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PORT OF LIVERPOOL



ANNUAL REPORT

OF THE

MEDICAL OFFICER OF HEALTH

TO THE

PORT SANITARY AUTHORITY

FOR THE YEAR

1928

BY

A. A. MUSSEN, B.A., M.D., D.P.H.,

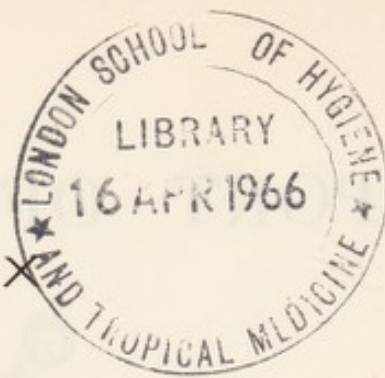
Port Medical Officer of Health.

LIVERPOOL:

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PORT SANITARY AUTHORITY OF LIVERPOOL.

REPORT FOR THE YEAR 1928,

BY THE
MEDICAL OFFICER OF HEALTH.

The Report of the operations of the Liverpool Port Sanitary Authority for the year 1928 is herewith submitted.

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 Local Government Board, and under the Port Sanitary Authorities (Infectious Diseases) Regulations, 1920.

(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.

The limits of jurisdiction of the Port Sanitary Authority are those of the Customs Port of Liverpool as defined in the Treasury Warrant of November 23rd, 1896, which are as follows:—

On and after December 1st, 1896, the limits of the said port (Liverpool) shall commence at the termination of the Port of Chester, namely, at

the Red Stones in Hoylake, on the Point of Wirral, and continue up the River Mersey on the Cheshire shore thereof, to the west side of the entrance of the Manchester Ship Canal at Eastham, thence in an easterly direction across the said entrance and along the Cheshire shore of the river to Ince Ferry, the western termination on the Cheshire shore of the Port of Manchester, thence across the said River Mersey in a supposed straight line to Dungeon Point, being the western termination on the Lancashire shore of the said Port of Manchester, and continued along the coast of the County of Lancashire to the southern boundary of the Port of Preston, viz., an imaginary line drawn in a true north-north-west direction from the inner north-west sea mark on the beach at Formby Point, shown on the Admiralty chart of the survey of the west coast of England from Formby Point to Kirkcudbright, published on the 23rd of October, 1893. And the said port shall include all islands, rivers, bays, channels, roads, bars, strands, harbours, havens streams, and creeks, except the said Manchester Ship Canal, within the said limits contained, and shall extend seaward to a distance of three miles from low water mark along the coast within the aforesaid limits.

The constituting Riparian Authorities are the County Boroughs of Liverpool, Birkenhead, Bootle and Wallasey, and the Urban District Council of Bebington and Bromborough.

The jurisdiction of the said Port Sanitary Authority shall extend to the whole of the said Port of Liverpool, including the place or places for the time being appointed as the Customs Boarding Station or Stations for the said port, and the place for the time being appointed for the mooring or anchoring of ships for the said port under any regulations for the prevention of the spread of diseases, issued under the authority of the statutes in that behalf, and all islands, rivers, bays, channels, roads, bars, strands, harbours, havens, streams, and creeks belonging to the said port, and so much of the district of any Riparian Authority as comprises any dock, basin, quay, wharf, or other place for the embarkation or disembarkation of persons; or the lading, unloading, transhipping, or removal of goods on or from any ship, vessel or boat.

AMOUNT OF SHIPPING ENTERING THE PORT SANITARY DISTRICT DURING THE YEAR 1928.

Class of Vessels.	Number.	Tonnage.	Number Inspected.		Number reported to be Defective.	Number of vessels on which defects were remedied.
			By the Medical Officer.	By the Sanitary Inspector.		
	(1)	(2)	(3)	(4)	(5)	(6)
SAILING FOREIGN—						
Steamers ...	6,892	12,949,344	956	4,089	877	849
*Motor ...	267	784,399				
Sailing ...	26	4,648	—	1	1	1
Fishing ...	—	—	—	—	—	—
TOTAL FOREIGN	7,185	13,738,391	956	4,090	878	850
SAILING COASTWISE—						
Steamers ...	6,783	2,284,516	12	1,007	54	48
*Motor ...	1,449	109,831				
Sailing ...	45	4,563	—	13	1	1
Fishing ...	—	—	—	—	—	—
TOTAL COASTWISE	8,277	2,398,910	12	1,020	55	49
TOTAL FOREIGN AND COASTWISE	15,462	16,137,301	968	5,110	933	899

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

Infectious Diseases.

The methods adopted in the Port of Liverpool to prevent the importation of infectious diseases from abroad are briefly as follows :—

(1) The boarding by the Assistant Port Medical Officers of certain vessels on arrival in the river and before docking :—

(*a*) Vessels which during the previous two months have called at ports where dangerous infectious disease is known to exist.

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

(2) The visiting of all 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 plague infection.

(4) Co-operation with the Officers of His Majesty's Customs, who report to the Port Sanitary Authority if they obtain information of any sickness which is likely to be infectious 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 ships, except very small craft, entering the Port of Liverpool must be navigated into the port by either a licensed pilot or a master or mate holding a Liverpool pilot's certificate, and willing assistance has always been given by the pilots in carrying out the regulations. All pilots are supplied by the 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.

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 regards 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.

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

Amended as and when required.

PORT SANITARY AUTHORITY.

Vessels can dock through the Gladstone Lock at all stages of the tide, and one medical officer is always on duty for the purpose of boarding incoming ships from infected ports, or ships which have cases of infectious disease on board at the time of arrival. During the year 709 vessels were boarded in the river by the Assistant Medical Officers, and in addition 291 vessels were visited for the purpose of their inspection. All 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. He then proceeds to examine the sanitary condition of the vessel, pointing out any defects and suggesting the remedy to be adopted. It has been found in practice 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.

Rodent Plague.

Rodent plague was discovered among the rat population of two vessels during the year.

S.S. "DRYDEN."—This vessel arrived in Liverpool on January 5th, 1928, from the River Plate *via* Las Palmas. The medical officer boarded the vessel in the river and ascertained that the only case of sickness during the voyage had been a seaman with influenza.

The first loading port of the vessel was Santa Fe, and it subsequently called at Rosario, Buenos Aires, Rio de Janeiro, Las Palmas and Liverpool.

The cargo consisted of bags of pollards, bales of wool, quebrecho, hides, bulk maize, oilcake, tallow, cotton, cornflower, sugar and cases of meat.

On January 6th six dead rats were found by the port sanitary rat-catcher in the poop, and were sent for examination, but were apparently negative. Trapping, however, was continued, and on January 11th four rats caught in No. 4 hold were reported by the City Bacteriologist to be suspicious of plague infection. On receipt of this information the Medical Officer visited the vessel and made arrangements for its immediate fumigation. Extra rat-catchers and rat-searchers were detailed off for work both aboard the vessel and on the quays where the cargo had been discharged.

Rat guards were adjusted on all moorings and a ladder which was being used instead of a gangway was removed for the night. The vessel was breasted off six feet from the quayside, and all possible care was taken to prevent any ingress or egress of rats from the vessel.

The whole of the vessel was subjected to sulphur fumigation (three per cent. concentration), an eight-hour exposure being given. Twenty rats and one mouse were found after the fumigation and sent for examination, and on the following day the vessel sailed for Glasgow.

The City Bacteriologist reported that the four rats caught in No. 4 hold on January 11th and three of the rats recovered after the fumigation were definitely infected with plague.

S.S. "SICILY."—This vessel arrived from Rosario on June 8th, and the usual searching for and trapping of rats was commenced. On June 14th information was received from the City Bacteriologist that a rat which had been caught in the after 'tween deck of this vessel was suspicious of plague infection. (This rat was reported subsequently to be definitely infected with plague.) Rats caught in the vessel between June 8th and June 14th were definitely negative. The vessel was visited immediately by the Medical Officer, who found coal and cargo being taken on board. Both coaling and cargo loading were stopped at once: rat guards were fixed on all moorings, and the vessel breasted off six feet from the quay side. A further intensive search of the vessel was carried out by rat-searchers, during which time arrangements were being made for the complete fumigation of the vessel by sulphur dioxide. The information regarding the suspicious rat was received at 1 p.m. on June 14th; by 5 p.m. the same afternoon the requisite amount of sulphur was being put on board, and by 8 p.m. the whole ship was closed down and under fumigation. After the fumigation 24 rats and 2 mice were found, and of these four rats were found to be definitely plague infected, and two suspicious of plague infection. On June 15th, at 3 p.m., the coaling and loading of the cargo was resumed. Intensive trapping was carried out on the quays in the vicinity for four weeks, but no more plague-infected rats were discovered.

PARTICULARS RELATING TO PLAGUE "INFECTED" OR "SUSPECTED" VESSELS ARRIVING IN THE PORT DURING 1928.

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. Rats. Mice.	Fumigation. Rats. Mice.	Total. Rats. Mice.		
"Dryden," at River Plate.	5th Jan., 1928	Plague (Rodent)	Trapping and Fumigation, S.O ₂ .	25 + 0	20 + 1 =	45 + 1	Yes (Form 16)	These Vessels are from infected ports but are not included in the table below
"Sicily," at River Plate.	8th June, 1928	"	"	43 + 2	30 + 2 =	73 + 4	"	

MEASURES OF RAT DESTRUCTION ON VESSELS FROM PLAGUE INFECTED PORTS (OTHER THAN THOSE INCLUDED IN ABOVE) ARRIVING IN THE PORT DURING 1928, AND NUMBER OF CERTIFICATES ISSUED IN RESPECT OF SUCH VESSELS.

Total Vessels from Plague Infected Ports.	Number of such Vessels Fumigated by S.O ₂ .	Number of Dead Rats Recovered.	Number of such Vessels Fumigated by H.C.N.	Number of Dead Rats Recovered.	Number of such Vessels on which Trapping, etc., were Employed.	Number of Dead Rats Recovered.	Number of such Vessels on which Measures of Rat Destruction were not carried out.	Number of Fumigation Certificates Issued on Form 11.		Number of other Certificates Issued.
								Deratisation.	Exemption.	
621	33 (one vessel part H.C.N.)	Rats. Mice. 961 52	3 (one vessel part S.O ₂).	Rats. Mice. 29 0	568	Rats. Mice. 3210 14	17	7	4	Form 10 25 Others 3

MEASURES OF RAT DESTRUCTION ON VESSELS OTHER THAN THOSE IN ABOVE TABLES, AND NUMBER OF CERTIFICATES ISSUED IN RESPECT OF SUCH VESSELS DURING 1928.

Number of Vessels Fumigated by S.O ₂ .	Number of Dead Rats Recovered.	Number of Vessels Fumigated by H.C.N.	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 11."		Number of other Certificates Issued.
						Deratisation.	Exemption.	
79 (one vessel part H.C.N.)	Rats. Mice. 829 135	12	Rats. Mice. 16 0	169	Rats. Mice. 1979 3	17	7	Form 10 72 Others 8

TABLE SHOWING THE NUMBER OF RATS AND MICE OBTAINED ON SHIPS AND QUAYS
BY THE AUTHORITY'S RAT-CATCHERS DURING THE YEAR 1928.

Year.	NUMBER OBTAINED.			NUMBER EXAMINED.			NUMBER DESTROYED.		
	From Ships.	From Quays.	Total.	From Ships.	From Quays.	Total.	From Ships.	From Quays.	Total.
	1919	8,971	1,336	10,307	6,023	1,287	7,310	2,948	49	2,997
1920	8,088	1,593	9,681	5,276	1,517	6,793	2,812	76	2,888
1921	8,867	2,405	11,272	5,031	2,195	7,226	3,836	210	4,046
1922	10,642	2,830	13,472	5,520	2,519	8,039	5,122	311	5,433
1923	12,097	1,625	13,722	5,629	1,460	7,089	6,466	167	6,633
1924	13,509	1,963	15,472	4,981	1,658	6,639	8,528	305	8,833
1925	11,088	2,508	13,596	4,882	2,065	6,947	6,206	443	6,649
1926	8,827	2,800	11,627	4,493	2,312	6,805	4,334	488	4,822
1927	8,134	2,496	10,630	4,836	1,945	6,781	3,298	551	3,849
1928	*7,351	2,414	9,765	4,145	1,918	6,063	3,206	496	3,702
Total.....	97,574	21,970	119,544	50,816	18,876	69,692	46,756	3,096	49,852

* 373 mice are included in these figures.

NUMBER AND SPECIES OF RATS CAUGHT, IN THE CITY AND PORT OF LIVERPOOL,
DURING THE YEAR 1928.

1928.	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 ...	72	145	—	418	4	431	76	994	843	—	71	5	33	21	947	26
February ...	179	321	—	420	1	297	180	1,038	593	—	119	42	57	11	769	53
March ...	229	299	—	506	7	499	236	1,304	491	—	124	19	75	15	690	34
April ...	238	247	—	396	3	581	241	1,224	492	—	131	17	42	5	665	22
May ...	188	198	—	584	6	682	194	1,464	671	—	150	32	23	5	844	37
June ...	205	291	—	553	—	598	205	1,442	705	—	159	11	26	8	890	19
July ...	87	175	—	625	—	587	87	1,387	804	—	105	4	25	5	934	9
August ...	75	115	—	386	45	530	120	1,031	536	—	120	9	58	1	714	10
September ...	102	102	—	450	35	379	137	931	429	—	137	7	13	12	579	19
October ...	207	245	—	514	71	751	278	1,510	510	—	133	18	38	11	681	29
November ...	262	173	—	505	69	362	331	1,040	561	—	108	11	56	19	725	30
December ...	162	153	—	445	143	311	305	909	507	—	117	14	27	1	651	15
TOTAL ...	2,006	2,464	—	5,802	384	6,008	2,390	14,274	7,142	—	1,474	189	473	114	9,089	303

NUMBER AND SPECIES OF RATS EXAMINED OR DESTROYED IN THE CITY AND PORT OF LIVERPOOL,
DURING THE YEAR 1928.

1928.	Examined (City).		Destroyed (City)		Examined (Port).		Destroyed (Port).		Total Caught.	
	Black.	Brown.	Black.	Brown.	Black.	Brown.	Black.	Brown.	Black and Brown.	City and Port.
January ...	9	104	67	890	532	24	415	2		2,043
February ...	16	96	164	942	440	50	329	3		2,040
March ...	38	119	198	1,185	483	34	207	—		2,264
April ...	15	64	226	1,160	508	17	157	5		2,152
May ...	14	112	180	1,352	573	34	271	3		2,539
June ...	21	69	184	1,373	432	16	458	3		2,556
July ...	9	95	78	1,292	500	8	434	1		2,417
August ...	1	21	119	1,010	410	9	304	1		1,875
September ...	—	17	137	914	396	18	183	1		1,666
October ...	37	176	241	1,334	456	17	225	12		2,498
November ...	100	296	231	744	473	15	252	15		2,126
December ...	63	236	242	673	446	15	205	—		1,880
TOTAL ...	323	1,405	2,067	12,869	5,649	257	3,440	46		26,056

RATS DESTROYED DURING 1928.

(1) ON VESSELS.

	Jan.	Feb.	Mar.	April.	May.	June	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
Black	402	332	269	243	404	417	584	356	175	258	236	251	3,927
Egyptian*	441	261	222	249	267	288	220	180	254	252	325	256	3,215
Brown	—	—	—	—	—	—	—	—	—	—	—	—	Nil.
Rats examined ...	453	319	326	374	430	310	385	283	267	305	346	328	4,126
Rats found infected with Plague	7	—	—	—	—	5	—	—	—	—	—	—	12

(2) QUAYS, WHARVES AND WAREHOUSES.

	Jan.	Feb.	Mar.	April.	May.	June	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
Black	73	63	71	51	61	70	52	33	37	66	79	76	732
Egyptian	31	113	128	122	112	115	78	145	113	105	85	68	1,215
Brown	26	53	34	22	37	19	9	10	19	29	30	15	303
Rats examined ...	103	171	191	151	177	138	123	136	147	168	142	133	1,780
Rats found infected with Plague	—	—	—	—	—	—	—	—	—	—	—	—	—

Number of Mice destroyed on vessels 184

Do. do. do. on quays 159

*The black rat, *R. rattus*, is divided into three varieties, which are perfectly distinct from one another. One of these, *R. rattus alexandrinus* (the Egyptian rat) is so superficially like the common brown rat in colour that mistakes are often made in identification by persons unfamiliar with the specific differences. There are three phases in the colour of the fur of the black rat which it is convenient and natural to regard as distinct sub-species:—

Rattus rattus rattus.—Back, black; belly, smoky grey.

Rattus rattus alexandrinus.—Back, brownish grey; belly, more or less dingy.

Rattus rattus frugivorus.—Back, yellowish or reddish brown; belly, pure white or lemon colour.

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 Authorities, during the year 1928, are as follows:—

	Rats.	Mice.	Rats.	Mice.
PORT—				
In vessels	29,189	209		
On quays	2,250	164		
			31,439	373
CITY—				
In warehouses	4,470	—		
In sewers and from other sources ...	12,194	—		
			16,664	—
			TOTAL ...	373
			48,103	373

Number of Visits to Vessels by Rat Catchers	5,667
Do. do. do. Rat Searchers	2,860
Do. do. Quays, Sheds, etc., by Inspectors ...	639
Do. do. do. do. Rat Searchers	477
Do. do. do. do. Rat Catchers	6,902

Deratisation.

The extermination of rats, both on board ship and in the dock area, has long been considered to be one of the most important of this Authority's services; not only has the necessity for an incessant war upon rats been appreciated because of the damage suffered by cargoes, but also because of the danger to human life from infection with the Plague bacillus, carried to man by the rat flea.

In this port the Shipping Companies, through the agency of rat-catchers employed by them, do their best to keep their respective vessels free from rats, while the catchers of this Authority catch rats in the dock area and on board ship for the express purpose of their examination in the Bacteriological Laboratory.

That Plague is still a great danger to this port can be appreciated by a reference to the table on page 8, where it is recorded that many cases have occurred during 1928 in the ports of South America, the West Coast of Africa and India especially, ports at which are loaded a very considerable proportion of the cargoes destined for Liverpool.

Out of the gradual appreciation of this point, and of the points that any measures adequately to combat the incidence and spread of Plague must be world-wide in their application if they are to be truly effective, arose the International Sanitary Conference of 1926. The findings of that Conference have now been embodied in a series of provisions,* one of which (Article 28) requires that "all ships, except those engaged in national coastwise service, shall be periodically deratised, or be permanently so maintained that any rat population is kept down to a minimum." It is now agreed that those vessels which have been deratised, by fumigation or otherwise, shall be granted

* See Appendix.

a *Deratisation Certificate*, as specified in Article 28, or, if found by this Authority to be free from rats, shall be granted a *Deratisation Exemption Certification*: either of these to remain valid for six months, at the end of which the vessel will be re-examined, unless it should have become markedly re-infested in the interim.

The first certificate was issued by this Authority on 5th October, 1928, and up to the end of year 25 Deratisation Certificates and 11 Deratisation Exemption Certificates have been issued.

When the provisions of the Conference become ratified and are put into practice by all countries it is obvious that a step forward of the greatest importance will have been taken toward the ultimate eradication of Plague.

A very marked improvement has already been observed in the number of rats found upon vessels entering this port during the last few years, as the following table shows. While it is likely that the figures given in the table for the average number of rats per ship may be somewhat higher than is actually the case for all vessels arriving in the port, since a certain number of the vessels included had been fumigated as a direct result of the discovery that they were in a "ratty" state, this in no way invalidates the findings which prove the gradual improvement that is taking place nor the variations that are apparent on the various trade routes.

Only those vessels are included which were fumigated in this port and afterwards examined by this Authority's searchers. The material used was SO_2 in 537 and HCN in 43 cases. The vessels have been grouped according to the trade routes upon which they usually plied or, where that was in doubt, according to the trade route taken during the last voyage before fumigation.

	1913-1914		1925		1926		1927		1928		TOTAL							
	Ships fumigated	Rats found	Av. No. of Rats per ship	Ships fumigated	Rats found	Av. No. of Rats per ship	Ships fumigated	Rats found	Av. No. of Rats per ship	Ships fumigated	Rats found	Av. No. of Rats per ship						
River Plate and Brazil	1	17	17.0	12	1,384	115.3	17	991	58.3	4	399	99.7	5	406	81.2	39	3,197	81.9
West Coast of S. America.....	1	29	29.0	24	441	18.3	20	275	13.7	17	322	18.9	18	90	5.0	80	1,157	14.4
N. America	—	—	—	56	1,958	34.8	50	924	18.4	52	689	13.3	47	454	9.6	205	4,025	19.6
Canary Islands.....	5	83	16.6	—	—	—	1	8	8.0	—	—	—	—	—	—	6	91	15.1
Mediterranean	7	559	79.8	9	244	27.2	23	393	17.1	21	443	21.1	12	65	5.4	72	1,704	23.7
West Coast of Africa.....	34	2,645	77.8	3	0	0.0	3	87	29.0	—	—	—	3	193	64.3	43	2,925	68.0
South and East Africa.....	—	—	—	1	117	117.0	—	—	—	—	—	—	1	166	166.0	2	2	141.5
India	1	29	29.0	5	163	32.6	11	289	26.3	—	—	—	6	352	54.6	23	833	36.5
Java and the Far East	—	—	—	4	9	2.2	10	98	9.8	8	9	1.1	10	17	1.7	32	133	4.1
New Zealand and Australia	—	—	—	16	662	41.3	19	369	19.4	17	100	5.8	26	135	5.2	78	1,266	16.2
	49	3,362	68.6	130	4,978	38.3	154	3,434	22.3	119	1,962	16.5	128	1,878	14.7	580	15,614	26.9

Many interesting points arise from an examination of these results. The *first* is that there has been a gradual and marked improvement since 1913, as shown by the average of 68.6 rats per ship in 1913-1914, of 38.3 in 1925, and 14.9 in 1928. This is shown in graphical form in Figure (a) opposite.

The *second* point is the high average given by vessels trading with River Plate and Brazilian ports; this is due, as will be discovered later, largely to the type of cargo carried on this route (i.e., grain.)

The *third* point is the reasonably low figure shown for vessels arriving from the West Coast of South America, North America, New Zealand and Australia. It seems probable that this is largely due to the strict insistence upon periodic fumigation which, in past years, has been the policy of the United States (including the Panama Canal zone) and Australasian Governments

The following table (page 21) gives the percentage of vessels that were found, after fumigation, to be completely free from rat-infestation, and the results will be seen to bear out those obtained from the table on page 19.

	1913-1914		1925		1926		1927		1928		TOTAL.		
	Ships fumigated	Ships with no rats	Ships fumigated	% with no rats	Ships fumigated	Ships with no rats	Ships fumigated	Ships with no rats	Ships fumigated	Ships with no rats	Ships fumigated	Ships with no rats	% with no rats
River Plate and Brazil	1	0	12	8.3	17	1	4	0	0.0	7	2	41	9.7
West Coast of S. America	1	0	24	41.2	20	11	17	5	29.4	16	6	78	41.0
N. America	—	—	56	50.0	50	16	52	28	53.8	47	30	205	49.7
Canary Islands	5	0	—	—	1	0	—	—	—	—	—	6	0.0
Mediterranean	7	0	9	44.4	23	3	21	4	19.0	12	5	72	22.2
West Coast of Africa	34	1	3	66.6	3	0	—	—	—	3	0	43	6.9
South and East Africa	—	—	1	0.0	—	—	—	—	—	1	0	2	0.0
India	1	0	5	20.0	11	3	—	—	—	6	0	23	17.4
Java and the Far East	—	—	4	25.0	10	4	8	4	50.0	10	6	32	46.9
New Zealand and Australia	—	—	16	37.5	19	6	17	10	58.0	26	16	78	48.9
	49	1	130	40.7	154	44	119	51	42.0	128	65	580	36.9

It is of interest here to note any variations that occur in the rat-infestation of vessels belonging to different companies; for this purpose the returns for the North American (Atlantic seaboard) trade routes have been examined, since the cargoes carried by the various vessels more nearly approximate in their nature than would be the case on any other route.

SHIPPING COMPANY	1925			1926			1927			1928			TOTAL		
	Ships fumigated	Rats found	Av. No. of Rats per ship	Ships fumigated	Rats found	Av. No. of Rats per ship	Ships fumigated	Rats found	Av. No. of Rats per ship	Ships fumigated	Rats found	Av. No. of Rats per ship	Ships fumigated	Rats found	Av. No. of Rats per ship
"A"	12	136	11.3	8	98	12.3	10	18	1.8	11	0	0.0	41	252	6.1
"B"	10	0	0.0	5	6	1.2	6	0	0.0	5	0	0.0	26	6	0.2
"C"	14	1,242	88.7	11	246	22.4	7	51	7.3	4	92	23.0	36	1,631	45.3
"D"	10	79	7.9	11	164	14.9	6	235	39.1	12	123	10.3	39	601	15.7
"E"	9	238	26.4	8	187	23.4	4	83	20.7	3	4	1.3	24	512	21.3
Others	1	263	263.0	7	223	31.9	19	302	15.9	12	235	19.6	39	1,023	26.3
	56	1,958	34.8	50	924	18.4	52	689	13.3	47	454	9.6	205	4,025	19.6

The marked variations that are apparent, e.g., an average of 6.1 and 0.2 rats per ship for Companies A and B as compared with that of 45.3 for Company C, are somewhat difficult to explain. But there is no doubt that the low figures obtained by the two companies quoted are due in large part to the "rat-proofing" measures carried out on their vessels, and in part to the strict supervision of the private rat-catchers employed by those companies.

Thus it will be seen that there are marked variations in the degree of rat-infestation of vessels on the different trade routes of the world.

What cause, or causes, can explain these variations?

Rats board ships by several routes: up the gangways, stowed away in cargoes, and down grain shoots. Once on board, be the conditions at all favourable, they may breed rapidly.

There are certain factors, however, that tend to keep down the degree of rat-infestation, and it is these that are of importance in the explanation of the variations noted above.

1. "RAT-PROOFING."—On a vessel structurally "rat proofed" it is impossible for the animal to wander from one confined space, such as a hold, and it cannot, therefore, as is so frequently possible on vessels not "proofed," run from hold to hold or from hold to storeroom in search of water, food and a comfortable nesting place. Most of the vessels recently launched have been constructed with due regard to this factor, and certain of the older ships have been altered so as to render them "rat proof."

Table IV offers suggestive evidence that vessels adequately "proofed" tend to harbour an extremely small number of rats, and this in spite of the fact that several of the vessels in question were carrying large cargoes of grain. For the purposes of this table, the 128 vessels fumigated during 1928 have been investigated.

	Ships Fumigated	Rats Found	Average Number of Rats per Ship
" Rat-Proofed " Vessels.....	45	141	3.1
Refrigerator Vessels	15	4	0.3
Non " Rat Proofed " Vessels	68	1,733	25.5
	128	1,878	14.7

II. CARGOES UNATTRACTIVE TO RATS.—These include cargoes which contain least material edible for rats, and which provide the least amount of hiding and nesting places. They are such cargoes as hardware, ore, fruit, etc., in boxes, and other products that can be so tightly packed in the holds that no room is left for the rats to move.

The relationship between the cargoes carried, during their last voyage to Liverpool before fumigation, by the 128 vessels fumigated during 1928, and the number of rats on board has been examined. The results can, at best, serve as little more than an indication of the type of cargoes that tend to be "rat-attractive," since few vessels carry only one variety of cargo and where the rats are unconfined to one hold by adequate "rat-proofing" measures they will tend to wander to those parts of the ship in which is stowed the cargo most attractive to them. The results, however, do bear out the premise that most rats are to be found on vessels carrying grain, while sugar and palm-kernels may apparently also be classed as "rat-attractive."

III. CATS.—These animals, according to most sea-going men, are the chief factor in the destruction of rats on board ship. No adequate returns are available to show the co-relation between rat incidence and the number of cats on board, but out of 87 ships arriving in this port during December 78 carried cats and, according to the Authority's searchers, most of these vessels were also carrying a certain number of rats. General experience of the value of cats for deratisation purposes

tends to show that they are of value only when other food is scarce, and that this is a comparatively rare occurrence.

IV.—TRAPPING.—This is a most important method of deratisation. During 1928 the private catchers of the shipping companies are reported to have caught 22,047 rats. Trapping has the advantage of being a less expensive method of deratisation than fumigation, but must of necessity prove of less value in that, in the time at the disposal of the catchers, it is usually impossible completely to deratise a vessel carrying more than a small number of rats.

V. FUMIGATION.—In this method lies the only sure way of completely ridding a vessel of all rats. In the Port of Liverpool the SO_2 method is that most commonly relied upon, but Hydrocyanic Acid gas, being more rapidly fatal to rats, lethal for other vermin, and less liable to damage fittings, cargo, etc., is frequently used.

If, then, in the future, the gradual diminution in the number of rats per ship is to be maintained, the measures adopted to attain that end should be along the following lines:—

1. Greater care to be taken at foreign ports in the loading of cargoes known to be "rat-attractive," in order that as few rats as possible may be allowed to enter the vessel.
2. The "rat-proofing" of all vessels.
3. A continuance of the present measures with regard to trapping.
4. Periodic fumigation of vessels engaged in the carrying of "rat-attractive" cargoes, and of other vessels when the rat population is abnormally increased.

Yellow Fever.

No case of yellow fever was reported from the ports of the West Coast of Africa, but 12 cases from Rio de Janeiro and 13 at Bahia, brought into prominence ports which had been free from the disease during the previous year.

No cases of yellow fever were landed at Liverpool during the year.

One vessel, s.s. "Bernini," arrived and reported five cases of yellow fever during the voyage.

S.S. "BERNINI."—Voyage: Left New York August 25th, 1928, with general cargo, arrived Norfolk, Va., August 27th, Pernambuco September 15th, Bahia September 18th, Rio de Janeiro September 29th, Santos September 30th; left Santos October 15th with grain and general cargo, and calling at Buenos Aires, St. Vincent and Las Palmas, arriving Liverpool November 30th.

Five cases of yellow fever occurred while the vessel was at Santos: all were removed to hospital; one died, three recovered and returned to the ship; the other man also recovered and was paid off at Santos.

The captain stated that the authorities in Santos presumed the infection to have occurred at Rio de Janeiro; he also stated that neither at Rio nor at Bahia did any members of the crew except himself leave the ship, which was brought to an anchor in the harbour and not moored alongside. No further sickness occurred on board after the vessel left Santos.

Smallpox.

No cases of smallpox was landed at Liverpool during the year.

Anthrax.

During the year 1928 there were eight cases of Cutaneous Anthrax infection admitted to the Liverpool hospitals; seven of these resided in Liverpool and one was admitted from Runcorn district; two of the patients died.

Four of the cases were dock or other labourers engaged in handling hides, wool, etc., on the docks, usually during the unloading of vessels, one was a motor driver who assisted in the transport of these products. East African, Abyssinian or China hides were mostly inculpated.

Amongst the wool industry there was only one case, that of a female employee, whose business it was to handle East Indian wool, which she blended in a machine to remove dirt and to tease the wool; she recovered after a severe illness. Two further cases occurred amongst tanners' labourers.

The disinfection of dangerous wools at the Government Wool Disinfection Station, Love Lane, is still in progress, and the Liverpool Port Sanitary Authority assist by having samples of the imported 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 102 samples were examined after disinfection, and all were found to be free from Anthrax.

Malaria.

During the year 1928 there were 69 new cases of malarial fever, which were either landed here or had recovered abroad, on 32 vessels; the names and addresses of the patients, with particulars of the treatment and dosage of quinine given, together with the movements of the vessels, were forwarded to the Ministry of Health.

International Sanitary Convention, 1926.

In view of the importance of the International Sanitary Convention, 1926, which has been ratified by the representatives of approximately 70 Countries and States, a copy of the translation of the General Conditions is given in the Appendix.

ISSUE OF CERTIFICATES.

Owing to the extensive trade which is carried on between Liverpool and foreign ports, where plague is known to exist, it is very important that any infection of the rat population with plague, either in ships or on quays, should be known to the Port Sanitary Authority at the earliest possible moment. In order that plague-infected rats shall be discovered it is necessary that bacteriological examinations of the rat population should be constantly made.

All vessels arriving from plague-infected ports are boarded in the Mersey, the crews and passengers are examined, and careful enquiry is made as to any evidence of the existence of plague among the rats.

After the vessel docks, it is visited by the Port Sanitary Authority's rat-searchers and rat-catchers, who examine the ship in all parts and at various times during the discharge of cargo for sick or dead rats, and also catch samples of the rat population in all parts of the vessel. Similarly, samples of the rat population of the dock quays, sheds and warehouses are also taken, for the success of plague-preventive measures depends on the early detection of the infection. All rats so obtained are examined for signs of plague by the City Bacteriologist.

The increased work entailed in connection with deratisation necessitated a new organisation, and the procedure which has been evolved before either type of certificate is granted is as follows:—

(a) DERATISATION CERTIFICATE.

The shipping company must give at least 24 hours' notice to the Port Sanitary Authority that it is their intention to fumigate one of their vessels, and that a deratisation certificate will be required. This notice is given on a printed form, on the reverse side of which is set out the cubic capacities of all spaces in the vessel.

As all spaces must be enumerated on the certificate, and a reason assigned why any space or spaces are not fumigated, an examination prior to fumigation, and preferably when the ship is empty, is made by a sanitary inspector, assisted by a rat-searcher.

During this examination the inspector checks the cubic capacities as already given, by information obtainable only on board the vessel, whilst the rat-searcher, on the evidence of rats which he discovers, bases an estimate of the number of rats which will be found after fumigation.

The fumigants used most generally in Liverpool are sulphur dioxide (SO_2 , 3% concentration) or one of the forms of hydrogen cyanide HCN, liquid HCN or Zyklon 25% concentration. The choice of fumigant largely rests with the shipping company concerned, and must be stated on the official form of request for fumigation.

The inspector attends and supervises the fumigation, satisfying himself that the vessel is properly prepared, i.e., all ventilators closed down, port lights shut and fastened, and in the case of cyanide fumigations that all internal doors, wardrobes, lockers and drawers are left open: that all persons working in and about the ship are accounted for: that the amount of fumigant in each space will give the necessary concentration, and finally gives instructions when the vessel may be opened up for ventilation. The time given for the duration of the fumigation varies. If the vessel be empty, clean and free from dunnage the time for sulphur fumigation is a minimum of six hours, and for hydrogen cyanide two hours; if there be cargo or other material, loose or badly stowed dunnage in the holds, the minimum exposure for sulphur dioxide is twelve hours and for hydrogen cyanide four hours. After the fumigation is completed and the vessel ventilated, a different rat-searcher is sent to the vessel in order to obtain the information necessary for column 7 of the certificate (rats recovered), and this result checks the estimate made before the fumigation as to the probable number of rats on board.

Details of the fumigation are entered up on the certificate, one copy of which is forwarded to the master of the vessel, another copy is sent to the Ministry of Health, and a third copy is retained for reference by the Port Sanitary Authority.

(b) DERATISATION EXEMPTION CERTIFICATE.

In order to obtain this certificate the shipping company gives 24 hours' notice to the Port Sanitary Authority in the same manner as in the case of a deratisation certificate. The issue of a deratisation exemption certificate is refused unless the conditions on board the vessel permit of a complete inspection being made. As a general rule no proper inspection can be made until the holds are empty or contain only ballast or the minimum amount of cargo. On receipt of the official form, the vessel is visited by an inspector, who is assisted in all cases by a rat-searcher, and a thorough inspection of the ship is carried out. The findings are recorded, and should any rat harbourage be found, such as coils of rope improperly stowed, accumulations of dunnage, defective casings, sheathings, etc., these must be corrected before an exemption certificate is issued.

Whichever certificate may be required, it is essential that the quays at which the vessel is moored shall be rat-proof and free from rat harbourage. The vessel must also, while in the Port of Liverpool, keep efficient rat guards, properly adjusted on all moorings.

The deratisation certificates and deratisation exemption certificates remain valid for six months, at the end of which time they must be renewed.

Venereal Diseases.

The purpose of the establishment by the Corporation of venereal disease schemes is to afford facilities for the diagnosis and treatment of these diseases in accordance with the recommendations of the Royal Commission in 1917.

The recommendations may be summarised as follows :—

1. That opportunities should be afforded to sufferers to have free and expert treatment.
2. That extended facilities should be provided for the diagnosis of these diseases.
3. That information as to the dangers of venereal diseases should be disseminated, and particulars given to the public as to the facilities provided for free treatment.

The following summarises the work of the treatment centres for the year 1928 :—

A clinic has been established at the Seamen's Dispensary, built and equipped by the Corporation, and where a whole-time medical officer attends. Clinics have also been arranged for at the Royal Infirmary, Northern Hospital, Royal Southern Hospital, and the Stanley Hospital. A Medical Home for women suffering from these diseases has also been established.

There were 4,541 new cases, male and female, admitted to the clinics for treatment, a slight increase on the figure for 1927, and these persons made 116,990 attendances, or 12,409 more than in 1927.

RETURN SHOWING THE NUMBER OF **NEW CASES** ATTENDING THE VENEREAL DISEASES CLINICS DURING THE YEAR 1928, 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.
New Cases	2,043	1,312	482	361	286	57	4,541
Old and new patients							
Total attendances	55,217	29,887	14,857	9,306	7,723	—	116,990
In-patient Days	—	25	3,608	—	523	8,540	12,696

The number of cases and attendances at the two main centres has shown a steady increase for some time, the greatest being at the whole-time clinic at the Seamen's Dispensary, opened in 1924. This clinic is entirely devoted to the treatment of persons suffering from venereal diseases. The dispensary work is not confined to seamen, for patients of all classes of occupation attend, the majority, however, are of the seafaring class.

The medical side of this clinic is run by a whole-time medical officer, who is assisted by several orderlies. The value of a clinic of this character, at which treatment is available at all times, has been fully demonstrated.

Evening clinics are now held twice weekly at the Dispensary, and during the year there were 86 new cases and nearly 2,000 attendances. These patients have satisfied the medical officer that they cannot attend at the usual clinic hours.

SEAMEN'S DISPENSARY.

The value of a whole-time clinic devoted entirely to the diagnosis and treatment of venereal diseases has again been demonstrated by the further increase in the attendances at the above Dispensary, as the following table shews:—

	1925	1926	1927	1928
New patients (including Non-Venereal cases)	1,084	1,360	1,842	2,043
Old and New patients	1,220	1,855	2,642	2,867
Attendances	27,265	41,720	49,834	55,217

The classification of the persons suffering from venereal disease and dealt with at the clinic for the first time during the year, and also for the three previous years, was as under :—

	1925	1926	1927	1928
Syphilis	293	444	459	435
Soft Chancre	148	136	157	131
Gonorrhœa	636	780	931	1,031
	1,077	1,360	1,547	1,597

With the steady increase of cases to be treated at this clinic, it may be necessary before long to require additional medical assistance.

The attendances per patient have been much reduced for cases of gonorrhœa on account of the installation of electrical treatment apparatus, a shorter time is required for cure, and irregularities have been reduced thereby some 250 weekly. Bed accommodation is available for in-patients at one or two of the general hospitals, and 12,696 in-patients were recorded during the year.

The average attendances per patient, other than those suffering from gonorrhœa, have remained about the usual figure, but the number of those who cease to attend before the cure has been established still remains high.

The causes of these defaults are difficult to analyse, but it is probable that much of it is due to ignorance, indifference or carelessness, or absence or loss of a sense of social responsibility, also in a number of cases to changes of work, illness, absence at sea or distance, causing some inconvenience in attending the centres.

Experience has shown that it is the close personal touch with the patient and the interest in his or her case which helps to stimulate the sufferer to continue treatment. In the majority of these cases, however, the absence of any evidence or 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.

In the case of these diseases, it is eminently desirable that the patient should be seen by a doctor at an early stage and within a few days of the manifestations of the symptoms, and there are few diseases in which this is of more importance both for the patient and for the general public. It is interesting, therefore, to enquire into the percentage of patients applying for medical treatment at different stages of the disease.

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 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 by Dr. Ross, of the Seamen's Dispensary, that only 25 per cent. of the syphilitic cases attending there appear for treatment in the pre-Wasserman reaction stage, again 24 per cent. appear as early syphilis with primary sore and positive Wasserman test. Those with syphilis in the secondary stage with rash, sore throat, &c., form only 8 per cent. of the total. The important point, however, is that fully 40 per cent. of patients are in the stage of later or latent syphilis, including treated cases of more than two years' duration.

1. Pre-Wasserman stage	...	...	...	...	25%
2. Early syphilis with primary sore or positive Wasserman, but without secondary symptoms...					24%
3. Patent syphilis in secondary stage (rash, sore throat, &c.)...	...	...	...	...	8%
4. Late syphilis, including treated cases of more than two years' duration	...	...	...	...	40%
5. Neuro-syphilis (disease of the nervous system)	...				3%

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

	Percentage of total cases of diagnosed Venereal disease.
Syphilis	33·5%
Soft chancre	4·5%
Gonorrhœa	62·0%

It is interesting to observe that the figures for the Seamen's Dispensary show that the number of cases of soft chancre are much higher than the average, being 8·2%, as compared with 4·5% for the city generally.

The figures for the country as a whole show a ratio of syphilis to gonorrhœa of 1 to 1·9. The figures for Liverpool, therefore, correspond to those for the country generally.

From a history of the sources of infection obtained by Dr. Ross from 3,500 consecutive cases of venereal disease, of which 15% were non-seafaring, coming for treatment to the dispensary, it would appear that prostitutes were responsible for the majority of the infections. Some of the places where infection occurred and the numbers infected were as follows:—

	Cases.	Infected by	
		Prostitutes.	Others.
Great Britain	1,589	1,119	460
Europe	594	585	9
South America	446	445	1
West Africa	129	128	1
United States of America	60	60	—
West Indies			
Dutch East India			
China			
India			
Japan	38	38	—
Canada			
Australia	35	25	10
and New Zealand			

The general opinion is formed that of the various places in the world where infection is prevalent, West Africa and South America, particularly the ports of Valparaiso and the Amazon River ports are the most usual places from which infection reaches Liverpool.

SERVICES RENDERED AT THE VENEREAL DISEASES TREATMENT CENTRES
DURING THE YEAR 1928.

	Syphilis.		Soft Chancre.		Gonorrhœa.		Conditions other than Venereal.		TOTAL.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
1. Number of cases which—										
(a) at the beginning of the year under report were under treatment or observation for	1,362	666	72	...	1,445	465	91	28	2,970	1,159
(b) had been marked off in a previous year as having ceased to attend or as transferred to other Centres, and which returned to the Treatment Centres during the year under report suffering from the same infection ...	74	17	2	...	90	15	...	2	166	34
TOTAL—Items 1 (a) and 1 (b) ...	1,436	683	74	...	1,535	480	91	30	3,136	1,193
2. (a) Number of cases dealt with at the Treatment Centres during the year for the first time	855	328	155	...	1,906	260	903	134	3,819	722
TOTAL—Items 1 (a), 1 (b) and 2 (a)	2,291	1,011	229	...	3,441	740	994	164	6,955	1,905
2. (b) Number of cases included in Item 2 (a) known to have received previous treatment at other Centres for the same infection	134	31	5	...	221	16	1	...	361	47
3. Number of cases which ceased to attend—										
(a) before completing the first course of treatment for	411	105	90	...	1,008	107	...	...	1,509	212
(b) after one or more courses but before completion of treatment for	375	159	...	...	18	12	...	...	393	171
(c) after completion of treatment, but before final tests as to cure of	52	18	25	...	312	20	...	...	389	38

	Syphilis.		Soft Chancere.		Gonorrhœa.		Conditions other than Venereal.		TOTAL.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
	4. Number of cases transferred to other Treatment Centres after treatment for ...	115	19	12	...	165	28	292	47
5. Number of cases discharged after completion of treatment and observation for ...	80	29	56	...	311	55	...	...	447	84
6. Number of cases which, at the end of the year under report, were under treatment or observation for ...	1,258	681	46	...	1,627	518	57	32	2,988	1,231
TOTAL—Items 3, 4, 5 and 6 ...	2,291	1,011	229	...	3,441	740	57	32	6,018	1,783
7. Out-patient attendances—										
(a) For individual attention by the Medical Officer ...	16,746	8,389	700	4	29,935	4,454	2,126	404	49,507	13,251
(b) For intermediate treatment, e.g., irrigation, dressings, etc. ...	990	273	879	...	50,080	1,741	269	...	52,218	2,014
TOTAL ATTENDANCES ...	17,736	8,662	1,579	4	80,015	6,195	2,395	404	101,725	15,265
8. Aggregate number of "In-patient days" of treatment given to persons who were suffering from ...	574	5,419	76	...	804	5,705	64	54	1,518	11,178
			Spirochetes.		Gonococci.		Other Organisms.		For Wassermann Reaction.	
			12		3,231	140				
			47		3,460	...				4,580

9. Examinations of Pathological material:—

- (a) Specimens which were examined at, and by the Medical Officer of, the Treatment Centres ...
- (b) Specimens from persons attending at the Treatment Centres which were sent for examination to an approved laboratory ...

ALL CLINICS (Except Edge Lane Home).

NEW CASES.

Year.	Syphilis.		Gonorrhoea.	
	Males.	Females.	Males.	Females.
1925	790	266	1,288	120
1926	921	296	1,564	199
1927	989	329	1,787	193
1928	855	306	1,906	226

ATTENDANCES.

1925	17,142	6,424	39,659	3,311
1926	18,155	7,067	59,717	3,888
1927	18,417	8,239	69,201	4,430
1928	17,736	8,662	80,015	6,195

INFECTIOUS DISEASE.

The actual number of cases of Infectious Sickness landed from vessels arriving in the Port of Liverpool during the years 1927 and 1928, and the comparison with the average of the preceding 5 years, is shown in the following table:—

Diseases.	Number of Cases.		Average for the 5 years 1922-1926.
	1927.	1928.	
Smallpox	0	0	1·6
Scarlet Fever	16	13	10·0
Enteric Fever and Paratyphoid...	13	10	9·0
Diphtheria.....	5	2	8·0
Measles and German Measles . .	12	40	13·0
Erysipelas	2	1	3·4
Chicken Pox	5	10	15·0
Cholera and Choleraic Diarrhœa.	0	0	0·0
Yellow Fever.....	0	0	0·0
Plague	0	0	0·0
*Suspected Plague	2	0	0·6
Pulmonary Tuberculosis	57	48	58·2
Tuberculosis (other forms)	2	12	5·8
Pneumonia and Influenza	23	18	13·0
Malaria	43	38	23·0
Dysentery	7	2	3·4
Encephalitis Lethargica	2	0	0·4
Totals.....	189	194	164·4

* Proved not infectious.

INFECTIOUS DISEASE.

The number of cases of Infectious Sickness reported to have occurred on Liverpool-bound ships during the years 1927 and 1928, and which were disposed of prior to the arrival of the vessel at this port, and the average of such cases for the preceding 5 years, are as follows :—

Diseases.	Number of Cases.		Average for the 5 years 1922-1926.
	1927.	1928.	
Smallpox	12	0	9·4
Scarlet Fever	6	10	2·2
Enteric Fever	24	29	17·4
Typhus do.	0	0	0·2
Diphtheria	5	5	2·8
Measles and German Measles ...	44	48	34·8
Whooping Cough	0	3	0·0
Erysipelas	3	5	2·2
Chicken Pox	22	42	21·0
Cholera	1	0	0·6
Yellow Fever	0	5	0·2
Plague	0	0	1·2
Suspected Plague	1	1	1·4
Pulmonary Tuberculosis	39	35	26·2
Tuberculosis (other forms)	6	11	10·2
Pneumonia and Influenza	49	50	32·4
Malaria	180	247	306·8
Dysentery	10	12	14·6
Cerebro Spinal Fever	0	0	0·8
Encephalitis Lethargica	0	2	0·0
Totals	402	505	484·6

The following table gives particulars of the vessels reported on Diphtheria, Measles, Chickenpox, Dysentery, Encephalitis Lethargica,

ENTERIC FEVER.

Date 1928.	Name of Vessel.	Where from.
Jan. 23	Esneh	Jaffa
„ 27	Montcalm	St. John
Feb. 28	Massilia... ..	Bombay
March 12	Gascony	R. Plate
„ 26	Shropshire	Rangoon
„ 27	Graafjeld	Bathurst
„ 29	Letitia	Bombay
May 11	Helmsloch	R. Plate
„ 17	Dinteldijk	Vancouver
„ 22	Merstand	B. Aires
„ 29	City of Genoa	Bombay
„ 29	Inverbank	Singapore
June 2	Clan McKellar... ..	Glasgow
„ 12	Glenfinlas	Rosario
„ 12	Princess... ..	R. Plate
July 10	Woodarra	Manchester
Aug. 13	Andania	Montreal
„ 27	Largs Bay	Brisbane
Sept. 3	Clan McKinlay	Rangoon
„ 3	Ada Gorthorn	Gulfport
„ 6	Antonia... ..	New York
„ 15	Cheshire	Antwerp
„ 17	Thessaly	Rosario

their arrival as having, or having had Enteric fever, Scarlet fever, or Erysipelas on board, with the measures adopted in each case:—

No. of Cases.	Rating.	How dealt with.
1	able seaman ...	landed to hospital at Gibraltar.
1	passenger ...	admitted Fazakerley Hospital.
1	passenger ...	landed Port Sudan.
1	wireless operator ...	landed to hospital at Monte Video.
1	engineer ...	landed at London.
1	... ..	admitted David Lewis Northern Hospital, Liverpool.
1	passenger ...	recovered on arrival.
1	... ..	landed Dakar.
1	passenger ...	admitted Fazakerley Hospital.
1	fireman ...	landed St. Vincent.
1	able seaman ...	landed St. Vincent.
1	passenger ...	admitted Fazakerley Hospital.
1	cadet ...	landed Cape Town.
1	able seaman ...	landed Cape Town.
1	engineer ...	landed Cape Town.
1	2nd officer ...	landed Cape Town.
1	lascar seaman ...	admitted to hospital at Glasgow.
1	2nd mate ...	admitted Fazakerley Hospital.
1	3rd engineer ...	landed to hospital at London.
1	cadet ...	landed and died in hospital at Cardiff.
1	passenger ...	landed Montreal on outward trip.
1	D.B.S. ...	admitted Fazakerley Hospital.
1	lascar fireman ...	died in hospital at Newport, Mon.
1	chief officer... ..	admitted hospital at Las Palmas and died there.
1	passenger ...	admitted Fazakerley Hospital.
1	native greaser ...	admitted Fazakerley Hospital.
1	greaser ...	landed Las Palmas.

ENTERIC FEVER—Continued.

Date 1928.	Name of Vessel.	Where from.
Oct. 8	Laconia... ..	New York
„ 30	Archimedes	R. Plata
Nov. 8	Siegfried	Malaga
„ 17	Highland Rover	La Plata
Dec. 15	Hamburg	New York
„ 19	Baltic	Duala
„ 28	Ars	

ERYSIPELAS.

March 6	Melita	S. John... ..
„ 31	Doric	New York
July 7	Regina	Montreal
Sept. 24	Calgario... ..	Montreal
Nov. 12	Doric	Montreal
„ 16	Montclare	Montreal

SCARLET FEVER.

Jan. 27	T.S. Indefatigable	River Mersey
Feb. 2	T.S. Indefatigable	River Mersey
„ 14	T.S. Indefatigable	River Mersey
„ 20	T.S. Indefatigable	River Mersey
March 24	Montcalm	St. John
„ 29	Letitia	Bombay

No. of Cases.	Rating.	How dealt with.
2	passengers	suffered on outward voyage.
1	2nd officer	landed Cape Verde, St. Vincent.
1	assistant steward	landed Cape Verde, St. Vincent.
1	assistant steward	landed Cape Verde, St. Vincent.
1	Marconi operator	landed Cape Verde, St. Vincent.
1	apprentice	landed Cape Verde, St. Vincent.
1	able seaman	admitted Walton Institution.
1	passenger	landed Buenos Aires.
1	steward	admitted Walton Institution.
1	lumber salesman	well on arrival.
1	wireless operator	landed Sierra Leone.

1	Q.M.	admitted Fazakerley Hospital.
1	passenger	occurred on the outward voyage.
1	passenger	proceeded to Dundee.
1	passenger	well on arrival.
1	passenger	landed Montreal.
1	passenger	landed Quebec.

1	Cadet	admitted Netherfield Road Hospital.
1	Cadet	admitted Grafton Street Hospital.
1	Cadet	admitted Fazakerley Hospital.
1	Cadet	admitted Netherfield Road Hospital.
1	passenger	admitted Fazakerley Hospital.
2	passengers	suffered on outward voyage.

SCARLET FEVER—Continued.

Date 1928.	Name of Vessel.	Where from.
April 28	Minnedosa	St. John
May 8	Scythia	New York
„ 9	Montclare	Quebec
„ 22	Laurentic	Montreal
June 18	Laconia... ..	New York
Sept. 10	Andania	Montreal
„ 29	Duchess of Athol	Montreal
Oct. 23	Storfjeld	Siroka
Nov. 20	Northumberland	Glasgow
„ 26	Duchess of Athol	Quebec
Dec. 19	Duchess of Athol	St. John

DIPHTHERIA.

March 3	Britannia	Bombay
„ 16	Desna	R. Plate
„ 29	Letitia	Bombay
„ 30	Minnedosa	St. John
Aug. 21	Sagaing	Rangoon
Oct. 6	Montcalm	Montreal
Nov. 11	Blenda	Archangel

ENCEPHALITIS LETHARGICA.

Jan. 12	Gloucestershire	Rangoon
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No. of Cases.	Rating.	How dealt with.
1	passenger	landed St. John.
4	passengers	suffered on outward voyage.
1	child passenger	suffered on outward voyage.
2	passengers	admitted Fazakerley Hospital.
1	cabin waiter	admitted Netherfield Road Hospital.
1	bandsman	landed Montreal.
1	passenger	admitted Fazakerley Hospital, with 1 contact.
1	cook... ..	admitted Bootle Borough Hospital.
1	cadet	landed to hospital Newport, Monmouth.
1	bell boy	admitted Fazakerley Hospital.
1	passenger	admitted Fazakerley Hospital.
1	bathroom steward... ..	admitted Fazakerley Hospital.

1	butcher	admitted Fazakerley Hospital.
1	cook... ..	suffered on outward voyage.
1	passenger	suffered on outward voyage.
1	passenger	landed to hospital, St. John.
1	passenger	landed to hospital, London.
1	passenger	landed Quebec.
1	A.B.... ..	admitted Mill Lane Hospital.

1	native messroom boy	admitted Fazakerley Hospital. Proved not infectious.
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ENCEPHALITIS LETHARGICA--Continued.

Date 1928.	Name of Vessel.	Where from.
May 1	Egba	W.C. Africa
July 21	Athenia... ..	Montreal
Aug. 17	Lautaro... ..	Valparaiso

CHICKENPOX.

Feb. 6	City of Milan	Alexandria
March 28	Orduna	Valparaiso
April 7	Montclare	St. John
" 9	Carmania	New York
" 21	Montcalm	St. John
" 23	Caronia	New York
" 30	Manipur	E. Indies
May 7	Antonia... ..	Quebec
" 21	Montcalm	Montreal
" 25	Collegian	Calcutta via London
June 2	Montclare	Montreal
" 21	City of Hong Kong	Bombay
July 9	Franconia	New York
" 28	Highland Piper	R. Plate
" 30	Antonia... ..	Montreal
August 3	Desna	West Coast Africa
" 27	Antonia... ..	New York
" 27	Baltic	New York
Oct. 3	Buteshire	Australia
" 3	Bendigo... ..	Australia
Nov. 20	Scythia	New York
" 21	Duchess of Bedford	Montreal

No. of Cases.	Rating.	How dealt with.
1	passenger	landed Avonmouth.
1	passenger	proceeded to Douglas, I.O.M.
1	deck boy	admitted Royal Infirmary.
4	natives	landed Alexandria.
1	passenger	landed Falkland Islands.
1	passenger	admitted Fazakerley Hospital.
1	passenger	admitted Fazakerley Hospital.
1	steward	admitted Fazakerley Hospital.
2	passengers	convalescent on arrival.
14	native crew... ..	admitted to hospital at Glasgow.
1	passenger	landed Quebec.
1	passenger	landed Quebec.
1	native fireman	admitted Port Sanitary Hospital, New Ferry.
1	passenger	occurred on the outward voyage.
3	native stewards	admitted Port Sanitary Hospital, New Ferry.
1	passenger	suffered during outward voyage.
2	passengers	suffered during outward voyage.
1	passenger	landed Quebec.
1	passenger	admitted Fazakerley Hospital.
1	passenger	well on arrival.
2	passengers	landed Quebec.
1	passenger	landed Ellis Island.
6	native crew... ..	admitted hospital at Avonmouth.
1	passenger	suffered during voyage.
1	assistant purser	well on arrival.
1	marine engineer	admitted Belvidere Hospital, Glasgow.

CHICKENPOX—Continued.

Date 1928.	Name of Vessel.	Where from.
Dec. 3	Adriatic... ..	New York
„ 8	Minnedosa	Montreal
„ 19	Duchess of Athol	St. John
„ 29	Montroyal	St. John

DYSENTERY.

January 2	Sicilian Prince... ..	Jaffa
March 23	Priam	Java
April 25	Apapa	West Coast Africa
May 8	Lancashire	Rangoon
„ 10	Nigerian	West Coast Africa
„ 22	City of Bath	E. Indies
June 20	Daru	West Coast Africa
Aug. 11	Apapa	West Coast Africa
Oct. 6	Medan	Java
Dec. 20	Holywell	Calcutta

MEASLES.

Jan. 31	Letitia	Outward Bound to Bombay ...
Feb. 20	Darro	West Coast America ...
„ 28	Tongariro	New Zealand
March 2	Melita	St. John
„ 16	Carmania	New York
„ 29	Letitia	Bombay
„ 30	Minnedosa	St. John

No. of Cases.	Rating.	How dealt with.
1	steward's boy ...	suffered during voyage.
1	passenger ...	admitted Fazakerley Hospital.
1	passenger ...	admitted Fazakerley Hospital.
1	passenger ...	landed Greenock.

1	A.B. ...	treated at Alexandria.
3	crew... ...	well on arrival.
3	passengers ...	suffered during voyage.
1	passengers ...	landed Colombo.
1	cook... ...	unwell on arrival, proceeded to his home.
1	Q.M. ...	landed Colombo.
1	Q.M. ...	admitted Fazakerley Hospital.
1	passenger ...	landed Plymouth.
1	A.B. ...	suffered during voyage.
1	fireman ...	landed Perim.

1	passenger ...	admitted Grafton Street Hospital.
1	passenger ...	landed Vigo.
1	able seaman ...	landed to hospital at Glasgow.
1	passenger ...	suffered during voyage.
1	passenger ...	landed Ellis Island.
32	military passengers	admitted Fazakerley Hospital.
1	military passenger...	recovered on arrival and proceeded.
1	passenger ...	landed St. John.

MEASLES—Continued.

Date 1928.	Name of Vessel.	Where from.
April 4	Oropesa... ..	Valparaiso
" 17	Egyptian	New York
" 24	Gitano	Alexandria
" 28	Minnedosa	St. John
May 7	Antonia... ..	Quebec
" 7	Calgaric... ..	Quebec
" 9	Montclare	Quebec
" 12	Montnairn	Quebec
" 21	Adriatic... ..	New York
" 21	Laconia... ..	New York
" 22	Laurentic	Montreal
" 25	Minnedosa	Montreal
June 2	Montclare	Montreal
" 6	Baltic	New York
" 14	Yorkshire	Rangoon
" 20	Orduna	West Coast America
" 23	Athenia... ..	New York
" 25	Samaria... ..	New York
July 3	Scythia	New York
" 7	Regina	Montreal
" 16	Adda	West Coast Africa
" 31	Scythia	Boston
August 7	Franconia	New York
" 18	Avon	Irish Cruise
" 18	Duchess of Bedford	Montreal
" 27	Antonia... ..	New York
Sept. 21	Orduna	Valparaiso
Dec. 3	Laconia... ..	New York
" 21	Deseado	R. Plate
" 31	Laconia... ..	New York

No. of Cases.	Rating.	How dealt with.
4	passengers	suffered during outward trip.
1	passenger	landed Halifax.
1	second officer	admitted Fazakerley Hospital.
1	passenger	landed St. John.
3	passengers	landed Quebec.
1	passenger	admitted Fazakerley Hospital.
5	passengers (children)	suffered on outward trip.
1	bell boy	admitted Fazakerley Hospital.
2	passengers	landed Queenstown.
1	passenger	landed Queenstown.
1	passenger	landed Glasgow.
2	passengers	admitted Fazakerley Hospital.
1	passenger	suffered on outward trip.
1	deck boy	suffered on outward trip.
1	passenger	landed Queenstown.
1	passenger	landed Port Said.
2	passengers	landed Peru.
1	passenger	landed Chili.
1	passenger	admitted Fazakerley Hospital.
1	passenger	landed Belfast.
1	passenger	suffered during voyage.
1	passenger	proceeded to Manchester.
1	passenger	admitted Fazakerley Hospital.
1	passenger	landed Plymouth.
1	passenger	well on arrival.
1	passenger	suffered on outward trip.
1	passenger	well on arrival.
1	passenger	suffered on outward trip.
2	passengers	landed Quebec.
1	passenger	landed Vigo.
1	passenger	suffered on outward trip.
5	passengers	suffered on outward trip.
1	passenger	suffered on outward trip.

The Hygiene of Crews' Spaces.

All ships entering the Port of Liverpool are visited as soon as possible after docking by a sanitary inspector, who makes enquiries as to the health of the crew, the occurrence of any sickness during the voyage, the source of the water supply, the conditions of all tanks and bilges, the condition of store-rooms, and whether any sick or dead rats have been found. After these enquiries, and accompanied by a ship's officer, the crew's quarters are inspected and their condition noted. Note is made as to the cleanliness, whether there are any structural defects, rat harbourages, accumulation of rubbish, etc. The attention of the officer is drawn to any defects that are found, and a request is made that they should be remedied. It has been found in practice that these instructions are always carried out. The inspector re-visits the vessel from time to time and notes when the defects have been made good. Reference to the table facing page 53 shows that dirty quarters are the most frequent cause of nuisance reported by the inspectors. This may be accounted for to a large extent by the fact that these vessels are returning to their home port, where the crews are paid off, and consequently neglect to clean up before leaving. In ships where the crew are standing by, and this applies to British as well as foreign vessels, it is a very rare occurrence for dirty quarters to be reported, which seems to show that the men will not live among dirty conditions, although they may leave them in an untidy condition when they sign off. Other defects, such as leaky decks, defective scuttles, etc., are due to stress of weather and are always remedied while the vessel is in port. In all cases the quarters are thoroughly cleansed as a matter of routine before a new crew is housed therein.

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 775 boats were inspected, of which 49 were found to have some condition contravening the regulations.

INSPECTION OF SHIPPING.

Year 1928.

Nationality.	Visits.	Re-visits.	Total.
British	4,229	2,793	7,022
Norwegian	163	62	225
Swedish... ..	88	32	120
Spanish... ..	75	45	120
Danish	124	53	177
Japanese	32	20	52
Italian	19	24	43
Portuguese	7	3	10
Russian	23	12	35
French	28	14	42
Brazilian	13	5	18
Dutch	54	33	87
Greek	21	14	35
American	139	112	251
Belgian	6	—	6
German	56	11	67
Latvian	1	3	4
Esthonian	1	2	3
Finnish	20	—	20
Jugo Slav	6	6	12
Czecho Slav	2	3	5
Peruvian	1	1	2
Danzig	1	—	1
Lettish	1	1	2
Total	5,110	3,249	8,359

Summary of Insanitary Conditions during the year 1928.

Class of Vessels.	Number Inspected.	Number on which Nuisances were found.	Per cent.
SAILING FOREIGN—			
Steamers	4,089	877	21·44
Sailing	1	1	100·00
Total... ..	4,090	878	21·46
SAILING COASTWISE—			
Steamers	1,007	54	5·36
Sailing	13	1	7·69
Total... ..	1,020	55	5·39

Nationality.	Number Inspected.	Number on which Nuisances were found.
British	4,229	902
Foreign	881	31
	5,110	933

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
10	0·25	362	9·13	3,593	90·62

Medical Examination of Aliens.

The following table gives the total number of aliens arriving in the Port of Liverpool during 1928, and the number in each of the categories under which alien passengers are classified by the Immigration Department of the Home Office :—

Total aliens	Transmigrants	Residents returning	In transit
20,688	2,982	315	1,779
Visitors of 6 months or less		Diplomats & persons on Foreign Govt. Missions.	Seamen
On holiday, tourists, &c.	On Business		
13,736	578	85	179
Seamen under Contract to join ships in British Waters.		Ministry of Labour Permits	Other Aliens
260		67	717

The medical inspection and examination of aliens is carried out by the Assistant Port Medical Officers. The object of inspection is to ascertain if 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 officer for examination, but the attention of the immigration officer is called to any alien who, in the opinion of the medical officer, should be medically examined, irrespective of the length of stay. (See page 55.)

During 1928 medical certificates were issued in respect to nine aliens, five for mental deficiency, two for venereal disease, one for hyperthyroidism, and one for epilepsy.

Transmigrants.

Elaborate precautions are taken by the United States Public Health Service to prevent the occurrence of typhus fever amongst 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 a medical

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. The transmigrants dealt with under this arrangement were approximately 600 during the year 1928.

Emigration.

The number of emigrants leaving the port of Liverpool during the year 1928 was 116,083, a decrease compared with the previous year, when the number of emigrants leaving the port was 123,801.

The following is a return of the number of emigrants and clearances of ships, including those passenger vessels in which medical inspection was not required, from 1913-1928 :—

In 1913, 347,541 Emigrants, and 1,199 Clearances of Ships.

„ 1914,	232,954	„	1,065	„
„ 1915,	75,387	„	677	„
„ 1916,	58,749	„	562	„
„ 1917,	18,908	„	379	„
„ 1918,	13,588	„	287	„
„ 1919,	120,187	„	673	„
„ 1920,	204,868	„	769	„
„ 1921,	161,132	„	714	„
„ 1922,	120,691	„	804	„
„ 1923,	159,874	„	850	„
„ 1924,	122,201	„	869	„
„ 1925,	111,918	„	894	„
„ 1926,	116,672	„	850	„
„ 1927,	123,801	„	892	„
„ 1928,	116,083	„	888	„

The following Tables, relating to Emigration 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 1928 :—

DESTINATION.	British Subjects.	Aliens.	Total.
British North America ...	39,884	17,570	57,454
Australia and New Zealand	3,233	30	3,263
British South Africa ...	1,706	37	1,743
India (including Ceylon)...	5,417	139	5,556
Other parts of the British Empire ...	7,588	362	7,950
Total British Empire ...	57,828	18,138	75,966
United States	15,999	16,177	32,176
Foreign South America ...	2,687	537	3,224
Other Foreign Countries	4,541	176	4,717
Total Foreign Countries ...	23,227	16,890	40,117
Grand Total ...	81,055	35,028	116,083

Number of passengers (emigrants and others), distinguishing British subjects and aliens, as given in Table No. 25, who left the port of Liverpool in each month of the year 1928 :—

MONTH.	British Subjects.	Aliens.	Total.
January	3,254	890	4,144
February	4,394	1,314	5,708
March	7,024	2,915	9,939
April	7,179	3,547	10,726
May	5,934	3,590	9,524
June	7,982	2,729	10,711
July	6,686	3,275	9,961
August	13,118	7,129	20,247
September	9,733	5,172	14,905
October	8,107	2,122	10,229
November	5,335	1,412	6,747
December	2,309	933	3,242
Total	81,055	35,028	116,083

Emigrant Inspections.

All emigrants travelling second class or steerage 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.

There were 226 such inspections, and 16 persons were rejected on account of infectious disease.

Date 1928.	Name of Vessel.	Nature of Sickness.	Where taken to	Description of Patient.
Jan. 20	Montclare ...	Quinsy ...	Returned home ...	Adults (2)
Feb. 16	Montclare ...	Pneumonia ...	Returned to Boarding house	Infant
April 5	Minnedosa ...	Ringworm ...	Returned home ...	Adult
„ 27	Montcalm ...	Chicken Pox ...	Removed to Fazakerley Hospital.	Children (2)
May 5	Celtic ...	Measles ...	„ „ „	Adult
„ 5	Athenia ...	Measles ...	„ „ „	Child
„ 11	Montclare ...	Tonsillitis ...	Returned home ...	Adult
June 21	Adriatic ...	Phthisis ...	„ „	Adult
Aug. 3	Antonia ...	Measles ...	Removed to Grafton Street Hospital.	Children (2)
„ 30	Scythia ...	Impetigo ...	Returned home ...	Adult
„ 31	Montclare ...	Chicken Pox ...	Removed to Sparrow Hall Hospital.	Child
Nov. 9	Laurentic ...	Chicken Pox ...	Removed to Fazakerley Hospital.	Child
Dec. 21	Montclare ...	Measles ...	„ „ „	Child

Supervision of Foodstuffs.

The inspection and control of imported foodstuffs has been carefully attended to throughout the year. This work is carried out by a staff of seven qualified food inspectors, each inspector covering a certain area, and being responsible for all foodstuffs landed in that area. The procedure adopted in the first instance is one of sampling, and the percentage examined varies according to the circumstances, general conditions, and the type of foodstuff. Whenever possible a 10 per cent. examination is aimed at. With canned goods the procedure is slightly different. If 3 per cent. be found to be unsound, the inspector calls on the importer to undertake a 10 per cent. examination under his supervision. If at this examination 3 per cent. should be found to be unsound, then the whole of the consignment must be examined. Information with regard to imported foodstuffs is obtained daily from the following sources:—

- (1) The Customs Bill of Entry, which is a daily journal giving a list of all foodstuffs entering the Port.
- (2) The ship's manifest.
- (3) Letters from importers.
- (4) Customs forms showing goods detained by them.

A special log is prepared each day from the above for the use of each inspector. A certain percentage of each consignment landed is inspected on the quay-side, and if none is found to be unsound the whole consignment is released at once. If, however, any part of the consignment be found to be diseased, part diseased, or unsound, and it is found that the whole consignment is too large to be dealt with on the quay-side, arrangements are made with the importer for it to be transferred to suitable premises. In the case of frozen meats the consignment is transferred to a local cold store and subsequently dealt with there.

Canned goods, dried box goods, oranges, apples, etc., are usually transferred to a local warehouse. In either case the sound goods are removed from the unsound and the former released for sale. Unsaleable foodstuffs are allowed to go for industrial purposes, but great care is always taken that these foods are not marketed for human consumption, and only well-known reliable firms, approved of by the Medical Officer

of Health, are allowed to receive them for the purpose of manufacturing animal foods, dog biscuits, melting down for fat extraction, etc.

GUARANTEE IN RESPECT OF UNSALEABLE FOOD.

I, the undersigned, being the purchaser of*.....

* Quantity and Weight to be stated.

.....
 from Messrs.....in consideration
 of the same being released to me, guarantee that no
 portion of the same shall be used for human food in any
 form, but the whole of the said.....
 shall be removed to my premises at (*full address*).....

 and there be used for the purpose of.....

I also guarantee that no portion of the said.....
 shall be disposed of to any other person for any purpose
 whatsoever.

Signed

Address.....

Witness

Address.....

*To the Medical Officer of Health,
 Public Health Department,
 Dale Street, Liverpool.*

Each of these firms must give a written guarantee that the unsaleable food received by them will only be used for industrial purposes, and wherever possible it is the duty of the inspector to satisfy himself that this guarantee is being faithfully fulfilled. In the event of the importer disagreeing with the inspector as to the character of any goods, the latter makes application to a magistrate, who, if he is satisfied, gives an order for the destruction of the goods under the supervision of the Medical Officer of Health. In practice the importers and inspectors work in harmony, and it is rare for a magistrate's order to be necessary, this being the result of the common sense and sound judgment of the inspectors concerned.

Items of interest in regard to imported foods are as follows :—

A large quantity (50,000 tins) of frozen egg pulp was damaged with sea-water and became mouldy, and was allowed to be exported for use in leather dressing, etc., under proper guarantees.

407 boxes of pork trimmings which contravened the Food Regulations as regards the presence of an official certificate on the packages, were exported to Rotterdam, Hamburg, and other ports.

The Regulations issued in regard to preservatives in foods have been well carried out during the year; large quantities of boraxed bacon and ham were imported from the U.S.A. and Canada. At first the largest quantity was re-exported to the Irish Free State, but since importation into Ireland has been prohibited, the quantities arriving have been much reduced. The bulk of the imports are, however, under bond, and are either exported or utilised as ships' stores, in accordance with the Regulations.

During the year large consignments of sheep carcasses from South America and Australia have been found to be affected with epizootic lymphadenitis (multiple abscess). 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 extensively widespread in the sheep in these countries.

Epizootic lymphadenitis occurs most frequently amongst sheep, seldom in lambs. The disease appears as dry caseated masses, 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 bacillus causing this condition may possibly be inoculated into the skin during shearing. 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

carcase and all the organs shall be condemned if there is any evidence of caseous lymphadenitis.

Strenuous action was taken in November last to deal with the condition with the object of tightening up the inspection work in the countries of origin, this being the natural place for the elimination of such carcasses, and before the mutton is placed in cold store or on board ship.

The position at the time of this report is that a great improvement has taken place in the percentage of affected mutton.

Evidences of careful inspection are now forthcoming in the case of most firms' imports, the glands affected being cut and exposed for inspection. With regard to one or two firms, improvement is still desirable. The result of a recent inspection of the carcasses of mutton from an establishment in Buenos Ayres is given :—

1. Large percentage prescapular and precrural glands cut, but not exposed on surface.
2. Small percentage no glands cut.
3. Five to six per cent. found lymphadenitis.
4. One or two per cent. glands have been removed.

IRISH DRESSED MEAT.

In December, 1927, meat dressed in Waterford began to be sent regularly to Liverpool. No organs were sent, and inspection had not been carried out.

On December 20th, 1927, two sides of cow-beef from Waterford were seized and legal proceedings against the consignor were considered by the Medical Officer of Health and the Town Clerk.

In January, 1928, a further consignment was seized from the same source.

Subsequently correspondence took place with the Irish Free State Authorities, and resulted in the statement "that the position is that it

is not practicable to institute a prosecution in the Irish Free State in respect of the alleged offence, as a condition precedent to a prosecution is that meat alleged to be unsound should first be condemned by a Peace Commissioner." It was therefore unlikely that the person who despatched the unsound meat from Waterford could legally be made amenable in Liverpool.

Up to March, 1929, the following meat has been seized,* mainly due to tuberculosis, other causes being dirt and injury :—

- 243 sides.
- 47 quarters.
- 2 briskets.
- 15 flanks.
- 3 buttocks, trimmings, etc.

Most of the meat came from Waterford, a few lots from Cork, and one lot from Drogheda.

A certain amount of inspection is now carried out by the Irish Authorities.

Attention has been given to dirty meats under the Public Health (Meat) Regulations, 1924, and the quantities rejected have been greater than in previous years.

The s.s. "Celtic," wrecked off the S. Irish coast, had large quantities of various foodstuffs on board. These were landed at Liverpool by coasting steamers, and whilst a very large quantity was salvaged, there were certain consignments which required to be destroyed or were dealt with under the Medical Officer of Health's supervision before being released.

Colonial and foreign fruits have arrived in very large quantities, many new sources of supply having been opened up.

NOTE.—* The meats in question, although arriving within the area of the Port Sanitary Authority, are allowed to pass on to the City Markets to which they are destined for sale. Due notice of the character of the consignment and other particulars are telephoned through to the Meat Inspectors staff in the city. A full inspection of the meat is made by the city food inspectors on arrival at the meat markets

The general sanitary conditions under which fruits are shipped show a vast improvement, being wrapped in glazed papers and standardised packings, and carried in special (cool chambered) steamers. More care is now being taken in landing fruit, and some of the new dock sheds have special reserved and lime-washed spaces where the fruit cargo is landed.

New imports during the year have included many varieties of fresh plums, peaches, Brazilian oranges and bananas, grapes, West African bananas, celery, and vast quantities of new potatoes from Spain and Egypt.

Apples from Australia have been free from "brown heart," a condition referred to in previous Annual Reports.

Fruit pulp from the Continent has arrived in better condition than in previous years, but a close inspection is made and care has been taken to see that the casks are cleansed at the various factories in the city before they are returned for further fillings of fruit.

The public health authorities in this country, as also in America, have for some time had under consideration the subject of the sanitary conditions under which Greek currants are prepared, packed and shipped, and the Medical Officer has obtained information from responsible officers at Patras which will be of general interest.

It may be stated that currants are the dried, stoneless grapes of a vine which grows abundantly in the Greek Islands; they are small, thin-skinned, sweet, and blue in colour, growing in dense clusters. A good deal of labour is expended in their cultivation; grafting, pruning, irrigation, etc., are indispensable. During the ripening, the tender fruit has to be sprayed with sulphur solution to protect from "Oidium" fungus or mildew. When the grapes are cut, in August-

September, the bunches are laid down on the drying grounds near the vineyards. Special regulations provide that the fruit should be laid down on trays or on paper spread on the drying floor surface. The drying process takes about 8-10 days, when the fruit is raked up and put through a winnowing machine which blows out any loose stalks and dust. The better qualities are "shade dried" under roofing, they are not exposed to the rays of the sun. The fruit is then bagged and sent to market, where it is sold to dealers.

The exporters at Aigion (Vostizza), the centre of the shade-dried fruit district, Patras, Pyros (for Katakolon shipments), and Kalamata, receive the fruit in bags by rail, or occasionally in bulk by sailing vessels. It is weighed upon reception and placed into stores, being emptied on the cement or tiled floors. When packing takes place the fruit is firstly winnowed to free from stalks and foreign matter, and may again be passed through machinery to free from small stem stalk if so required by the purchaser. The fruit is then sifted through sieves according to grading required, weighed and packed, generally quarter-cases, by machinery. The trampling of the fruit into the boxes by foot, formerly in universal use, has now been abolished. There is no "washing" of the fruit at any time before or during the packing, excepting that salt water is used to free the fruit clogging the wires of the machine. A small quantity of salt water may occasionally be thrown over the fruit when in the stores, as this preserves the quality and colour.

The Greek Ministry of Health use every precaution to safeguard the cleanliness of the fruit, such as the regular inspection of warehouse floors, compulsory use of grading, cleaning and pressing machines.

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

Samples of fruits, e.g., apples, pears, oranges, etc., are regularly examined for the presence of chemical preservatives.

A very large quantity (over 1,000 tons) of fruit had to be destroyed as the result of the accident to the s.s. "Loch Monar" in the River Mersey. The same was carried out in the case of the s.s. "Celtic," a quantity of pears and apples having to be destroyed.

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, arsenic on apples, etc., or the presence of boric acid in foodstuffs. The Medical Officer of Health and the Deputy Medical Officer of Health have had many interviews with representatives in regard to the Food Regulations in force under the Ministry of Health.

The following table gives the particulars of samples of foodstuffs, etc., sent to the City Analyst and Bacteriologist for examination during the year 1928 :—

CITY ANALYST.				CITY BACTERIOLOGIST.			
Canned Peas	...	...	6	Wool	...	...	102
„ Logan Berries	...	...	1	Canned Tomatoes	...	...	3
„ Grape Fruit	...	...	8	„ Prawns	...	...	1
„ Haricot Verts	...	...	1	„ Pears	...	...	1
Pears	...	...	1	„ Plums	...	...	1
Apples	...	...	28	„ Loganberries	...	...	1
Compound (Lard)	...	...	1				
Currants	...	...	8				
Sultanas	...	...	1				
Milk Powder	...	...	1				
Strawberries	...	...	2				
Marmalade Syrup	...	...	2				
Oranges	...	...	7				
Ox Cheeks	...	...	1				
Butter	...	...	3				
Brine	...	...	1				
			72				109

Seven examples of tinned foodstuffs and one sample of shell-fish were examined, and none call for any special comment. One specimen of blood from a seaman was examined, but shewed no evidence of typhoid infection. Swabbings from two suspected cases of diphtheria were examined, but both specimens proved negative.

During the year 102 samples of treated and untreated wool, hair, etc., were examined for the Government Wool Disinfecting Station for the presence of anthrax bacilli, and proved negative. All the treated samples were sterile.

During the year 6,061 rats and mice from ships, quays, etc., were examined; 12 proved to be definitely plague-infected, and 6 doubtful.

SHOWING THE NUMBERS OF CATTLE, SHEEP, AND SWINE
EXPORTED FROM IRELAND TO LIVERPOOL DURING THE
YEAR 1928, AND SHOWING THE PORTS IN IRELAND AT
WHICH THE ANIMALS WERE SHIPPED.

	Cattle.	Sheep.	Swine.
Ballina	400	12,050	3,826
Belfast	2,379	4,889	27
Cork	32,109	12,124	16,887
Drogheda	19,712	46,624	346
Dublin	137,283	176,324	7,181
Dundalk	10,860	24,686	685
Galway	506	8,014	567
Londonderry	5,380	17,001	2,098
Limerick	4,710	31	165
Newry	1,672	11,298	249
Sligo	787	13,925	11,383
Waterford	30,409	31,484	3,180
Wexford	2,044	5,520	129
Total	248,251	363,970	46,723

SHOWING THE TOTAL NUMBERS OF THE SEVERAL KINDS
OF CATTLE, SHEEP AND PIGS EXPORTED FROM
IRELAND TO LIVERPOOL DURING THE YEAR 1928.

CATTLE.				No.	SHEEP.				No.
Fat	...	...	...	173,073	Fat	...	...	...	129,824
Stores (for fattening)				61,062	Stores	...	...	...	251
Milch Cows	...	...	...	6,552	Lambs	...	...	...	233,895
Springers	...	...	...	862					
Calves	...	...	...	6,702	Total Sheep	...	...	...	<u>363,970</u>
				<u>248,251</u>	PIGS.				
					Fat	...	...	...	46,723
					Stores	...	...	...	—
					Total Swine	...	...	...	<u>46,723</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 1921 TO 1928 INCLUSIVE.

Year.	LANDED.				SLAUGHTERED.			
	Oxen.	Calves.	Pigs.	Sheep, Lambs and Goats.	Oxen.	Calves.	Pigs.	Sheep, Lambs and Goats.
1921	195,785	—	19,224	325,982	63,178	—	2,766	165,963
	49,434	—	—	6,706	49,224	—	—	6,706
1922	262,601	8	31,257	418,604	63,002	1	515	153,381
	38,648	1	—	—	38,648	1	—	—
1923	166,994	7	77,536	194,296	50,432	—	4,886	90,736
	39,690	—	—	7,003	37,482	—	—	7,003
1924	217,176	—	58,690	358,310	54,572	—	4,985	134,207
	417	—	888	4,568	37	—	3	627
	52,193	—	—	4,252	42,324	—	—	4,252
1925	159,638	—	16,745	—	41,332	—	883	10,608
	218	—	366	253,617	32	—	2	349
	43,673	—	—	3,919	35,567	—	—	—
1926	165,187	—	35,785	312,745	45,876	—	1,681	150,378
	208	—	171	4,052	16	—	—	605
	38,870	—	490	—	28,997	—	490	—
1927	199,172	—	61,713	379,736	62,323	—	1,657	164,985
	351	—	413	4,635	43	—	—	332
	4,074	—	—	—	3,712	—	—	—
1928	249,008	—	47,224	365,820	73,245	—	2,256	144,441
	280	—	362	2,630	33	—	3	561
	444	—	—	—	170	—	—	—

Heavy type represents Irish.

† Isle of Man.

‡ Foreign.

SHOWING THE VALUES OF THE IMPORTS OF MEATS (EXCEPT POULTRY AND GAME) INTO THE PORT OF LIVERPOOL DURING THE YEARS 1920 to 1927.

Description.	Years.							
	1920.	1921.	1922.	1923.	1924.	1925.	1926.	1927.
Bacon	£ 21,746,024	£ 13,472,791	£ 8,819,177	£ 8,506,723	£ 7,080,117	£ 8,612,930	£ 7,415,016	£ 4,103,753
Beef, fresh and refrigerated ...	17,754,543	13,430,866	8,016,721	8,561,258	7,771,561	9,992,622	10,333,855	7,223,519
Beef, salted... ..	—	—	—	—	—	—	—	—
Hams	109,461	4,225,544	5,148,303	5,043,264	4,547,822	5,183,481	4,389,201	2,549,153
Mutton, fresh and refrigerated ...	5,702,678	5,842,010	4,262,439	4,879,930	3,337,957	4,314,957	3,498,206	3,503,587
Pork, fresh and refrigerated ...	1,639,590	920,772	419,018	948,484	555,610	623,824	538,273	345,024
Pork, salted	—	—	—	—	—	—	—	34,322
Rabbits	342,821	95,873	65,563	77,096	33,092	44,393	67,275	474,294
Unenumerated, fresh, refrigerated and salted	973,877	678,012	581,442	419,381	403,506	550,386	492,290	1,181,915
Preserved, otherwise than by salting	2,638,774	1,253,263	—	1,541,595	—	—	—	—
Totals	£50,907,768	£39,919,131	£27,312,663	£29,977,731	£23,729,665	£29,322,593	£26,734,116	£19,415,567

SHOWING THE QUANTITY OF UNSOUND MEATS
UTILISED UNDER SUPERVISION
DURING THE YEARS 1922 TO 1928.

Year.	Beef.				Mutton.				Pork.			
	Tons.	cwts.	qrs.	lbs.	Tons.	cwts.	qrs.	lbs.	Tons.	cwts.	qrs.	lbs.
1922	44	18	1	19	10	9	1	8	2	12	1	18
1923	28	5	3	10	33	9	3	31	—	16	1	9
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

SHOWING THE QUANTITY OF UNSOUND OFFAL
UTILISED UNDER SUPERVISION
DURING THE YEARS 1922 TO 1928.

Year.	Beef.	Mutton.	Pork.	Veal.
1922.....	30,794 pieces.	26,991 pieces.	5,129 pieces.	15 pieces.
1923.....	20,309 „	11,401 „	962 „	23 „
1924.....	13,468 „	14,574 „	4,998 „	13 „
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 „

TABLE SHOWING THE QUANTITY AND DESCRIPTION OF UNSOUND MEATS SUPERVISED* DURING THE YEAR 1928.

DESCRIPTION.	TOTAL WEIGHT.		CAUSE OF DESTRUCTION.					
	Tons cwt. qrs. lbs.		Tubercular.		Brine Stained, Mouldy and Decomposed.		Other causes.	
	Tons	cwt. qrs. lbs.	Tons	cwt. qrs. lbs.	Tons	cwt. qrs. lbs.	Tons	cwt. qrs. lbs.
Beef	28	2 0 8	—	—	28	1 0 7	0	1 0 1
Mutton.....	46	3 3 5	—	—	18	16 3 5	27	7 0 0
Pork	2	11 3 0	—	—	2	11 3 0	—	—
Veal	0	0 1 19	—	—	0	0 1 19	—	—
Total.....	76	18 0 4	—	—	49	10 0 3	27	8 0 1

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

SHOWING THE QUANTITY AND DESCRIPTION OF OFFAL CONDEMNED
DURING THE YEAR 1928.

Name of Organ.	Beef.		Mutton.		Pork.		Veal.	
	Number.	Weight, Pounds.	Number.	Weight, Pounds.	Number.	Weight, Pounds.	Number.	Weight, Pounds.
Livers...	372	4,850	78	88	277	833	38	43
Tongues ...	213	1,410	8,760	1,898	—	—	—	—
Hearts ...	894	3,014	28,372	9,594	4	3	—	—
Skirts...	186	360	—	—	—	—	—	—
Cheeks ...	43	73	—	—	—	—	—	—
Kidneys ...	306	326	—	—	84	22	1	1
Udders ...	67	247	—	—	—	—	—	—
Tripe ...	59	806	—	—	—	—	—	—
Reeds ...	168	530	—	—	—	—	—	—
Tails ...	55	107	—	—	—	—	—	—
Feet ...	953	3,910	14,946	7,524	—	—	—	—
Plucks ...	—	—	—	—	75	404	—	—
Heads ...	—	—	—	—	90	882	—	—
Maws ...	—	—	—	—	246	388	—	—
Glands (Pancreas) ...	700	200	—	—	—	—	—	—
Shins ...	1	4	—	—	—	—	—	—
Sweetbreads ...	16	8	156	13	—	—	—	—
Lungs...	1	8	—	—	—	—	—	—
Totals ...	4,034	15,853	52,312	19,117	778	2,536	39	44

... 3... with... have been retained for various reasons, notably, decomposition and diseased conditions, such as Cysts,

SHOWING QUANTITIES OF UNSOUND GENERAL FOOD-STUFFS UTILISED UNDER SUPERVISION DURING THE YEAR 1928.

Description.	No. of Tins.	Weight in Pounds.	Description.	No. of Tins.	Weight in Pounds.
Canned Goods—			Cream	—	—
Apples	16	103	Egg Pulp	5488	177594
Apricots	163	260	Figs	—	—
Apricot Pulp	136	1301	Beef	3208	19223
Banana Jam	—	—	Mutton	553	3348
Cherries	4816	4842	Tongues	340	2008
Fruit Salad	3396	7898	Pork & Beans	142	64
Strawberries	16	32	Meats	61	153
Loganberries	415	567	Rabbits	60	105
Mixed Fruit	16	8	Brisling	—	—
Peaches	960	1558	Lobster	231	180
Pears	5002	10257	Sardines	25	6
Prunes	1247	312	Crab	887	233
Milk	7964	6032	Pilchards	199	195
Pines	10765	14163	Salmon	1633	873
Blackberries	48	204	Cray Fish	16	4
Raspberries	232	307	Prawns	20	12
Tomatoes	26704	53441	Spinach	—	—
Grape Fruit	2649	3302			

Description.	Packages.	Weight.			
		Tons.	Cwts.	Qrs.	Lbs
Fruit (Fresh)—					
Apples	7476	137	16	2	2
„ loose	—	143	0	0	0

Description.	Packages.	Weight.			
		Tons.	Cwts.	Qrs.	Lbs.
Fruit (Fresh) continued—					
Bananas... ..	2446	138	8	3	11
Oranges	596	22	11	3	24
,, loose	—	132	15	0	0
Apricots	1195	16	10	1	2
Peaches... ..	101	1	5	1	4
Plums	1	—	0	1	2
Pears	2944	53	5	3	16
,, loose	—	5	0	0	0
Grape Fruit	1073	46	3	2	18
Lemons	53	1	19	0	18
Prunes	9287	144	11	3	14
,, loose	—	5	0	0	0
Grapes	712	7	2	2	24
Gooseberries	1	—	0	1	21
Melons	312	13	19	2	16
,, loose	—	—	4	1	24
Tomatoes	1654	7	2	1	5
Evaporated Apples	2271	50	13	3	10
,, Pears	276	7	4	0	10
Mixed Fruit, loose	—	11	0	0	0
Figs	86	1	1	2	0
Currants	7	—	1	1	0
Sultanas, loose	—	—	7	1	5
Raisins	11397	126	1	2	8
Cokernuts	1	—	0	2	24
Potatoes... ..	220	8	9	3	10
Carrots	296	12	6	3	10
Brazil Nuts	8	—	8	0	0
,, loose	—	5	10	0	0

Description.	Packages.	Weight.			
		Tons.	Cwts.	Qrs.	Lbs.
Cereals—					
Wheat	—	302	11	3	27
Maize	—	83	0	2	18
Maize Meal	—	28	18	3	0
Rice	2131	148	2	1	21
„ loose	—	1	0	0	14
Peas, loose	—	—	5	1	24
Flour	452	27	5	1	12
„ loose	—	24	6	0	13
Barley, loose	—	11	5	0	0
Oats, loose	—	1	7	2	20
Rolled Oats, loose	—	—	0	0	0
Oat Meal „	—	—	0	0	0
General—					
Hams	64	—	5	1	6
Bacon, loose	—	—	4	2	20
Butter „	—	—	0	1	11
Prem. Jus.	—	4	1	1	12
Beef Dripping, loose	—	—	0	1	14
Oleo Oil	—	—	17	1	0
Marmalade	3	—	13	3	19
Lard, loose	—	—	1	1	4
Cheese	2	—	1	1	16
Shredded Wheat	—	—	—	—	—
Fish	1	—	1	2	0
Rabbits	(single) 6	—	0	0	16
Cocoa Beans	—	—	12	2	12
Corn Flour	774	—	6	3	18
Confectionery (Sweets)	48	—	2	1	0

SHOWING THE TOTAL QUANTITIES OF THE DIFFERENT
UNSOOUND FOODSTUFF UTILISED UNDER SUPERVISION
DURING THE YEAR 1928.

	Tons.	Cwts.	Qrs.	Lbs.
Beef Mutton, Pork and Veal...	76	18	0	4
Offal (Beef, Mutton, etc.) ...	16	15	1	2
Canned Goods... ..	137	18	0	0
Fruit and Vegetables	1,100	3	0	26
Cereals	628	3	2	9
General (Fish, Poultry, Rabbits, etc.)	7	9	1	8
TOTAL ...	1,967	7	1	21

Showing comparative Value of the more important Food Stuffs imported at the principal Ports during the year 1927.

	London. 1	Liverpool. 2	Hull. 3	Glasgow. 4	Bristol. 5	Harwich. 6	Newcastle 7	Man- chester. 8	Leith. 9	South- ampton. 10
	£	£	£	£	£	£	£	£	£	£
Animals	1,470	5,267,679	—	1,806,988	137,089	—	—	408,688	—	—
Butter	19,750,989	1,254,278	3,597,014	686,770	368,171	2,141,511	4,239,155	63,190	3,933,489	1,816,159
Cheese	9,590,240	910,646	225,463	313,322	750,923	196,971	226,938	263,110	207,616	70,155
Cocoa	2,073,728	2,363,078	281,554	20,930	95,444	207,745	7,585	—	109,678	—
Coffee	4,676,679	46,206	—	—	16,387	—	—	—	—	57,500
Grain.....	28,505,539	20,453,696	16,005,927	6,305,303	10,031,690	4,685	2,968,781	7,229,078	3,996,632	685,568
Eggs	8,360,666	1,358,686	1,037,900	955,822	—	1,225,994	1,052,769	162,905	1,423,826	583,595
Fish	2,824,985	3,312,021	629,902	143,020	45,131	1,369,736	972,550	56,714	100,428	252,382
Fruit	18,996,370	13,299,631	2,253,842	2,870,137	3,451,605	758,001	632,578	1,407,277	317,297	2,357,998
Lard	1,621,495	2,435,506	411,161	250,326	386,941	73,988	562,740	1,280,217	60,527	147,805
Margarine	1,065,442	882,958	902,385	252,695	—	646,112	366,608	305,749	457,470	—
MEAT :-										
Bacon	11,047,379	4,103,753	3,372,603	229,336	169,442	8,585,114	2,844,215	225,574	839,748	222,300
Beef	20,472,202	7,223,519	69,088	324,518	21,540	—	16,022	226,692	—	1,263,900
Hams	719,937	2,549,153	—	879,535	64,090	—	—	188,996	—	41,209
Mutton	13,096,732	3,503,587	16,815	63,253	267,905	—	—	47,309	—	378,174
Pork	328,226	345,024	—	—	—	—	—	—	—	—
Rabbits	521,803	34,322	—	—	—	—	—	3,638	—	—
Unenumerated.....	658,635	474,294	144,773	538,934	154,807	34,271	194,314	—	150,413	94,986
Preserved	3,172,418	1,181,915	40,861	—	6,224	—	—	—	—	—
Milk, Condensed	2,616,726	551,204	573,906	9,654	202,849	—	475,863	332,735	140,093	33,955
Poultry and Game	1,307,417	101,253	13,188	—	—	257,220	—	—	—	193,635
Sugar.....	—	8,674,520	1,096,266	786,883	779,334	117,190	534,820	310,008	890,710	126,879
Vegetables	3,246,154	1,921,842	866,215	175,782	144,221	240,421	252,833	219,943	266,278	2,617,722

The Port Sanitary Authority is also engaged in the issue of certificates of disinfection for Consular and other purposes in connection with the exportation of wool, jute sacks and cloth, tailors' cuttings, rags, second-hand bags and clothing, bales of cotton, etc.

The Department also endorses under the United States, Canadian and other Authorities' Regulations, certificates regarding the 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., etc. The work attached to preparing and recording these certificates has been 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 also given courteous assistance.

A. A. MUSSEN, M.D.,

Medical Officer of Health.

MUNICIPAL OFFICES,

LIVERPOOL,

31st May, 1929.

APPENDIX.**General Provisions of the International Sanitary Convention.***Signed at Paris, June 21st, 1926.*

PART I.

GENERAL PROVISIONS.

CHAPTER I.—PROVISIONS TO BE OBSERVED BY THE GOVERNMENTS OF COUNTRIES PARTIES TO THE CONVENTION ON THE APPEARANCE IN THEIR TERRITORY OF PLAGUE, CHOLERA, YELLOW FEVER OR CERTAIN OTHER COMMUNICABLE DISEASES.

Section I.—*Notification and subsequent Communications to other Countries.*

ARTICLE 1.

Every Government must immediately notify to the other Governments and, at the same time, to the Office International d'Hygiène Publique—

- (1) The first recognised case of plague, cholera or yellow fever found in its territory.
- (2) The first recognised case of plague, cholera or yellow fever which occurs outside the limits of local areas already affected.
- (3) The existence of an epidemic of typhus or of smallpox.

ARTICLE 2.

Every notification prescribed in Article 1 shall be accompanied, or very promptly followed, by detailed information as to—

- (1) The place where the disease has appeared;
- (2) The date of its appearance, its source and its type;
- (3) The number of known cases and deaths;
- (4) The extent of the local area or areas affected;
- (5) In the case of plague, the presence of that disease or of unusual mortality among rodents;

- (6) In the case of cholera, the number of germ carriers when any have been discovered;
- (7) In the case of yellow fever, the presence and relative prevalence (index) of *stegomyia calopus* (*aedes egypti*);
- (8) The measures taken.

ARTICLE 3.

The notifications prescribed in Articles 1 and 2 shall be supplied to the Diplomatic Missions, or, failing them, to the Consulates in the capital of the infected country, and shall be held at the disposal of consular representatives established in its territory.

These notifications shall also be addressed to the Office International d'Hygiène Publique, which shall communicate them immediately to all Diplomatic Missions, or, failing them, to the Consulates in Paris, as well as to the principal public health authorities of the participating countries. Those prescribed under Article 1 shall be addressed by telegram.

The telegrams addressed by the Office International d'Hygiène Publique to the Governments of countries parties to this Convention or to the principal public health authorities of these countries, and the telegrams transmitted by these Governments and by these authorities under this Convention, are classed as Government telegrams, and are entitled to the priority accorded to such telegrams, by Article 5 of the International Telegraphic Convention of the 10th to 22nd July, 1875.

ARTICLE 4.

The notification and the information prescribed by Articles 1 and 2 shall be followed by subsequent communications furnished regularly to the Office International d'Hygiène Publique, so as to keep the Governments informed of the course of the epidemic.

These communications shall be as frequent and complete as possible, and as regards the number of cases and deaths shall be made at least once a week; they shall indicate, in particular, the precautions taken to prevent the spread of the disease, and shall set out with precision the measures adopted in the case of outgoing vessels to prevent

exportation of the disease, and especially the measures taken with regard to rodents or insects.

ARTICLE 5.

Governments undertake to reply to any request for information which may be made to them by the Office International d'Hygiène Publique in regard to the epidemic diseases mentioned in the Convention, which occur in their territory, and in regard to circumstances likely to affect the transmission of these diseases from one country to another.

ARTICLE 6.

Since rats* are the principal agents by which bubonic plague is spread, Governments undertake to make use of all means in their power to diminish this danger and to keep themselves regularly informed of the condition of the rats in their ports, as regards plague infection, by frequent and systematic examinations; in particular, to carry out systematically the bacteriological examination of rats in every plague-infected area, during a period of six months at least from the finding of the last plague-infected rat. The methods and the results of these examinations shall be communicated in ordinary circumstances at regular intervals, and in the case of plague every month, to the Office International d'Hygiène Publique in order that Governments may be kept regularly informed by that Office of the condition of ports in regard to plague amongst rats.

On the first discovery of rat plague on land, in a port free from infection during the previous six months, the communications shall be sent by the most rapid method.

ARTICLE 7.

In order to facilitate the fulfilment of its duties under this Convention, and having regard to the benefits derived from the information furnished by the epidemiological intelligence service of the League of Nations, including its Eastern Bureau at Singapore and other analogous bureaux, as well as by the Pan-American Sanitary Bureau, the Office International d'Hygiène Publique is empowered

* The provision of this Convention regarding rats are applicable to the case of other rodents, and in general to other animals known to be means of spreading plague.

to make necessary arrangements with the Health Committee of the League of Nations, as well as with the Pan-American Sanitary Bureau and other similar organisations.

It remains understood that the relations established under the above-mentioned arrangements will not involve any derogation from the provisions of the Convention of Rome of the 9th December, 1907, and will not have the result of substituting any other sanitary body for the Office International d'Hygiène Publique.

ARTICLE 8.

The prompt and scrupulous fulfilment of the foregoing provisions being of primary importance, Governments recognise the necessity of giving instructions in regard to their application to the appropriate authorities.

As notification is of no value unless every Government be itself informed, at the time, of cases of plague, cholera, yellow fever, typhus or smallpox, and also of suspected cases of these diseases, which occur in its territory, Governments undertake to make the notification of cases of these diseases compulsory.

ARTICLE 9.

It is recommended that neighbouring countries should make special arrangements with the object of organising direct exchange of information between their principal administrative officers, both as regards territories having a common frontier and as regards territories having close commercial relations. These arrangements shall be communicated to the Office International d'Hygiène Publique.

Section II.—*Conditions under which the measures prescribed by the Convention are applicable or cease to be applicable to arrivals from particular areas.*

ARTICLE 10.

The notification of imported cases of plague, cholera or yellow fever shall not lead to the adoption of the measures prescribed in Chapter II below in regard to arrivals from the local area in which the disease is present.

But these measures may be adopted when a first case of plague or yellow fever, recognised as a non-imported case, has occurred, when the cases of cholera form a *foyer*,* or when typhus or smallpox exists in epidemic form.

ARTICLE 11.

In order that the measures prescribed in Chapter II may be limited to places which are actually infected, Governments shall restrict their application to arrivals from defined local areas in which the diseases mentioned in this Convention have appeared under the conditions indicated in the second paragraph of Article 10.

But this limitation of an infected local area shall be accepted only on the definite condition that the Government of the country in which this area is comprised take the measures necessary (1) for checking the spread of the epidemic and (2) for applying the measures prescribed by Article 13 below.

ARTICLE 12.

The Government of any country in which an infected area is situated shall inform other Governments and the Office International d'Hygiène Publique in the manner specified in Article 3, when the danger of infection from that area has ceased, and when all the preventive measures have been taken. On the receipt of this information the measures prescribed in Chapter II shall no longer be applicable to arrivals from the area in question, except in exceptional circumstances which will require to be justified.

Section III.—*Measures at ports and on the departure of vessels.*

ARTICLE 13.

The competent authority shall take effectual measures—

- (1) to prevent the embarkation of persons showing symptoms of plague, cholera, yellow fever, typhus or smallpox, and of persons in such relations with the sick as to render them liable to transmit the infection of these diseases;

* A "foyer" exists when the occurrence of new cases outside the immediate surroundings of the first cases proves that the spread of the disease has not been limited to the place where it began.

- (2) in the case of plague, to prevent rats gaining access to ships;
- (3) in the case of cholera, to see that drinking water and food-stuffs taken on board are wholesome, and that water taken in as ballast is disinfected if necessary;
- (4) in the case of yellow fever, to prevent mosquitoes gaining access to ships;
- (5) in the case of typhus, to secure the delousing of all suspects before their embarkation;
- (6) in the case of smallpox, to disinfect old clothes and rags before they are baled.

ARTICLE 14.

Governments undertake to maintain in their large ports and in their surroundings, and as far as possible in the other ports and their surroundings, sanitary services possessing an organisation and equipment capable of carrying out the application of the prophylactic measures in regard to the diseases mentioned in this Convention, and especially the measures laid down in Articles 6, 8 and 13.

The said Governments shall supply at least once a year, to the Office International d'Hygiène Publique, a statement showing in the case of each of their ports the condition of its sanitary organisation having regard to the provisions of the preceding paragraph. The Office shall forward such information by appropriate means to the principal health authorities of the participating countries, either directly or indirectly through another international sanitary organisation in accordance with the arrangements concluded under Article 7.

CHAPTER II.—MEASURES OF DEFENCE AGAINST THE DISEASES MENTIONED IN CHAPTER I.

ARTICLE 15.

Any ship, whatever its port of departure, may be subjected by the sanitary authority to a medical inspection, and if circumstances require it, to a thorough examination.

The sanitary measures or procedure to which a ship may be subjected on arrival shall be determined by the actual condition found to exist on board and the medical history of the voyage.

It rests with each Government, taking into account the information furnished under the provisions of Section I of Chapter I and of Article 14 of this Convention, as well as the obligations it has undertaken under Section II of Chapter I, to determine what procedure should be applicable in its own ports to arrivals from any foreign port, and in particular to decide whether, from the point of view of the procedure to be applied, a particular foreign port should be considered as infected.

The measures as laid down in this Chapter shall be regarded as constituting a maximum within the limits of which Governments may regulate the procedure which may be applied to ships on their arrival.

Section I.—*Notification of Measures prescribed.*

ARTICLE 16.

Every Government undertakes to communicate immediately to the Diplomatic Mission or, failing that, to the Consul of the infected country, residing in its capital, as well as to the Office International d'Hygiène Publique, which shall at once bring them to the notice of other Governments, the measures which they consider necessary to prescribe with regard to arrivals from that country. Such information shall be held at the disposition of other diplomatic or consular representatives established in its territory.

They also undertake to make known, through the same channels, the withdrawal of these measures or any modifications thereof.

In the absence of a Diplomatic Mission or a Consulate in the capital, the communications shall be made direct to the Government of the country concerned.

Section II.—*Merchandise and Baggage.—Importation and Transit.*

ARTICLE 17.

Subject to the provisions of the last paragraph of Article 50, the entry of merchandise and baggage arriving by land or by sea for import or for transit may not be prohibited nor may merchandise or baggage be detained at frontiers or in ports. The only measures which may be prescribed with regard to such merchandise and baggage are specified in the following paragraphs:—

- (a) In the case of plague, body linen and wearing apparel recently worn and bedding that has been in recent use may be subjected to disinsectisation, and, if necessary, to disinfection.

Merchandise coming from an infected local area and likely to harbour plague-infected rats, may be unloaded only on condition that the precautions necessary to prevent the escape of rats and to ensure their destruction are taken as far as practicable.

- (b) In the case of cholera, body linen and wearing apparel recently worn and bedding that has been in recent use may be subjected to disinfection.

Notwithstanding the provisions of this Article, the importation of fresh fish, shell-fish and vegetables may be prohibited unless they have undergone a treatment calculated to destroy cholera vibrios.

- (c) In the case of typhus, body linen and wearing apparel recently worn and bedding which has been in recent use, as well as rags not carried as merchandise in bulk, may be subjected to disinsectisation.

- (d) In the case of smallpox, body linen and wearing apparel recently worn and bedding which has been in recent use, as well as rags not carried as merchandise in bulk, may be subjected to disinfection.

ARTICLE 18.

It rests with the authority of the country of destination to decide in what manner and at what place disinfection shall be carried out, and what methods shall be adopted to secure the destruction of rats or insects (fleas, lice, mosquitoes, etc.). These operations shall be performed in such a manner as to injure articles as little as possible. Clothes and other articles of small value, including rags not carried as merchandise in bulk, may be destroyed by fire.

It is the duty of each State to settle questions relative to the payment of compensation for any damage caused by disinfection, deratisation or disinsectisation, or by the destruction of the articles referred to above.

If, on account of these measures, charges are levied by the sanitary authority, either directly or indirectly through a company or an individual, the rates of these charges shall be in accordance with a tariff published in advance and so drawn up that the State or the sanitary authority may not, on the whole, derive any profit from its application.

ARTICLE 19.

Letters and correspondence, printed matter, books, newspapers, business documents, etc., shall not be subject to any sanitary measure. Parcels conveyed by post shall be subjected to restriction only if their contents include articles to which the measures set out in Article 17 of this Convention are applicable.

ARTICLE 20.

When merchandise or baggage has been subjected to the operations prescribed in Article 17, any interested party can require the sanitary authority to issue a free certificate showing the measures that have been taken.

Section III.—*Provisions relating to Emigrants.*

ARTICLE 21.

The sanitary authority in a country of emigration shall subject its emigrants to a medical examination before their departure.

It is recommended that special arrangements should be made between countries of emigration, of transit, and of immigration, with a view to laying down the conditions under which this examination shall be considered satisfactory by them, so that rejections on medical grounds at the frontiers of countries of transit and of destination may be reduced to the fewest possible.

It is also recommended that these arrangements should lay down the preventive measures against infectious diseases to which emigrants should be submitted in the country of departure.

ARTICLE 22.

It is recommended that towns or ports of embarkation for emigrants should be provided with an adequate health and sanitary administra-

tion, and, in particular: (1) a service for medical examination and treatment, as well as the necessary sanitary and prophylactic equipment; (2) an establishment, supervised by the State, where emigrants may be subjected to health formalities, be housed temporarily, undergo all necessary medical examinations, and have their food and drinking supplies examined; (3) premises situated at the port where medical examinations at the actual time of embarkation may be made.

ARTICLE 23.

It is recommended that emigrant ships should be provided with a sufficient quantity of vaccines (anti-smallpox, anti-cholera, etc.), in order to permit, if necessary, of vaccinations during the voyage.

Section IV.—*Measures at Ports and Marine Frontiers.*

(A.)—*Plague.*

ARTICLE 24.

Infected Ship. A ship shall be regarded as *infected*—

- (1) if it has a case of human plague on board;
- (2) or if a case of human plague broke out more than six days after embarkation;
- (3) or if plague-infected rats are found on board.

Suspected Ship. A ship shall be regarded as *suspected*—

- (1) if a case of human plague broke out on board in the first six days after embarkation;
- (2) or if investigations regarding rats have shown the existence of an unusual mortality without determining the cause thereof.

The ship shall continue to be regarded as suspected until it has been subjected to the measures prescribed by this Convention at a suitably equipped port.

Healthy Ship. A ship shall be regarded as *healthy*, notwithstanding its having come from an infected port, if there has been no human or rat plague on board either at the time of departure, or during the voyage, or on arrival, and the investigations regarding rats have not shown the existence of an unusual mortality.

ARTICLE 25.

Plague-infected ships shall undergo the following measures :--

- (1) Medical inspection ;
- (2) The sick shall immediately be disembarked and isolated ;
- (3) All persons who have been in contact with the sick and those whom the port sanitary authority have reason to consider suspect shall be disembarked if possible. They may be subjected to observation or surveillance,* or to observation followed by surveillance, provided that the total duration of these measures does not exceed six days from the time of arrival of the ship ;

It rests with the sanitary authority of the port, after taking into consideration the date of the last case, the condition of the ship and the local possibilities, to apply that one of these measures which seems to them preferable. During the same period the crew may be prevented from leaving the ship except on duty notified to the sanitary authority ;

- (4) Bedding which has been used, soiled linen, wearing apparel, and other articles which, in the opinion of the sanitary authority, are infected shall be disinfected and, if necessary, disinfected ;
- (5) The parts of the ship which have been occupied by persons suffering from plague or which, in the opinion of the sanitary authority, are infected, shall be disinfected and, if necessary, disinfected ;
- (6) The sanitary authority may require deratisation before the discharge of cargo, if they are of opinion, having regard to the nature of the cargo and the way in which it is loaded, that it is possible to effect a total destruction of rats before discharge. In this case, the ship may not be subjected to a new deratisation after discharge. In other cases the complete

* In all cases where this Convention provides for "surveillance" the sanitary authority may substitute "observation as an exceptional measure in the case of persons who do not offer adequate sanitary guarantees.

Persons under observation or surveillance shall give facilities for all clinical or bacteriological investigations which are considered necessary by the sanitary authority.

The word *Observation* signifies the isolation of persons, whether on board ship or at a sanitary station before they obtain free pratique. *Surveillance* means that persons are not isolated, that they receive free pratique immediately, but the authorities of several places whither they are bound are informed of their coming, and they are subject to a medical examination with a view to ascertaining their state of health.

destruction of the rodents shall be effected on board when the holds are empty. In the case of ships in ballast, this process shall be carried out as soon as possible before taking cargo ;

Deratisation shall be carried out so as to avoid, as far as possible, damage to the ship and cargo (if any). The operation must not last longer than twenty-four hours. Any charges made in respect of these operations of deratisation, and any question of compensation for damage, shall be determined in accordance with the provisions of Article 18.

If a ship is to discharge a part of its cargo only, and if the port authorities consider that it is impossible to carry out complete deratisation, the said ship may remain in the port for the time required to discharge that part of its cargo, provided that all precautions, including isolation, are taken to the satisfaction of the sanitary authority to prevent rats from passing from the ship to the shore, either during unloading or otherwise.

The discharge of cargo shall be carried out under the control of the sanitary authority, who shall take all measures necessary to prevent the staff employed on this duty from becoming infected. This staff shall be subjected to observation or to surveillance for a period not exceeding six days from the time when they have ceased to work at the unloading of the ship.

ARTICLE 26.

Plague-suspected ships shall undergo the measures specified in (1), (4), (5) and (6) of Article 25.

In addition, the crew and passengers may be subjected to surveillance, which shall not exceed six days reckoned from the date of arrival of the ship. The crew may be prevented during the same period from leaving the ship except on duty notified to the sanitary authority.

ARTICLE 27.

Healthy Ships. Ships free from plague shall be given free pratique immediately, with the reservation that the sanitary authority of the port of arrival may prescribe the following measures with regard to them :—

- (1) Medical inspection to determine whether the ship comes within the definition of a healthy ship ;
- (2) Destruction of rats on board, under the conditions specified in (6) of Article 25, in exceptional cases and for well-founded reasons, which shall be communicated in writing to the captain of the ship ;
- (3) The crew and passengers may be subjected to surveillance during a period which shall not exceed six days reckoned from the date on which the ship left the infected port. The crew may be prevented during the same period from leaving the ship except on duty notified to the sanitary authority.

ARTICLE 28.

All ships, except those employed in national coastal service, shall be periodically deratised, or be permanently so maintained that any rat population is kept down to the minimum. In the first case they shall receive *Deratisation Certificates*, and in the second, *Deratisation Exemption Certificates*.

Governments shall make known through the Office International d'Hygiène Publique those of their ports possessing the equipment and personnel necessary for the deratisation of ships.

A *Deratisation Certificate* or a *Deratisation Exemption Certificate* shall be issued only by the sanitary authorities of ports specified above. Every such certificate shall be valid for six months, but this period may be extended by one month in the case of a ship proceeding to its home port.

If no valid certificate is produced, the sanitary authority at the ports mentioned in the second paragraph of this Article may after inquiry and inspection—

- (a) Themselves carry out deratisation of the vessel, or cause such operations to be carried out under their direction and control. On the completion of these operations to their satisfaction, they shall issue a dated *Deratisation Certificate*. They shall decide in each case the technique which should be employed to secure the practical extermination of rats on board, but

details of the deratising process applied and of the number of rats destroyed shall be entered on the certificate. Destruction of rats shall be carried out so as to avoid as far as possible damage to the ship and cargo (if any). The operation must not last longer than twenty-four hours. In the case of ships in ballast the process shall be carried out before taking cargo. Any charges made in respect of these operations of deratisation, and any question of compensation for damage, shall be determined in accordance with the provisions of Article 18;

- (b) Issue a dated *Deratisation Exemption Certificate* if they are satisfied that the ship is maintained in such a condition that the rat population is reduced to a minimum. The reasons justifying the issue of such a certificate shall be set out in the certificate.

Deratisation and deratisation exemption certificates shall be drawn up as far as possible in a uniform manner. Model certificates shall be prepared by the Office International d'Hygiène Publique.

The competent authority of each country undertakes each year to furnish to the Office International d'Hygiène Publique a statement of the measures taken under this Article, and of the number of ships which have been subjected to deratisation, or which have been granted deratisation exemption certificates, at the ports referred to in the second paragraph of this Article.

The Office International d'Hygiène Publique is requested to take, in accordance with the provisions of Article 14, all steps to secure the interchange of information regarding action taken under this Article and the results obtained.

The provisions of this Article do not affect the rights accorded to sanitary authorities by Articles 24-27 of this Convention.

Governments shall do all in their power to ensure that all requisite and practicable measures are taken by the competent authorities to secure the destruction of rats in ports and their surroundings, as well as on lighters and coastal vessels.

(B.)—*Cholera.*

ARTICLE 29.

Infected Ship.—A ship shall be regarded as *infected* if there is a case of cholera on board, or if there has been a case of cholera during the five days previous to the arrival of the ship in port.

Suspected Ship.—A ship shall be regarded as *suspected* if there has been a case of cholera at the time of departure or during the voyage, but no fresh case in the five days previous to arrival. The ship shall continue to be regarded as suspected until it has been subjected to the measures prescribed by this Convention.

Healthy Ship.—A ship shall be considered *healthy* if, although arriving from an infected port, or having on board persons proceeding from an infected local area, there has been no case of cholera either at the time of departure, during the voyage, or on arrival.

Cases presenting the clinical symptoms of cholera, in which no cholera vibrios have been found, or in which vibrios not strictly conforming to the character of cholera vibrios have been found, shall be subject to all measures required in the case of cholera.

Germ carriers discovered on the arrival of a ship shall be submitted after disembarkation to all the obligations which may be imposed in such a case by the laws of the country of arrival on its own nationals.

ARTICLE 30.

Cholera Infected Ships.—In the case of cholera, *infected* ships shall undergo the following measures:—

- (1) Medical inspection;
- (2) The sick shall be immediately disembarked and isolated;
- (3) The crew and passengers may be disembarked and either be kept under observation or subjected to surveillance during a period not exceeding five days reckoned from the date of arrival of the ship;

However, persons who can show that they have been protected against cholera by vaccination effected within the period of the previous six months, excluding the last six days

thereof, may be subjected to surveillance, but not to observation ;

- (4) Bedding which has been used, soiled linen, wearing apparel, and other articles, including foodstuffs, which, in the opinion of the sanitary authority of the port, have been recently contaminated, shall be disinfected ;
- (5) The parts of the ship that have been occupied by persons infected with cholera or that the sanitary authority regard as infected, shall be disinfected ;
- (6) Unloading shall be carried out under the supervision of the sanitary authority, which shall take all measures necessary to prevent the infection of the staff engaged in unloading. This staff shall be subjected to observation or to surveillance which may not exceed five days from the time when they ceased unloading ;
- (7) When the drinking water stored on board is suspected it shall be emptied out after disinfection and replaced, after disinfection of the tanks, by a supply of wholesome drinking water ;
- (8) The sanitary authority may prohibit the emptying of water ballast in port without previous disinfection if it has been taken in at an infected port ;
- (9) The emptying or discharge of human dejecta, as well as the waste waters of the ship, into the waters of the port may be forbidden, unless they have been previously disinfected.

ARTICLE 31.

Cholera Suspected Ships.—In the case of cholera, *suspected* ships shall undergo the measures prescribed in (1), (4), (5), (7), (8) and (9) of Article 30.

The crew and passengers may be subjected to surveillance during a period which shall not exceed five days reckoned from the date of arrival of the ship. It is recommended that the crew be prevented during the same period from leaving the ship except on duty notified to the sanitary authority.

ARTICLE 32.

Clinical Cholera.—If the ship has been declared infected or suspected on account only of a case on board presenting the clinical features of cholera, and two bacteriological examinations made with an interval of not less than 24 hours between them, have not revealed the presence of cholera or other suspicious vibrios, the ship shall be considered healthy.

ARTICLE 33.

Healthy Ships.—In the case of cholera, *healthy* ships shall be given free pratique immediately.

The sanitary authority of the port of arrival may prescribe as regards these ships the measures specified in (1), (7), (8) and (9) of Article 30.

The crew and passengers may be subjected to surveillance during a period which shall not exceed five days reckoned from the date of arrival of the ship. The crew may be prevented during the same period from leaving the ship except on duty notified to the sanitary authority.

ARTICLE 34.

Since anti-cholera vaccination is a method of proved efficacy in staying cholera epidemics, and consequently in lessening the likelihood of the spread of the disease, sanitary administrations are recommended to employ, in the largest measure possible and as often as practicable, specific vaccination in cholera *foyers* and to grant certain advantages as regards restrictive measures to persons who have elected to be vaccinated.

(C.)—*Yellow Fever.*

ARTICLE 35.

Infected Ship.—A ship shall be regarded as *infected* if there is a case of yellow fever on board, or if there was one at the time of departure or during the voyage.

Suspected Ship.—A ship shall be regarded as *suspected* if, having had no case of yellow fever, it arrives after a voyage of less than six

days from an infected port or from a port in close relation with an endemic centre of yellow fever, or it arrives after a voyage of more than six days and there is reason to believe that it may transport adult *stegomyia (aedes egypti)* emanating from the said port.

Healthy Ship.—A ship shall be regarded as *healthy*, notwithstanding its having come from an infected port, if on arriving after a voyage of more than six days it has had no case of yellow fever on board and either there is no reason to believe that it transports adult *stegomyia* or it is proved to the satisfaction of the authority of the port of arrival—

- (a) That the ship, during its stay in the port of departure, was moored at a distance of at least 200 metres from the inhabited shore and at such a distance from harbour vessels (pontons) as to make the access of *stegomyia* improbable;
- (b) Or that the ship, at the time of departure, was effectively fumigated in order to destroy mosquitoes.

ARTICLE 36.

Yellow Fever Infected Ships.—Ships infected with yellow fever shall undergo the following measures:—

- (1) Medical inspection;
- (2) The sick shall be disembarked, and those of them whose illness has not lasted more than five days shall be isolated in such a manner as to prevent infection of mosquitoes;
- (3) The other persons who disembark shall be kept under observation or surveillance during a period which shall not exceed six days reckoned from the time of disembarkation;
- (4) The ship shall be moored at least 200 metres from the inhabited shore and at such a distance from the harbour boats (pontons) as will render the access of *stegomyia* improbable;
- (5) The destruction of mosquitoes in all phases of growth shall be carried out on board, as far as possible before discharge of cargo. If discharge is carried out before the destruction of mosquitoes, the personnel employed shall be subjected to observation or to surveillance for a period not exceeding six days from the time when they ceased unloading.

ARTICLE 37.

Yellow Fever Suspected Ships.—Ships suspected of yellow fever may be subjected to the measures specified in (1), (3), (4) and (5) of Article 36.

Nevertheless, if the voyage has lasted less than six days and if the ship fulfils the conditions specified in paragraphs (a) or (b) of Article 35 relating to healthy ships, the ship shall be subjected only to the measures prescribed by Article 36 (1) and (3) and to fumigation.

When thirty days have been completed after the departure of the ship from the infected port, and no case has occurred during the voyage, the ship may be granted free pratique subject to preliminary fumigation should the sanitary authority consider this to be necessary.

ARTICLE 38.

Healthy Ships.—Healthy ships shall be granted free pratique after medical inspection.

ARTICLE 39.

The measures prescribed in Articles 36 and 37 concern only those regions in which *stegomyia* exist, and they shall be applied with due regard to the climatic conditions prevailing in such regions and to the *stegomyia* index.

In other regions they shall be applied to the extent considered necessary by the sanitary authority.

ARTICLE 40.

The masters of ships which have touched at ports infected with yellow fever are specially advised to cause a search to be made for mosquitoes and their larvæ during the voyage and to secure their systematic destruction in all accessible parts of the ship, particularly in the store rooms, galleys, boiler rooms, water tanks and other places specially likely to harbour *stegomyia*.

(D.)—*Typhus.*

ARTICLE 41.

Ships which, during the voyage have had, or at the time of their arrival, have, a case of typhus on board, may be subjected to the following measures :—

- (1) Medical inspection.
- (2) The sick shall immediately be disembarked, isolated and deloused.
- (3) Other persons reasonably suspected to harbour lice, or to have been exposed to infection, shall also be deloused, and may be subjected to surveillance during a period which shall be specified, but which in any event should never exceed twelve days, reckoned from the date of delousing.
- (4) Bedding which has been used, linen, wearing apparel and other articles which the sanitary authority consider to be infected shall be disinfected.
- (5) The parts of the ship which have been occupied by persons ill with typhus and which the sanitary authority regard as infected shall be disinfected.

The ship shall immediately be given free pratique.

It rests with each Government to take, after disembarkation, the measures which they consider appropriate to ensure the surveillance of persons who arrive on a ship which has had no case of typhus on board, but who have left a local area where typhus is epidemic within the previous twelve days.

(E.)—*Smallpox.*

ARTICLE 42.

Ships which have had, or have a case of smallpox on board either during the voyage or at the time of arrival may be subjected to the following measures:—

- (1) Medical inspection.
- (2) The sick shall immediately be disembarked and isolated.
- (3) Other persons reasonably suspected to have been exposed to infection on board, and who, in the opinion of the sanitary authority, are not sufficiently protected by recent vaccination, or by a previous attack of smallpox, may be subjected to vaccination or to surveillance, or to vaccination followed by surveillance, the period of surveillance being specified according to the circumstances, but in any event not exceeding fourteen days, reckoned from the date of arrival of the ship.

- (4) Bedding which has been used, soiled linen, wearing apparel and other articles which the sanitary authority consider to have been recently infected shall be disinfected.
- (5) Only the parts of the ship which have been occupied by persons with smallpox and which the sanitary authority regard as infected shall be disinfected.

The ship shall immediately be given free pratique.

It rests with each Government to take, after disembarkation, the measures which they consider appropriate to ensure the surveillance of persons who are **not** protected by vaccination, and who arrive on a ship which has had no case of smallpox on board, but who have left a local area, where smallpox is epidemic, within the previous fourteen days.

ARTICLE 43.

It is recommended that when ships call in countries where smallpox is epidemic, all precautions possible should be taken to secure the vaccination or revaccination of the crew.

It is also recommended that Governments should make vaccination and revaccination as general as possible, especially in ports and in areas near frontiers.

(F.)—*Regulations common to the above Diseases.*

ARTICLE 44.

The captain and the ship's doctor shall answer all questions that are put to them by the sanitary authority with regard to the health of the ship during the voyage.

When the captain and the doctor declare that there has not been any case of plague, cholera, yellow fever, typhus or smallpox, or an unusual mortality among rats on the ship since the time of its departure, the sanitary authority may require them to make a formal declaration or a declaration under oath.

ARTICLE 45.

In applying the measures specified in the preceding sub-sections (A), (B), (C), (D) and (E), the sanitary authority shall take into considera-

tion the fact of a ship carrying a doctor and the actual preventive measures taken in the course of the voyage, especially for the destruction of rats.

The sanitary authorities of countries that find it convenient to come to an agreement on the matter may dispense with medical inspection and other measures in cases of healthy ships carrying a doctor specially commissioned by their country.

ARTICLE 46.

It is recommended that Governments take account in determining the procedure to be applied to arrivals from another country of the steps taken in the latter country to combat infectious diseases and to prevent their transmission to other countries.

Ships arriving from ports which satisfy the conditions set out in Articles 14 and 51 are not entitled solely on account of this fact to any special advantages at the port of arrival, but Governments undertake to take into the fullest consideration the measures already taken in these ports, so that the measures to be taken at the port of arrival with regard to such ships shall be reduced to a minimum. With this object and in order to inconvenience shipping, commerce and traffic as little as possible, it is recommended that special agreements, in accordance with Article 57 of this Convention, be concluded in all cases where they may appear to be advantageous.

ARTICLE 47.

Ships arriving from an infected area which have been subjected to sufficient sanitary measures, to the satisfaction of the sanitary authority, shall not be subjected to these measures again on their arrival at a new port, whether belonging to the same country or not, unless since their departure some incident has occurred which requires the application of the sanitary measures set out above, and unless they have called at an infected port, otherwise than for taking in fuel.

A ship shall not be considered as having "called at a port" if, without having been in communication with the shore, it has landed only passengers and their luggage, and mails, or if it has taken on board only mails or passengers with or without their luggage, who have not been in communication with the port or with an infected local

area. In the case of yellow fever the ship shall, in addition, have kept as far as possible and at least two hundred metres from inhabited land, and at such a distance from the harbour boats (pontons) as to make access of *stegomyia* improbable.

ARTICLE 48.

The port authority applying sanitary measures shall, when requested, furnish the captain, or any other interested person, with a free certificate specifying the nature of the measures and the methods employed, the parts of the ship treated, and the reasons why the measures have been applied.

Similarly, they shall issue on demand to passengers who have arrived by an infected ship a free certificate setting out the date of their arrival, and the measures to which they and their luggage have been subjected.

Section V.—*General Provisions.*

ARTICLE 49.

It is recommended—

- (1) That bills of health be issued free in all ports.
- (2) That fees for consular visas be reduced by reciprocal agreement, so as not to represent more than the cost of the service in question.
- (3) That the bill of health be set out in at least one of the languages recognised in maritime commerce, in addition to the language of the country where it is issued.
- (4) That special agreements in the spirit of Article 57 of this Convention be made with a view to arriving at the gradual abolition of consular visas and bills of health.

ARTICLE 50.

It is desirable that the number of ports furnished with an organisation and equipment sufficient for the reception of a ship, whatever its health conditions may be, should in each country be in proportion to the importance of its trade and shipping. Nevertheless, without prejudice to the right of Governments to make agreements for the establishment of common sanitary stations, each country shall

provide at least one port on each of its sea-boards with the above-mentioned organisation and equipment.

Moreover, it is recommended that all large seaports should be so equipped that healthy ships, at any rate, may be subjected upon their arrival to the prescribed sanitary measures, and may not be sent to another port for this purpose. Every infected or suspected ship which arrives in a port not equipped for its reception shall be sent, at its own risk and peril, to one of the ports which is open to ships of the category to which it belongs.

Governments shall make known to the Office International d'Hygiène Publique which of their ports are open to arrivals from ports infected with plague, cholera, or yellow fever, and, in particular, those open to infected or suspected ships.

ARTICLE 51.

It is recommended that there be provided in large seaports—

- (a) An organised medical port service and permanent medical supervision of the health condition of crews and of the population of the port.
- (b) Equipment for the transport of the sick, and suitable accommodation for their isolation and for keeping suspected persons under observation.
- (c) Installations necessary for efficient disinfection and disinsectisation; a bacteriological laboratory, and arrangements to permit immediate vaccination against smallpox or other diseases.
- (d) A supply of drinking water of quality above suspicion at the disposal of the port, and a system as effective as possible for the removal of excrement, refuse and sewage.
- (e) A competent and adequate staff and necessary equipment for the deratisation of ships, shipyards, docks and warehouses.
- (f) A permanent organisation for the trapping and examination of rats.

It is also recommended that warehouses and docks should as far as possible be rat proof, and that the sewage system of the port be separate from that of the town.

ARTICLE 52.

Governments shall abstain from making any sanitary visit to ships passing through territorial waters* without calling at the ports or on the coasts of their respective countries.

When the ship, for any reason whatever, calls in a port or on the coast, it shall be subjected, within the limits of international conventions, to the sanitary laws and regulations of the country to which the port or coast belongs.

ARTICLE 53.

Special measures may be prescribed regarding any ship in a sanitary condition so bad as likely to facilitate the spread of the diseases mentioned in this Convention, in particular a ship which is overcrowded.

ARTICLE 54.

Any ship refusing to submit to measures prescribed by a port authority in virtue of the provisions of this Convention, shall be at liberty to put out to sea.

Such a ship may, however, be permitted to land goods if the ship is isolated and if the goods are subjected to the measures laid down in Section II of Chapter II of this Convention.

Such a ship may also be authorised to disembark passengers at their request, on condition that such passengers submit to the measures prescribed by the sanitary authority.

The ship, if it is isolated, may also take on fuel, foodstuffs and water.

ARTICLE 55.

Each Government undertake to have a single sanitary tariff only, which shall be published, and the charges of which shall be moderate. This tariff shall be applied in ports to all ships, without distinction being made between national and foreign flags, and to foreigners in the same conditions as to the country's own nationals.

* The expression "territorial waters" shall be understood in its strictly juridical sense. It does not include the canals of Suez, Panama and Kiel.

ARTICLE 56.

Ships engaged in international coasting traffic shall be dealt with by special regulations to be agreed upon by the countries concerned. Nevertheless, the provisions of Article 28 of this Convention shall be made applicable to them in all cases.

ARTICLE 57.

Governments, taking into account their particular situation, may conclude special agreements amongst themselves, in order to make the sanitary measures prescribed by the Convention more efficacious and less burdensome. The texts of such agreements shall be communicated to the Office International d'Hygiène Publique.

Section VI.—*Measures at Land Frontiers.—Travellers.—Railways.—Frontier Zones.—River-ways.*

ARTICLE 58.

Observation shall not be enforced at land frontiers.

Only persons showing symptoms of the diseases mentioned in this Convention may be retained at frontiers.

This principle does not deprive a country of its right to close a portion of its frontiers in case of need. In such a case the places to which frontier traffic shall be confined shall be designated, and properly equipped sanitary stations shall be set up at such places. These measures shall be notified immediately to the interested neighbouring country.

Notwithstanding the provisions of this Article, persons who have been in contact with a person ill with pulmonary plague may be detained at land frontiers under observation during a period which shall not exceed seven days, reckoned from the date of arrival.

Persons who have been in contact with a person ill with typhus may be subjected to delousing.

ARTICLE 59.

In trains coming from infected areas it is important that the railway staff keep watch during the journey over the state of health of travellers.

Medical intervention shall be limited to inspection of travellers and to the care of the sick and, if necessary, of the persons around them. When this inspection is resorted to, it shall, as far as possible, be combined with the Customs examination in order that travellers may suffer as little delay as possible.

ARTICLE 60.

Railway waggons traversing countries where yellow fever exists shall be constructed in such a manner as to lend themselves as little as possible to the transport of *stegomyia*.

ARTICLE 61.

Travellers coming from a local area which falls within the conditions indicated in the second paragraph of Article 10 of this Convention may be subjected on arrival at their destination to surveillance for a period which shall not exceed six days, reckoned from the date of their arrival, in the case of plague, five days in the case of cholera, six days in the case of yellow fever, twelve days in the case of typhus, or fourteen days in the case of smallpox.

ARTICLE 62.

In the case of diseases dealt with in this Convention, Governments, notwithstanding the provisions of the preceding Articles, reserve the right in exceptional circumstances to take special measures in regard to certain classes of persons who do not present satisfactory sanitary guarantees, especially persons travelling or crossing the frontier in bands. The provisions of this paragraph are not applicable to emigrants, subject to the provisions of Article 21.

These measures may include the establishment at frontiers of sanitary stations, sufficiently equipped to ensure the surveillance and the observation, if necessary, of the persons concerned, as well as for their medical examination, disinfection, disinsectisation and vaccination.

Wherever possible, these exceptional measures shall be made the subject of special arrangements between adjoining States.

ARTICLE 63.

Railway carriages for passengers, mails or luggage and goods trucks may not be detained at the frontier.

However, if a carriage has been infected or has been occupied by a person suffering from plague, cholera, typhus or smallpox, it shall be detained for the time necessary to subject it to the prophylactic measures required in such a case.

ARTICLE 64.

Measures relative to the crossing of frontiers by railway and postal staff are matters for arrangement by the administrations concerned. They shall be arranged so as not to hamper the service.

ARTICLE 65.

Regulations concerning frontier traffic and questions arising out of such traffic are left for special arrangements between bordering countries, in accordance with the provisions of this Convention.

ARTICLE 66.

The sanitary control of lakes and of river-ways is a matter for special arrangement by the Governments of countries abutting thereon.