arisen in connection with this important subject of rat extermination. Much improvement will be required, however, in the personnel and administration in the health services of many foreign ports before a mutual confidence can grow up between the various Port Health Authorities in regard to the methods adopted; in fact, it would be a good thing if an international standard were adopted in this most important subject.

The various bodies connected with the administration of the Port, viz., H.M. Collector of Customs and staff, the Mersey Docks and Harbour Board and their officers, and the various shipping companies, have fully co-operated with the officers of the Port Sanitary Authority in the performance of their duties. The Consular Body have also given every assistance in their power.

E. W. HOPE, M.D.

Municipal Offices,

Liverpool, 1*st August*, 1919.

**Appendix 1.**

# LIVERPOOL PORT SANITARY AUTHORITY.

## MALARIA.

**This form is to be filled up and transmitted immediately on arrival to the Port Sanitary Offices Princes Pierhead.**

*Name of Vessel* ..... *Where Lying*.....

*Owner or Agents*..... *Date of Arrival* .....

| Ports Touched At. | Date of Vessel's | |
|---|---|---|
| | Arrival | Departure |
| | | |

| On what dates was Quinine given to all on board as a preventive measure? | | At what Ports touched at during the Voyage was Malaria prevalent? |
|---|---|---|
| Dates | Amount given | |
| | | |

[Over.

**Particulars required of Cases of Malaria occurring during the Voyage**

| Name. | Age | Occupation | Onset | Recovery | Amount of Quinine Given |
|---|---|---|---|---|---|
| | | | | | |

**The Names of the Passengers and Crew and Addresses at Destination to which they are proceeding are to be obtained.**

## Appendix 2.

STATUTORY RULES AND ORDERS.

1918, No. 1071.

---

## DEFENCE OF THE REALM.

### Ministry of Food.

---

THE RATS ORDER, 1918, DATED THE 28TH AUGUST, 1918, MADE BY THE FOOD CONTROLLER UNDER THE DEFENCE OF THE REALM REGULATIONS.

---

In exercise of the powers conferred upon him by the Defence of the Realm Regulations, and of all other powers enabling him in that behalf, the Food Controller hereby orders that, except under the authority of the Food Controller, the following regulations shall be observed by all persons concerned:—

1. Where a Local Authority are of opinion that rats are causing preventable damage or destruction to foodstuffs within their district they may take such measures as they shall think proper for the destruction of such rats.

2. (*a*) Where a Local Authority are of opinion that the owner or occupier of any land or building has neglected to take reasonable and proper precautions to prevent such land or building becoming infested by rats or has neglected to remove from such land or building any rubbish or other materials likely to attract rats, they may give to such owner or occupier directions requiring him to take such steps as in the opinion of the Local Authority are reasonable and proper for the purpose of preventing such land or building from being infested by rats or requiring him to remove or destroy such rubbish or other materials.

(*b*) It shall be the duty of such owner or occupier to comply with all such directions, and where in the opinion of a Local Authority the owner or occupier of any land or building has failed to comply with any such directions within seven days of the same being given, or such

later period as may be specified by the Local Authority, they may enter on such land or building and take such measures as are enjoined by such directions, and may recover from such owner or occupier any expenses incurred by them so far as such expenses are directly attributable to the failure of such owner or occupier to carry out his obligations under those directions.

3. A Local Authority in the exercise of the powers conferred by this Order shall have regard to any recommendations which may be made to them in England and Wales by the Board of Agriculture and Fisheries or a War Agricultural Executive Committee in the area of the Local Authority, and in Scotland by the Board of Agriculture for Scotland or a District Agricultural Executive Committee acting in the area of the Local Authority.

4. A Local Authority in England or Wales and any person authorised by them are hereby authorised to prosecute any offence against the Defence of the Realm Regulations occasioned by a breach of this Order.

5.—Failure to comply with this Order or any direction given thereunder is a summary offence against the Defence of the Realm Regulations.

6. For the purposes of this Order the expression "Foodstuffs" shall include growing crops, but this shall not be construed so as to limit the general interpretation of that expression.

The expression "Local Authority" shall mean, as regards England and Wales, a County Council or the Council of a County Borough; and, as regards Scotland, a County Council or a Town Council.

7. (*a*) This Order may be cited as the Rats Order, 1918.

(*b*) This Order shall not apply to Ireland.

By Order of the Food Controller,

W. H. BEVERIDGE,
Second Secretary to the Ministry of Food.

28th August, 1918.

## Appendix 3.

STATUTORY RULES AND ORDERS.

1919, No. 339.

---

**DEFENCE OF THE REALM.**

**Ministry of Food.**

---

ORDER AMENDING THE RATS ORDER, 1918, DATED THE 26TH DAY OF MARCH, 1919, MADE BY THE FOOD CONTROLLER UNDER THE DEFENCE OF THE REALM REGULATIONS.

---

In exercise of the powers conferred upon him by the Defence of the Realm Regulations, and of all other powers enabling him in that behalf, the Food Controller hereby orders that the Rats Order, 1918 (hereinafter called "the Principal Order") shall be amended as follows:—

1. The last paragraph of Clause 6 shall be deleted, and the following paragraphs shall be substituted therefor:—

For the purpose of this Order the expression "Local Authority" shall mean:—

(*a*) As regards England and Wales, the County Council, the Mayor, Aldermen and Commons of the City of London in Common Council assembled, the Council of a County Borough, or the Port Sanitary Authority of a Port Sanitary District.

(*b*) As regards Scotland, a County Council, Town Council, or the Port Local Authority of a Port Local Authority District.

The expressions "Port Sanitary District" and "Port Local Authority District" shall mean any port or part of a port for which a Port Sanitary Authority or a Port Local Authority has been constituted under the Public Health Acts, including the

Public Health (London) Act, 1891, and any such Port Sanitary District or Port Local Authority District shall form no part of any Administrative County, County Borough or Burgh.

The City of London shall form no part of any Administrative County.

The provisions of this Order shall apply to every vessel lying in any water within any Port Sanitary District or Port Local Authority District in like manner, as nearly as may be, as if it were a building.

2. The following Clause shall be added after Clause 6 of the Principal Order:—

"6A. The powers conferred by this Order upon a County Council with respect to any Administrative County may, with the consent of such County Council and subject to such restrictions as the County Council may impose, be exercised in England and Wales by the Council of any District or Borough, and in Scotland by any Burgh or Town Council within such Administrative County, or may be delegated by the County Council in England and Wales to the Agricultural Executive Committee for the County, or in the case of the London County Council to the Metropolitan Boroughs, and in Scotland to the District Agricultural Executive Committee for the County."

3. Copies of the Principal Order hereafter to be printed under the authority of His Majesty's Stationery Office shall be printed with the substitutions and additions provided for by this Order, and the Principal Order shall on and after the 9th April, 1919, be read and take effect as if they had been made with such substitutions and additions.

By Order of the Food Controller,

W. H. BEVERIDGE,
Secretary to the Ministry of Food.

26th March, 1919.

## Appendix 4.

TABLE 21.

CASES OF ANTHRAX REPORTED DURING THE YEARS 1916-7-8 IN CONNECTION WITH THE HANDLING OF ANIMAL AND OTHER PRODUCTS.

| Date, 1916. | Sex. | Occupation. | Material. | Origin of Material. | Situation of Pustule. | Bacteriological Confirmation. | Severity and Result. |
|---|---|---|---|---|---|---|---|
| Jan. 31st | Male ... | Warehouseman, Wool Warehouse | Sweeping and collecting loose wool. | East India ..... | Right side of neck. | Culture and slides positive | Moderate Sclavo's serum and excision : recovery. |
| Feb. 4th | Male ... | Warehouseman, Wool warehouse. | Stowing and breaking down wool bales for sale. | Same class of wool as previous case, East India | Right side of neck. | Positive..... | Moderate pustule excised : recovery. |
| Feb. 16th | Male ... | Hide Porter ..... | Probably dry Buffalo hides from S. Africa. | Buffalo hides from Warri, Nigeria. | Right side of neck. | Positive..... | Pustule typical—patient recovered. |
| Feb. 24th | Male ... | Wool Porter, Wool warehouse. | Breaking open bales of wool. | East India ..... | Back of neck ... | Positive..... | Patient died, Feb. 25th. |
| Mar. 7th | Male ... | Hide Porter ..... | Dry Buffalo hides | Singapore. ..... | Back of neck ... | None made ..... | Typical treated at home : death. |
| Mar. 13th | Male ... | Wool sampler ..... | Sheep's wool ..... | East India ..... | Left side of neck | Positive..... | Typical pustule and vesicles : recovery. |
| Mar. 20th | Female | Labourer ..... | Probably anthrax, infected bagging. | East India ..... | Right side of neck. | Positive..... | Typical with pustule ; septicæmia, rapidly developed : Patient died. |

TABLE 21—*Continued.*

CASES OF ANTHRAX REPORTED DURING THE YEARS 1916-7-8 IN CONNECTION WITH THE HANDLING OF ANIMAL AND OTHER PRODUCTS.

| Date, 1916. | Sex. | Occupation. | Material. | Origin of Material. | Situation of Pustule. | Bacteriological Confirmation. | Severity and Result. |
|---|---|---|---|---|---|---|---|
| Mar. 21st | Male ... | Warehouseman, Wool warehouse. | Breaking down and trucking bales of wool. | East India ..... | Front of neck ... | Positive..... | Typical pustule and vesicles : recovery. |
| Mar. 26th | Male ... | Wool Warehouseman. | Trucking bales of wool. | East India ..... | Back of neck ... | Positive..... | Typical pustule incised and cauterised : recovery. |
| April 17th | Male ... | Hide porter ..... | Dry Nigeria hides | Nigeria ..... | Back of neck ... | None made ..... | Typical—recovery. |
| May 21st | Female | Hair curler ..... | Mixed hairs, cow, pig and horse hair. | Hair from United Kingdom and S. America. | Under right eye | Positive..... | Typical death shortly after admission to hospital. |
| June 6th | Male ... | Tanners' Labourer. | Dry hides ..... | Madagascar ..... | Right forearm ... | Positive..... | Recovery. |
| June 6th | Male ... | Cargo receiver ... | Dry hides ..... | W. Africa ..... | Left cheek ..... | Positive..... | Recovery. |
| June 17th | Male ... | Carter ..... | Dry hides ..... | India ..... | Right cheek ... | Positive..... | Recovery. |

TABLE 21—*Continued.*

CASES OF ANTHRAX REPORTED DURING THE YEARS 1916-7-8 IN CONNECTION WITH THE HANDLING OF ANIMAL AND OTHER PRODUCTS.

| Date, 1916. | Sex. | Occupation. | Material. | Origin of Material. | Situation of Pustule. | Bacteriological Confirmation. | Severity and Result. |
|---|---|---|---|---|---|---|---|
| Sept. 30th | Male ... | Labourer ..... | Dry hides ..... | River Plate ..... | Right side of neck. | Positive..... | Patient died Oct. 3rd. |
| Oct. 28th | Male ... | Wool porter, Wool warehouse. | Trucking wool ... | East India ..... | Back of neck ... | Positive..... | Recovery. |
| 1917 May 14th | Female | Housewife..... | ? ..... | ? ..... | Radial side of bust. | A doubtful case | Recovery. |
| May 15th | Male ... | Wool Warehouseman | Wool ..... | East India ..... | Right side of neck. | Positive..... | Recovery. |
| May 17th | Male ... | Dock labourer ... | Dry hides ..... | Bathurst ..... | Right side of neck. | Positive..... | Severe case—Cauterisation and Sclavo's serum. Death on May 20th, |
| May 28th | Male ... | Dock labourer ... | Dry hides ..... | Not known ..... | Back of neck ... | Positive..... | Recovery. |
| July 6th | Male ... | Wool sorter ..... | Wool ..... | Karachi..... | Right temple ... | Positive..... | Recovery. |
| July 13th | Female | Hair sorter ..... | Horse hair ..... | West coast South America. | Forehead ..... | Positive..... | Typical pustule excised and Sclavo's serum administered : recovery. |

TABLE 21—*Continued.*

CASES OF ANTHRAX REPORTED DURING THE YEARS 1916-7-8 IN CONNECTION WITH THE HANDLING OF ANIMAL AND OTHER PRODUCTS.

| Date, 1917. | Sex. | Occupation. | Material. | Origin of Material. | Situation of Pustule. | Bacteriological Confirmation. | Severity and Result. |
|---|---|---|---|---|---|---|---|
| Dec. 22nd | Male ... | Dock labourer ... | Probably hides ... | Source not definitely traced | Left cheek ..... | Positive..... | Pustule incision and serum given : recovery. |
| 1918. | | | | | | | |
| Feb. 2nd | Male ... | Dock labourer ... | Not traced ..... | Not traced ..... | Neck ..... | Organisms like anthrax bacilli found. | Typical pustule and vesicles—excision and serum : recovery. |
| Feb. 11th | Male ... | Dock labourer ... | Handling bales of wool. | Bagdad ..... | Neck ..... | B. of anthrax found in smear. | Typical pustule excision : recovery. |
| Mar. 2nd | Male ... | Electrical fitter ... | Probable source of infection was a shaving brush. | ? ..... | Left cheek ..... | Smear showed organisms resembling B. anthracis. | Typical—excision, serum and recovery. |
| Mar. 26th | Male ... | Dock labourer ... | Hides..... | Irish ..... | Anterior surface tibia. | Organisms found resembling B. anthracis. | Doubtful case—recovery. |
| Mar. 30th | Male ... | Private, U.S. Army. | Not traced ..... | Patient was working with mule and horse transport in U.S.A. | Anterior border, of left sterno-mastoid muscle. | Smear and culture showed organisms resembling B. anthracis. | Took ill on board ship and removed to hospital in Liverpool—Typical pustule. Death. |

TABLE 21—*Continued.*

CASES OF ANTHRAX REPORTED DURING THE YEARS 1916-7-8 IN CONNECTION WITH THE HANDLING OF ANIMAL AND OTHER PRODUCTS.

| Date, 1918. | Sex. | Occupation. | Material. | Origin of Material. | Situation of Pustule. | Bacteriological Confirmation. | Severity and Result. |
|---|---|---|---|---|---|---|---|
| April 21st | Male ... | Corporal, U.S. Army | Probably a shaving brush. | 50 shaving brushes submitted by U.S. Army. | Left cheek ..... | Six of these fifty shaving brushes were examined, three were found infected with anthrax. | Patient developed pustule on board ship. Excision and serum : recovery. |
| June 25th | Male ... | Dock labourer ... | Dry hides ..... | Calcutta ..... | Left cheek ..... | Positive..... | Typical—excision and Sclavo's serum: recovery. |
| July 12th | Male ... | Dock labourer ... | Dry hides ..... | China and Columbo. | Neck ..... | Positive..... | Typical—excision and Sclavo's serum: recovery. |
| Aug. 22nd | Male ... | Labourer, Wool warehouse. | Trucking wool ... | East India ..... | Left cheek ..... | Positive..... | Typical—excision and Sclavo's serum: recovery. |
| Sept. 12th | Male ... | Butter grader ..... | No evidence of infection through usual channels, suspicion rests on shaving brush. | Shaving brush purchased in Cardiff. | Pustule situated over larynx. | Positive Bacillus of anthrax was isolated from the shaving brush. | Typical case—excision and Sclavo's serum: recovery. |

TABLE 21—*Continued.*

CASES OF ANTHRAX REPORTED DURING THE YEARS 1916-7-8 IN CONNECTION WITH THE HANDLING OF ANIMAL AND OTHER PRODUCTS.

| Date, 1918. | Sex. | Occupation. | Material. | Origin of Material. | Situation of Pustule. | Bacteriological Confirmation. | Severity and Result. |
|---|---|---|---|---|---|---|---|
| Oct. 2nd | Male ... | Shed attendant, Tramway Company. | Not traced. ..... | Not traced ..... | Right popliteal space. | Not confirmed. | A doubtful case: recovery. |
| Dec. 18th | Male ... | Dock labourer ... | Unloading dry sheep skins. | Australia ..... | Back of hand ... | Report not received. | Typical case—excision and serum: recovery. |