

PORT OF LIVERPOOL



ANNUAL REPORT

OF THE

MEDICAL OFFICER OF HEALTH

TO THE

PORT SANITARY AUTHORITY

FOR THE YEAR

1932

BY

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PORT SANITARY AUTHORITY OF LIVERPOOL.

REPORT FOR THE YEAR 1932,

BY THE

MEDICAL OFFICER OF HEALTH.

The report of the operations of the Liverpool Port Sanitary Authority for the year 1932, is submitted herewith.

The report covers the work of the Authority during the year and includes an account of :—

(a) Measures adopted under the Cholera, Plague, and Yellow Fever and Allied Orders of the Government, and under the Port Sanitary Authorities (Infectious Diseases) Regulations, 1920, and the Public Health (Deratisation of Ships) Regulations, 1929.

(b) The measures taken to reduce the number of rats on dock quays and in ships, and to ascertain the existence of plague among any such rats.

(c) The measures taken in regard to the sanitation of vessels.

(d) The inspection of imported foodstuffs under the Public Health (Imported Food) Regulations, etc.

(e) The medical inspection of aliens under the Aliens Order, 1920,

together with observations on various aspects of Port Sanitary Administration.

Amount of Shipping Entering the Port during the Year 1932.

Class of Vessels.	Number.	Tonnage.	Number Inspected.		Number reported to be defective.	Number of vessels on which defects were remedied.	Number of Vessels reported as having, or having had, during the voyage infectious disease on board.
			By the Medical Officer.	By the Sanitary Inspector.			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
SAILING FOREIGN—							
Steamers ...	6,420	11,255,558	867	3,683	494	449	246
*Motor ...	472	1,692,398					
Sailing ...	15	6,244	—	3	—	—	—
Fishing ...	—	—	—	—	—	—	—
TOTAL FOREIGN...	6,907	12,954,200	867	3,686	494	449	246
SAILING COASTWISE—							
Steamers ...	6,205	1,772,550	5	1,154	80	64	5
*Motor ...	1,218	696,828					
Sailing ...	13	1,134	—	16	1	—	—
Fishing ...	—	—	—	—	—	—	—
TOTAL COASTWISE...	7,436	2,470,512	5	1,170	81	65	5
TOTAL FOREIGN AND COASTWISE ...	14,343	15,424,712	872	4,856	575	514	251

* (Includes mechanically-propelled vessels other than steamers.)
 Figures in columns 1 and 2 supplied by H.M. Collector of Customs for this Port.

Character of Trade of Port.

The Port of Liverpool trades with all parts of the world, and almost every conceivable kind of cargo is carried by ships arriving in the Mersey.

PASSENGER TRAFFIC DURING 1932.

No. of Passengers ...	1st Class.	2nd Class.	3rd Class.	Tourist Class.	Transmigrants.
Inwards	7,960	11,759	25,040	19,154	3,201
Outwards	14,116	13,632	10,973	20,098	2,206

Source of Water Supply.

The water used in the docks on the Liverpool side of the River Mersey is supplied by the Liverpool Corporation. Vessels in dock are supplied from hydrants from the same source, and vessels in docks on the Birkenhead side of the River Mersey are supplied with water by the Birkenhead Corporation and the Wallasey Corporation.

There are no water boats in use in the Port of Liverpool, all water being drawn from hydrants on the quayside.

Infectious Disease.

The measures adopted in Liverpool to prevent the importation of infectious disease from abroad are as follows :—

(1) The boarding by the assistant port medical officers of certain vessels on arrival in the river and before docking, viz. :—

(a) Vessels from certain parts of the world where dangerous infectious disease is known to exist.

(b) Vessels on which infectious disease exists at the time of arrival, or has occurred during the voyage.

(2) The visiting of vessels in dock by sanitary inspectors as soon as possible after docking.

(3) The trapping of rats in ships and on quays and their examination for signs of plague infection.

(4) Co-operation with the officers of H.M. Customs, who report to the Port Sanitary Authority, if they obtain information of sickness on board vessels visited by them,

Information of the arrival of vessels which, under the regulations of the Port Sanitary Authority, must be boarded by the port medical officer before docking, is obtained through the assistance of the pilots. All vessels, except very small craft, must be navigated into the port by either a licensed pilot or a master or mate holding a Liverpool pilot's certificate. Willing assistance has always been given by the pilots in carrying out the regulations.

All pilots are supplied by the Liverpool Port Sanitary Authority with a book containing questions to be put to the master immediately on boarding, and also a list of infected ports where dangerous infectious disease is known to exist. These instructions, together with the list of infected ports, are amended from time to time, and during the year 1932, were as follows:—

Port of Liverpool Sanitary Authority

To Pilots, and Masters of Inward Bound Vessels.

1. All Pilots should carry this booklet when on duty and immediately on boarding any inward bound ship should instruct the Master to read these directions carefully and to answer the following questions:—

- (i) Have you during the voyage had on board any case of INFECTIOUS DISEASE, or any sickness which may be of an infectious nature?
- (ii) Have you, within the previous two months called at any of the ports mentioned on the opposite page?

If the answer to either question is "Yes," or if the Master is in any doubt as to the nature of any sickness or the cause of any death which has occurred on board, the Pilot should instruct the Master as follows:—

(i) To send a wireless message to "STORM, LIVERPOOL," giving name of vessel, expected time of arrival in the Mersey, whether for Liverpool (North or South), Birkenhead, Garston or Manchester, and stating that the Doctor is required.

(ii) To report Formby Lightship for the Doctor.

(iii) To hoist the Quarantine Flag by day and the Quarantine Light by night.

NOTE.—The strict observance of the directions will greatly facilitate the clearance of vessels.

Pilots should, therefore:—

- (1) Carry out these directions in regard to every inward bound ship.
- (2) See that this booklet contains the latest list of infected Ports.
- (3) Immediately apply to the Port Sanitary Authority, Prince's Pier Head, Liverpool, if they lose this booklet.

LIST OF INFECTED PORTS.

DURING THE YEAR 1932.

JAVA PORTS
RANGOON
INDIAN PORTS
COLOMBO
ALEXANDRIA
BEYROUT
GRECIAN PORTS
MADAGASCAR
LAGOS
PERUVIAN PORTS
GUAYAQUIL
RIVER PLATE PORTS
DAKAR
BAHIA
LENINGRAD

Other ports are added or deleted from time to time according to the prevalence of disease.

PORT SANITARY AUTHORITY.

A medical officer is available both day and night for the purpose of boarding, by means of the boarding launch "Moyles," incoming vessels from infected ports, or vessels which have cases of infectious disease on board at the time of arrival. During the year, 664 vessels from infected ports were boarded in the river by the assistant port medical officers, and in addition 203 vessels were visited for the purpose of alien and other inspection. Of the vessels boarded in the river, 70 were bound for Manchester. Vessels, whether from infected ports or not, arriving in Liverpool are visited as soon as possible after docking by a sanitary inspector, who enquires into the occurrence of any sickness during the voyage, and if necessary communicates with the port medical officer.

The deratisation or alternatively the deratisation exemption certificate is inspected, and if found to be in order the inspector proceeds to the examination of the sanitary condition of the vessel, pointing out any defects and suggesting the remedy to be adopted. It has been found that the shipping companies are always ready and willing to remedy any defects in their vessels which have been pointed out to them by the port sanitary inspectors.

Arrangements for disposal of cases of Infectious Disease and for observation or surveillance of contacts.

Cases of smallpox, plague, cholera or yellow fever are removed from the vessel before docking by the motor launch "Moyles," and conveyed to the Port Sanitary Hospital, New Ferry, by water. Cases of infectious disease other than the above are removed, usually after the vessel docks, to one of the City hospitals by means of the Health Committee's motor ambulances. Contacts of infectious cases living at addresses in the city, if not removed to hospital, are kept under observation by the city sanitary inspectors, and in the event of any contact proceeding to an address outside the city, the medical officer of health of the district concerned is advised.

Motor Launch "Moyles."

The motor launch "Moyles" has continued to give satisfactory service during the year and except for the period of annual overhaul has been on continuous duty. The launch, which is able to develop a speed of over eleven knots, enables the medical officers to deal

expeditiously with vessels arriving from Infected Ports, and by this means a considerable saving of time with consequent saving of expense is effected; this saving of time and expense has been appreciated by the shipping companies and members of the various trades, for without the assistance of the launch unavoidable delay with resultant expense must have occurred. During the year 1932 one member of the crew was presented with a silver medal and certificate by the Liverpool Shipwreck and Humane Society for saving the life of a woman from drowning.

The Port Isolation Hospital.

The Isolation Hospital was erected in 1877 at New Ferry, in the County of Cheshire, on land adjoining the River Mersey, and close to the quarantine station in the Sloyne anchorage ground. A slipway extends from the hospital to the water edge, and is available for the landing of patients from half-tide to high water.

The hospital is well placed for the admission of cases from the river, and it is also quite convenient of access by road, being less than a quarter of a mile away from a main road.

The hospital was extended in 1901 and 1902 by the addition of a new pavilion, a suitable laundry and steam disinfecter, also additional nurses' quarters.

The premises are chiefly used for the isolation of sea-borne cases of infectious disease, but from time to time cases have been received on behalf of neighbouring authorities, under special agreement, when accommodation has been available.

On the other hand, owing to the different types of infectious disease occurring on vessels coming into the Mersey, and the necessity for providing separate accommodation for men, women and children, it has been advantageous to admit cases of ordinary infection to the City Hospitals where cases of a similar character are already accommodated.

Arrangements for disinfection of Infected Quarters, Bedding, Clothing, etc.

Infected quarters are disinfected as soon as possible by means of liquid sulphur dioxide (sulphume) or by spraying with disinfectant;

the bedding, clothing, etc., are removed by vans to the Charters Street disinfecting station and there disinfected by steam.

Arrangements for Cleansing of Persons.

This is carried out at either the City Hospital, Sparrow Hall, or the City Hospital North, Netherfield Road, to which the persons are conveyed by motor ambulance.

Arrangements for Ambulance Transport.

The motor ambulances of the Liverpool Corporation are available for this purpose.

Arrangements for detection and treatment of Venereal Disease among sailors,

Careful enquiry is made by the boarding medical officers and the port sanitary inspectors into the history of cases that may have been reported during the voyage. This is usually obtained from responsible officers of the ship, e.g., captain or engineer.

Leaflets, stating the times of attendance at the various venereal diseases clinics in the city (attention being especially drawn to the Seamen's Dispensary), are distributed freely to masters of vessels; treatment at these clinics is obtained free of cost to the patient, and in all instances the masters of vessels are advised to arrange for the attendance of the patient at one of the clinics.

For further details relating to the treatment of Venereal Disease, see pp. 40/44.

Arrangements for bacteriological examination of rats.

The systematic examination of rats caught by the Port Sanitary staff is carried out by the Liverpool City Bacteriologist.

During the year 5,369 rats were examined for possible plague infection, 3,243 being from ships, and 2,126 from the sheds and quays at the docks. Twelve rats were found to be plague-infected, and of these 11 were from one ship and one from a dock shed. (See pp. 21 and 75.)

INFECTIOUS DISEASE.

The number of cases of infectious disease landed from vessels arriving in the Port of Liverpool and those occurring on Liverpool bound ships which were disposed of prior to the arrival of the vessels at the port, together with the average for the preceding five years, are shown in the following tables:—

CASES OF INFECTIOUS SICKNESS LANDED FROM VESSELS.

Diseases.	No. of Cases during 1932.		No. of Vessels concerned.	Average No. of Cases for previous 5 years.
	Passengers.	Crew.		
Plague	—	—	—	—
Cholera... ..	—	—	—	—
Yellow Fever... ..	—	—	—	—
Smallpox	—	—	—	0·4
Typhus Fever	—	—	—	—
Scarlet Fever... ..	1	2	3	11
Enteric Fever and Paratyphoid Fever	2	7	9	8
Diphtheria	—	2	2	5
Measles and German Measles	9	3	11	14
Chickenpox	6	10	10	14
Tuberculosis	38	20	49	68
Pneumonia	—	10	10	16
Dysentery	—	1	1	4
Malaria	—	18	18	40
Cerebrospinal Fever	3	—	3	0·2
Erysipelas	1	1	2	2
	60	74	118	182

**CASES OF INFECTIOUS SICKNESS OCCURRING ON VESSELS DURING THE VOYAGE
BUT DISPOSED OF PRIOR TO ARRIVAL.**

Diseases.	No. of Cases during 1932.		No. of Vessels concerned.	Average No. of Cases for previous 5 years.
	Passengers.	Crew.		
Plague ?	—	1	1	—
Cholera	—	3	1	1
Yellow Fever... ..	—	—	—	2
Smallpox	1	2	3	9
Typhus Fever	—	—	—	0·2
Scarlet Fever... ..	2	1	3	9
Enteric Fever and Paratyphoid Fever	1	11	7	20
Diphtheria	1	1	2	5
Measles and German Measles ...	26	10	27	43
Chickenpox	9	20	15	30
Tuberculosis	16	7	21	41
Pneumonia	6	19	25	43
Dysentery	—	11	8	13
Malaria	12	116	60	230
Cerebrospinal Meningitis	—	1	1	0·2
Erysipelas	—	1	1	3
	74	204	175	449

In all these diseases it is not only a fatal issue which is dreaded, but there are some diseases, e.g., malaria and venereal disease,* which, if left untreated will become chronic or incurable. The reasons why sailors are more exposed to such diseases than other men are plain enough. Their calling continually brings them into contact with countries where disease and epidemics are prevalent, and when ashore they mix with that part of the population which is mostly infected.

* There were 171 cases of venereal disease reported on board 141 vessels arriving in the Port during the year. These were referred where circumstances required, for treatment at the Seamen's Dispensary. (See page 41).

Smallpox.

No case of smallpox was landed at Liverpool during the year, but two cases occurred in vessels bound for the port of Liverpool, details of which are given below.

s.s. "TUSCANIA." The s.s. "Tuscania" arrived in the Mersey on May 3rd, 1932, from Bombay and was boarded in the river by the medical staff. The ship's surgeon reported that a female passenger, aged 15 years, reported sick three hours after embarkation at Bombay on April 14th, 1932. The case was diagnosed as smallpox and landed at Suez on April 22nd, 1932. All persons on board, except those who could produce certificates of recent vaccination, were vaccinated or re-vaccinated by the ship's surgeon, and the ship's hospital was cleansed and disinfected at Suez. On arrival at Liverpool all persons on board were examined by the assistant port medical officers, but no further cases were discovered. The vessel sailed for Glasgow the same evening and the Medical Officers of Health of the places of destination of the passengers and crew were informed.

s.s. "CITY OF LAHORE." The s.s. "City of Lahore" arrived in the Mersey on June 28th, 1932, and was boarded in the river by the assistant port medical officer. The ship's surgeon reported that on June 15th, a native member of the crew reported sick and on arrival at Marseilles on June 18th the case was diagnosed as suspected smallpox and removed to hospital. All persons on board, with the exception of two, were vaccinated or re-vaccinated. No further cases occurred, and on inspection at Liverpool of all persons on board nothing of a suspicious nature was discovered. The names and addresses of all passengers and crew were obtained and forwarded to the Medical Officers of Health of the districts concerned.

Yellow Fever.

No cases of yellow fever were reported on Liverpool bound vessels during the year.

Anthrax.

The importation of large amounts of animal products, which are handled in transit to stores or manufactories, has associated with it the risk of human infection with the anthrax bacillus, causing a condition known as malignant pustule or cutaneous anthrax.

During the year 1932, three cases of this disease were notified to the Health Department and admitted to the Liverpool City Hospital, Fazakerley. Of these patients two were associated with work in Liverpool docks, whilst one came from Runcorn.

The occupations followed were as follows: One was engaged on the lime bank at a tannery, but the source of his infection was not discovered. The other two patients were engaged in carting dry hides from the docks. The hides came in one case from East Africa and in the other from Buenos Ayres. These two cases were very serious in character, but under suitable and careful treatment at the Fazakerley Hospital they recovered. There were no deaths to report during the year.

It is of interest to note that owing to the facilities now available, many workers, when they develop signs of suspected anthrax, avail themselves at once of these opportunities for prompt diagnosis.

During the course of the year several persons voluntarily came to the Fazakerley Hospital for examination of suspicious pimples and the like.

Conditions sent in as suspect anthrax infections included carbuncle, boils, simple pustules, cellulitis, etc.

The site of the pustule was usually on an exposed part of the person. In the two severe cases the pustule was on the front of the neck, and in one on the left thumb.

It may be well to repeat that it is the wish of the Health Authorities that cases or suspected cases of anthrax be sent without delay to this hospital for observation, when the necessary steps will be taken to diagnose the illness and if necessary place the patient under serum treatment.

The fatal cases frequently quoted in these and other reports emphasise the importance of early diagnosis and serum treatment in all cases of this disease.

The business firms connected with the hide and skin trade in Liverpool and neighbourhood have recognised the importance of the points above enumerated in regard to the early diagnosis and serum treatment of cases of anthrax, and have conferred with the Liverpool

Health Authorities with the object of taking further measures to educate the workers as to the risks involved in handling goods of animal origin, particularly hides and skins, and the precautions to be observed.

Posters have been printed on the subject and are affixed in suitable places. A pocket card has also been issued containing full information regarding the appearance and symptoms of cutaneous anthrax and advice on the action to be taken. Arrangements are also made to admit all cases of anthrax or suspected anthrax direct to Fazakerley hospital.

Special arrangements have been made for the treatment of cases coming from districts outside Liverpool.

The question of the disinfection of hides and skins is still under consideration, but there are difficulties in evolving a method which will be successful, not only in destroying the anthrax spores without damaging the material, but one which can be utilised on a commercial scale.

In order to eliminate as far as possible the handling of hides by dock labourers and others, the hide trades connected with this port have agreed not to open bales of China hides at the docks beyond what is necessary for sampling purposes.

The disinfection of imported dangerous wools at the Government Wool Disinfecting Station, Love Lane, is still in progress, and the Liverpool Port Sanitary Authority assists by having samples of the untreated wools and those which have passed through the disinfecting process, examined by the City Bacteriologist; this helps to confirm and control the Duckering disinfecting process. During the year 58 samples of treated and untreated wool, hair, etc., were examined and ten untreated samples showed positive evidence of anthrax infection.

The Ministry of Agriculture has drawn attention to the danger to farm animals in Great Britain in connection with the shipment in foreign ports of commodities containing the spores of anthrax. The disease is prevalent in animals in many parts of the world from which supplies of raw hides, hair, wool and feeding stuffs, e.g., cattle cake and the ingredients thereof, are drawn. Infection may be conveyed to the farm by means of these and other animal substances from foreign countries, especially those places where inadequate precautions are taken or where none exist.

Anthrax spores may be shaken from the above-mentioned animal products and may become mixed with foodstuffs or hold-sweepings, and thus infection may be indirectly conveyed to animals of the farm.

The spores of anthrax bacillus have great resisting power, and may remain active for years unless measures are taken to destroy them.

The suggestion is made that special precautions should be adopted so that dried hides, wool, hair, &c., should not be carried, mixed with, or be placed on top of grain or feeding stuffs, and that the holds which have contained animal products of this nature should be thoroughly disinfected; further, that the sweepings of holds containing grain, etc., should not be mixed with other foodstuffs.

The Ministry of Agriculture recommends the following process for disinfection :—

“Thoroughly sprinkle the compartment to be disinfected with an antiseptic solution to prevent the raising of dust. Sweep down the sides and floors; carefully collect all dust and refuse therefrom and destroy by fire. Then wash the sides and floors with strong solution of miscible carbolic acid (not less than 5 per cent. of acid) or a 3 per cent. solution of formalin, which contains not less than 40 per cent. of formaldehyde. Persons employed on the work should wear india-rubber gloves as a protection against inoculation, and also respirators.”

TABLE GIVING PARTICULARS OF THE INCIDENCE OF ANTHRAX CASES IN THE UNITED KINGDOM, NOTIFIED TO THE CHIEF INSPECTOR OF FACTORIES, UNDER SECTION 73 OF THE FACTORY AND WORKSHOP ACT, 1901.

ANTHRAX.	1931	1930	1929	1928	1927	1920	1910
Cases Notified ...	*21-(4)	43-(6)	40-(5)	45-(8)	31-(2)	48-(11)	51-(9)
Wool	9-(2)	13-(1)	16-(2)	14-(2)	18-(1)	25-(7)	28-(3)
Horsehair	4-(1)	1	3	4-(1)	3-(1)	5-(1)	6-(1)
Hides and Skins ...	7-(1)	24 -(4)	20-(3)	24-(3)	9	17-(3)	14-(3)
Other Industries ...	1	5-(1)	1	3-(2)	1	1	3-(2)

Extracted from the Annual Report of the Chief Inspector of Factories for the year 1931. The principal figures relate to cases and the bracketed figures to deaths.

Malaria.

During the year 1932 17 new cases of malarial fever were notified, which were either landed in Liverpool or had recovered abroad, on 11 vessels; the names and addresses of the patients, with particulars of the treatment given, together with the movements of the vessels, were forwarded to the Ministry of Health.

Cholera.

s.s. "SITHONIA." The s.s. "Sithonia" arrived in the Mersey on September 16th, 1932, and was boarded in the river by the assistant port medical officer.

DETAILS OF VOYAGE.

Arrived.		Left.	
		Newcastle-onTyne ...	20/11/31
7/12/31	...	Port Said ...	16/12/31
15/ 1/32	...	Fremantle ...	29/ 1/32
19/ 2/32	...	Shanghai ...	12/ 3/32
15/ 3/32	...	Muke ...	16/ 3/32
8/ 4/32	...	Adelaide ...	21/ 4/32
18/ 5/32	...	Shanghai ...	4/ 6/32
6 /6/32	...	Muke ...	9 /6/32
4 /7/32	...	Port Pirie ...	9 /7/32
10 /7/32	...	Port Lincoln ...	16 /7/32
3 /9/32	...	Dakar ...	3 /9/32
16 /9/32	...	Birkenhead.	

A Chinese fireman reported sick on 28/5/32 at Shanghai and was removed to hospital; the case was diagnosed as cholera and the patient died on June 2nd, 1932.

PRECAUTIONARY MEASURES.

(1) At Shanghai. All firemen's quarters were disinfected.

(2) At Muke.

(a) Sailors' and firemen's quarters were disinfected on two occasions.

(b) All the Chinese crew were inoculated against cholera.

- (c) All persons on board were subjected to medical inspection daily and bacteriological examinations were carried out on four separate days.

The vessel was declared free from cholera on June 8th, 1932. It was assumed the infection originated at a Shanghai Boarding House where the man had resided between May 18th and May 26th, 1932.

WATER SUPPLY. Drinking water had been taken on board at Newcastle-on-Tyne by hydrant, Fremantle (hydrant), Shanghai (water-boat on two occasions), Port Lincoln (hydrant), and Dakar (water-boat). All watertanks were cleaned out and cement-washed after arrival at Birkenhead. Bilges were cleaned and cement washed between Port Pirie and Port Lincoln.

No further cases occurred during the voyage, and as the incubation period had long expired no further action was deemed necessary at Liverpool.

s.s. "PATROCLUS." The s.s. "Patroclus" arrived on October 30th, 1932, at Birkenhead from Japan and China, via Colombo, London and Glasgow. On August 20th, 1932, a Chinese fireman was taken ill and on August 22nd, 1932, was removed to hospital at Kobe suffering from cholera. The quarters of the Chinese crew were disinfected and all passengers and crew were removed to the Quarantine Hospital for bathing and disinfection of clothes. Bacteriological examinations were carried out subsequently each day and the passengers and crew were inoculated against cholera. Two other members of the crew were removed to hospital as cases of suspected cholera., one of whom was the ship's butcher, The butcher's room, butcher's shop, stewards' room and lavatories were sealed up and fumigated. The following stores in the butcher's shop were destroyed by burning:—

16lbs. beef, 40lbs. bacon, 30lbs. ham, 30lbs. turkey, 12lbs. salmon, 12lbs. veal, 10lbs. sausages, 12lbs. beef fillets.

The chief butcher was subsequently diagnosed as a definite case of cholera. On arrival at Birkenhead all persons on board were reported well, and as the incubation period had expired, no further action was deemed necessary.

Typhus Fever.

Owing to a severe outbreak of Typhus Fever at Leningrad, this port was placed on the list of Infected Ports on December 17th, 1932. Comparatively few vessels arrive at Liverpool from Leningrad during the winter months, and no case at all suspicious of Typhus Fever was discovered.

Suspected Plague.

The s.s. "Ville de Rheims," from Madagascar via the Canary Islands, arrived in the Mersey on May 2nd, 1932, and was boarded in the river by the assistant port medical officer. The master reported that one case of suspected plague had been landed at Durban on March 30th, 1932. Two cases of minor sickness were also reported, but no further cases suspicious of plague occurred during the voyage.

The vessel was fumigated at Durban on March 29th, 1932, whilst the vessel was loaded, and two dead rats were afterwards recovered. Rat-traps were set during the stay of the vessel in Liverpool, but no evidence of rats was found, and none were caught.

Plague.

No case of human plague was landed at Liverpool during the year, but plague was discovered among the rat population of one vessel, and one plague-infected rat was found in a dock shed.

s.s. "CITY OF OXFORD." RODENT PLAGUE.

The s.s. "City of Oxford" arrived in the Mersey on September 2nd, 1932, and was boarded in the river by the assistant port medical officer, the vessel subsequently proceeding to Langton Branch Dock.

DETAILS OF VOYAGE.

Arrived.		Left.	
		Liverpool	... 13/7/32
14/7/32	...	Swansea	... 16/7/32
21/7/32	...	Gibraltar	... 22/7/32
26/7/32	...	Malta	... 27/7/32
31/7/32	...	Haifa	... 1/8/32
2/8/32	...	Alexandria	... 19/8/32
26/8/32	...	Almeria	... 27/8/32
2/9/32	...	Liverpool.	

DETAILS OF CARGO.

From Alexandria.	4,460 bales Cotton.
	200 bags Fennygreek Seed.
	2 cases Tool Steel.
	4,256 bags Oil Cake.
	24 empty Cylinders.
	1 live Horse.
	1,710 bags Bran.
	3 packages Sundries.
From Almeria.	224 cases Melons.
	5,793 barrels Grapes.

SICKNESS DURING THE VOYAGE. Two cases of diarrhœa were reported to have occurred during the voyage, but both had recovered before arrival at Liverpool.

INSPECTION AT LIVERPOOL. All persons on board were inspected by the assistant port medical officer on arrival of the vessel at Liverpool, and no cases of sickness were reported or discovered.

INTERNATIONAL SANITARY CONVENTION (DERATISATION CERTIFICATES). The vessel was in possession of two certificates issued under the provisions of Article 28 of the Convention and both were valid, viz. :—

(1) A Deratisation Exemption Certificate issued at Liverpool on April 25th, 1932;

(2) A Deratisation Certificate issued at Almeria on August 26th, 1932, stating that fumigation for 2 hours with Hydrocyanic Acid Gas had been carried out.

PROCEDURE AFTER ARRIVAL AT LIVERPOOL.

September 3rd, 1932. The vessel was visited by a rat-catcher and traps were set.

September 5th. The rat-catcher discovered three dead rats, two from No. 4 hold were badly decomposed and were destroyed in the galley fire; the third rat was labelled (No. 192) as a "suspected rat" and sent to the City Bacteriologists for examination. This rat was found in No. 2 'Tween Deck. At 4-45 p.m. the City Bacteriologist

reported that the rat labelled No. 192 was almost positively plague-infected. The assistant medical officer and the chief sanitary inspector visited the vessel immediately and arrangements were made—

- (1) for the vessel to be breasted off six feet from the quayside;
- (2) for a watchman with a light to be stationed permanently at the gangway; and
- (3) for intensive trapping and searching on board the vessel, on the quay, and in the surrounding area.

A plan of the cargo, a list of all persons working about the vessel and their addresses, and a list of the consignees were also obtained.

September 6th, 1932. Intensive rat trapping and searching took place in the vessel and adjacent sheds. The cargo already discharged was carefully examined, and unloading was continued under the supervision of the port sanitary staff. One dead mouse found in "E" section of the shed was labelled "suspected" and forwarded to the City Bacteriologist for examination. Medical Officers of Health of all places of destination of cargo were informed.

September 7th to September 10th, 1932. Intensive rat trapping both in the vessel and the adjacent sheds was continued. On September 7th, as rodent plague had been definitely diagnosed, it was decided to fumigate the vessel with hydrocyanic gas on completion of the discharge of cargo; this was carried out on September 9th, with liquid HCN and an exposure of four hours was given.

During the discharge of cargo the holds were constantly sprayed with two kinds of insecticide, viz., Vermijelli (a proprietary preparation) and Kerosene Emulsion. (NOTE.—Kerosene emulsion consists of 41 gallons of kerosene with 9 gallons of water, and 15lbs. of soft soap prepared by boiling in a steam jacket container. The mixture is highly inflammable, and it is essential that the boiling should be done by steam and not by a direct flame. This emulsion mixes readily with water, and one gallon is added to 100 gallons of water.)

DETAILS OF RATS CAUGHT AND RESULT OF BACTERIOLOGICAL EXAMINATIONS.

Date.	Trapped.	Found Dead.	Killed.	Where Found.	Bag No.	Destroyed.	Sent to Bacteriologist.	Condition when Found.	Bacteriological Result.
September 5... ..	—	1	—	No. 2 T'wn Deck	192	—	1	Not decomposing	Positive.
" 5	—	2	—	No. 4 Hold.	—	2	—	Decomposing.	—
" 6	—	1	—	No. 4 Hold	194	—	1	Fresh.	Positive.
" 6	—	1	—	No. 2 Hold.	195	—	1	Decomposed.	Positive.
" 6	—	1	—	No. 4 Hold.	196	—	1	Decomposed.	Negative.
" 6	—	1	—	No. 4 Hold.	197	—	1	Not decomposing	Positive.
" 7	—	4	—	No. 1 Hold.	204	—	4	Decomposed.	3 Positive
" 7	—	2	—	No. 2 Hold.	205	—	2	Decomposed.	1 Positive.
" 7	—	3	—	No. 4 Hold	206	—	3	Decomposed.	1 Positive.
" 8	—	2	—	No. 4 Hold.	212	—	2	Decomposed.	2 Positive.
" 8	—	1	—	No. 2 Hold.	213	—	1	Decomposed.	Negative.
" 9	3	—	—	No. 5 Hold.	214	—	3	Fresh.	3 Negative.
TOTAL	3	19	Nil.			2	20		11 Positive.

On September 9th, 19 rats were found dead and one killed in No. 4 hold, but as a definite diagnosis of plague infection had been made these rats were not sent for bacteriological examination; they were cremated on board under the supervision of the port sanitary staff.

After the fumigation by HCN had been carried out, a thorough search of the entire vessel was made by the rat searchers of the Port Sanitary Authority, and 21 dead rats were recovered—

1	from No. 1 hold
3	„ 2 „
11	„ 4 „
6	„ 5 „

These were collected and immediately cremated.

International Sanitary Convention of Paris, 1926.

Article 28.

During the year 1932, 142 fumigations were carried out for the purpose of obtaining Deratisation Certificates, and in addition 347 vessels were granted Deratisation Exemption Certificates, making a total of 489 examinations of vessels under Article 28. Compared with the previous year this shows an increase of 13 examinations. In 1932 there were 20 less fumigations than in 1931, and the number of exemptions shows an increase of 33 in 1932 over the previous year. Owing to the fact that an exemption certificate is only granted if the vessel shows no evidence of rats, these figures show that the steady improvement which has occurred since Article 28 was first brought into force is being maintained, and that each year a larger number of vessels exhibit no evidence of rat infestation. The accompanying table shows the number of rats which have been obtained after fumigation of vessels trading between Liverpool and the various ports of the world. This table covers the years 1929-1932, and the two outstanding features are: (1) the marked general decline of the number of rats from 1929 to 1931, and (2) the increase in the number of rats recovered in 1932 after fumigation from vessels trading with ports of the River Plate, and ports of the West Coast of Africa. In the case of vessels trading with the River Plate, the increase is possibly due to the fact that during 1932 a number of tramp steamers (not regular traders between Liverpool and the River Plate) were fumigated at Liverpool and a comparatively large number of rats recovered from them. Increases in the number of

COMPARATIVE STATEMENT FOR THE YEARS 1929-1932.

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NUMBER OF RATS AND MICE RECOVERED FROM VESSELS EMPLOYED IN THE VARIOUS TRADE ROUTES TOGETHER WITH THE NUMBER EXAMINED AND EXEMPTED OR FUMIGATED.

TRADE.	1929							1930						1931						1932								
	Number of Ships.			Rats and Mice found after fumigation.		Average number per ship.		Number of Ships.			Number found after fumigation.		Average number per ship.		Number of Ships.			Number found after fumigation.		Average number per ship.		Number of Ships.			Number found after fumigation.		Average number per ship.	
	Examined.	Exempted.	Fumigated.	Rats.	Mice.	Rats.	Mice.	Examined.	Exempted.	Fumigated.	Rats.	Mice.	Rats.	Mice.	Examined.	Exempted.	Fumigated.	Rats.	Mice.	Rats.	Mice.	Examined.	Exempted.	Fumigated.	Rats.	Mice.	Rats.	Mice.
RIVER PLATE.....	65	4	61	1,188	36	18.27	0.55	65	6	59	521	19	8.01	0.29	80	31	49	190	66	2.37	0.82	76	41	35	487	55	6.40	0.72
W.C.S. AMERICA (Chili and Peru)	16	1	15	115	6	7.18	0.37	15	4	11	29	9	1.93	0.60	16	1	15	63	16	3.93	1.00	17	8	9	14	2	0.82	0.11
ARGENTINE.....	4	2	2	—	—	—	—	2	—	2	—	—	—	—	—	—	—	—	—	—	5	1	4	4	—	0.80	—	
BRAZILS.....	1	—	1	14	—	14.00	—	12	4	8	53	—	4.41	—	10	4	6	22	33	2.20	3.30	10	6	4	18	28	1.80	2.80
NORTH AMERICA.....	32	6	26	329	42	10.28	1.31	27	13	14	179	—	6.62	—	22	16	6	37	17	1.68	0.77	19	13	6	26	65	1.36	3.42
MEXICO.....	10	10	—	—	—	—	—	7	5	2	—	—	—	—	4	3	1	—	—	—	—	2	2	—	—	—	—	—
INDIA.....	5	2	3	64	46	12.8	9.20	27	19	8	227	—	8.40	—	17	15	2	16	—	0.94	—	16	14	2	6	11	0.37	0.68
MEDITERRANEAN.....	29	7	22	449	75	15.48	2.58	33	22	11	37	6	1.12	0.18	17	14	3	37	17	2.17	1.00	17	14	3	—	—	—	—
ALEXANDRIA.....	4	1	3	29	1	7.25	0.25	17	14	3	105	—	6.17	—	18	14	4	49	—	2.72	—	21	12	9	76	37	3.61	1.76
SPAIN.....	5	2	3	—	1	—	0.20	8	8	—	—	—	—	—	11	7	4	15	6	1.36	0.54	6	6	—	—	—	—	—
PORTUGAL.....	4	3	1	—	13	—	3.25	4	4	—	—	—	—	—	4	4	—	—	—	—	3	3	—	—	—	—	—	—
GRECIAN.....	—	—	—	—	—	—	—	2	1	1	—	—	—	—	16	9	7	19	1	1.18	0.06	22	15	7	29	71	1.31	3.22
CHINA AND JAPAN.....	20	14	6	17	14	0.85	0.70	17	11	6	13	2	0.76	0.11	14	6	8	17	16	1.21	1.14	13	12	1	—	—	—	—
WEST INDIES.....	13	6	7	68	—	5.23	—	37	30	7	74	1	2.00	0.02	24	19	5	56	—	2.33	—	41	29	12	101	—	2.46	—
EAST INDIES.....	3	3	—	—	—	—	—	5	5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
JAVA.....	15	4	11	5	3	0.33	0.20	18	9	9	1	2	0.05	0.11	12	6	6	—	—	—	—	14	4	10	1	13	0.07	0.92
MADAGASCAR.....	1	1	—	—	—	—	—	—	—	—	—	—	—	—	1	1	—	—	—	—	—	—	—	—	—	—	—	—
MAURITIUS.....	—	—	—	—	—	—	—	2	2	—	—	—	—	—	3	2	1	4	—	1.33	—	1	—	1	6	—	6.00	—
FILII ISLANDS.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—	2	—	—	—	—	3	2	1	—	—	—	—
AUSTRALIA.....	32	18	14	28	6	0.87	0.18	38	28	10	24	4	0.62	0.10	47	29	18	133	—	2.82	—	53	42	11	51	124	0.96	2.33
CANADA.....	16	5	11	4	32	0.25	2.00	15	9	6	—	2	—	0.13	19	12	7	—	43	—	2.26	29	20	9	73	7	2.51	0.24
NEW ZEALAND.....	6	4	2	55	—	9.16	—	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
W. C. AFRICA.....	27	6	21	333	—	12.33	—	42	26	16	370	1	8.80	0.02	36	26	10	285	—	7.94	—	31	19	12	442	4	14.25	0.12
EAST AFRICA.....	2	1	1	6	—	3.00	—	2	2	—	—	—	—	—	3	2	1	7	—	2.33	—	2	1	1	12	3	6.00	1.50
SOUTH AFRICA.....	—	—	—	—	—	—	—	9	6	3	15	—	—	—	6	5	1	10	—	1.66	—	4	4	—	—	—	—	—
NORTH AFRICA.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	2	—	—	—	—	—	—	—	—	—	—	—	—
CANARY ISLANDS.....	11	6	5	27	9	2.45	0.81	16	11	5	26	—	1.62	—	11	11	—	—	—	—	—	11	10	1	10	—	0.90	—
PERSIAN GULF.....	2	2	—	—	—	—	—	1	1	—	—	—	—	—	—	—	—	—	—	—	—	3	3	—	—	—	—	—
SOUTH GEORGIA.....	2	2	—	—	—	—	—	2	1	1	6	—	3.00	—	2	1	1	33	—	16.50	—	—	—	—	—	—	—	—
BLACK SEA.....	3	1	2	61	—	20.33	—	5	2	3	8	2	1.60	0.40	3	—	3	18	—	6.00	—	4	2	2	83	—	20.75	—
RUSSIA.....	—	—	—	—	—	—	—	14	13	1	49	—	3.50	—	15	14	1	—	—	—	—	13	12	1	8	—	0.61	—
BALTIC.....	—	—	—	—	—	—	—	6	5	1	—	—	—	—	2	2	—	—	—	—	—	4	4	—	—	—	—	—
NORWAY.....	—	—	—	—	—	—	—	9	9	—	—	—	—	—	13	12	1	—	—	—	—	8	8	—	—	—	—	—
SWEDEN.....	1	—	1	—	—	—	—	10	10	—	—	—	—	—	7	7	—	—	—	—	—	4	4	—	—	—	—	—
FINLAND.....	—	—	—	—	—	—	—	8	7	1	—	—	—	—	5	5	—	—	—	—	—	7	6	1	—	—	—	—
GERMANY.....	—	—	—	—	—	—	—	5	5	—	—	—	—	—	—	—	—	—	—	—	—	1	1	—	—	—	—	—
BELGIUM.....	—	—	—	—	—	—	—	13	13	—	—	—	—	—	11	11	—	—	—	—	—	9	9	—	—	—	—	—
FRANCE.....	4	1	3	1	—	0.25	—	7	7	—	—	—	—	—	12	12	—	—	—	—	—	9	9	—	—	—	—	—

rats recovered after fumigation are also seen in vessels trading with Alexandria, West Indies, the Black Sea, and Canada, and it is therefore necessary that there should be no relaxation in the efforts made to prevent rats from entering vessels during their stay in these ports.

The Examination of Vessels for Deratisation or Deratisation Exemption Certificates.

In view of the importance of a systematic inspection of vessels for rat infestation and the numerous inquiries we have had for details of the procedure adopted at Liverpool, it has been deemed useful to repeat the methods of procedure which were published in last year's report.

It is the routine procedure in the Port of Liverpool to examine and make estimates of the degree of rat infestation of all vessels, as soon as an application is made by the owners for either a Deratisation or Deratisation Exemption Certificate.

The examination for either form of certificate is identical, and the best results are obtained when the vessel is completely empty. Representation is made to the owners of the vessel that all holds should be swept up and cleaned 24 hours before the examination; by this means all old excreta are removed and only 24-hour old excreta are present at the time of the examination. This fresh evidence, though small in amount, is recognised readily by the trained observer in situations where it would be overlooked by crew or dock workers employed about the vessel. Consequently the possibility of removal of this fresh evidence either by accident or design is minimised.

The examination is carried out by a sanitary inspector assisted by a rat searcher who are accompanied by a ship's officer, and is done systematically from stem to stern. The forepeak, stores, crew's quarters, and any other rooms in this vicinity are examined first. The rats obtain their food from the crew's quarters, and their nesting material and harbourage in the forepeak. The next compartment to be examined is the boatswain's store, which is of importance owing to the nature of its contents, which consist of ropes, canvas and other working gear. Particular attention is paid to any damage to ropes, or canvas, any gnawings of the woodwork and the presence of any excreta. Dirty marks of rat-runs may also be observed. If, as is often the case, it can be established definitely that this store contains an abundance of both fresh and stale excreta, two important facts are at once evident:—

(1) that the stores have not been properly cleaned for some considerable time and consequently may prove to be one of the headquarters of the rats in the ship; and

(2) that as shown by the presence of fresh excreta the rats have not forsaken this particular compartment.

The number, shape, colour, size and consistency of the fresh excreta are noted and efforts are made to discover what food has been available for the rats. By carefully weighing up the whole of the evidence obtained, an estimate of the number of rats inhabiting this part of the vessel is made. The holds are then examined in turn, working from forward to aft, estimates of the number of rats in the individual holds being made at the conclusion of each examination.

The lower hold is visited first, the nature of the cargo which has been carried is observed in order to determine the possibility of its being used by the rats for food. Search is then made for any definite evidence of rat-runs in the ceilings, and feet and tail marks on the stringers and sparring. The number and characteristics of the excreta are noted carefully as before. On the completion of the examination of the holds the afterpeak is undertaken. The examination of this compartment is of importance as it is used in many ships as a provision store. The examination is conducted on the same lines as that of the forepeak.

Bunkers, engine room and tunnel are then examined in that order. In the bunkers, feet and tail marks in the coal dust are all that can be looked for. The runs to and from the bunkers can usually be found without much difficulty, as the constant passage of rats to and fro will keep the places of ingress and egress quite clear and free from coal dust. It is not at all usual to find rats in either the engine room, stokehold, or shaft alley, and if excreta be found it is difficult to distinguish their age owing to the heat of these particular compartments and the fact that they become dried up rapidly.

The main examination of the lower parts of the vessel is now complete and the examination of the quarters of the officers, petty officers, engineers and stewards, wireless and chart rooms, galleys, pantry, bakery, provision store rooms, and finally the lifeboats is proceeded with. In the living quarters, settee lockers, wardrobes, drawers and wash-bowl cupboards are examined for excreta, gnawings, nests and runs. In galleys, all food lockers, utensil cupboards, drawers and spaces behind stoves are examined. The runs and means of access to these places must be ascertained in order that they may ultimately be made rat-

proof. Lifeboats should be inspected carefully because they are very liable to become headquarters for rats owing to the fact that they will remain undisturbed there for long periods. The evidence found in lifeboats consists of excreta and damage to ropes and canvas. It has been stated that in order to preserve the ropes and canvas, balls of newspaper have at times been thrown into the lifeboats so that the rats may have their nesting material all to hand. In passenger-carrying vessels, the passenger accommodation is examined in a similar manner to the officers' quarters already described. It is perhaps necessary to point out, that whilst the foregoing method is adhered to as far as possible as a routine practice, there are many occasions when the bunkers are examined first in order to allow the vessel to proceed with coaling, or again it may happen that owing to the cargo not being discharged as expected the top hamper is examined first and the holds examined as the discharge of cargo is completed. Many causes may result in varying the routine procedure, but these are dealt with according to the particular circumstances.

The time taken over the search is checked carefully in each case by the sanitary inspector. The time, of course, varies according to the size and type of vessel, the amount of cargo present at the time of the search, and whether the cargo is being worked or not. For a thorough search of a cargo vessel from 4,000 to 5,000 tons by one man, the time required is approximately four hours, and a larger vessel, or one carrying both passengers and cargo, will require from four to six hours.

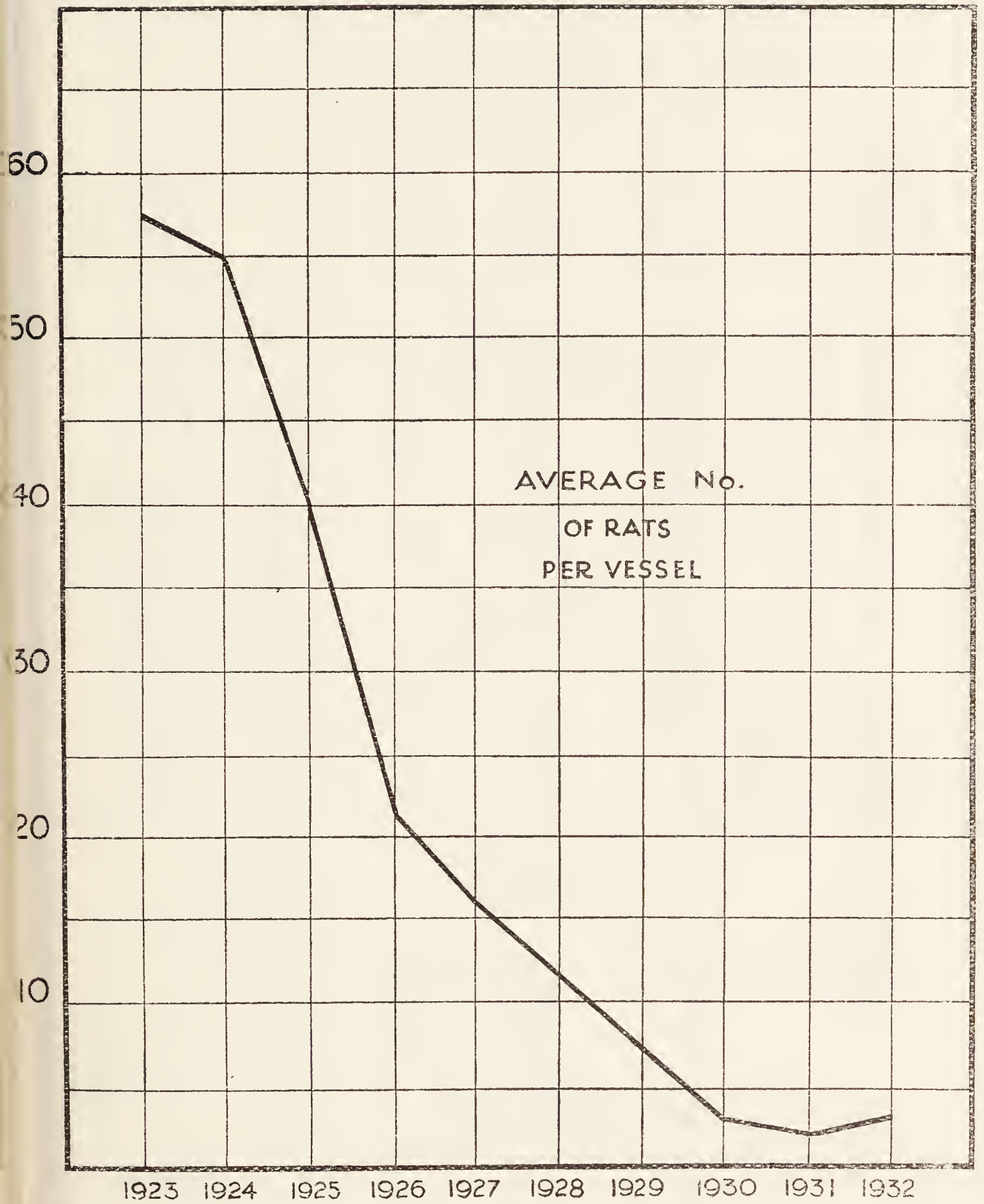
After all fumigations, an independent rat searcher is sent to search for dead rats, in order to check the estimate made before the fumigation is carried out. The time taken over this search is similarly checked by a sanitary inspector, and in cargo vessels, not carrying passengers, this usually takes from two to three hours. In vessels with passenger accommodation a further hour is necessary to make a complete search. It is not an easy matter to make an accurate estimation of the number of rats in a vessel when all sorts and conditions of cargo are carried. It has been observed that the rats will eat certain food in preference to any other. In such a case the excreta will have the characteristics of the particular diet which is being eaten, and the estimate can be based accordingly. If the excreta do not show any marked characteristics and it is not possible to determine what type of food the rats have been taking, a fairly accurate estimate may be obtained by the assumption that the average number of droppings from one rat in 24 hours is from 45 to 50. Examinations and inspections are only carried out in daylight, and any dark places must be adequately lighted.

The following Table shows the number of Fumigations of Vessels during the past ten years and the number of Exemptions for 1928-1932, together with the number of rats and mice discovered after fumigation during the same period and the average number of rats and mice per vessel :—

Year.	Number of Fumigations.	Number of Exemptions.	Total Number of Rats found after Fumigations.	Total Number of Mice found after Fumigations.	Average Number of Rats per Vessel.	Average Number of Mice per Vessel.
1923	90	—	5,295	57	58·83	0·63
1924	132	—	7,388	300	55·96	2·27
1925	119	—	4,817	257	40·47	2·15
1926	156	—	3,433	111	22·00	0·71
1927	119	—	1,967	130	16·52	1·09
1928*	130	11	1,804	190	12·79	1·46
1929	221	114	2,614	292	7·80	1·32
1930	187	316	1,762	75	3·50	0·40
1931	162	314	966	182	2·02	0·38
1932	142	347	1,434	428	2·93	0·87

* In 1928 the first International Certificate was issued—on the 5th October. During that year 25 Deratisation and 11 Exemption Certificates were issued.

Graph illustrating the decline in the average number of rats per vessel examined at Liverpool during the past ten years :—



PARTICULARS RELATING TO PLAGUE "INFECTED" OR "SUSPECTED" VESSELS ARRIVING IN THE PORT DURING 1932.

Name of Vessel.	Date of Arrival.	Whether "Infected" or "Suspected."	Methods of Rat Destruction Employed.		Number of Dead Rats Recovered.		Whether a Certificate of Deratisation was Issued.	Remarks.
			Trapping.	Fumigation H.C.N.	Black	Egyptian		
S.S. "City of Oxford" from Alexandria via Almeria	2nd September, 1932.	Infected.			35	63	Yes.	(20) Twenty Dead Rats sent to Bacteriologist for examination: 11 found Positive and 9 found Negative. See pp. 18/22 for Report.

MEASURES OF RAT DESTRUCTION ON VESSELS FROM PLAGUE INFECTED PORTS (OTHER THAN THOSE INCLUDED IN ABOVE) ARRIVING IN THE PORT DURING 1932, AND NUMBER OF CERTIFICATES ISSUED IN RESPECT OF SUCH VESSELS.

Total Vessels from Plague Infected Ports.	Number of such Vessels Fumigated by SO ₂ .	Number of Dead Rats Recovered.	Number of such Vessels Fumigated by H.C.N.	Number of vessels Fumigated part by H.C.N. and SO ₂ .	Number of Dead Rats and Mice Recovered.		Number of such Vessels Fumigated by Salfurkose	Number of Vessels on which Trapping, etc., were Employed.	Number of Dead Rats Recovered.	Number of Vessels such Measures of Rat Destruction were not carried out.	Number of Fumigation Certificates Issued on Form Part II.		Number of other Certificates Issued.
					Rats	Mice					Rats	Mice		Deratisation.	Exemption.
594	30	Rats 324 Mice 149	24	3	Rats 72 Mice 2	1	Rats — Mice 13	568	Rats 980 Mice 56	25	58	95	—

MEASURES OF RAT DESTRUCTION ON VESSELS OTHER THAN THOSE IN ABOVE TABLES, AND NUMBER OF CERTIFICATES ISSUED IN RESPECT OF SUCH VESSELS DURING 1932.

Number of Vessels Fumigated by SO ₂ .	Number of Dead Rats Recovered	Number of Vessels Fumigated by H.C.N.	Number of Vessels Fumigated part by H.C.N. and SO ₂ .	Number of Dead Rats and Mice Recovered	Number of Vessels Fumigated by Salfurkose	Number of Dead Rats Recovered	Number of Vessels on which Trapping, etc., were Employed.	Number of Dead Rats Recovered	Number of Certificates Issued on Form "Port II."	Number of other Certificates Issued.
39	Rats 226 Mice 255	40	1	Rats 64 Mice —	3	Rats 1 Mice —	213	Rats 2200 Mice 444	83	252

TABLE SHOWING THE NUMBER OF RATS AND MICE OBTAINED ON SHIPS AND QUAYS
BY THE AUTHORITY'S RAT-CATCHERS DURING THE YEARS 1923-1932.

Year.	NUMBER OBTAINED.			NUMBER				
	From Ships.		Total.	EXAMINED.		DESTROYED.		Total
	From Ships.	From Quays.	Total.	From Ships.	From Quays.	From Ships.	From Quays.	
1923	12,097	1,625	13,722	5,629	1,460	6,466	167	6,633
1924	13,509	1,963	15,472	4,981	1,658	8,528	305	8,833
1925	11,088	2,508	13,596	4,882	2,065	6,206	443	6,649
1926	8,827	2,800	11,627	4,493	2,312	4,334	488	4,822
1927	8,134	2,496	10,630	4,836	1,945	3,298	551	3,849
1928	7,351	2,414	9,765	4,145	1,918	3,206	496	3,702
1929	7,036	1,456	8,492	3,408	1,271	3,628	185	3,813
1930	3,847	2,046	5,893	1,841	1,731	2,006	315	2,321
1931	3,190	1,969	5,159	1,669	1,688	1,521	281	1,802
1932	3,743	2,268	*6,011	1,457	1,961	2,286	307	2,593
Total.....	78,822	21,545	10,367	37,341	18,009	41,479	3,538	45,017

* 642 mice are included in these figures.

NUMBER AND SPECIES OF RATS CAUGHT IN THE CITY AND PORT OF LIVERPOOL,
DURING THE YEAR 1932.

1932.	Warehouses.		Sewers.		Other Places		Total.		Ships.		Quays.		Other Sources.		Total.	
	Black.	Brown.	Black.	Brown.	Black.	Brown.	Black.	Brown.	Black.	Brown.	Black.	Brown.	Black.	Brown.	Black.	Brown.
January ...	66	165	—	430	21	401	87	996	223	1	102	20	25	9	350	30
February ...	62	188	—	427	36	520	98	1,135	292	—	107	7	37	9	436	16
March ...	91	109	—	390	31	401	122	900	241	3	83	6	29	7	353	16
April ...	106	134	—	432	32	444	138	1,010	361	—	119	3	27	2	507	5
May ...	103	189	—	400	6	602	109	1,191	361	—	96	2	28	—	485	2
June ...	86	182	—	476	5	439	91	1,097	140	—	108	1	9	—	257	1
July ...	70	161	—	478	46	521	116	1,160	322	—	75	5	30	3	427	8
August ...	34	101	—	314	5	478	39	893	210	—	123	3	58	1	391	4
September ...	120	236	—	790	8	458	128	1,484	306	—	145	8	43	8	494	16
October ...	47	78	—	807	18	384	65	1,269	133	8	229	14	127	9	489	31
November ...	49	109	—	809	5	315	54	1,233	335	—	171	7	59	9	565	16
December ...	32	121	—	754	21	279	53	1,154	307	—	115	23	23	2	445	25
TOTAL ...	866	1,773	—	6,507	234	5,242	1,100	13,522	3,231	12	1,473	99	495	59	5,199	170

NUMBER AND SPECIES OF RATS EXAMINED OR DESTROYED IN THE CITY AND PORT OF LIVERPOOL,
DURING THE YEAR 1932.

1932.	Examined (City).		Destroyed (City)		Examined (Port).		Destroyed (Port).		Total Caught.
	Black.	Brown.	Black.	Brown.	Black.	Brown.	Black.	Brown.	
									City and Port.
January ...	19	194	68	802	224	28	126	2	1,463
February ...	23	227	75	908	293	15	143	1	1,685
March ...	26	174	96	726	234	16	119	—	1,391
April ...	30	215	108	795	296	5	211	—	1,660
May ...	29	239	80	952	211	2	274	—	1,787
June ...	15	215	76	882	193	1	64	—	1,446
July ...	23	206	93	954	198	8	229	—	1,711
August ...	9	189	30	704	264	4	127	—	1,327
September ...	33	332	95	1,152	273	16	221	—	2,122
October ...	9	275	56	994	342	20	147	11	1,854
November ...	9	269	45	964	308	15	257	1	1,868
December ...	8	236	45	918	263	13	182	12	1,677
TOTAL ...	233	2,771	867	10,751	3,099	143	2,100	27	19,991

RATS DESTROYED DURING 1932.

(1) ON VESSELS.

	Jan.	Feb.	Mar.	April.	May.	June	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
Black	223	292	241	361	361	140	322	210	306	133	335	307	3,231
Brown	1	—	3	—	—	—	—	—	—	8	—	—	12
Rats examined ...	116	172	142	166	102	85	95	109	108	68	123	132	1,418
Rats found infected with Plague	—	—	—	—	—	—	—	—	11	—	—	—	11

(2) QUAYS, WHARVES AND WAREHOUSES.

	Jan.	Feb.	Mar.	April.	May.	June	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Black	127	144	112	146	124	117	105	181	188	356	230	138	1,968
Brown	29	16	13	5	2	1	8	4	16	23	16	25	158
Rats examined ...	136	136	108	136	111	109	111	159	181	294	200	144	1,824
Rats found infected with Plague	—	—	—	—	—	—	—	—	1	—	—	—	—

Number of Mice destroyed on vessels 500
 Do. do. do. on quays 142
 Do. do. examined on vessels and quays 176

The combined returns of all rats and mice caught and destroyed by shipping firms employing their own rat-catchers, by rat catching companies, and by the Public Health Authority, during the year 1932, are as follows:—

	Rats.	Mice.	Rats.	Mice.
PORT—				
In vessels	12,067	500		
On quays	2,126	142		
			14,193	642
CITY—				
In warehouses	2,639	—		
In sewers and from other sources ...	11,983	45		
			14,622	45
		TOTAL ...	28,815	687

Number of Visits to Vessels by Rat Catchers	6,131
Do. do. do. Rat Searchers	4,215
Do. do. Quays, Sheds, etc. , by Inspectors ...	1,614
Do. do. do. do. Rat Searchers	2,145
Do. do. do. do. Rat Catchers	12,348

Measures against Rodents.

Steps taken for detection of rodent plague.

Liverpool trades extensively with many ports where plague is always present. All vessels arriving from such ports are boarded, the passengers and crews are examined and careful enquiry made as to any evidence of the existence of plague among the rats on board. Medical inspection alone is not sufficient, as rodent plague may exist on board without having given rise to any human cases, and without any sick or dead rats having been seen. Consequently, as soon as the vessel berths, it is necessary—

- (1) to catch samples of the rat population in all parts of the vessel;
- (2) to examine the vessel in all parts, and at various times during the discharge of cargo, for sick or dead rats.

All rats so obtained are sent to the City Bacteriologist for examination for plague infection.

Samples of the rat population from the dock quays, sheds and warehouses are obtained daily, and all rats so caught are submitted to the City Bacteriologist for examination. The success of plague preventive measures depends entirely on the detection of the infection at the earliest possible moment, followed by the adoption of energetic measures to destroy every infected rat. Rodent plague when once established is most difficult to eradicate, and in addition to the possibility of causing human cases, it leads to the imposition of restrictions on our ships in foreign ports. In order that this work may be carried out efficiently the Port Sanitary Authority employs a staff of ten full-time rat-catchers and rat-searchers, and one part-time rat-catcher.

Measures taken to prevent the passage of rats between ship and shore.

All vessels with the exception of coastwise vessels must have rat-guards affixed to their moorings during their stay in the port. The rat-guard used and approved of by the Port Sanitary Authority consists of a disc of galvanised sheet iron, 1/16th in. thick and three feet in diameter. The edge is left raw, i.e., not wired or turned over. In the lower half is cut a door, hinged and so fastened when shut that no

foothold is afforded to rats. The door slit leads to the central hole through which the rope passes. Round the central hole is placed a strong collar projecting about 4 in. on each side and riveted to the disc. In the collar is a strong steel spring clip, which can be adjusted by means of a winged nut and bolt. To apply the guard, the door is opened and the guard put over the rope so that the latter passes up into the central hole, where a little force is necessary to overcome the spring of the clip. The guard will now hold quite firmly and the bolt and screw closing the opening of the clip gives additional security. The door is then closed and fastened, the upper edge being fitted with a piece of thick sheet rubber attached so as to close completely the central hole whatever the size of rope in use.

A rat-guard to be effective should be placed at the ship end of the mooring and as far as possible away from the ship's side.

When vessels loaded with cargo are infected with either human or rodent plague the following procedure is adopted in order to prevent the passage of rats from the ship to the shore :—

If the vessel is loaded a preliminary fumigation may be undertaken to destroy the rats, the nature of the cargo would, however, determine whether this procedure should be followed. The measures enumerated below are enforced pending discharge of cargo, when a complete and thorough deratisation takes place.

(a) The vessel is breasted off six feet from the quayside.

(b) Rat-guards are adjusted on all moorings.

(c) One gangway only is allowed, and a watchman is stationed there day and night.

(d) The gangway must be lifted at sunset and not lowered until sunrise.

(e) The cargo must be discharged under supervision of the Port Sanitary staff.

(f) Trapping and examination of rats caught in the neighbouring sheds are carried on.

Methods of Deratisation of Ships.

Deratisation of ships is carried out by fumigation with either sulphur dioxide, hydrocyanic acid gas or salfurkose. Fumigations

in the Port of Liverpool are carried out, as a rule, by private firms under the supervision of the Port Sanitary Authority. At least twenty-four hours' notice in writing must be given to the Port Sanitary Authority before the commencement of any fumigation. This notice must be on the official form, which sets out the cubic capacities of the spaces and the fumigant to be used.

DERATISATION BY MEANS OF SULPHUR DIOXIDE GAS.

(1) *Sulphur dioxide*. This gas is generated by burning sulphur in buckets. Only sulphur of good quality must be used, and not more than 9 lbs. of sulphur to each bucket: 3 lbs. of sulphur to every 1,000 cubic feet of air space is required, with a minimum time of exposure of six hours. In order to ensure that the whole of the sulphur is burned, it is advisable that a small quantity of wood, wool or shavings dipped in methylated spirit should be added to each receptacle.

(2) *Liquid sulphur dioxide (sulphume)*. 6 lbs. of liquefied gas are required for every 1,000 cubic feet of air space, with a minimum time of exposure of six hours.

DERATISATION BY MEANS OF HYDROGEN CYANIDE.

Fumigation of vessels by means of this gas is exceedingly dangerous to human life, and may only be carried out by firms which have a specially trained staff and the necessary life saving appliances.

(1) *Liquid hydrogen cyanide*. The hydrogen cyanide gas is generated by the vaporisation of liquid hydrogen cyanide, the latter being contained in steel cylinders.

For holds, provision store rooms and peaks, 2 oz. per 1,000 cubic feet of air space is required, and for living quarters, superstructures and other spaces not used for stores, 1 oz. per 1,000 cubic feet. The minimum time of exposure in both cases is two hours.

(2) *Zyklon B*. consists of kieselguhr, a very absorbent infusorial earth, to which is added a mixture of hydrogen cyanide ($97\frac{1}{2}$ per cent.) and tear gas ($2\frac{1}{2}$ per cent.). The mixture is packed in strong hermetically sealed tins or canisters containing 500, 1,000, 1,200 and 1,500 grammes of cyanide. These canisters are placed near the holds in numbers necessary for fumigation of the particular cubic capacity. Each tin

is opened by a special apparatus which prevents the escape of gas during the process. On removal of the lid, a thin rubber cap is placed over each tin unless the contents are to be used immediately.

When fumigation is started the tarpaulins covering the hatches are raised and the contents of the required number of tins are scattered over the bottom of the hold from the deck. The tarpaulin is then replaced and the hold closed for two hours. At the end of that time the hold is opened up and ventilated.

For holds, provision store rooms and peaks, 50 grammes of HCN content per 1,000 cubic feet is required, and for living quarters and superstructures not used as storerooms 25 grammes per 1,000 cubic feet.

(3) *Liquid hydrogen cyanide (Gallarde process.)* The liquid HCN is contained in strong glass bottles fitted with a metal cap. Each bottle contains 400 grammes of available hydrogen cyanide. The requisite number of bottles are placed in position, the ship having previously been prepared for fumigation; the operators then proceed to remove the metal caps and pour the liquid into special containers. By this process hydrocyanic acid gas is liberated from a stabilised liquid hydrogen cyanide on exposure to the atmosphere.

The contents of one bottle is sufficient to fumigate 8,000 cubic feet, and the minimum time of exposure is two hours.

(4) *Salfurkose.* This process consists of burning an inflammable liquid in double jacketed iron containers which are fitted with a baffle plate and hood in order to control the flame. The containers are of three sizes, small, medium and large. The small containers hold a maximum of five pints of salfurkose, which is sufficient to fumigate spaces up to 4,200 cubic feet. The medium containers hold a maximum of 1 gallon 2 pints of salfurkose, which is sufficient to fumigate spaces up to 8,500 cubic feet. The large containers hold a maximum of 1 gallon 7 pints of salfurkose, which is sufficient to fumigate spaces up to 12,800 cubic feet. The time of exposure is three hours after which ventilation for a further four hours is required before the spaces can be entered with safety.

Liquid Cyanide (Barton Process).

This process is very similar in procedure to the Gallarde process previously described, except that the liquid hydrogen cyanide is contained

in steel cylinders each containing 7 lbs. The requisite number of containers are placed at the various distributing centres and the liquid is either sprinkled on the deck, or emptied into large tins if the decks are covered with linoleum or carpets in order to prevent any damage to the fabric.

Deratisation of premises—the vicinity of docks or quays.

This is carried out by the setting of traps, the laying down of poisoned baits and occasionally by fumigation with hydrogen cyanide.

Rat Proofing.

WHARVES AND WAREHOUSES.—With the exception of a few of the old docks on the central district, the wharves on the dock estate are of rat-proof construction, made with ferro-concrete and stone.

The roadways and pavings of the sheds are sets on a concrete foundation.

The sheds are built of brick and reinforced concrete. All sheds in the new Gladstone Dock are constructed solely of reinforced concrete, and there are no ledges, beams or angle iron on which rats may run.

All offices and wooden huts in the sheds are made rat-proof either by being lifted 18 inches clear of the ground or sheathed with iron or cemented round the base.

New offices or other buildings are either built on brick or concrete piers clear of the ground or the base is built hard and close to the paving of the shed.

ACTION TAKEN TO EXTEND RAT-PROOFING ON SHORE.—The Mersey Docks and Harbour Board and the various shipping companies are fully alive to the necessity and benefit of rat-proofing, and practically all sheds, huts, offices and warehouses on the dock estate have now been made rat-proof. Constant supervision is required, however, in the case of stores, otherwise they tend to become harbourages for rats.

It is the duty of the sanitary inspectors to see that all stores are kept clean and tidy, and that no rubbish is allowed to accumulate. Old rope, dunnage, wood, etc., must be stacked neatly on platforms

raised 18 inches from the ground, and the space beneath the platform must be kept clean and free from rubbish.

RAT-PROOFING IN SHIPS.—In the course of their routine examinations of vessels the port sanitary inspectors bring to the notice of the responsible officials any particular part which in their opinion is in need of rat-proofing. In order to make a vessel rat-proof there must be no place where rats may remain undisturbed and make their nests, and also no available food nor water supply. It should also be impossible for rats to travel freely from one part of a vessel to another. In order to accomplish this, skeleton casings are adopted for pipes in place of the older type of box casing; expanded metal is fitted round pipes, telephone wires, electric wires, etc., at the point where they pass through bulkheads or from one compartment to another.

PSITTACOSIS

No cases of this disease were reported in the City or Port during the year.

The Parrots (Prohibition of Import) Regulations, 1930, are still in force, and during the year 1932 the number of orders issued was 39.

The Sanitary Authority enforce the Regulations, Sections 4 and 5 of which state as follows:—

4. A person shall not import any *parrot into England or Wales whether for sale or otherwise :

Provided that nothing in these regulations shall be deemed to prohibit the importation of any parrot which is proved to the satisfaction of the Medical Officer of Health to be required for purposes of medical or veterinary research, or which is consigned to the Zoological Society of London or to a person for the time being specially authorised by the Minister (Health) to import parrots otherwise than for sale.

5. The master of every ship approaching any port shall, if he has reason to believe that a parrot is on board, bring these regulations to the notice of the person having the custody or control of the parrot, and shall immediately on the arrival of the ship notify the proper officer of Customs and Excise accordingly.

* "Parrot" means a bird of the species Psittaciformes, and includes any of the birds commonly called parrots, parrakeets, lovebirds, macaws, cockatoos, conures, caiques, lorries and lorikeets.

VENEREAL DISEASES.

A very important subject which has close association with seafaring life is the prevalence of venereal diseases. Public opinion towards the end of the War was exercised on the subject of the change in the moral habits of the people, and it was expected that a considerable increase in the number of cases of venereal disease would occur, and in view of the grave danger of the effects of these diseases on the innocent and guilty alike it was decided to appoint a Royal Commission to investigate the subject and present a report which would deal with the problem of treatment and prevention. As a result of the Report of the Royal Commission, the Public Health (Venereal Diseases) Regulations were passed in 1916. The regulations were issued because it was felt that these diseases had become endemic in the community and the treatment of affected persons should be carried out to effect their cure and to prevent the further spread of the infections. The various county and borough councils were required to prepare schemes for free treatment at or in hospitals or institutions of persons suffering from these diseases and for the free distribution of suitable drugs to properly qualified medical practitioners. The Government pay 75 per cent. of the expenditure. The public were generally to be informed of the dangers of these diseases by a scheme of educational propaganda so that they might know of the dangers of contracting these disorders and the facilities provided for free treatment should they unfortunately be contracted. The Regulations came into force in Liverpool in 1917. The scheme has had an extensive trial and very good results may be claimed for it. The free facilities and supply of special drugs have been fully taken advantage of by many classes of patients and their medical advisers. Seamen have been especially catered for at centres situated near the docks and in the vicinity of places where they congregate or sign off. A special centre known as the Seamen's Dispensary which was opened in 1924 for the treatment of venereal diseases in sailors, has proved a great success and has now a high average attendance.

The clinics established by the Corporation are as follows:—

Seamen's Dispensary—Males only.

†Royal Infirmary—Males and Females.

David Lewis Northern Hospital—Males and Females.

†Royal Southern Hospital—Males and Females.

†Stanley Hospital—Males and Females.

†Edge Lane Hospital—Females—

The following summarises the work of the treatment centres for the year 1932 :—

RETURN SHOWING THE NUMBER OF NEW CASES ATTENDING THE VENEREAL DISEASES CLINICS DURING THE YEAR 1932, ALSO TOTAL ATTENDANCES AND IN-PATIENT DAYS OF OLD AND NEW PATIENTS DURING SAME PERIOD.

	Seamen's Dispensary Males only.	Royal Infirmary. Males and Females.	Royal Southern Hospital. Males and Females.	David Lewis Northern Hospital. Males and Females.	Stanley Hospital. Males and Females.	Edge Lane Medical Home. Females.	TOTAL. Males and Females.
Cases	1,673	1,268	324	209	336	132	3,942
Old and new patients							
Total attendances	49,004	53,543	13,283	6,907	12,216	—	134,953
In-patient Days	—	123	2,969	—	119	8,696	11,907

The Seamen's Dispensary and the Royal Infirmary are open all day for treatment of these diseases in the male, while at the Royal Infirmary treatment for females is provided each day at hours convenient to the greatest number of patients. At the other centres clinics are held at specified times which are set out on a Time Table giving full particulars of all the Clinics in the city.

Laboratory services for the diagnosis and control of treatment are provided at the City Laboratories, and the Thompson Yates Laboratory of the University.

At the Seamen's Dispensary all the microscopic examinations required in these connections are done on the premises, but all the other clinics send their material to the City Laboratories, except the Royal Infirmary, which works with the University Laboratory.

†Beds for In-patients are reserved at these Institutions.

At the City Laboratory, Wassermann reaction tests are done thrice weekly and this is of especial value to the Seamen's Dispensary—rapid diagnosis obviating undue delay where treatment is necessary.

Wherever possible an effort is made to ascertain the person responsible for the patient's infection, with a view to bringing him or her under observation and treatment.

Seamen's Dispensary

The functions of this clinic is to provide free and expert treatment for seamen of all nations, to act in an advisory capacity to medical officers of ships, ships' captains, and foreign consulates, and to provide a laboratory service for rapid diagnosis.

The clinic, which is open all day, is well equipped for the services demanded of it, and during the past eight years it has been a valuable adjunct to the scheme for combating venereal disease.

The staff consists of three part-time medical officers and four highly trained orderlies.

Excellent results have been recorded both in the treatment of gonorrhœa and of syphilis, and special schemes of treatment particularly suited to the needs of the seafaring population have proved efficient.

By careful interrogation of patients and the keeping of records over several years it has been established that the average seaman who becomes infected has not practised any prophylaxis, and that the taking of alcohol to excess is not such a contributory factor in the acquisition of venereal disease as is generally supposed. It would appear, however, that in men over thirty years of age, venereal disease is frequently associated with the taking of alcohol, not necessarily to excess.

During the year under review, 2,748 cases have been advised and treated, of whom 1,673 reported for the first time. Of these, 440 were found not to be suffering from venereal disease.

The classification of the persons dealt with at the Seamen's Dispensary for the first time during the year, and also for the four previous years, was as under :—

	1928	1929	1930	1931	1932
Syphilis	435	413	419	346	293
Soft Chancre	131	150	141	92	106
Gonorrhœa	1,031	1,112	1,113	970	834
Non-Venereal Cases	446	446	589	563	440
	2,043	2,121	2,262	1,971	1,673

The figures given below show a decline in the number of patients suffering from venereal disease during 1932. The reason for this drop is not evident, the decline in shipping and other occupations with the accompanying lack of employment for workers may have had an effect.

Evening clinics are held twice weekly at the dispensary, and during the year there were 79 new cases and approximately 2,000 attendances.

This clinic is taken advantage of by patients of all classes of occupation, but the majority are seafaring men.

Experience has shown that it is the close personal touch with the patient and the interest in his case which helps to stimulate the sufferer to continue treatment, but the absence of any feeling of ill-health or discomfort may cause the development of a sense of indifference and the desire to avoid the irksome routine of attendance.

Many patients who are suffering from gonorrhœa unfortunately do not report for treatment until a few weeks have elapsed and the disease has extended considerably from the original point of infection, in many cases having complications, and involving important organs. This neglect or inability to seek medical advice may be attributed to the nature of employment or absence on ship at sea, but those who reside locally frequently can and do come for treatment at an earlier stage;

the disease, however, is well established in the majority before they present themselves for treatment.

With regard to syphilis, it is found, from figures compiled at the Seamen's Dispensary, that 38 per cent. of the syphilitic cases attending there appear for treatment in the pre-Wassermann reaction stage, and 19 per cent. appear as early syphilis with primary sore and positive Wassermann test. The important point, however, is that fully 30 per cent. of patients are in the stage of later or latent cyphilis.

An analysis of the various types of the total actual number of new venereal disease cases met with at the principal clinics is as follows:—

	Percentage of total cases of diagnosed Venereal disease.				
Syphilis	31%
Soft chancre	4·5%
Gonorrhœa	64·5%

The figures for Liverpool correspond to those for the country generally.

EDUCATIONAL PROPAGANDA.

At the inauguration of the venereal diseases scheme the Ministry of Health approved of certain educational work being conducted to acquaint the general public and those likely to come into contact with venereal disease of the dangers arising therefrom. After several years' effort in Liverpool, the work has culminated in the merging of the various Merseyside boroughs into a scheme for this and general health purposes under the Merseyside Boroughs Health Education Committee.

Lectures and addresses have also been delivered at the Sailors' Home, Mersey Mission to Seamen and at the Gordon Smith Institute. These addresses have been given from time to time to full audiences of seamen and others by our Venereal Disease Medical Officers.

THE HYGIENE OF CREWS' SPACES.

During the year careful attention has been paid to the inspection of crews' spaces by the port sanitary inspectors. All vessels entering the port are visited as soon as possible after docking, and enquiries

SERVICES RENDERED AT THE VENEREAL DISEASES TREATMENT CENTRES
DURING THE YEAR 1932.

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	Syphilis.		Soft Chancre.		Gonorrhœa.		Conditions other than Venereal.		TOTALS.			
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	Totals.	
1. Number of cases on 1st January under treatment or observation ...	1,294	756	27	1	1,470	674	26	16	2,817	1,447	4,264	
2. Number of cases removed from the register during any previous year which returned during the year under report for treatment or observation of the same infection ...	116	12	4	...	124	21	...	...	244	33	277
3. Number of cases dealt with for the first time during the year under report (exclusive of cases under Item 4) suffering from :—												
Syphilis, primary ...	224	29	...	...	...	...	...	...	224	29	253
" secondary ...	48	22	...	...	...	...	...	...	48	22	70
" latent in 1st year of infection ...	24	16	...	...	...	...	...	...	24	16	40
" all later stages ...	182	77	...	...	...	...	...	...	182	77	259
" congenital ...	14	52	...	...	...	...	...	...	14	52	66
Soft Chancre ...	...	...	108	1	...	...	...	...	108	1	109
Gonorrhœa, 1st year of infection ...	...	...	...	...	1,169	247	...	...	1,169	247	1,416
" later ...	...	...	...	...	188	22	...	...	188	22	210
Conditions other than venereal ...	...	...	...	...	...	...	829	106	829	106	935
4. Number of cases dealt with for the first time during the year under report known to have received treatment at other Centres for the same infection ...	184	20	19	...	196	33	...	...	399	53	452
	2,086	984	158	2	3,147	997	855	122	6,246	2,105	8,351	
5. Number of cases discharged after completion of treatment and final tests of cure ...	77	20	65	...	585	62	819	95	1,546	177	1,723	
6. Number of cases which ceased to attend before completion of treatment and were, on first attendance, suffering from :—												
Syphilis, primary ...	196	11	...	...	...	...	...	...	196	11	207
" secondary ...	42	19	...	...	...	...	...	...	42	19	61
" latent in 1st year of infection ...	17	17	...	...	...	...	...	...	17	17	34
" all later stages ...	239	83	...	...	...	...	...	...	239	83	322
" congenital ...	8	36	...	...	...	...	...	...	8	36	44
Soft Chancre ...	...	...	14	1	...	...	...	...	14	1	15
Gonorrhœa, 1st year of infection ...	...	...	...	...	659	169	...	...	659	169	828
" later ...	...	...	...	...	159	15	...	...	159	15	174
7. Number of cases which ceased to attend after completion of treatment but before final tests of cure ...	75	70	14	...	191	39	...	...	280	109	389
8. Number of cases transferred to other centres or to institutions, or to care of private practitioners ...	215	30	29	...	286	53	...	...	530	83	613
9. Number of cases remaining under treatment or observation on 31st December ...	1,217	698	36	1	1,267	659	36	27	2,556	1,385	3,941	
	2,086	984	158	2	3,147	997	855	122	6,246	2,105	8,351	
10. Number of cases in the following stages of syphilis included in Item 6 which failed to complete one course of treatment :—												
Syphilis, primary ...	71	4	...	...	...	...	...	...	71	4	75
" secondary ...	12	4	...	...	...	...	...	...	12	4	16
" latent in 1st year of infection ...	7	4	...	...	...	...	...	...	7	4	11
" all later stages ...	90	21	...	...	...	...	...	...	90	21	111
" congenital ...	...	9	...	...	...	...	...	...	...	9	9
11. Number of attendances :—												
(a) for individual attention of the medical officers ...	15,515	6,125	747	3	28,871	5,924	1,765	390	46,898	12,442	59,340	
(b) for intermediate treatment, e.g., irrigation, dressing ...	1,076	46	767	...	70,093	3,631	...	...	71,936	3,677	75,613
TOTAL ATTENDANCES ...	16,591	6,171	1,514	3	98,964	9,555	1,765	390	118,834	16,119	134,953	
12. In-patients :—												
(a) Total number of persons admitted for treatment during the year ...	12	8	...	...	7	28	1	...	20	36	56
(b) Aggregate number of "in-patient days" of treatment given ...	475	226	...	...	344	2,165	1	...	820	2,391	3,211
13. Number of cases of congenital syphilis in Item 3 above classified according to age periods ...												
			1 and under 5 years.		5 and under 15 years.		15 years and over.		Totals.			
			M.	F.	M.	F.	M.	F.	M.	F.		
			...	8	2	8	5	18	7	18	14	52
14. Treatment of Syphilis :—												
(a) Total number of injections given (out-patients and in-patients) ...						11,271			189		10,664	
(b) Number of injections included in (a) given to patients who on first attendance at this Centre were suffering from primary and secondary syphilis ...						4,202			43		4,011	
15. PATHOLOGICAL WORK :—												
(a) Number of specimens examined at and by the medical officers of the treatment centres ...						57	3,531	...	...	...	...
(b) Number of specimens from patients attending at the centres sent for examination to an approved laboratory ...						107	4,401	4,676	2	...	...
			Microscopical				Serum Tests					
						for spirochetes.	for gonococci.	Wassermann.	Others for Syphilis.	for Gonorrhœa.		

are made concerning the health of the crew, the occurrence of any sickness during the voyage, the source of the water supply, the condition of all tanks and bilges, the condition of storerooms, and whether any sick or dead rats have been found.

After making these enquiries the sanitary inspector, accompanied by a ship's officer, visits the crew's quarters, and their condition is noted, particular attention being paid to cleanliness, structural defects, rat-harbourages, accumulations of rubbish, etc. The attention of the officer is called to any defects that are found, and a request made that they should be remedied. These instructions are generally carried out by the shipping company concerned without any difficulty. The inspector re-visits the vessel from time to time, and notes when the defects have been made good.

An important part of Public Health work in connection with the welfare of seamen and the hygiene of vessels consists in efforts to improve the conditions of the environment of the sailor. It is not only of value to the men themselves but is our first line of defence against imported disease.

VERMIN IN CREWS' QUARTERS.—It is the practice of many shipping companies to fumigate the crews' quarters every voyage, and, in addition, to spray with an insecticide; a supply of the latter is also available for use during the voyage; in such vessels there is a marked improvement in the condition of the crews' quarters.

RAT-PROOFING.—There is a steady increase in the number of vessels which are being made rat-proof. Unnecessary linings are being removed, and skeleton casings substituted for the old box casings; expanded metal is being used more extensively to protect openings which are necessary for light, ventilation, and the passage of pipes, etc.

INSPECTION OF SHIPPING.

Year 1932.

Nationality.	Visits.	Re-visits.	Total.
British	3,871	1,157	5,028
Norwegian	170	40	210
Swedish... ..	139	41	180
Spanish... ..	78	20	98
Danish	128	30	158
Japanese	45	25	70
Italian	23	15	38
Russian	12	5	17
French	8	7	15
Dutch	77	13	90
Greek	28	25	53
American	99	13	112
Belgian	3	1	4
German	90	18	108
Esthonian	4	—	4
Finnish	40	13	53
Jugo Slav	8	3	11
Latvian	20	4	24
Hungarian	2	—	2
Lettish	6	—	6
Egyptian	3	1	4
Peruvian	1	—	1
Chilian	1	—	1
Total	<u>4,856</u>	<u>1,431</u>	<u>6,287</u>

THE FOLLOWING TABLE SHOWS THE NUMBER AND NATIONALITIES OF THE VESSELS ON WHICH DEFECTS WERE DETECTED DURING THE YEAR 1932.

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 Sky-lights.	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 ...	527	1636	22	215	...	4	22	6	...	81	21	9	57	12	5	4	21	9	1	...	2125	2006
Norwegian ...	8	10	2	1	...	4	2	...	1	20	18
Spanish ...	14	30	4	...	...	9	...	...	...	...	...	...	1	...	4	...	...	...	...	...	...	...	...	...	...	...	48	43
Greek ...	10	19	...	...	...	4	...	...	2	...	...	1	4	...	10	...	...	...	...	...	...	...	...	...	...	...	40	36
Italian ...	6	6	...	...	...	...	...	...	...	...	...	2	2	...	5	...	...	...	...	...	...	...	...	...	...	...	15	9
American ...	2	...	...	...	...	2	...	...	...	...	...	...	...	2	...	...	...	...	...	...	...	...	...	...	...	...	4	2
Japanese ...	3	...	...	...	...	3	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	7	7
Swedish ...	2	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3	3
German ...	1	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	2
Jugo-Slav ...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	4	...	...	...	...	...	...	...	...	...	...	...	4	...
Finnish ...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	1	1
Total ...	575	1706	26	233	3	4	24	6	...	86	29	11	84	12	7	5	22	10	1	...	2269	2127

Summary of Insanitary Conditions during the year 1932.

Class of Vessels.	Number Inspected.	Number on which Nuisances were found.	Per cent.
SAILING FOREIGN—			
Steamers	3,683	494	13·41
Sailing	3	—	—
Total	3,686	494	13·41
SAILING COASTWISE—			
Steamers	1,154	80	6·93
Sailing	16	1	6·25
Total	1,170	81	6·92

Nationality.	Number Inspected.	Number on which Nuisances were found.
British	3,871	527
Foreign	985	48
	4,856	575

Nuisances arising through

Defects of Original Construction. (a)	Per cent. of Total Defects.	Structural Defects through wear and tear. (b)	Per cent. of Total Defects.	Dirt, and other conditions prejudicial to health. (c)	Per cent. of Total Defects
1	0·04	266	11·72	2,002	88·23

Canal Boats.

The port sanitary inspectors have been appointed inspectors under the Canal Boats Acts, 1877 and 1884. An inspector devotes one day each week to the inspection of canal boats plying in the river or docks, and during the year 747 boats were inspected, of which 21 were found to have some condition contravening the regulations.

MEDICAL INSPECTION OF ALIENS.

The following table gives the total number of aliens arriving in the Port of Liverpool during 1932, and the number in each of the categories under which alien passengers are classified by the Immigration Department of the Home Office :—

Medical Examination of Aliens.

Total aliens	Transmigrants	Residents returning	In transit
13,654	3,201	229	1,858
Visitors of 6 months or less		Diplomats & persons on Foreign Govt. Missions.	Seamen
On holiday, tourists, &c.	On Business		
7,280	296	71	113
Seamen under Contract to join ships in British Waters.		Ministry of Labour Permits	Other Aliens
13		57	536

The medical inspection and examination of aliens is carried out by the assistant port medical officers. The objects of the inspection are to ascertain whether any of the alien passengers are :—

- (1) Suffering from any disease likely to be a danger to the public health of this country.

(2) Suffering from any disease or deformity likely to cause such aliens or their dependents to become a public charge.

No alien is allowed to take up employment in this country without a special permit from the Ministry of Labour, so that it is rare for the medical inspector to have to consider the earning capacity of an alien. The procedure with regard to the medical inspection and examination of aliens entering the Port of Liverpool is as follows :—

The medical officer boards the vessel immediately on arrival with the view of obtaining information as to the health of all persons on board from the ship's surgeon, and also of making a rapid preliminary inspection of all classes of immigrants. This latter may be completed before the immigration officers start their examination, or may occur simultaneously with it, depending upon the circumstances. Note is made of any alien who in the opinion of the medical officer should require a more detailed examination, irrespective of the time that the alien may wish to remain in the country.

The medical officer attends during the examination made by the immigration officers, when a further opportunity is afforded to inspect the aliens more closely. All aliens who wish to stay in this country more than three months are referred to the medical inspector for examination.

During the year 1932 medical certificates were issued in respect of 4 aliens, one for mental deficiency, one for bronchitis and nephritis, one for appendicitis and one for acute pneumonia.

Transmigrants.

Elaborate precautions are taken by the United States Public Health Service to prevent the occurrence of typhus fever among emigrants from Central Europe to America. Special stations have been erected, through one or other of which all transmigrants must pass. Here they are medically inspected, freed from vermin, and all their clothing disinfected.

All second and third-class passengers bound for the United States, whether from the Continent or British Isles, are inspected by an Officer

of the U.S. Public Health Service immediately before sailing, and if any are found to be in a verminous condition they are sent to the city disinfecting station, where suitable accommodation is available for the destruction of vermin in the clothing and belongings of each person. The cost of the disinfection is defrayed by the shipping company concerned.

Emigration.

The number of passengers (emigrants and others) leaving the Port of Liverpool during the year 1932 was 58,819, an increase compared with the previous year, when the number was 53,858. The following return shows the number during the last ten years :—

Year		Year			
1923	159,874	1928 ...	...	116,083
1924	122,201	1929 ...	...	113,116
1925	111,918	1930 ...	...	91,493
1926	116,672	1931 ...	...	53,858
1927	123,801	1932 ...	...	58,819

The following Tables relating to Emigration and Immigration have been kindly supplied by the Board of Trade.

Statement showing the number of passengers (emigrants and others), distinguishing British subjects and aliens, who left the port of Liverpool for places out of Europe in the year 1932 :—

DESTINATION.	British Subjects.	Aliens.	Total.
British North America ...	13,714	2,677	16,391
Australia and New Zealand	502	6	508
British South Africa ...	965	13	978
India (including Ceylon)...	4,081	79	4,160
Other parts of the British Empire ...	5,791	466	6,257
Total British Empire ...	25,053	3,241	28,294
United States	5,779	8,607	14,386
Foreign South America ...	1,409	345	1,754
Other Foreign Countries	501	98	599
Total Foreign Countries...	7,689	9,050	16,739
Pleasure Cruises (to places out of Europe)	13,753	33	13,786
Grand Total ...	46,495	12,324	58,819

Number of passengers (emigrants and others), distinguishing British subjects and aliens, who left the port of Liverpool in each month of the year 1932 :—

MONTH.	British Subjects.	Aliens.	Total.
January	2,611	499	3,110
February	2,030	410	2,440
March	2,500	514	3,014
April	3,757	738	4,495
May	2,199	565	2,764
June	3,196	681	3,877
July	8,591	1,828	10,419
August	6,024	2,508	8,532
September	6,425	2,263	8,688
October	5,171	1,194	6,365
November	2,235	571	2,806
December	1,756	553	2,309
Total	46,495	12,324	58,819

Statement showing the number of passengers (immigrants and others), distinguishing British subjects and aliens, who arrived at the port of Liverpool from places out of Europe in the year 1932 :—

Countries in which the Passengers embarked.	British Subjects.	Aliens.	Total.
British North America	21,580	4,823	26,403
Australia and New Zealand ...	74	—	74
British South Africa	192	3	195
India (including Ceylon)	2,158	55	2,213
Other parts of the British Empire	2,001	141	2,142
Total British Empire ...	26,005	5,022	31,027
United States	9,672	7,979	17,651
Foreign South America	1,697	1,095	2,792
Other Foreign Countries	383	111	494
Total Foreign Countries ...	11,752	9,185	20,937
Pleasure Cruises (from places out of Europe)	11,916	33	11,949
GRAND TOTAL	49,673	14,240	63,913

Number of passengers (immigrants and others), distinguishing British subjects and aliens, who arrived at the port of Liverpool from places out of Europe in each month of the year 1932:—

MONTH.	British Subjects.	Aliens.	Total.
January	1,780	598	2,378
February	2,147	613	2,760
March	2,695	544	3,239
April	3,616	698	4,314
May	6,086	1,379	7,465
June	4,352	1,797	6,149
July	8,160	3,220	11,380
August	6,880	2,124	9,004
September	4,234	859	5,093
October	3,900	930	4,830
November	2,747	540	3,287
December	3,076	938	4,014
TOTAL	49,673	14,240	63,913

Emigrant Inspections.

All emigrants travelling second or third-class on board vessels outward bound are subject to inspection by the medical officers of the Board of Trade. The crews of all such vessels bound for America are also subjected to inspection by these officers. An inspector of the Port Sanitary Authority attends these clearances in order to supervise the removal of any persons who may be rejected on account of actual or suspected infectious disease.

During the year 1932 there were 135 inspections, and 8 persons were rejected.

Date 1932.	Name of Vessel.	Nature of Sickness.	Where taken to	Description of Patient.
May 12	"Montclare"	Scabies	C. P. R. Boarding House	Adults 2 Children 3
June 18	"Britannic"	Chicken Pox ...	Fazakerley Hospital ...	Infant
July 2	"Samaria" ..	Do.	Do.	Adult
July 22	"Duchess of Bedford" ...	Mumps	Returned home	Child

SUPERVISION OF FOODSTUFFS

The inspection of imported foodstuffs has been carefully attended to throughout the year.

The following items in regard to imported food are of interest :—

The Regulations issued in regard to preservatives in foods have been well carried out; large quantities of boraxed bacon and ham continue to be imported from the U.S.A. and Canada. The bulk of these imports were, however, under bond, and were either exported or utilised as ships' stores, in accordance with the Regulations.

During the year consignments of sheep and lamb carcasses from various countries have been found to be affected with epizootic lymphadenitis, necessitating the close attention of the food inspectors. The condition has been known to the Authority's officers for a long time, and carcasses found to be seriously affected were dealt with, but it is only recently that the affection has become more widespread in the sheep reared in these countries.

There is no evidence that the disease is communicable to man.

Epizootic lymphadenitis occurs most frequently amongst sheep, seldom in lambs. The disease appears as dry caseated areas, chiefly in the superficial skeletal lymphatic glands, e.g., the prescapular, precrural, inguinal or popliteal; it may also be evident in the viscera or muscular system.

The routine inspection of the freshly killed carcass should be carried out by feeling for the enlarged glands or nodules.

The recommendations of the Ministry of Health in regard to this condition are set out under Memorandum on Meat Inspection (Memo. 62: Foods). These recommendations state that the entire carcass and all the organs shall be condemned if there is any evidence of caseous lymphadenitis.

The position at the time of the present report is that a great reduction has taken place in the percentage of affected mutton imported.

Evidences of careful inspection are now forthcoming in the case of most firms' imports, the glands affected being cut and exposed for inspection.

The following are details regarding some consignments of meat and other foods from various countries :—

From January to August, ten per cent. of all importations were examined for Lymphadenitis from all countries except from Australia and New Zealand, of which only 5 per cent. were examined. In August instructions were received to examine only 5 per cent. of the sheep from all countries for Lymphadenitis.

ARGENTINE PORTS.—Quarters of beef, carcasses of mutton and lamb, and offal were landed brine-damaged. Also some quarters and crops of beef, and sides of veal with mould and superficial decomposition.

During the year smaller quantities of carcasses of mutton and lamb and cuts of mutton have arrived, and fewer numbers affected with Lymphadenitis, or with glands and areas cut away, have been found.

From URUGUAY there were small importations of sheep and lambs, but in several consignments of sheep from the same establishment there were over 3 per cent. affected with Lymphadenitis. A large quantity of sides of lamb, and lamb cuts were affected to the degree of 3 to 4 per cent.

A full inspection is made of sides and other cuts of mutton and lamb from all countries.

CHILE, PATAGONIA and ARGENTINE.—From April to August seven special steamers arrived with the largest number of sheep, lambs, and cuts of both that have ever been landed. (N.B.—One lot of ewes were all examined, and 6·8 per cent. found to be affected with Lymphadenitis.) On the whole, less disease was found than in previous years.

NEW ZEALAND.—A greater number were affected with Lymphadenitis than in any previous year, and there were a large number in which the glands had not been incised. Larger consignments of sides and cuts of mutton of a very inferior quality were received than in 1931. These were all examined,

AUSTRALIA.—Importations of sheep and lamb were similar to those of 1931. A small amount was affected with Lymphadenitis.

BRAZIL.—Small consignments of sheep and lambs and cuts arrived, only a small percentage after inspection being affected with Lymphadenitis, except one consignment of lamb cuts, in which 4.7 per cent. were found diseased. Beef, mutton, lamb and offal have arrived damaged with brine in excess of previous years.

UNITED STATES OF AMERICA.—Fifty-four buckets of ox sweetbreads (10lbs.) arrived, the contents being frozen in a solid mass. The Analyst reported that the meat contained evidence of tin and iron. The consignment was suitably dealt with.

Five consignments of boxes of ox kidneys (17,984 pieces) were all examined, 20 to 30 per cent. being found to be decomposing.

CANADA.—A new importation in the form of 61 buckets of calf kidneys (totalling 21,978 kidneys) arrived. Each bucket content was frozen solid on arrival. They were defrosted and every piece examined; 1,838 kidneys were found to be decomposing. In November and December a large quantity of chilled turkeys and chickens arrived in good sound condition.

IRISH FREE STATE.—Small consignments of pig carcasses and offal arrived, well packed. These have been transferred to the City Inspectors for inspection.

NORTHERN IRELAND.—Large numbers of pigs' offals, consisting of pigs' heads, tongues, feet, maws, and plucks, arrived and were found to be in a sounder condition than those received in 1931. At regular intervals, however, a small percentage of the pigs' plucks are found affected with Tuberculosis.

From various countries, large numbers of casks of inedible fats and lard oil have been imported. Every consignment was traced to its destination, its use for industrial purposes being guaranteed.

SUGAR.—Large quantities of dirty, loose-collected, and damaged bags of sugar were cleaned and refined. Records were kept of these.

From U.S.A., CANADA, ARGENTINE and HOLLAND, boracised bacon continued to be imported in less quantities than in 1931, under bond. These were exported or used for ship's stores.

Several consignments of boned beef briskets arrived from AUSTRALIA, each bearing the official certificate. On examination *O. Gibsoni* was found in five instances.

In July, s.s. "Cornwall" from New Zealand arrived with damaged sheep and lamb carcasses. The Analyst's report proved arsenic present. Four sheep, 86 lambs and their coverings, were burnt in a destructor furnace.

In January, 400 fores and 400 hinds ox beef and 69 cases ox livers arrived from Havana and Cuba, frozen solid. These were defrosted and examined, and all proved to be in sound condition. This was the only consignment during 1932.

Samples of pig carcasses from Australia, New Zealand, Canada and the Argentine were examined for Trichinosis; all proved negative.

Tins of frozen egg pulp from China arrived in better condition than for several years past.

Large quantities of canned tomatoes were imported from Spain and Italy, complete examination being made. A large number of tins were found unsound. On March 24th a consignment arrived of 145 tins tomato puree (Italian produce), and in 44 cases the tins were found to be damaged.

In August a consignment of 335 cases of canned cherries (Italian) were landed, and in 57 of the cases the tins were found to be blown. Later, other consignments arrived in similar condition.

Large consignments of canned salmon of Russian origin arrived; these were analysed and found to be sound. Out of 457 cases of canned apples (6 x 6), 244 tins were found to be blown and burst.

Large consignments of wheat and other cereals arrived in a damaged condition, the greater portion being landed and dealt with at Birkenhead docks. The consignments were sorted and dressed, and the unsound portions allowed to go for animal and poultry food. There was

less damaged flour landed in 1932 than in previous years. The unsound portions were allowed to go for sizing and animal-feeding purposes.

A number of consignments of eggs in shell, fresh and canned fruits, dried milk powder, etc., arrived in good condition. Analyses of dried milk powder from foreign countries were made.

One large consignment of frozen turkeys arrived from Buenos Aires; 1,075 of these were found to be brine-damaged.

EXAMINATION OF MEATS FOR EXPORTATION.—During the year 20 consignments (2,703 pieces) of sheep, lambs, and cuts beef, pig carcasses and joints pork, were examined and certificates issued before exportation to various foreign countries.

Fruit Inspection.

The general sanitary conditions under which fruits are now shipped show a vast improvement. More care is now being taken in landing fruit, which is frequently wrapped in glazed papers and standardised packings, and carried in special (cool chambered) steamers.

AUSTRALIAN APPLES and **PEARS** were landed in better condition than in the previous season, comparatively small quantities being rejected for brown heart and decomposition.

NEW ZEALAND APPLES were landed in sound condition.

CANADIAN NOVA SCOTIAN APPLES arrived about one month earlier than usual, the first consignment being immature. Later consignments throughout the season included a large percentage of windfalls. This description was stencilled on the barrels. Shipments were generally in good condition. Canadian apples and pears from other districts arrived in good condition. U.S.A. apples and pears also landed in good condition.

Small consignments of **ARGENTINE PEARS** arrived between February and April per the meat-carrying steamers. From the last shipment, which was in over-ripe condition, a few boxes were rejected.

CALIFORNIAN ORANGES and **GRAPEFRUIT**. Large quantities were examined and sorted, mainly due to the practice of marketing these fruits "full and sound."

BRAZILIAN ORANGES were landed in large quantities. Sorting of some parcels took place, but the percentage of waste was small.

SOUTH AFRICAN ORANGES. Consignments were well packed and condition sound.

JAFFA ORANGES and GRAPEFRUIT landed in much improved condition. Dry climatic conditions and improved warehouse accommodation at Jaffa are said to account for this improvement. From the earlier shipments small quantities were rejected for the conditions known to the trade as "rot" and "water-logging," due probably to *Alternaria* and *Diplodia* fungus. Small quantities were repacked and all water-logged removed, but it was unnecessary to sort complete shipments as in previous seasons.

VALENCIA and MALAGA ORANGES were generally poor in quality, and some landed in wasty or worthless condition. VALENCIA MELONS were frequently sorted and repacked.

JAMAICAN GRAPEFRUIT was imported in larger quantities. Most of these consignments were repacked, all waste being removed.

FLORIDA and PORTO RICO GRAPEFRUIT arrived in fair condition. Many consignments were sorted and re-packed, all waste being removed.

JAMAICAN STEM BANANAS arrived in large quantities in sound condition, per direct steamer especially built for this trade. Canary Island bananas packed in drums and crates landed in good condition, only small quantities being rejected. Canary Island tomatoes were landed in good condition, these being frequently carried as deck cargo.

Small consignments of fruits and vegetables arrived from various countries, some of which were new importations, viz. :—

West Indies (Trinidad). Stem bananas (sound condition).

W.C. Africa. Nigerian oranges (rough skin, fairly sound).

W.C. Africa (Accra). Stem bananas (worthless).

W.C. Africa (Takoradi). Pineapples (wasty), Limes (small percentage wasty).

Chile (Havana). Apples, grapes, nectarines and lemons (fruit generally in fair condition, but rather poor quality).

Spain (Valencia). Fresh plums (wasty), grapefruit (sound), and fresh peas (worthless).

Brazil (Santos). Bananas, grapefruit and lemons (good condition).

South America (Buenos Aires). Potatoes in cases and bags (poor and soft condition).

California (San Francisco). Persimmons (sound).

VALENCIA ONIONS. At the end of the season considerable quantities of case onions were unsound. These were examined and sorted, all waste being destroyed.

EGYPTIAN ONIONS, SPANISH and ITALIAN LEMONS and SEVILLE BITTER ORANGES arrived in good condition.

FOREIGN MAINCROP POTATOES, principally from German, Belgian, Dutch and Swedish ports, arrived in large quantities during the early months of the year, considerable quantities being unsound (frosted and decomposing).

SPANISH NEW POTATOES were landed in large quantities. The earlier shipments were sound, but later shipments were partially decomposing and considerable quantities were rejected. IRISH POTATOES from Northern Ireland arrived in good condition, but quantities remained on the quays and towards the end of the season these became unsound. Some parcels were destroyed and others were allowed to be used for pig feeding under a guarantee in writing as to ultimate destination.

DRIED FRUIT from Australia, South Africa, California, Mesopotamia, Greece, Spain and Turkey, included raisins, sultanas, currants, figs, peaches, pears, apricots and dates. These arrived in good and clean condition.

Raisins in very large quantities and dried apricots arrived from Persia, and were found to be in a sound condition.

Blackberries for jam manufacture from Northern Ireland and the Irish Free State landed in good condition.

Dutch and Russian fruit pulp arrived in smaller quantities. Occasional samples were submitted to City Analyst.

Fresh and dried fruits arrived in exceptionally large quantities during the latter part of the year, probably in anticipation of additional tariffs. Cold storage was utilised to a much greater extent than formerly, over three times as many packages of fresh fruit being handled at Cold Stores over a certain period of the year as compared with the corresponding period of 1931.

During the year 1932 there has been no cause to complain of the conditions of landing and storage of fruit, etc., on the dock quays.

Regulations now require the country of origin of fruit to be stamped on the containers or packages.

A large amount of correspondence has been occasioned by the work of the Department on such subjects as the importation of meat, preservatives in food, etc., or the presence of boric acid, &c., in foodstuffs. The Medical Officer of Health and the Deputy Medical Officer of Health have had much correspondence and many interviews with regard to the Food Regulations of the Ministry of Health.

During the year the following quantities of unsound or unwholesome foodstuffs have been destroyed or suitably disposed of so as not to be available for human food:—

Beef, mutton, pork, etc., 37 tons; the important causes of rejection being: brine staining, mouldiness or decomposition. Offal, 9 tons; fruit and vegetables, 1,303 tons; cereals, 416 tons. Much of this latter is damp and mouldy, due to damage at sea from sea water, etc. Canned goods 27 tons, chiefly blown and burst containers.

A large quantity of the unsound meat and offal has been utilised for the production of manures, and the cereals for size making or animal food.

TABLE SHOWING THE NUMBERS OF CATTLE, SHEEP, AND SWINE EXPORTED FROM IRELAND TO LIVERPOOL DURING THE YEAR 1932, AND SHOWING THE PORTS IN IRELAND AT WHICH THE ANIMALS WERE SHIPPED.

	Cattle.	Sheep.	Swine.
Ballina	308	8,767	879
Belfast	9,136	37,579	608
Cork	23,174	2,843	20,242
Drogheda	17,124	28,010	70
Dublin	148,131	190,075	6,147
Dundalk	3,764	3,652	177
Galway	722	8,522	2,469
Londonderry	3,635	6,724	590
Limerick	4,926	233	158
Newry ... ..	...	...	...
Sligo	119	10,895	8,830
Waterford... ..	23,923	8,657	1,622
Westport	633	8,911	906
Wexford	6,453	13,969	2,179
Total	242,048	328,837	44,877

TABLE SHOWING THE TOTAL NUMBERS OF THE SEVERAL KINDS OF CATTLE, SHEEP AND PIGS EXPORTED FROM IRELAND TO LIVERPOOL DURING THE YEAR 1932.

CATTLE.	No.	SHEEP.	No.
Fat	147,417	Fat	133,686
Stores (for fattening)	78,171	Stores	—
Milch Cows	6,793	Lambs	195,151
Springers	903	Total Sheep ...	<u>328,837</u>
Calves	8,764		
Total Cattle ...	<u>242,048</u>	PIGS.	
		Fat	44,749
		Stores	128
		Total Swine ...	<u>44,877</u>

STATEMENT SHOWING THE NUMBER OF LIVE CATTLE, &c.,
 LANDED AND SLAUGHTERED AT THE FOREIGN ANIMALS
 WHARF (BIRKENHEAD, ALFRED AND WALLASEY
 LAIRAGES) DURING THE YEARS 1923 TO 1932, INCLUSIVE.

Year.	LANDED.			SLAUGHTERED.		
	Oxen and Calves.	Pigs.	Sheep, Lambs and Goats.	Oxen. and Calves.	Pigs	Sheep, Lambs and Goats.
1923	166,994 39,690	77,538 —	194,296 7,003	50,432 37,482	4,886 —	90,736 7,003
1924	217,173 417 52,193	58,690 888 —	358,310 4,568 4,252	54,572 37 42,324	4,985 3 —	134,207 627 4,252
1925	159,638 218 43,673	16,745 366 —	253,617 3,919	41,332 32 35,567	883 2 —	10,608 349 —
1926	165,187 208 38,870	35,785 171 490	312,745 4,052 —	45,876 16 28,997	1,681 — 490	150,378 605 —
1927	199,172 351 4,074	61,713 413 —	379,736 4,635 —	62,323 43 3,712	1,657 — —	164,985 332 —
1928	249,008 280 444	47,224 362 —	365,820 2,630 —	73,245 33 170	2,256 3 —	144,441 561 —
1929	238,185 266 693	48,882 416 —	325,224 2,789 —	67,423 62 693	1,103 2 —	122,929 714 —
1930	262,564 1,260 517	65,417 — 234	310,862 — 4,703	53,967 1,241 160	1,437 — —	99,902 — 1,050
1931	256,024 20,521 452	87,025 — 197	372,688 — 2,589	43,564 13,510 98	3,309 — 4	147,660 — 465
1932	242,672 12,259 832	44,490 — 310	328,522 — 33,891	40,814 8,289 158	2,747 — 1	110,591 — 548

Heavy type represents Irish.

† Isle of Man.

‡ Foreign.

TABLE SHOWING THE VALUES OF THE IMPORTS OF MEATS (EXCEPT POULTRY AND GAME) INTO THE PORT OF LIVERPOOL DURING THE YEARS 1922 to 1931.

Description	Years.									
	1922.	1923.	1924.	1925.	1926.	1927.	1928.	1929.	1930.	1931.
Bacon ...	£ 8,819,177	£ 8,506,723	£ 7,080,117	£ 8,612,930	£ 7,415,016	£ 4,103,753	£ 3,592,574	£ 4,059,154	£ 2,861,449	£ 1,268,243
Beef, fresh and refrigerated ...	8,016,721	8,561,258	7,771,561	9,992,622	10,333,855	7,223,519	8,345,604	8,182,677	7,645,368	6,666,782
Hams ...	5,148,303	5,043,264	4,547,822	5,183,481	4,389,201	2,549,153	2,541,186	2,928,657	2,506,887	1,483,467
Mutton, fresh and refrigerated ...	4,262,439	4,879,930	3,337,957	4,314,957	3,498,206	3,503,587	4,140,843	4,028,739	3,524,695	3,103,269
Pork, fresh and refrigerated } Pork, salted }	419,018	948,484	555,610	623,824	538,273	345,024	406,868	448,527	485,738	389,082
Rabbits ...	65,563	77,096	33,092	44,393	67,275	34,322	35,945	34,546	48,260	56,316
Unenumerated, fresh, refrigerated and salted ...		419,381			492,290	474,294	418,762	455,913	600,845	472,236
Preserved, other-wise than by salting ...	581,442	1,541,595	403,506	550,386		1,181,915	1,240,491	1,140,417	1,381,407	922,414
Totals ...	£27,312,663	£29,977,731	£23,729,665	£29,322,593	£26,734,116	£19,415,567	£20,722,273	£21,278,630	£19,054,649	£14,361,809

TABLE SHOWING THE QUANTITY OF UNSOUND MEATS
UTILISED UNDER SUPERVISION
DURING THE YEARS 1924 TO 1932.

Year.	Beef.				Mutton.				Pork.			
	Tons.	cwts.	qrs.	lbs.	Tons.	cwts.	qrs.	lbs.	Tons.	cwts.	qrs.	lbs.
1924	40	14	1	8	6	17	1	13	1	6	3	13
1925	1,184	15	1	5	7	10	1	1	—	4	1	15
1926	336	0	2	2	4	6	1	1	—	7	2	26
1927	68	8	1	4	161	10	1	19	9	2	0	14
1928	28	2	0	8	46	3	3	5	2	11	3	0
1929	22	18	1	18	178	13	0	21	2	19	0	4
1930	20	8	3	25	58	1	0	2	—	12	1	9
1931	32	6	3	6	45	19	0	26	—	2	0	27
1932	8	4	3	1	28	12	3	15	—	11	2	5

TABLE SHOWING THE QUANTITY OF UNSOUND OFFAL
UTILISED UNDER SUPERVISION
DURING THE YEARS 1924 TO 1932.

Year.	Beef.	Mutton.	Pork.	Veal.
1924.....	13,468 pieces.	14,574 pieces.	4,998 pieces.	13 pieces.
1925.....	40,160 ,,	10,129 ,,	1,883 ,,	541 ,,
1926.....	13,889 ,,	31,217 ,,	1,566 ,,	209 ,,
1927.....	9,243 ,,	6,725 ,,	2,790 ,,	248 ,,
1928.....	4,034 ,,	52,312 ,,	778 ,,	39 ,,
1929.....	6,447 ,,	14,422 ,,	814 ,,	9 ,,
1930.....	5,268 ,,	24,206 ,,	332 ,,	2 ,,
1931.....	4,068 ,,	4,491 ,,	2,081 ,,	8 ,,
1932.....	5,737 ,,	28,669 ,,	531 ,,	1,845 ,,

TABLE SHOWING THE QUANTITY AND DESCRIPTION OF UNSOUND MEATS
UTILISED UNDER SUPERVISION* DURING THE YEAR 1932.

DESCRIPTION,	TOTAL WEIGHT.		CAUSE OF DESTRUCTION.					
	Tons	lbs.	Tuberculous.		Brine stained, mouldy and decomposed.		Other causes.	
	Tons	lbs.	Tons	lbs.	Tons	lbs.	Tons	lbs.
Beef	8	4 3 1	—	—	8	4 1 26	0	0 1 3
Mutton.....	28	12 3 15	—	—	9	4 0 1	19	8 3 14
Pork	0	11 2 5	—	—	0	11 2 5	—	—
Veal	0	7 1 12	—	—	0	7 1 12	—	—
Total.....	37	16 2 5	—	—	18	7 1 16	19	9 0 17

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

Name of Organ.	Beef.		Mutton.		Pork.		Veal.	
	Number.	Weight, Pounds.	Number.	Weight, Pounds.	Number.	Weight, Pounds.	Number.	Weight, Pounds.
	Livers...	124	1,182	386	402	115	331	2
Tongues	145	668	600	108	9	15	—	—
Hearts	643	2,219	26,558	6,980	50	50	—	—
Skirts...	74	112	—	—	—	—	—	—
Cheeks	9	17	—	—	—	—	—	—
Kidneys	3,687	3,760	120	8	31	10	1,843	525
Tripe...	10	127	—	—	—	—	—	—
Tails	61	164	—	—	—	—	—	—
Feet	195	825	1,005	467	—	—	—	—
Plucks	—	—	—	—	234	1,227	—	—
Heads	—	—	—	—	—	—	—	—
Udders	1	3	—	—	—	—	—	—
Shins	238	617	—	—	—	—	—	—
Sweetbreads	550	171	—	—	—	—	—	—
Lungs	—	—	—	—	92	172	—	—
Totals	5,737	9,865	28,669	7,965	531	1,505	1,845	527

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

TABLE SHOWING QUANTITIES OF UNSOUND GENERAL FOODSTUFFS UTILISED UNDER SUPERVISION DURING THE YEAR 1932.

Description.	No. of Tins.	Weight in Pounds.	Description.	No. of Tins.	Weight in Pounds.
Canned Goods—					
Apricots ...	31	52	Fruit Salad ...	20	36
Apricot Pulp ...	20	220	Fruit Pulp ...	3	33
Apples	471	2826	Beef	479	2874
Plums	10	110	Minced Beef ...	7	21
Peaches	1042	604	Steak & Kidney	9	11
Pears	395	710	Ox Tongues ...	139	762
Pines	486	760	Pork Tongue ...	3	16
Bl'k Currant Pulp	36	468	Veal	11	66
Raspberry Pulp ...	93	563	Crab	280	140
Loganberries ...	17	34	Salmon	1585	1581
Tomatoes	18,954	42627	Salmon and Anchovy ...	5	1
Egg Pulp	80	3100	Sardines	147	105
Cherries	5,492	3663	Pilchards ...	274	274

Description.	Packages.	Weight.			
		Tons.	Cwts.	Qrs.	Lbs.
Fruit (Fresh)—					
Apples	5250	187	16	3	24
,, loose	—	—	15	3	17
Bananas... ..	318	9	16	0	6
,, loose	—	344	7	2	23
Oranges	6803	244	5	0	19
,, loose	—	126	8	1	1
Plums	335	2	2	2	2
Pears	1066	15	14	3	10
,, loose	—	—	1	3	11

Description.	Packages.	Weight.			
		Tons.	Cwts.	Qrs.	Lbs.
Fruit (Fresh) continued—					
Pineapples	29	—	11	3	7
Grape Fruit	2238	79	12	0	11
„ loose	—	—	4	1	4
Lemons	150	5	7	1	23
„ loose	—	1	15	0	16
Grapes	1	—	—	2	6
„ loose	—	—	2	1	8
Melons	770	31	4	3	23
Tomatoes	31	—	6	1	7
Beans, loose	68	—	—	2	12
Limes	17	—	3	1	8
Brazil Nuts, loose	—	63	7	2	19
Raisins	3	—	—	3	0
Currants	1	—	—	1	2
„ loose	—	—	1	0	12
Mushrooms	2	—	—	—	8
Potatoes... ..	2129	104	11	3	16
„ loose	—	55	1	3	16
Green Peas	16	—	1	3	4
Cabbage... ..	7	—	6	2	22
Onions	490	28	6	1	25
„ loose	—	—	15	1	2
Cereals—					
Wheat	—	199	14	3	27
Maize	—	201	16	0	10
Rice	—	5	14	3	27
Flour	—	4	4	0	22
Oats	—	1	16	0	3

Description.	Packages.	Weight.			
		Tons.	Cwts.	Qrs.	Lbs.
Cereals—continued.					
Beans	—	2	6	0	0
Tapioca... ..	—	—	14	0	0
General—					
Bacon	4	—	1	1	18
„ loose	—	—	2	2	17
Hams smoked, single ...	77	—	9	2	13
„ loose	—	—	3	2	14
Cooked Ham	3	—	—	1	0
„ loose... ..	—	—	—	2	10
Lard	2	—	—	2	0
„ loose	—	—	—	—	20
Butter	2	—	—	3	0
„ loose	—	—	—	—	—
Red Herrings... ..	8	—	—	2	2
Rabbits, single	292	—	8	3	—
Chicken, single... ..	1	—	—	—	—
Turkeys, single	27	—	2	3	2
„ trimmings	—	—	—	1	1
Cheese	—	—	—	—	—
Coffee Beans, loose	—	—	—	—	1
Soy	1	—	5	3	30
Eggs, frozen, loose	—	—	—	1	—
Salmon Creme	4	—	—	—	—
Desiccated Coker Nut ...	2	—	2	1	—

TABLE SHOWING THE TOTAL QUANTITIES OF THE DIFFERENT UNSOUND FOODSTUFFS UTILISED UNDER SUPERVISION DURING THE YEAR 1932.

	Tons.	Cwts.	Qrs.	Lbs.
Beef, Mutton, Pork and Veal...	37	16	2	5
Offal (Beef, Mutton, etc.) ...	9	0	0	2
Canned Goods... ..	27	10	2	1
Fruit and Vegetables	1303	12	0	0
Cereals	416	6	1	5
General (Fish, Poultry, Rabbits, etc.)	2	1	1	10
TOTAL ...	1,796	6	2	23

Table Showing comparative Value of the more important Food Stuffs imported at the principal Ports during the year 1931.

	London. 1	Liverpool. 2	Hull. 3	Harwich. 4	Newcastle 5	Glasgow. 6	Bristol. 7	Man- chester. 8	Leith. 9	South- ampton. 10
	£	£	£	£	£	£	£	£	£	£
Animals	—	6,066,452	—	—	—	1,425,455	285,245	122,649	—	—
Butter	23,215,377	1,190,497	3,022,460	2,255,501	3,931,118	681,031	452,674	166,459	3,311,882	570,224
Cheese	6,223,578	627,020	139,002	153,106	156,758	315,826	428,584	171,306	139,914	74,881
Cocoa	977,639	719,723	172,236	164,473	—	31,105	386,447	—	—	—
Coffee	2,986,830	271,682	—	—	—	—	766,914	—	—	7,064
Grain.....	14,663,434	10,782,567	7,519,509	90,208	1,197,718	3,028,886	4,745,571	3,485,561	1,756,338	269,794
Eggs	7,853,232	1,359,065	836,055	854,266	1,060,177	1,100,628	—	36,412	1,060,167	465,972
Fish	3,229,316	3,183,652	598,010	1,131,576	989,594	28,520	28,411	40,830	58,258	329,503
Fruit	19,058,868	12,152,051	2,047,198	998,454	889,249	2,536,446	2,945,088	982,877	284,706	3,259,674
Lard	1,273,348	1,123,404	360,257	25,202	448,199	165,713	272,244	1,791,244	49,305	114,551
Margarine	737,428	581,553	419,275	354,800	121,293	143,613	—	95,862	181,789	—
MEAT :—										
Bacon	10,509,903	1,268,243	3,601,111	7,716,823	1,996,105	120,897	37,409	113,971	1,209,842	18,828
Beef	17,268,587	6,666,782	40,245	—	12,043	349,765	19,374	212,807	—	1,112,496
Hams	778,455	1,483,467	339,562	—	—	410,375	9,116	70,128	—	1,832
Mutton	14,001,784	3,103,269	14,440	—	—	126,287	394,015	50,027	—	467,572
Pork	685,068	389,082	—	—	—	—	—	—	—	—
Rabbits	578,120	56,316	—	—	—	—	—	—	—	—
Unenumerated.....	1,253,868	472,236	85,898	30,212	80,186	411,994	99,670	5,765	118,793	71,599
Preserved	2,866,431	922,414	48,612	—	212,673	—	—	173,663	—	—
Milk, Condensed	2,588,444	500,676	259,780	—	347,353	—	138,712	280,012	107,871	28,422
Poultry and Game	1,920,281	57,556	27,743	336,253	—	—	—	—	—	50,853
Sugar.....	7,036,617	5,798,488	912,435	8	15,899	226,745	128,703	181,590	23,969	6,241
Vegetables	4,039,305	2,373,772	1,580,405	567,113	624,033	201,807	212,320	95,301	320,282	2,019,811

The following table gives the particulars of samples sent to the City Analyst and Bacteriologist for examination during the year 1932 :—

CITY ANALYST.				CITY BACTERIOLOGIST.			
Canned Cherries	...	...	3	Goat Hair	...	...	50
„ Figs	...	...	1	Wool	...	...	8
„ Beans	...	...	1				
„ Tomatoes	...	...	1				
„ Pilchards	...	...	1				
„ Salmon	...	...	2				
Cheese	...	...	1				
Milk Powder	...	...	2				
Liquid Eggs	...	...	1				
Plum Pulp	...	...	1				
Sugar	...	...	1				
Brine	...	...	2				
Beef	...	...	1				
Mutton	...	...	1				
Lamb	...	...	2				
Mutton Pieces and Cloth	...	...	2				
Beef Cloth	...	...	1				
Lamb Cloth	...	...	1				
Ox Sweet Breads	...	...	5				
			<hr/>				
	Total	...	30	Total	...		58
			<hr/>				<hr/>

There were 3,242 rats examined from ships, quays, etc., 12 showed evidence of plague infection.

The Port Sanitary Authority is also engaged in the issue of certificates of disinfection for foreign governments and other purposes in connection with the exportation of hides, wool, jute sacks and cloth, tailors' cuttings, rags, second-hand bags and clothing, bales of cotton, etc. The number of such certificates issued during the year was 996.

The department also endorses under the United States, Canadian and other regulations, certificates regarding wholesomeness of food articles, and the sanitary condition of the premises in which the articles were produced or stored, comprising poultry, game, cheese, bacon, hams, potatoes, preserved fish, pickled beef, tongues, sausage skins, lime juice, etc.

The work attached to preparing and recording these certificates is considerable, and takes up a large amount of time of the department.

The Medical Officer to the Port Sanitary Authority desires to express his appreciation of the valuable assistance received from H.M. Collector of Customs and staff, the Mersey Docks and Harbour Board and their officers, and the various shipping companies who have co-operated with the Port Sanitary Authority in the maintenance of Public Health and the prevention of disease in the port. The Consular Bodies have at all times given courteous assistance.

W. M. FRAZER,

*Medical Officer of Health,
Port Sanitary Authority.*

MUNICIPAL ANNEXE,

LIVERPOOL,

31st March, 1933.