

[Report of the Medical Officer of Health for Port of London].

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PORT OF LONDON HEALTH AUTHORITY

ANNUAL REPORT

OF THE

MEDICAL OFFICER OF HEALTH

To 31st DECEMBER, 1952

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REPORT OF LONDON HEALTH AUTHORITY

ANNUAL REPORT

OF THE

MEDICAL OFFICER OF HEALTH

FOR THE YEAR 1958



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PORT OF LONDON HEALTH COMMITTEE

ANNUAL REPORT

OF THE

MEDICAL OFFICER OF HEALTH

(MONTAGU TRAVERS MORGAN, C.M.G., M.C., M.D., Ch.B., D.P.H.)

To 31st December, 1952

PORT OF LONDON HEALTH AUTHORITY
5, CHURCH PASSAGE,
GUILDHALL, E.C.2.

Telegraphic Address: "PORTELTH LONDON."

Telephone Number: MONARCH 3030.

LIMITS OF THE PORT OF LONDON.

The limits of the Port of London as at present defined commence at high-water mark in the River Thames at Teddington Lock, in the County of Surrey, and extend down both sides of the River Thames to an imaginary straight line drawn from the pilot mark at the entrance of Havengore Creek, in the County of Essex, to the Land's End at Warden Point, in the Isle of Sheppey, in the County of Kent, such point being the north-western limit of the Port of Faversham, and extend up and include both sides of the River Medway to an imaginary straight line drawn from the south-east point of land westward of Coalmouth Creek, thence across the said River Medway to the western-most point of the piece of land which forms the eastern side of the Stangate Creek, or, in other words, the north-west point of Fleet Marsh and from thence in a southerly direction to Iwade Church in the said County of Kent, and thence in a north-easterly direction to Elmley Chapel in the said Isle of Sheppey, a supposed direct line from Elmley Chapel to Iwade Church, being the western limit of the Port of Faversham, and the said Port of London includes the Islands of Havengore Creek aforesaid, called Potton and Rushley Islands, and so much of the said Creek and Watercourse as extends from it to the Town of Rochford, and also includes all other Islands, Rivers, Streams, Creeks, Waters, Watercourses, Channels, Harbours, Docks and places within the before-mentioned limits contained.

SECTION I—STAFF.

TABLE A.

Name of Officer.	Nature of Appointment.	Date of Appointment.	Qualifications.	Any other Appointment held.
M. T. MORGAN, C.M.G., M.C.	Medical Officer of Health	September, 1938	M.D., Ch.B., D.P.H.	Medical Inspector of Aliens. Medical Adviser, Ministry of Transport.
H. M. WILLOUGHBY, V.R.D., R.N.V.R.	Deputy Medical Officer of Health and Medical Officer in Charge at Denton Hospital.	March, 1939	M.R.C.S., L.R.C.P., D.P.H., D.T.M. & H.	Medical Inspector of Aliens.
J. A. JONES ...	Assistant Port Medical Officer.	April, 1935	M.B., Ch.B., D.P.H.	ditto.
J. R. DAVIES ...	ditto.	January, 1939	M.R.C.S., L.R.C.P., D.T.M. & H.	ditto.
—	(Vacant)	—	—	—
H. A. MADWAR ...	Sheerness Boarding Station (Temporary Part time).	December, 1927	L.R.C.P., L.R.F.P.S.	—
CLERICAL.				
J. A. GILLIS ...	Senior Clerk	July, 1951	—	—
W. L. McLORG ...	Assistant Senior Clerk	July, 1951	—	—
R. C. RATLIFF ...	First Class Assistant Clerk.	July, 1951	—	—
E. V. SMITH ...	Secretary to Medical Officer of Health.	July, 1951	—	—
—	(Vacant) ...	—	—	—
R. H. LOTT ...	General Grade Clerk	May, 1947	—	—
A. E. WOOD ...	ditto.	January, 1950	—	—
F. B. OSBORNE ...	ditto.	May, 1952	—	—
INSPECTORIAL.				
T. L. MACKIE, M.B.E.	Chief Sanitary Inspector	October, 1950	M.I.N.A.	—
W. GRAY ...	Sanitary Inspector	September, 1921	—	—
P. W. COOMBE ...	ditto.	December, 1924	—	—
E. H. JOHNSON ...	ditto.	August, 1929	—	—
T. G. EDWARDS ...	ditto.	June, 1929	—	—
D. E. MADELEY ...	ditto.	September, 1932	—	—
C. E. WRIGHT ...	ditto.	July, 1931	—	—
J. S. BEATTIE ...	ditto.	May, 1931	—	—
G. DRING ...	ditto.	February, 1937	—	—
A. TREVETHICK ...	ditto.	August, 1946	—	—
L. N. TOPE ...	ditto.	August, 1946	—	—
P. A. TRAYNIER ...	ditto.	October, 1950	—	—
A. C. GOOD ...	ditto.	September, 1951	—	—
H. LAWSON ...	ditto.	September, 1951	—	—
T. C. H. ROGERSON ...	ditto.	October, 1951	—	—
RODENT INSPECTORS.				
C. W. MOODY ...	Rodent Inspector	February, 1929	—	—
E. C. WATKINS ...	ditto.	June, 1929	—	—
S. A. CROFT ...	ditto.	June, 1929	—	—
C. STOCKTON ...	ditto.	June, 1940	—	—
D. J. DAVIS ...	ditto.	August, 1941	—	—
F. D. CARTMAN ...	ditto.	September, 1943	—	—
—	(Vacant)	—	—	—
—	(Vacant)	—	—	—
RODENT CONTROL SCHEME.				
G. LAMONT ...	Rodent Inspector	April, 1950	—	—
H. A. BAXTER ...	ditto.	April, 1950	—	—
W. G. STIMSON ...	ditto.	April, 1951	—	—
G. CLARK ...	Rodent Operative	January, 1949	—	—
A. L. SOUTHWOOD ...	ditto.	January, 1949	—	—
R. M. COLLIER ...	ditto.	July, 1951	—	—
R. A. HUTCHINS ...	ditto.	July, 1951	—	—
LAUNCHES AND HULKS.				
P. J. WILKINS ...	Navigator (Senior)	November, 1947	—	—
J. R. STEEN ...	Navigator	December, 1939	—	—
W. S. STIMSON ...	ditto.	March, 1944	—	—
W. G. A. KING ...	ditto.	May, 1946	—	—
C. R. SIMONS ...	ditto.	October, 1948	—	—
J. H. MASON ...	ditto.	June, 1951	—	—
S. J. CRUTCHLEY ...	Engineer (Senior)	April, 1946	—	—
E. G. SMITH ...	Engineer	January, 1946	—	—
J. F. TRICE, M.B.E.	ditto.	September, 1947	—	—
E. W. PRYKE ...	ditto.	January, 1952	—	—
A. R. L. POTTER ...	Deckhand	July, 1945	—	—
L. J. NICHOLS ...	ditto.	April, 1949	—	—
E. ALEWOOD ...	ditto.	October, 1950	—	—
R. A. MANTRIPP ...	ditto.	June, 1947	—	—
—	(Vacant)	—	—	—
H. K. REES ...	Deckboy	July, 1951	—	—
C. G. EDWARDS ...	ditto.	September, 1951	—	—
R. W. NICHOLS ...	ditto.	February, 1952	—	—
R. TYE ...	ditto.	July, 1952	—	—
L. J. BASSETT ...	ditto.	September, 1952	—	—
C. SIMMONS ...	ditto.	December, 1952	—	—
J. F. SKEED ...	Steward (Part time)	July, 1927	—	—
A. R. BURGE ...	Shipkeeper	August, 1945	—	—
A. C. CROFT ...	ditto.	October, 1950	—	—
A. LOVEY ...	Watchman	May, 1951	—	—
W. J. MACE ...	ditto.	May, 1951	—	—
LAUNCHES—				Date acquired.
"HOWARD DEIGHTON" ...				1931
"FREDERICK WHITTINGHAM" ...				1934
"ALFRED ROBERTSON" ...				1938
"ALFRED ROACH" ...				1948
HULKS—				
"HYGELA" at Gravesend ...				1935
"UPLEES" at Greenwich ...				1945

TO THE WORSHIPFUL

THE PORT OF LONDON HEALTH COMMITTEE.

GENTLEMEN,

I have the honour to submit my Annual Report as Medical Officer of Health of the Port of London.

A letter from the Secretary, Ministry of Health, dated 19th November, 1952, enclosed copies of Circular 33/52 and Form Port 20, and requested that the Annual Report of the Port Medical Officer for London for 1952 and thereafter may be prepared on the lines of that Form, adapted as may be necessary to the special needs of the administration of the London Port Health District. This new Form replaces Memo. 302/S.A., on which Annual Reports have hitherto been based.

Tonnage. The tonnage of vessels entering the Port of London during 1952 was 28,964,629 tons as compared with 28,315,729 tons during 1951. Eleven thousand four hundred and seventy-two vessels arrived from foreign ports and of these 1,940 were visited by your Medical Officers (Table B).

Communicable Diseases. Two hundred and seventy-four cases of notifiable communicable diseases (including malaria) were reported as having occurred on 205 vessels during the voyage, of which, 138 were landed in the Port (Table D).

Forty-four cases, particulars of which are given in Appendix II (b) were admitted to the Denton Isolation Hospital.

No case of human or rat plague occurred during the year on any vessel bound for London.

Fumigations. One hundred and seventy-one vessels were either fumigated, trapped or poisoned for rodent destruction and the issue of International Certificates under the supervision of your Inspectors. One hundred and twenty-three vessels were fumigated using hydrogen cyanide and resulted in the recovery of 1,782 rats and 653 mice. Two were fumigated with sulphur dioxide accounting for 28 rats. In addition 46 vessels were subjected to various methods of poisoning and trapping, in 14 of which "1080" was used, resulting in the destruction of 102 rats and 244 mice.

Rodents. A total of 7,274 rats were destroyed and their bodies recovered during the course of the year, 2,267 in ships and 4,907 on shore premises in the Port. In addition 3,109 mice were destroyed, 958 in ships and 2,151 on shore premises (Table E).

Water Barges. Fourteen water barges were in use during the year. The registration of these craft by the Port of London Authority is made conditional upon a report of your Officers as to the fitness of the barges for the carrying of drinking water as also upon the purity of the water thus carried.

Houseboats. The routine inspection of houseboats was continued throughout the year but no progress was made in the issue of revised bye-laws submitted by the Corporation to the Ministry of Health for confirmation.

Imported Foods. The total amount of foodstuffs seized and condemned as unfit for human consumption and either reconditioned or disposed of for animal consumption or for industrial purposes under guarantee or destroyed outright either by burning or burying was 2,203 tons 0 cwt. 1 qr. 1 lb., as compared with 1,917 tons during 1951 and 2,661 tons during 1950.

Shellfish. Action taken under the Public Health (Shellfish) Regulations is reported on page 18.

Instruction of D.P.H. and D.I.H. Classes in Port Health Work. Post Graduate Students of the Royal Institute of Public Health and the London School of Hygiene and Tropical Medicine taking their course for the Diploma in Public Health and in Industrial Hygiene again paid visits to one or other of the Dock Groups and were given practical demonstrations of the day to day work of the Port Health Services on the River and in the Docks.

Visitors to the Port. A number of foreign Medical Officers and other Port Health Administrators visited the Port to study various aspects of Port Health Administration. Instruction was given according to the particular requirements of the individual.

Your Medical Officer wishes to record his appreciation of the collaboration and assistance rendered by the Officers of Her Majesty's Customs, of the Port of London Authority, the Pilots and members of the staffs of the Shipping Companies and Merchants, in every aspect of the work of the Port Health Authority throughout the year.

Your Medical Officer also has pleasure in reporting that all members of your staff have carried out their duties both willingly and efficiently.

I have the honour to be, Gentlemen,

Your obedient Servant,

M. T. MORGAN.

SECTION II—AMOUNT OF SHIPPING ENTERING THE DISTRICT DURING THE YEAR.

TABLE B.

Ships from	Number.	Tonnage.	Number Inspected.		Number of ships reported as having, or having had during the voyage infectious diseases on board.
			By the Medical Officer of Health.	By the Sanitary Inspector.	
Foreign Ports...	11,472	19,326,651	1,940	8,211	201
Coastwise ...	12,908	9,637,978	4	2,353	4
Total ...	24,380	29,964,629	1,944	10,564	205

SECTION III—CHARACTER OF SHIPPING AND TRADE DURING THE YEAR.

TABLE C.

Passenger Traffic ...	Number of Passengers—Inwards ...	101,815.
	Number of Passengers—Outwards ...	133,631
Cargo Traffic ...	Principal Imports ...	All types of produce and merchandise.
	Principal Exports ...	

Principal Ports from which ships arrive. The Port of London trades with all parts of the world.

SECTION IV—INLAND BARGE TRAFFIC.

Numbers and tonnage using the district and places served by the traffic.

There are approximately 7,000 barges of all types, e.g., dumb barges, mechanically-propelled barges, etc., registered annually with the Port of London Authority. The approximate tonnage is 500,000 tons.

The traffic of these craft extends throughout the length of the Port, while a number of them are employed carrying goods and merchandise via the canals to all parts of the country.

SECTION V—WATER SUPPLY.

1. Source of supply for—

(a) The district—

All the docks in the London area obtain their water supplies from the Metropolitan Water Board. Tilbury Dock is supplied by the South Essex Water Company.

The majority of the wharves are supplied by Public Water Authorities within whose area of jurisdiction they are situated while several have their own deep wells. A few have no water supplies available for shipping in which case any water required can be obtained from water barges.

(b) Shipping—

Ships not able to obtain water from the shore supplies indicated above, or ships lying at buoys in the river, can obtain supplies from water barges.

2. Reports of tests for contamination.

Periodic sampling of drinking water from the quayside hydrants and from water barges is carried out, the samples being submitted to the Central Public Health Laboratory, Colindale, for examination.

3. Precautions taken against contamination of hydrants and hosepipes.

Hydrants within the dock area are of the standard type in use by the Metropolitan Water Board. They are situated at intervals along the quayside and consist of an upright stackpipe with nozzle couplings to which are attached the hoses.

The hoses, of rubber lined canvas, when not in use are coiled up and hung in specially constructed boxes at convenient points within the docks. When in use particular care is taken that the hoses do not sag into the dock water and in the transference from the ship to the shore, at no time do they come into contact with the dock water. If this should happen the hoses are thoroughly cleansed and flushed with fresh water before being used again.

4. Number and sanitary condition of water boats and powers of control by the Authority.

There were fourteen water boats working in the Port during the year.

Water boats are registered annually by the Port of London Authority and such registration is made conditional upon the report of the Port Health Officer as to the fitness of the craft for the carriage of drinking water as also upon the purity of the water thus carried. To this end sampling is carried out from time to time.

SECTION VI—PUBLIC HEALTH (SHIPS) REGULATIONS, 1952.

(1) List of Infected Areas (Regulation 6).

Arrangements for the preparation and amendment of the list, the form of the list, the persons to whom it is supplied and the procedure for supplying it to those persons.

The list of scheduled ports on page 4 of the Declaration of Health covers, broadly speaking, the whole of Asia, Africa, South and Central America and the Eastern Mediterranean. To attempt to supply to Pilots and Customs Officers a weekly list of infected ports based on the Weekly Record of Quarantinable Diseases issued by the Ministry of Health would lead to chaos and to much more delay and inconvenience to shipping than the system of inspecting, as a routine, ships from any part of the world in which dangerous infectious diseases are endemic or, from time to time, epidemic.

Ships bound for London coming up the English Channel take on a Pilot off Dungeness, those coming across the North Sea take on a Pilot at the Sunk Lightship, near Harwich. The Elder Brethren of Trinity House have kindly agreed that Pilots should hand copies of the Declaration of Health to the Masters of the ships they board and accordingly supplies of the Declaration of Health are sent,

from time to time, to Trinity House. In addition several of the larger shipping companies using the Port are supplied, on request, with Declarations of Health which are placed on board their vessels with other ships' papers.

The instructions on page 4 of the Declaration of Health (applying *only* to the Port of London) are as follows :—

The Master of a foreign-going ship approaching a Port in England or Wales from a Foreign Port, must ascertain the state of health of all persons on board and fill in and sign a Declaration of Health in the prescribed form, which he must hand to the Customs Officer or to the Port Medical Officer whichever first boards the ship.

1. If the answer to any of the questions on page 1 is "YES," or if the ship, *except in the case of tankers*, has called during the previous six weeks at any of the following Ports :—

Ports in Asia, including Japan, the East Indies and Ceylon, Africa, including Madagascar, the Canary Islands and Cape Verde Islands, Turkey, Black Sea, Azores, South America, Central America, Gulf of Mexico, West Indies—

the Master must :—

(1) Send a wireless message to "PORTELTH LONDON," stating the name of his vessel and the time she is expected to arrive off Gravesend. This message must be sent off not more than 12 hours, and not less than 4 hours before the arrival of the ship.

In the case of a vessel bound for the Medway, the wireless message must be addressed to "PORTELTH LONDON," but must be as follows : (Name of Vessel) (Time of arrival) Sheerness.

NOTE.—If wireless is not carried, the Port Health Authority must be notified of the arrival of the ship as soon as possible.

(2) Radio Messages.

(a) Arrangements for sending permission by radio for ships to enter the district. (Regulation 13).

No such arrangement exists in the Port of London.

(b) Arrangements for receiving messages by radio from ships and for acting thereon (Regulation 14 (1) (a) and (2)).

Arrangements are in force by which the General Post Office telephone direct to the Medical Officer on duty on the "Hygeia" all messages received by the North Foreland Radio Station, from vessels in accordance with the instructions on the Declaration of Health.

Occasionally a vessel voluntarily sends a full Quarantine message in code, which is deciphered by the Medical Officer from Volume II (Radio) of the International Code of Signals.

(3) Notifications otherwise than by Radio (Regulation 14 (1) (b)).

Ships requiring medical attention are required to fly the flag signal 'LIM' during the day and to flash 'Q' on their morse lamp by night when approaching Gravesend, both signals meaning "Medical Officer required."

Light signals to be used by ships at night have been amended under the new Public Health (Ships) Regulations and arrangements have been under discussion for some time past to enable the red over white lights carried at the masthead or forepeak to be adopted in the Port of London.

This has given rise to some difficulty owing to the fact that the red light is already in use, either singly or combined with the white, by petroleum vessels and also by the cross-river ferries. The matter is further complicated by the fact that the white signal is used to call the Custom's launch on the approach of a vessel in the Gravesend Reach.

Consequently the flashing of "Q" by morse lamp at night still continues but a number of masters are flying the red over white signal prescribed in the 1952 Regulations and some confusion and possible danger to navigation is resulting.

It is to be hoped that the negotiations for the use of the red over white signal calling the Port Medical Officer will shortly be concluded satisfactorily.

(4) Mooring Stations (Regulations 22 to 30).

During 1947 and after correspondence with the Port of London Authority and the Waterguard Superintendent of Her Majesty's Customs and Excise, new Mooring Stations were adopted to replace those that had been destroyed by enemy action during the war.

They are as follows :—

MOORING STATIONS.

Appointed by the Medical Officer of Health, Port of London, under Regulations 22 to 30 of the Public Health (Ships) Regulations, 1952.

<i>Destination of Ships.</i>	<i>(A) Within the Docks.</i>	<i>(B) Outside the Docks.</i>
London and St. Katharine Dock ...	The nearest available river moorings by arrangement with the Harbour Authority.	
East India Dock		
Regent's Canal Dock		
Riverside Wharves and Creeks ...		
Surrey Commercial Dock	Quebec Dock Buoys	Gravesend Reach.
West India Dock	Mark Lane Buoys	
Millwall Dock	Millwall Dock	
Royal Victoria Dock	Mudfield Quay, South Side ...	
Royal Albert Dock	No. 1 Berth, R.A.Dk. Basin ...	
King George V. Dock	No. 1 Berth (lay-bye)	
Tilbury Docks	The most suitable quay berth available.	
River Buoys, e.g., Charlton Buoys	The buoys at which the vessel is moored.	
Dry Docks	The dry dock in which the vessel is lying.	

MOORING STATIONS—continued

<i>Destination of Ships.</i>		(A) <i>Within the Docks.</i>	(B) <i>Outside the Docks.</i>
Thameshaven	} Oil Tankers. ...	Place of mooring, loading or discharge.	As under (A).
Holehaven & Canvey			
Do. other ships...	...	North side of river opposite Jetties	do.
Chapmans Anchorage	...	Place of mooring, loading or discharge.	do.
Southend and Leigh	...	Do.	Gravesend Reach.
Sheerness	} Oil Tankers ...	Do.	As under (A).
Ridham			
Chatham			
Rochester, etc.			
Do. other ships...	...	Do.	Garrison Point.

Particulars of any Standing Exemptions from the provisions of Article 14.

No standing exemptions have been made in regard to ships proceeding above Gravesend, but the question of exemption for certain vessels, particularly "oil tankers" proceeding up the River Medway and to Thameshaven, was the subject of correspondence with the Waterguard Superintendent of Her Majesty's Customs and Excise, resulting in the following arrangements:—

HEALTH REGULATIONS (Customs Code Vol. 4, Part 4).

PORT OF LONDON Procedure to be followed for

SHIPS PROCEEDING UP RIVER TO GRAVESEND AREA OR ABOVE.

The list of infected areas (Customs Code, Vol. 4, Pt. 4, para. 3) referred to as the "listed areas" below, is given on page 4 of the London Declaration of Health Form.

Classification of ship C.C., Vol. 4, Pt. 4, paras. 5 & 6.	Answers given to questions on the Declaration of Health Form.	If vessel has come from a "listed area" within six weeks of her arrival in London.	Customs Procedure.
(1) All "foreign-going" ships other than Tankers.	All in the negative.	No.	Issue Certificate of Pratique.
(2) Do.	If any are in the affirmative or	Yes.	(a) Inform the Master that he:— (i) must not allow any unauthorised person to leave the ship without the Medical Officer's permission. (ii) should not proceed beyond Gravesend Reach without the Medical Officer's consent. (iii) by day immediately hoist LIM flag signals or by night flash "Q" signal to Hygeia. (b) Leave full Certificate of Pratique under cover addressed to Medical Officer of Health who will issue it in due course (see footnote (ii)). (c) In the most expeditious manner possible take any necessary action to ensure that the Medical Officer is cognisant of the vessel's arrival.
(3) "Foreign going" ships. Tankers.	All in the negative.	Can be disregarded.	Issue Certificate of Pratique.
(4) Do.	If any are in the affirmative.	Can be disregarded.	As in the case of ships at (2) above.
(5) Home Trade	If a written Declaration of Health is taken and any answered in the affirmative.		As in the case of ships at (2) above.

(i) From the heading of Col. 3 it will be seen that the fact that a ship has come from a "listed area" before six weeks of her arrival here can also be disregarded.

(ii) If the Medical Officer of Health detains the vessel he will not issue the Pratique Certificate but return it at once to the Preventive Officer who will then issue to the Master a Modified Certificate of Pratique.

(Signed) C. R. PURSER,
Waterguard Superintendent.

CUSTOM HOUSE, LONDON, E.C.3.

HEALTH REGULATIONS (Customs Code, Vol. 4, Part 4).

PORT OF LONDON Procedure to be followed for ships at—

THAMESHAVEN, HOLEHAVEN, CANVEY, CHAPMAN'S ANCHORAGE, SOUTHEND and LEIGH.

The list of infected areas (Customs Code, Vol. 4, Part 4, para. 3) referred to as the "listed areas" below, is shown on page 4 of the London Declaration of Health Form.

Classification of ship C.C., Vol. 4, Pt. 4, paras. 5 & 6.	Answers given to questions on the Declaration of Health Form.	If vessel has come from a "listed area" within six weeks of her arrival in London.	Customs Procedure.
(1) All "foreign-going ships other than Tankers.	All in the negative.	No.	Issue Certificate of Pratique.
(2) Do.	If any are in the affirmative.	Yes.	(a) Inform the Master that he is not to allow any unauthorised person to leave the ship without the Medical Officer's permission. (b) Issue modified pratique and allow vessel to proceed to her place of mooring, loading or discharge. (See footnote (i)). (c) In the most expeditious manner possible notify the Medical Officer of Health on the Hygeia. Telephone Gravesend 325. (See footnote (ii)).
(3) "Foreign going" ships. Tankers.	All in the negative.	Can be disregarded	Issue Certificate of Pratique.
(4) Do.	If any are in the affirmative.	Can be disregarded	As in the case of ships at (2) above.
(5) Home Trade Ships	If a written Declaration of Health is taken and any answered in the affirmative.		As in the case of ships at (2) above.

(i) A full "Certificate of Pratique" is to be left under cover on board addressed to the Medical Officer of Health who will issue in due course.

(ii) Should any difficulty arise in contacting the Hygeia the message is to be passed via Gravesend Custom House, telephone Gravesend 1234.

From the heading of Col. 3 it will be seen that the fact that a ship has come from a "listed" area before six weeks of her arrival here can also be disregarded.

(Signed) C. R. PURSER,

Water Superintendent.

CUSTOM HOUSE, LONDON, E.C.3.

**HEALTH REGULATIONS (Customs Code, Vol. 4, Pt. 4).
 PORT OF LONDON. SHEERNESS PROCEDURE.**

1. The list of infected areas, referred to as the "listed areas" below (Customs Code, Vol. 4, Part 4, para. 3) is given on page 4 of the London Declaration of Health Form.

2. The Medical Officer of Health, Port of London Health Authority, requests the application of the following procedure as from the 1st March, 1947.

Classification of ship C.C., Vol. 4, Pt. 4, paras. 5 & 6.	Answers given to questions on the Declaration of Health Form.	If vessel has come from a "listed area" within six weeks of her arrival at Sheerness.	Customs Procedure.
(1) All foreign-going ships other than Tankers.	All in the negative	No.	Issue Certificate of Pratique.
(2) Do.	If any are in the affirmative, or	Yes	Inform the Master that he is not to allow any unauthorised person to leave the ship without the Medical Officer's permission. Issue Modified Pratique and allow vessel to proceed to her berth. In the most expeditious manner possible notify Dr. Madwar in the case of ships berthing at Sheerness or Dr. Murray in the case of ships proceeding direct to Rochester.
(3) Foreign-going ships. Tankers.	Are all in the negative.	Can be disregarded	Issue Certificate of Pratique.
(4) Do.	If any are in the affirmative.	Can be disregarded	As in the case of ships at (2) above.
(5) Home Trade ships.	If a written Declaration of Health is taken and any answer is in the affirmative.		As in the case of ships at (2) above.

From the heading of Column 3 it will be seen that the fact that a ship has come from a "listed area" before six weeks of her arrival here can also be disregarded.

As regards ships shown at (2) (4) and (5) it will facilitate matters if a full Certificate of Pratique is left under cover on board addressed to the Doctor for him to hand to the Master in due course.

(Signed) C. R. PURSER,

Waterguard Superintendent.

CUSTOM HOUSE, LONDON, E.C.3.

5. Arrangements for—

(a) Hospital accommodation for infectious diseases (other than smallpox—see Section VII).

Denton Hospital having been transferred to the Seamen's Group of Hospitals attached to the South-East Metropolitan Regional Hospital Board, arrangements have been made for a patient or patients suffering from an infectious disease to be removed to Denton Hospital, pending arrangements for the transference of such cases to the appropriate hospital under the management of the South-East Metropolitan Regional Hospital Board.

(b) Surveillance and follow up of contacts.

In the event of a vessel arriving on which there is or has been a case or cases of a major infectious disease, all persons on board are considered to be possible contacts.

Such persons are individually interrogated as to the address to which they are proceeding immediately on disembarkation and given a specially prepared double post-card on one half of which they give full details of their names and addresses. These particulars, together with an appropriate note of the circumstances are then forwarded to the Medical Officers of Health of the districts in which the contacts' address is situated. The other half of the card they are asked to keep and use only should they change their address during a specified period, usually the incubation period of the disease in question. This half of the card is on the "Business Reply Card" system so that the person concerned does not have to stamp it.

(c) Cleansing and disinfection of ships, persons, clothing and other articles.

Disinfection of infected quarters is usually carried out by the Sanitary Inspector in whose area the vessel berths. Should, however, the space requiring disinfection be large, a private firm is employed who carries out the disinfection under the supervision of the Sanitary Inspector.

Although Denton Hospital has been taken over by the South-East Metropolitan Regional Hospital Board, the Disinfecting Station, containing a Washington Lyons Steam Disinfector, is available for the disinfection of clothing, bedding, etc., and for the cleansing of cases of scabies.

SECTION VII—SMALLPOX.

(1) Name of Isolation Hospital to which smallpox cases are sent from the district.

Denton Hospital is situated on the south bank of the River about a mile below Gravesend. The hospital buildings comprise a small administrative block and nurses' home, three ward blocks (one a cubicle ward with eight cubicles), a laundry, a disinfection station, a porter's cottage and a mortuary. Cases can be landed from the ambulance launch at a jetty and be wheeled straight into the hospital.

In the event of a case or cases of smallpox one of the ward blocks (the smallpox block) could be opened for the reception and nursing of patients. Alternatively, patients may be removed to other approved hospitals under the management of the South-East Metropolitan Regional Hospital Board.

(2) Arrangements for transport of such cases to that hospital by ambulance giving the name of the Authority responsible for the ambulance and the vaccinal state of the ambulance crews.

The removal of a case or cases from a vessel to Denton Hospital would be carried out by the Port Health Authority's Ambulance Launch and that Authority would be responsible for the vaccinal state of the ambulance crew.

In the case of patients removed to other isolation hospitals the responsible body would be the South-East Metropolitan Regional Hospital Board.

(3) Names of smallpox consultants available.

Dr. W. T. Boul.	Dr. J. P. Marsden.
Dr. W. J. Coughlan.	Dr. M. T. Mitman.
Dr. H. S. Banks.	Dr. J. W. Armstrong.

(4) Facilities for laboratory diagnosis of smallpox.

Facilities are available at the Virus Laboratory of the Central Public Health Laboratory at Colindale.

SECTION VIII—VENEREAL DISEASES.

The Venereal Diseases are not compulsorily notifiable but efforts are made to bring to the notice of all seamen using the Port, the facilities for free treatment under the Brussels Agreement.

When the Medical Officers board ships on arrival they always enquire whether there are any cases of venereal disease on board. Should there be a known case, the infected person's attention is drawn to the importance of obtaining skilled treatment as soon as possible and he is given a list of addresses of the Clinics near the ship's berth in London and the times at which cases may attend.

Similarly the Sanitary Inspectors have a supply of pamphlets listing the names and addresses of places of treatment available. This notice is printed in 21 different languages and is posted up at vantage points throughout the whole dock area.

SECTION IX—Cases of notifiable and other infectious diseases on ships.

TABLE D.

Cases landed from ships from foreign ports.

<i>Diseases.</i>	<i>Passengers.</i>	<i>Crew.</i>	<i>Number of ships concerned.</i>
Chickenpox	7	9	12
Pulmonary Tuberculosis	5	49	54
Poliomyelitis	—	2	2
Mumps	7	3	5
Measles	11	2	8
Malaria	—	12	10
Dysentery	1	14	15
German Measles	1	5	4
Enteric Fever	—	3	3
Pneumonia	—	6	6
Diphtheria	1	—	1

Cases disposed of before arrival.

Chickenpox	20	7	21
Mumps	11	3	13
Poliomyelitis	1	—	1
Enteric Fever	2	3	4
Malaria	—	15	7
Dysentery	2	3	4
Measles	42	1	13
Pulmonary Tuberculosis	9	3	11
German Measles	7	—	5
Pneumonia... ..	1	—	1

Cases landed from other ships.

Mumps	—	3*	1
Diphtheria	—	1†	1
Chickenpox	—	1†	1
Pulmonary Tuberculosis	—	1†	1

*Training ship "Worcester."

†Coastwise Vessels.

SUSPECTED SMALLPOX.

The vessel left Sydney bound for London on October 24th, 1952, and made the following calls during the voyage :—

Melbourne	28th October.	Bombay	13th November.
Adelaide	30th October.	Port Said	21st November.
Fremantle	3rd November.	Marseilles	24th November.
Colombo	11th November.	London	30th November.

On arrival in London the vessel had on board 506 passengers and a crew consisting of 249 Europeans and 267 Asiatics.

The Ship's Surgeon reported the following cases of chickenpox during the voyage :—

(1) A female passenger, aged 6, who embarked at Melbourne on the 28th October, developed chickenpox, the date of onset being November 7th. Date of vaccination 13th November, 1949, revaccinated 14th November, 1952, with positive result. She was isolated in the ship's isolation hospital on November 8th. The attack was a mild one.

(2) Another female passenger, aged 9, who embarked at Adelaide on the 30th October, was found to be suffering from chickenpox, the date of onset being November 5th. Date of vaccination 2nd October, 1952. She was isolated in the ship's hospital on November 8th. The attack was a very mild one.

(3) The third case—a Male Asiatic Steward, age 44, who had been a member of the crew since May, 1951—developed chickenpox on November 22nd, was isolated in the ship's hospital on the 23rd November with a mild attack. Date of last vaccination 22nd May, 1951.

(4) A fourth case, a female passenger, aged 27, who embarked at Fremantle on 3rd November, had an attack beginning on the 25th November. She was isolated in the ship's hospital on the 26th November, with an early moderate rash of chickenpox. Four large scars of childhood vaccinations. Date of last vaccination 15th August, 1951.

All four cases were in fairly close contact since the Steward was the Bedroom Steward of the three passengers.

The Ship's Surgeon was reasonably certain that the Steward was suffering from chickenpox, but since the rash had a slightly wider distribution, there being a few pocks on the face, hands and feet, he felt it wise to send off a specimen for laboratory investigation, by air from Marseilles; the first port of call following the discovery of the case.

The specimen was posted from Marseilles on the 24th November and reached the Central Public Health Laboratory, Colindale, on the 26th November and a report was issued on the 27th November to the effect that the investigation of scab material was negative to smallpox.

On Saturday morning, the 29th November, the Laboratory reported that the colonies growing on egg culture were atypical and that "smallpox could not be excluded."

Immediately upon receipt of this report, I decided that, whatever the clinical condition of the Steward (and of the other three cases of undoubted chickenpox), the case of the Steward must in the light of the Laboratory report be regarded as suspect smallpox and administrative action taken accordingly. Consequently, a signal was sent to the ship by the Medical Superintendent of the shipping company, to the effect that the case would be regarded on arrival as suspected smallpox; that the case would be disembarked in the River for admittance to the Denton Isolation Hospital; that all persons not in possession of a valid certificate of vaccination against smallpox should be offered vaccination; and that all persons landing would be under surveillance for a period of fourteen days following disembarkation.

The ship arrived at 0830 hours on Sunday, 30th November, and was boarded by myself, Dr. Willoughby and Dr. Jones, and the Deputy Medical Superintendent of the shipping company, together with five members of the staff of the Port Health Office.

It was found that the two small girls were clear of rash and had been released from isolation and accordingly no further action was taken in regard to them.

The condition of the Steward on examination was as follows: A centralised rash occurring with equal intensity on the back and chest, with a dozen spots on the face and neck; a few spots on the upper arms; one in the hair, and two possible spots on the feet. Rash in the later stages; a few vesicular but mostly pustular with scabbing well advanced. Patient afebrile and not complaining of symptoms.

The female passenger on examination showed a typical early chickenpox rash, mostly in the upper part of the trunk, on the back and upper chest. There were groups of spots on the edge of the back and chest where she had exposed herself to the sunlight and was moderately sunburnt; a few spots on the upper arms and on the face, and one on the soft palate. Rash in all stages, papular, vesicular and pustular. Patient afebrile and not complaining.

The ship's Surgeon had vaccinated 250 passengers during the day before arrival.

The Asiatic Steward and the adult female passenger, together with their personal effects and infected bedding, mattresses, etc., were promptly transferred to the Port Health launch and thence to Denton Hospital, after which the ship was permitted to proceed to Tilbury Landing Stage for the eventual disembarkation of passengers.

The Port Health Staff at once got to work on the distribution and collection of the yellow cards, on which passengers are required to fill in the address of their immediate destination, and this was completed by 1 p.m. The interrogation of each passenger was combined with the usual Immigration proceedings with the result that all passengers were able to leave the ship in time to pass through Customs and later to catch the train for London according to schedule.

The cards were separated into the areas of immediate destination and were despatched, at the General Post Office, London, by 7.30 p.m. the same evening, together with a covering letter to the Medical Officers of Health of 35 London Districts and 122 Provincial Districts.

A full list of passengers disembarking at Marseilles was posted to the Ministry of Health.

As regards the crew, arrangements were made whereby members of the crew proceeding at any time on leave during the fourteen days following the arrival of the ship would be reported to the Port Health Office and would be then reported to the Medical Officer of Health of the district to which they

would be proceeding, for surveillance for the balance of the fourteen days period. A daily medical muster of those remaining on board would be carried out, i.e., surveillance would be carried out on board the ship of all persons, including the Asiatic crew, remaining on board.

On Monday morning, December 1st, a telephone message was received from the Central Public Health Laboratory reporting the case to be negative to smallpox and a letter was sent immediately to all Medical Officers of Health notified of the arrival of contacts in their areas, stating that as a result of this report surveillance need not be continued.

Some interesting and important points emerge from the incident :—

1. The arrangements made with the Postmaster-General for the despatch by air of laboratory specimens worked perfectly. It appears that there was no delay whatsoever in getting the postal package to Marignan aerodrome and the package was followed most closely and without delay right through to its destination at Colindale. This may be regarded as highly satisfactory and the Postal Authorities, here and abroad, are to be congratulated.

2. While all four cases were, clinically, typical cases of chickenpox, the laboratory investigation and the report thereon was such as to render it necessary in my opinion to act as if one at least of the cases was possibly a case of smallpox. Some further investigation will be necessary to see whether it is possible for the virologists to be a little more precise in their interpretation of the findings, otherwise the use of the theoretically admirable system of sending material for diagnosis by air well in advance of the arrival of the ship may give rise to some doubt as to its practical value and lead to awkward consequences. It might indeed result in a situation where, by the number of doubtful findings, some slackening in the close surveillance of persons reported to be contacts with smallpox, would develop. Such a situation would be most unfortunate and it is hoped that a review of the procedure will avoid this because the potential value of a pre-arrival laboratory report confirming or rejecting the ship surgeon's clinical diagnosis is, in my opinion, of the highest importance not only in the protection of the country against the introduction of smallpox but also in reducing the disturbance to passengers and expense to shipping companies.

SECTION X—Observations on the occurrence of malaria in ships.

Twenty-seven cases of malaria were reported on seventeen vessels during the year under review. All the cases occurred amongst members of the crews, fifteen cases being disposed of prior to the arrival of the vessels in this Port.

SECTION XI—Measures taken against ships infected with or suspected for plague.

Plague being primarily a disease of rats all vessels are inspected immediately on arrival at their berths in the dock and river for the presence of any mortality among the rats on board which is not attributable to any known cause, such as trapping, poisoning, etc.

Any such rats are immediately sent to the Central Public Health Laboratory at Colindale for examination for bacillus pestis, each rat being accompanied by a label on which is given precise information as to where the rat was found in order to arrive at a focus of infection should the examination prove positive.

In the event of a positive result the discharge of the cargo would be promptly stopped and, if necessary, arrangements made for the vessel to be fumigated throughout with hydrogen cyanide, with the cargo in situ, the vessel being removed to an approved mooring.

Following the initial fumigation and collection of dead rats, further samples of which would be submitted for examination, the discharge of the cargo would be permitted under observation. The destination of the cargo would be ascertained and a note of the circumstances would be forwarded to the Medical Officer of Health of the district to which the cargo was proceeding.

Should any of the cargo be discharged overside into lighters, such lighters would be fumigated immediately they were empty.

On completion of the discharge of cargo from the vessel a second fumigation would be carried out again using hydrogen cyanide to destroy the residual rat population, if any.

SECTION XII—Measures against rodents in ships from foreign ports.

(1) Procedure for inspection of ships for rats.

The Port Health Authority employs thirteen Rodent Operators working in conjunction with and under the supervision of the Sanitary Inspectors.

The Rodent Operators' first duty is the examination of such ships in his area as are due for inspection under Article 19 of the Public Health (Ships) Regulations, 1952, relating to the granting of Deratting and Deratting Exemption Certificates.

His second duty is to visit all ships arriving in his district, to search for evidence of rats, paying particular attention to vessels which have arrived from plague infected ports and to visit such vessels during the discharge of cargo.

The Rodent Operators' third duty is the examination of shore premises for signs of rat infestation paying particular attention to premises adjoining the berths of vessels from plague infected ports.

In 1941 the Port Health Authority instituted a Rodent Control Scheme in all docks and premises of the Port of London Authority, on behalf of that Authority and in the premises of the tenants of the Authority on behalf of the occupiers.

This scheme in its early days, relied principally on trapping but with experience and the application of a more up-to-date knowledge of the habits of rats, new and scientific methods of poisoning gradually took the place of trapping, the latter now only being occasionally used to clear up residual rats, if any, which have escaped a major poison operation.

The Port of London Authority have made byelaws requiring the Master of every ship to cause all ropes and mooring tackle to be fitted with guards to prevent rats passing from ship to shore. The byelaws also prescribe that when the discharge or loading of cargo is not actually proceeding, one gangway, whitened for a length of 10 feet at the end next the vessel, may be used as communication between the ship and the shore.

(2) Arrangements for the bacteriological examination of rodents, with special reference to rodent plague, including the number of rodents sent for examination during the year.

As described in Section XI above all rats for examination for plague, either by post mortem and subsequently, if necessary, by bacteriological examination, are promptly sent to the Central Public Health Laboratory at Colindale.

The bodies are placed in canvas bags which in turn are placed inside metal boxes, sealed and labelled so that there is no risk of the escape of any rat fleas during their transit to the Laboratory. The boxes are, of course, delivered by hand.

Examination of rats for evidence of plague being a public health measure, is now carried out at the Government Laboratory at Colindale free of charge, representing a considerable saving in cost to the Port Health Authority.

The routine Laboratory examination of rats found dead from an unknown cause has been a regular practice in this Port for many years and it would appear to be a necessary and desirable precaution. Even the practice of sending rats killed by trapping or poisoning or a proportion of the number so killed would appear to be desirable.

Nevertheless the matter must be viewed objectively and in the light of a number of factors such as the incidence of plague infected rats found in the Port over a number of years, the cost of the service, the probability that the routine practice will have a bearing on the protection of the Port against plague and finally in the event of a plague rat arriving in the Port the probability of the transmission of the disease to the rat population in Port installations.

To take each of these features seriatim, a plague infected rat has not been discovered in this Port since 1927, consequently the Laboratory examination of rats has been continued year after year for some 25 years, without any positive result.

The incidence of rats in ships which increased considerably under war conditions has now returned to a pre-war state and is indeed much less than the incidence in pre-war days. This is confirmed by the diminishing number of rats destroyed in ships and the proportionately small number of deratting certificates issued as compared to exemption from deratting.

The rat population in the Port is now so small and is under such strict control that it can be said to be almost certain that the arrival of a plague infected rat would be highly unlikely to have any serious significance. In other words, an epizootic could not be introduced into the Port for the simple reason that there are insufficient rats to support an epizootic of this kind.

Consequently the routine examination of rats was abandoned early in the year and only rats found dead in circumstances which might possibly indicate the presence of plague are being sent to the Laboratory. No such circumstances have arisen during the year and consequently no rats were sent to the Central Government Laboratory.

(3) Arrangements in the district for deratting ships, the methods used, and, if done by a commercial contractor, the name of the contractor.

(a) The burning of sulphur at the rate of 3 lbs. per 1,000 cubic feet of space for a period of not less than six hours.

The destruction of rats, whether it be by the open pot method or by sulphur gas is efficient and the great advantage is that when applied in the holds of a ship the crew need not be put ashore.

Unfortunately a number of countries have, for some time past, refused to accept as valid, International Certificates, where this method of rat destruction has been employed; consequently it has fallen out of use.

(b) The generation of hydrocyanic acid gas by various methods. For the destruction of rats a concentration of HCN at the rate of 2 ozs. per 1,000 cubic feet of space is required with a minimum of two hours contact. If the fumigation is for the destruction of insect life, bed bugs, cockroaches, etc., two or three times the concentration is employed and the exposure increased up to twelve or even twenty-four hours, according to the time available.

(c) "1080" and "Warfarin." The employment of the new rodenticides "1080" and "Warfarin" are referred to elsewhere in this report.

The employment of "1080" has been used regularly throughout the docks with highly satisfactory results. Its use in ships is still in the experimental stage but there is every indication that its use in ships is equally satisfactory to its use ashore. A certain number of ships have been deratted by this method in preference to the use of cyanide, resulting in a considerable saving in time and cost to the shipowner.

Satisfactory results have been obtained from the use of "Warfarin" but a suitable bait, particularly in granaries, with which to mix the poison which rats will take continuously in preference to the grain or other form of cereal on which they are normally feeding, has yet to be found.

(d) Trapping. Trapping is seldom employed save for the destruction of isolated rats which have not yet established themselves.

The following are the names of the firms approved for carrying out the deratting of ships:—

Messrs. Associated Fumigators, Ltd.	Messrs. Fumigation Services, Ltd.
Messrs. London Fumigation Co., Ltd.	Messrs. Ridpests, Ltd.
Messrs. Deodor-X Hygiene Services, Ltd.	Messrs. Insecta Laboratoris Ltd.

TABLE E.

Rodents destroyed (bodies recovered) during the year in ships and in shore premises.

(1) On Vessels.

Number of	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Black Rats...	169	92	137	199	344	229	239	169	200	204	105	153	2,240
Brown Rats ...	—	—	—	22	5	—	—	—	—	—	—	—	27
Species not recorded	—	—	—	—	—	—	—	—	—	—	—	—	—
Rats examined	—	—	—	—	—	—	—	—	—	—	—	—	—
Rats infected with plague	—	—	—	—	—	—	—	—	—	—	—	—	—

(2) In Docks, Quays, Wharves and Warehouses.

Number of	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Black Rats...	168	172	155	168	199	136	169	90	73	144	93	59	1,626
Brown Rats ...	305	193	199	483	440	206	183	340	171	430	219	212	3,381
Species not recorded	—	—	—	—	—	—	—	—	—	—	—	—	—
Rats examined	—	—	—	—	—	—	—	—	—	—	—	—	—
Rats infected with plague	—	—	—	—	—	—	—	—	—	—	—	—	—

A REVIEW OF METHODS EMPLOYED IN THE DESTRUCTION OF RODENTS.*

So much has been said and written about rats and mice, their depredations, their danger to health, and so many "infallible" methods for their destruction have been advocated, that some very good reason should be forthcoming before one more contribution on the subject can be contemplated. My excuse is that I wish to sing the praises of two remarkable new rodenticides which are in common use in the United States but have not yet received the attention they deserve in this country.

First, let me briefly discuss the results that we seek to obtain by any method we employ for exterminating rats or mice and the conditions that should be fulfilled before it can be regarded as really satisfactory. The word "exterminate" is used advisedly—we are not out to destroy a few rats in a haphazard manner but to eliminate the whole colony and, if possible, to prevent any subsequent reinfestation. There must be no compromise in this since failure to exterminate means that in a short time—a very short time—we shall find ourselves once again faced with the same problem and in the same dimensions.

What are the conditions that the ideal method should fulfil?

1. Properly used it should be 100 per cent. effective in eliminating the whole colony;
2. It should kill rapidly and preferably painlessly;
3. It must not be dangerous to other animals, including humans, and should preferably be specific to rats and mice;
4. Given a modicum of intelligence it can be applied by anyone, provided instructions are carefully followed out;
5. It must not be costly either in material, time or labour.

No known method fulfils all these conditions; many that are widely advertised fulfil none of them, and only a few of them fulfil more than two or three.

The methods at present in vogue can be divided broadly into four categories:—

Direct Violence. This is, of course, in no way new and indeed is as old as contact between rats and man. It can be very effective and appeals to some because it contains an element of sport. Thus occasionally a whole colony of rats can be killed by direct violence, as for instance, when a rick or a stack of bagged grain that is known to be infested with rats is broken down. Every available person and dog is called in to join in the mass slaughter of the rats as they are driven out into the open. But it seldom happens that the last rat is done in by this means for a certain number will inevitably escape to start their domestic life afresh elsewhere. Nevertheless, it should be possible, with good organisation, to get something approaching a 100 per cent. kill.

Trapping. Trapping is, of course, a form of violence and can be very effective, particularly in small, newly established colonies, in farm buildings, warehouses, and in localised infestations, in a ship or in the home. It has the disadvantage that it is a skilled art requiring considerable knowledge of rats and mice and their habits, without which the result may be a failure, judged by the capture of only a proportion of the established colony.

The best trap in my experience is the spring treadle or "break-back" trap, and of the various types the best of them is the one in which the treadle takes the form of a moveable platform held in position by the tongue and loop which sets the spring and on which the bait is laid. In this type of trap the rat or mouse must put the forefeet on the platform or at least stretch the neck well over in order to get to the bait, with the result that it springs the wire across the shoulders or neck resulting in instant death or at least so firm a hold that there is no question of escape. The skill in the use of this trap lies in the proper adjustment of the wire rod and loop so that the slightest touch will spring the trap, in using an appropriate bait, and in laying the trap in runs and other places which are frequented by the rats as they move about.

There is another essential to success which is not usually appreciated—that it is of little use laying one or two traps as is so often done, particularly in the house. Efficient trapping calls for a mass attack using a large number of traps in the hope that most of, if not all, the rats will be caught in a very short time. Rats become trap-shy very quickly and once nipped or frightened by the springing of the trap will not come near it again, however attractive the bait may be. In effect, as many traps should be employed as the estimated number of rats in the colony and in any event not less than six traps even to catch one rat or mouse. Rats, and to a lesser degree mice, have what is called a "new object" reaction—they are inclined to avoid any new object until they have become accustomed to it. A trap is certainly a "new object" and it takes some little time before rats will approach, and much more, feed from it. It is quite a good plan, therefore, when laying baited traps, not to set the spring for two or three days so that the rats may become accustomed to them and feed on the bait with some confidence. Then one day set the spring and your kill will be the more satisfactory.

Most baits used with traps are too elaborate and are allowed to remain too long and so become stale. The advantage of the "break-back" trap with platform is that loose bait can be sprinkled on the platform, with the result that the rat will sooner or later put his forefeet on the platform and so spring the trap. An excellent bait both for rats and mice consists simply of a mixture of rolled oats five parts and fine sugar one part sprinkled on the platform. Obviously a bait of this kind cannot be used in the open where rain is likely to spoil it and in any case it is doubtful whether traps are of much use in the open. In brief, traps of whatever kind—gin, break-back, cage, etc.—have been superseded by better methods for the total elimination of colonies.

POISONS.

Poisonous Gases. The only poisonous gas at present in general use in this country is hydrocyanic acid gas (HCN). It can be used either in the form of a liquid which rapidly evaporates on contact with the air, or absorbed in a neutral substance which gives off the gas when exposed to the air. Under suitable conditions HCN is as nearly an ideal poison as is known, for the reason that the whole colony can definitely be exterminated by this means. Nevertheless, it has the great disadvantage that it is intensely poisonous to man and animals and most dangerous to use unless strict precautions are taken. It can be used for the destruction of colonies of rats in ships, in burrows in the hedgerows, in the farmyard, and in warehouses and other buildings where the space occupied by the rats can be effectively isolated from the outer atmosphere so that a good lethal concentration of the gas can be built

* A note submitted by Dr. Morgan at the Annual Meeting of the Association of Sea and Air Port Health Authorities of the British Isles.

up and penetrate into all nooks and corners that offer harbourage. It is seldom that this can be done unless the gas is pumped into the enclosed space under pressure. HCN is rapidly absorbed by moisture so that much more gas may be required than is calculated. In any case, HCN should only be employed by skilled operators who are fully aware of the dangers and will take all the necessary precautions laid down in the Fumigation with HCN Regulations for Ships and Buildings.

Chemical and Vegetable Poisons. Before referring briefly to the range of poisons of this type, a word must be said on certain principles which must be observed if their use is to be effective. Poisons are generally mixed with an attractive bait and then laid in a number of strategic points where there is evidence that rats are moving about, e.g., near holes and rat runs, or in places where there is an abundance of rat droppings. Poison bait is also a "new object" and rats must become accustomed to it before they will feed freely.

A system has, therefore, been devised that is known as "pre-baiting." It simply consists in laying unpoisoned bait at the various points selected, for a period of three to five days or more until it is found that the rats are taking the bait freely, the bait taken being replenished day by day. At the end of the pre-baiting period, the same bait, to which the poison has been added in the appropriate proportion, is laid and a kill secured. It is more than probable that only a proportion of the rats killed will be found, so that in order to ascertain that the kill has been successful, it is necessary to "post-bait" with an entirely different bait (on the assumption that the remaining rats, if any, will have become shy to the poison bait) and to ascertain the take, if any, of the new bait.

All this pre-baiting, poisoned baiting and post-baiting business takes time and labour and is, therefore, costly. Nevertheless, if carefully done, it can be highly successful.

Turning to the poisons, the following are in common use at present: zinc phosphide, arsenic, red phosphorus, "Antu" and red squill. The first four of these poisons are dangerous to all warm-blooded animals and should, therefore, only be used in warehouses, farms, and domestic buildings with strict precautions to ensure that all domestic animals are kept well away from the site of operations, or that the poison baits are in any case quite inaccessible to them, and that at the end of the operations all poison baits are swept up and burned.

A word about Red Squill. Red Squill has the property of causing vomiting and consequently dogs, cats and such like, if they consume a red squill bait will escape serious harm by vomiting it up. Rats die of red squill poison for the simple reason that they are unable to vomit and so eliminate the poison from their stomach.

There is another class of poison employing bacteria or so-called viruses, the intention being to give the rats a fatal transmissible disease which will spread throughout the colony. Such poisons are not to be advocated since they may cause symptoms of the disease in varying degree in humans.

One final point in regard to the use of these poisons. Rats, and of course, mice, poisoned with zinc phosphide, arsenic, phosphorus, or "Antu" can, if eaten by dogs or cats, cause their death. It is of great importance, therefore, that following a poisoning operation, dead rats should be carefully sought for and, if found, promptly destroyed, preferably by burning.

We can now turn to the two recently discovered rodent poisons which are the principal subject of this article. They are Sodium Fluoroacetate ("1080") and "Warfarin." The former may be regarded as a short term poison and the latter as a long term poison for reasons which will appear as they are described below.

Sodium Fluoroacetate, popularly known as "1080," was first employed as a poison in the United States during the War and has been considerably developed since. It is, with the exception of HCN, the most effective poison now available, but it is also among the most dangerous to warm-blooded animals. It is a light, white crystalline powder, odourless and tasteless (so I am told!), very soluble in water but practically insoluble in oils. One or two cubic centimetres of a quarter per cent. solution in water will put the rat out of action in twenty minutes or less, and it is not uncommon to see the bodies of rats lying within a few feet of the solution that they have been drinking. It appears to have no repellent effect and, in fact, experience shows that it must have some attractive taste to rats since they have been found to drink it in preference to plain water nearby. It kills by acting on the heart and nervous system.

In theory, therefore, and indeed in practice, all that is required is a suitable form of small unspillable container holding, say, twenty to thirty cubic centimetres of the watery solution of "1080" placed at a number of strategic points. The use of a solution rather than a solid bait is of great advantage since rats (much less so mice) are great water drinkers and will not establish themselves anywhere where there is not an abundance of water at their disposal. The mechanics of the method are therefore of the simplest; there is no need for pre-baiting and, the poison solution once laid, results can be expected in a matter of hours.

The poison would therefore be ideal were it not for the fact that it is, to repeat, intensely poisonous to all warm-blooded animals, including human beings, and there is no known antidote. The most strict and stringent precautions must, therefore, be taken to ensure that unauthorised persons cannot come into contact with it and that effective means are taken to avoid any possibility of other animals, of whatever kind, either drinking the bait or, what is equally important, consuming the whole or part of a poisoned rat. A number of fatalities have occurred in the United States among animals, cats, dogs, poultry, pigs and even cattle, as a result of their access to "1080" bait or eating "1080" poisoned rats, and it must be confessed that human fatalities have also occurred due principally to carelessness in the preparation of the poison solution, such as allowing stocks of solution made up in unlabelled bottles and such like to lie about where children and others can get at it and inadvertently drink it. Obviously also every precaution must be taken against contamination of foodstuffs by "1080."

It can now quite readily be deduced that the indications and opportunities for the use of this poison are strictly limited. It should obviously not be available to the general public for use in the home nor in places such as restaurants or, indeed, in any space where there is not the strictest control

over access to the baited area, be it ship, warehouse, barn, outbuilding, or in the open hedgerow. Nevertheless, it is of the greatest value where time is an essential factor, limiting the operation to overnight or weekend baiting. Thus, it has been found of great use in the destruction of rats in ships making only a short stay in port, and in warehouses and similar premises which are only unoccupied overnight or at the weekend. Used in this way it has replaced expensive fumigations with HCN. It may or may not have extensive use in the countryside or even in towns and it certainly should not be employed other than by trained men under strict control.

Warfarin is a complicated synthetic product and in normal circumstances is a colourless crystalline solid without odour or taste in the concentrations used for the destruction of rats and mice. It was first developed in this country and then perfected by Dr. K. P. Link of the University of Wisconsin, U.S.A. He got a hint of a unique poison in nature when he watched some cattle eating spoiled sweet-clover hay. He was struck, he says, by the element of repose prevailing in the barn. Dead cows looked as if they were only sleeping. Cows too weak to stand kept eating the deadly hay, not realising that what they ate was making them bleed to death.

Spoiled sweet-clover hay has been found to contain an element known as Dicoumarin which has the property of slowing down the rate of clotting of the blood to a point when, after progressive doses of the substance, wounds will bleed and continue to bleed and spontaneous bleeding will occur without any apparent injury to the blood vessels. It is used in certain human diseases to prevent the clotting of the blood, but the dosage and the number of doses must be strictly controlled if dangerous bleeding is to be avoided. It is, therefore, a long term poison to the extent that it must be taken regularly, not intermittently, for a period of days in order to secure a state when spontaneous and fatal hæmorrhages will occur.

Synthetic Warfarin compound is infinitely more effective than Dicoumarin and in the case of rats and mice so small an amount as 0.025 per cent. Warfarin mixed with an appropriate bait and eaten by rats steadily over a period of five to ten days will so reduce the coagulant property of the blood that the rats will die of spontaneous hæmorrhage as well as, of course, the parturient doe at the time of the birth of her young, resulting not only in her death but the death of the whole of her litter.

There need be no pre-baiting with Warfarin. It need only be mixed with a bait more attractive than the bait on which the rats are principally feeding and be laid at a number of points, being replenished for a period of five to ten days until there is no further evidence of take.

What will be the effect on other domestic animals? Warfarin taken in this way will, of course, kill other domestic animals and it is necessary therefore that they should be kept away from the baited site, but in the concentration employed one or even two large helpings of the bait taken by an animal will have little if any effect on it since it is the continued consumption of Warfarin that is essential to produce a state of spontaneous hæmorrhage. Its danger, therefore, is in quite a different category to the commonly used poisons, such as "1080," zinc phosphide, arsenic, etc., a single dose of which is fatal.

Rats and mice eating the poison bait are quite unaware that it is the bait which is causing their symptoms and is steadily killing them; consequently, they continue to eat the bait until the end. Whole colonies can in this way be exterminated, but there is more to it than that. Baits laid and properly protected will be eaten by fresh invaders before they have had any time to establish themselves and, consequently, Warfarin can be regarded as a permanent method of rat control.

One of the simplest and the best types of permanent baiting point is the agricultural pot-drain consisting of a simple tube about a foot long by four inches or so in diameter, into which a rat can easily penetrate, but not dogs, cats, poultry, pigeons, etc. A number of pot-drains, therefore, laid at strategic points, into which a heap of Warfarin bait is inserted, can lay for an indefinite period, being visited as often as necessary according to the amount and nature of the bait being taken.

There is a great variety of baits with which Warfarin can be mixed, and it is not possible in a short article of this kind to suggest the most suitable baits for the simple reason that it depends entirely on the type of food on which the rat colony is feeding. It is obviously of little use to lay baits of wheat in a granary where wheat is being stored, or a fish bait in proximity to fish manure. Nevertheless, it may be found that soaked wheat (wheat soaked in water overnight and the water then drained off) may be taken by the rats in preference to hard wheat. Ground desiccated kipper may be found an attractive bait as also sausage rusk (unleavened bread, which is the principal constituent of our present-day so-called meat sausage!), sweet crumbled biscuit, sugar meal (rolled oats 5 parts, sugar 1 part) or coarsely ground maize in which the germ is retained. In other cases oil bread mash (ground stale bread 16 ozs., crude cod-liver oil 3½ ozs.) may also be found to be readily taken, but care must be taken to replenish this and any other oil or fatty bait before rancidity occurs. Other baits that may be used are soya flour, soaked crushed barley, palm nut flour, horse meat, or boiled blood (obtainable from any abattoir).

Warfarin is now obtainable in this country in a concentrated form for mixture with appropriate baits and there is every likelihood that it will become widely used in the near future.

Only occasional reference has been made to mice but the principles underlying the destruction of mice are the same as those for rats. One of the best baits for mice is certainly not ration cheese nor any old lump of solid substance, but rather a flour or oatmeal sugar mixture which they will take readily. They have much less "new object" reaction than have rats. There is another, quite different but at times spectacular method of killing mice which dispenses with traps and poison baits. Obtain some 20 per cent D.D.T. powder and dust it freely around the holes and along the tracks used by the mice. The mice run over the powder, pick it up on the feet and fur, clean themselves by licking it off and die as a result. This method is no use for rats which don't pick up enough to kill them.

A word of warning. Whatever method is used for the elimination of rat or mouse infestations, it will not succeed if carried out in a careless or haphazard manner. A study of the site, the type and extent of the infestation, and indeed of the active life of the colony, must first be carried out and a well prepared and thought-out plan of campaign devised.

TABLE F.

Deratting Certificates and Deratting Exemption Certificates Issued during the Year for Ships from Foreign Ports.

NO. OF DERATTING CERTIFICATES ISSUED.						Number of Deratting Exemption Certificates Issued.	Total Certificates Issued.	
After Fumigation with HCN	Other Fumigant (state Method)	After Trapping.	After Poisoning.	After Trapping and Poisoning.	Total.			
1.	S.O ₂ 2.					3.	4.	4(a)	5.	6.	7.
123.	2.	9.	" 1080 " 13 " Warfarin " 2 ZincPhosphide 15 " Warfarin " & ZincPhosphide 1	Trapping and " 1080 " 1 Trapping and " Warfarin " 2 Trapping & ZincPhosphide 3	6.	171.	808.	979.

SECTION XIII—Inspection of Ships for nuisances.

TABLE G

<i>Inspections and Notices.</i>	<i>British owned vessels.</i>	<i>Foreign owned vessels.</i>
Number of vessels visited by Sanitary Inspectors...	6,888	2,914
Number of vessels on which sanitary defects were found, and details reported to the Master, Owners and/or Ministry of Transport ...	1,026	94
Number of Statutory Notices served ...	Nil	Nil
Number of vessels on which sanitary defects were remedied ...	974	93

Summary of Structural and other Defects.

Inadequate ventilation ...	16	1
Defective Lighting—Natural ...	2	—
Do. do. —Artificial ...	4	—
Defective Heating ...	18	—
Condensation ...	28	1
Leaking Decks ...	24	—
Leaking Ports, Decklights, etc. ...	15	1
Leaking Sideplates ...	2	—
Leaking Hawser and Chain Pipes ...	1	—
Deficient or Obstructed Floor Drainage ...	13	—
Water lodging on top of Peak Tanks ...	3	—
Defective Bulkheads ...	6	—
Do. Floors ...	18	—
Do. Doors ...	5	—
Do. Chain Pipes ...	—	—
Do. Bunks ...	3	—
Do. Clothes Lockers ...	4	—
Do. Food Lockers ...	8	—
Do. Food Storage ...	19	1
Do. Cooking Arrangements ...	18	—
Defective or Uncleanly Drinking Water Storage ...	5	—
Water Closet Obsolete ...	5	1
Do. Defective ...	37	—
Do. Foul or Choked ...	18	1
Do. Inadequate Flush ...	13	1
Wash Basins Defective ...	13	—
Do. Foul ...	6	1
Neglected Paintwork or Distemper ...	33	2
Absence of Washrooms ...	3	—
Absence of Messrooms ...	3	1
Misappropriation of Crew Spaces ...	1	—
Verminous Quarters ...	89	6
Dirty Quarters ...	813	85
Miscellaneous ...	46	1
TOTALS ...	1,292	103

INSECTICIDES USED IN SHIPS AGAINST INFESTATIONS IN LIVING ACCOMMODATION.

There has been a considerable development in the choice of insecticides and the methods of applying them to living and ancillary accommodation such as galleys, storerooms, etc., since the war. The principal insects to be attacked include flies, mosquitoes, fleas, bugs, cockroaches and ants.

A number of insecticides are now known to be highly lethal to such insects the more popular being DDT, BHC, Lindane, Chlordane, Aldrin and Dieldrin, and the problem has been to find which is the best to use and the best method of applying it.

A feature is introduced in ship work which does not generally apply on shore—the avoidance of risk of fire which may arise from a low flash point product particularly when applied in galleys or similar places where fires or lights may cause an explosion.

This risk has been overcome by the development of the so-called wettable powders which do not rely on the use of inflammable solvents as the medium for the distribution of the insecticide on surfaces or in corners and similar places difficult of access.

A number of useful and indeed effective insecticides have thus been developed but they have all suffered in some degree from the fact that they are soon covered by dust or grease and subsequently are removed in the ordinary process of cleaning the surface to which they have been applied. While their killing properties may be high they act only for a limited period which in the case of cockroaches for instance, may not even be long enough to destroy the nymphs hatching out after the original application has killed the adults. Consequently unless there is a repeated re-application the infestation reappears.

The incorporation of insecticides in paint applied to bulkheads and to any surface carrying an infestation is no answer to the problem since the bulk of insecticides incorporated in ordinary paint remains hidden beneath the surface and only that part of it lying on the surface can do its job.

The development of resins which have been found to possess the property of extruding the insecticide incorporated in the resin over a long period until the whole insecticidal content of the resin is exhausted seems to have provided a complete answer to the problem.

A considerable amount of research into certain types of synthetic resins notably the Urea Formaldehyde resins, carried out under the auspices of the Agricultural Research Council and tried out in ships in collaboration with the Port of London Health Authority, has produced highly successful results. The resin in the form of a colourless lacquer incorporating at various stages in the trials insecticides such as DDT, BHC, Aldrin or Dieldrin or a mixture of two of them, has been applied to surfaces by two methods, either by painting or preferably by spraying using a special type of sprayer that will effectively dissipate the comparatively thick lacquer.

One solvent used to dissolve the resin and incidentally the insecticide has been xylene. The flash point of xylene is in the neighbourhood of 78° F. and it is obvious, therefore, that precautions must be taken to keep any heat in the form of a naked light, live coal, cigarette ends, etc., away from the area of treatment.

It must be confessed that shipping companies in the Port of London have raised no difficulty whatsoever in this regard having satisfied themselves of the absence of any fire risk in the area under treatment, but the comparatively low flash point is a difficulty which will undoubtedly soon be overcome by further research into the composition of the lacquer and the solvents that can be employed with it. Once the lacquer is dry (a matter of an hour or two) it is entirely non-inflammable.

So long as a substance such as xylene is being used as a solvent the operator must wear protective overalls and a gas mask which will prevent him from inhaling the vapour. This is found to present no difficulty and is a well known precaution adopted when using solvents of this kind in the painting industry. It is obvious that the operator must be experienced in the habits of insects and particularly of cockroaches if he is to apply the lacquer in the appropriate places most effectively.

There are two practical methods of treatment. The spot treatment which consists of spraying areas around all cracks, crevices, electrical conduits, etc., leading to insect harbourages so that the insects must come in contact with the treated surface when they emerge in search of food.

The second and most efficient method is to apply the lacquer during the ship's refit over the whole surface of the compartments that experience has shown to form the main breeding grounds (galleys, pantries, stores and native crew quarters). All fixtures and fittings behind which insects harbour should first be removed so that when the fittings are replaced the lacquer behind them will effectively prevent infestation. The lacquer application can be applied in place of the last coat of paint. In addition it has been shown that pigments can be added to the lacquer as desired without impairing the insecticidal properties and this would ensure that existing colour schemes could be retained.

The property of the lacquer is to extrude on to its surface the crystals of the insecticide incorporated in the body of the lacquer in the form of a bloom. The extrusion takes the form of micro-crystals less than ten microns in length in the case, for instance, of Dieldrin and these minute crystals are much more toxic to insects than the larger crystals deposited by ordinary insecticide sprays. Any irritation of the surface even by the insect walking across it will stimulate a further extrusion of crystals as also will the cleansing of the surface in the ordinary course of removing dust or grease or other dirt. The lacquer is tough and hard and resistant to washing soda so that it can be washed down repeatedly and this will serve to promote a further bloom of the insecticide.

Practical experience has shown the continued extrusion of the insecticide over a period of two years, the surfaces showing no diminution in their insecticidal action but remaining at maximum efficiency during this period and probably even longer. When the insecticidal reservoir is exhausted the action ceases abruptly, dropping immediately from the peak plateau of high toxicity to zero. There is thus no gradual loss in toxicity as with ordinary insecticidal deposits and at no time is the insecticide present in sub-lethal concentration. With this new type of insecticidal treatment, therefore, there should be no development of resistant races of insects.

Of the various insecticides now tried the present experience seems to favour Dieldrin which is approximately eight times as lethal as DDT to most insects. Dieldrin is, of course, more toxic to warm-blooded animals but, with resin formulations the great bulk of the Dieldrin is safely sealed within the resin and only a minute proportion is exposed at any time on the surface.

The phenomenon of blooming and of repeated regeneration must be controlled by careful formulation in which insecticide, resin, plasticiser and solvents are balanced within the concentration limits for a metastable solution. If insufficient insecticide is used the surface bloom may not materialise. If an excess is employed the quantity of solute which the resin can maintain in metastable solution may be exceeded and crystallisation will occur throughout the coating on the evaporation of the solvent.

Experimental work in the Port of London has been directed primarily to the destruction of the German cockroach (*Blattella germanica*) being one of the most persistent and difficult of insects to eradicate. The lacquer is proportionately more effective against the American cockroach, flies, mosquitoes, fleas and bugs and from all appearances it is also the answer to infestations of that most difficult of infestations to cure, the Pharaoh Ant.

Suitable lacquers are now on the market. They are at present somewhat expensive, but against their cost must be set the fact that once applied over a clean painted surface there is no need to repaint and indeed to paint over the lacquer would obviously destroy all its properties and in view of the duration of the insecticidal properties of the lacquer fresh application of the lacquer need only be applied during a refit. A gallon of lacquer should cover approximately 750 square feet of surface. It must be repeated that to be effective the lacquer must be skillfully applied by a man trained in the habits and locations of cockroach infestations with particular emphasis on their breeding places and harbourages.

The lacquer is quite transparent, indeed almost invisible. It is very tough, will not crack or peel provided, of course, it is applied to a clean grease free surface.

The results of lacquer treatment have been extraordinary. The following table gives examples derived from a number of ships treated :—

TABLE SHOWING THE RESULTS OF SOME OF THE EXPERIMENTS IN SHIPS' ACCOMMODATION WITH INSECTICIDAL RESINS CONTAINING ALDRIN AND DIELDRIN FOR CONTROL OF THE GERMAN COCKROACH. *Blatella germanica*.

<i>Class of ship.</i>	<i>Date Treatment applied.</i>	<i>Locations treated.</i>	<i>Degree of Infestation before treatment.</i>	<i>Control achieved from latest reports.</i>
Cargo vessel 8,200 dw. (Australia and East Indies).	31.8.51	Galley	Heavy	Infestation cleared completely. Still 100 per cent. clear 1½ years after treatment.
	31.8.51	Pantry	Light	
	31.8.51	Store	Nil	
Cargo vessel 1,560 dw. (London-Continent).	17.1.52	Pantry (Officers)	Medium (Persistent)	Infestation cleared completely. Still 100 per cent. clear 1½ years later. Still 100 per cent. clear after 6 months. Still 100 per cent. clear after 6 months.
	18.9.52	Galley	Heavy	
	18.9.52	Mess Room	Medium	
Cargo vessel 2,250 dw. (London-Mediterranean).	26.3.53	All Accommodation.	Light to Medium.	Infestation cleared completely. Still 100 per cent. clear one month after treatment.
Trooper 5,554 gt. (Harwich-Continent).	15.10.52	All Messes, Galleys and Corridors.	History of very persistent infestation from 1944.	Infestation cleared completely. Still free 6 months later.
Pilgrim Ship 5,307 (India and Jeddah).	15.5.52	Saloon Pantry. Saloon Galley. Crews quarters. Hospital. Pilgrim's Galley.	History of persistent infestation prior to refit.	Accommodation treated free of cockroaches after complete Pilgrim season. No evidence of fresh infestation December, 1952. Appearance of bloom as when new. Surfaces regularly washed down with soap and water.

In one ship the Master reported that not a single cockroach had been seen throughout the entire ship since about the end of the first week out from home. He estimates that the treatment takes two or three weeks to become complete, first the big or adult cockroaches disappear, the baby ones keep showing up for the first week or so; then a complete disappearance. The same Master concludes by saying that the test had been a very fair one, the steam heaters were on leaving home in the cold weather and later they had plenty of tropical heat but no cockroaches seen. He points out that before this treatment is given to a ship the Chief Steward and the Chief Officer must be given ample warning so that the accommodation can be washed clean. If the lacquer is sprayed or brushed on to dirty paintwork it leaves an ugly mark which cannot afterwards be washed off. The lacquer should be applied on a clean painted surface.

In conclusion, I believe that we have not yet reached perfection despite the already excellent results that have been obtained. Experimental work is proceeding with a view to raising the flash point of the lacquer without at the same time affecting its blooming properties both in amount and duration. Obviously, a non-toxic solvent would be an advantage and no doubt will be forthcoming in the near future.

I am indebted to Mr. J. L. Hitchon, B.A., formerly the Entomologist of the Fungicide and Insecticide Research Co-ordination Service of the Agricultural Research Council who has been closely concerned in the elaboration and application of these insecticidal lacquers, for much useful technical information and for his collaboration in trying out the lacquers in ships treated in the Port of London.

These insecticidal lacquers are the subject of a patent by the Ministry of Supply and are being manufactured by several well-known paint manufacturers, under licence. The National Research Development Corporation is in constant touch with the products produced in order to ensure maintenance of their insecticidal properties.

SECTION XIV—Public Health (Shellfish) Regulations, 1934 and 1948.

There are a number of shellfish beds or layings within the jurisdiction of the Authority particularly in the lower reaches of the River Thames and part of the River Roach and tributary creeks in Essex, and in view of the close proximity of these layings to the sewage outfalls, the Mayor and Commonalty

and Citizens of the City of London, the Port Health Authority of the Port of London and the Local Authority for the purpose of the Public Health (Shellfish) Regulations, made the following Order :—

“ In pursuance of the powers conferred on them by the Public Health (Shellfish) Regulations, 1934, the Mayor and Commonalty and Citizens of the City of London, the Port Sanitary Authority of the Port of London and the Local Authority for the purposes of the Public Health (Shellfish) Regulations, 1934, hereby make the following Order :—

1. In this Order “ prescribed area ” means the public and private layings situated on the foreshores or waters immediately bordering on that part of the Estuary of the River Thames, or any tributary waters thereof, in the County of Essex between the Northern Boundary of the Parish of North Shoebury on the East and the Creeks known as Hole Haven Creek and Vange Creek on the West including the foreshores of Shoeburyness now owned by His Majesty's Secretary of State for War; the foreshore now owned by the Trustees of the Burges Estate; the foreshores now owned by the Corporation of the County Borough of Southend and the foreshore now or lately owned by the Salvation Army, and including also the whole of the foreshores of Canvey Island, the Creeks known as Hadleigh Ray, Leigh Creek, Benfleet Creek, East Haven Creek, Hole Haven Creek and Vange Creek respectively and the Sands known as Chapman Sands, Bargander Sands, Leigh Sands and Marsh End Sands respectively.

2. A person shall not sell or expose or distribute or offer for sale or have in his possession for the purpose of sale for human consumption any Oysters, Mussels or other molluscan Shellfish taken from within the prescribed area unless such Oysters, Mussels or other molluscan Shellfish have been :—

- i. subjected to a satisfactory process of cleansing at an establishment which is for the time being approved by the Minister of Health for the purpose; or
- ii. relaid in pure water for such period and in such places as may from time to time be approved for the purpose by the said Port Sanitary Authority; or
- iii. subjected to a process of sterilisation by steam under pressure for at least six minutes in an apparatus which is for the time being approved by the said Port Sanitary Authority.

3. This Order shall come into operation on the First day of June, 1936.

GIVEN under the Common Seal of the Mayor and Commonalty and Citizens of the City of London this Twenty-third day of April, 1936.

Examined,

ANTHONY PICKFORD,

City Solicitor.

ALFRED T. ROACH,

Town Clerk.

AND NOTICE IS HEREBY FURTHER GIVEN that a person who contrary to the provisions of the above Order sells or exposes, distributes or offers for sale or has in his possession for the purpose of sale for human consumption any OYSTERS, MUSSELS or other MOLLUSCAN SHELLFISH taken from the layings above referred to is liable to a penalty of £100, and in the case of a continuing offence, to a further penalty of £50 for every day during which the offence continues.

ALFRED T. ROACH,

Town Clerk.

In addition the Minister of Health issued on the 11th December, 1935, The Medway (Shellfish) Regulations, 1935, in which “ prescribed area ” was defined as follows :—

“ The River Medway extending seaward as far as a line drawn from St. James's Church, Grain, to the north-west point of land at Sheerness, including all tributary creeks and that portion of the River Swale north-west of the western limit of the Faversham Port Sanitary Authority, and all shellfish layings on or near the banks of the said rivers and creeks.”

The application of the Regulations is the daily concern of the Authority and for this purpose a Sanitary Inspector has been detailed, who from time to time submits reports to the Medical Officer of Health.

SECTION XV—Medical Inspection of Aliens.

1. List of Medical Inspectors of Aliens holding warrants of appointment.
Dr. M. T. Morgan; Dr. H. M. Willoughby; Dr. J. A. Jones; Dr. J. R. Davies.
2. List of other staff engaged on this work.
Clerical staff at the Central Office.
3. Organisation of work.

The inspection of aliens is carried out in accordance with the terms of the Alien Order, 1920.

All vessels carrying aliens are intercepted on arrival at Gravesend and the aliens are examined by the Medical Inspector of Aliens who is, in fact, the Medical Officer on duty. Complete liaison exists between the Port Health staff and the Immigration staff at Gravesend and should any doubtful case arrive the Medical Officer is immediately communicated with by telephone and an opinion given.

4. Nature and amount of alien traffic.

(a) Total number of arriving vessels carrying aliens	...	...	...	1,910
(b) Total number of aliens (excluding transmigrants, seamen and airmen).				
(i) Arriving at the port	...	...	...	32,128
(ii) Medically inspected	...	...	...	21,139
(iii) Medically examined	...	...	...	1,018
(c) Certificates issued	...	...	...	2
(d) Transmigrants landing and medically examined	...	...	...	Nil.

5. Accommodation for medical inspection and examination is provided on Tilbury Landing Stage, though in practice, the majority of aliens are inspected in the ship on arrival and any necessary chaperonage is provided by nursing sisters or stewardesses borne in the ship.

SECTION XVI—Miscellaneous.

Arrangements for the burial on shore of persons who have died on board ship from infectious disease.

When cases of infectious sickness die in the Port Isolation Hospital, arrangements for interment are made with an undertaker in Gravesend.

FOOD INSPECTION.

The total amount of foodstuffs seized and condemned for human consumption and either reconditioned or disposed of for animal consumption or for industrial purposes under guarantee or destroyed was 2,203 tons 0 cwt. 1 qr. 1 lb. The following is a summary showing the method of disposal of the foodstuffs seized:—

Method of Disposal.	Weight.				Approximate percentage of total weight.
	Tons.	Cwts.	Qrs.	Lbs.	
Burnt	35	16	1	25	1.6
Buried	276	2	2	24	12.5
Boiling down	91	1	2	7	4.1
Cattle food	1,160	17	0	2	52.7
Re-export	87	16	3	13	3.9
Released to other districts	187	11	1	11	8.5
Reconditioning	62	3	3	11	2.8
Refining	297	4	3	9	13.5
Industrial... ..	4	5	2	11	0.2
Total	2,203	0	1	1	99.8

Of the 2,203 tons mentioned above, the principal items condemned for human consumption consisted of:—

Burnt—11 cases, 56 cartons, 3,460 tins canned meats (burst, blown and leaky); 100 cases, 4 boxes, 35 baskets fruit (decomposed); 51 cartons, 131 tins canned fruits (burst, blown and leaky); 58 bags wheat (oil damaged); 50 cartons crystallised ginger (extraneous matter); 7 cases, 2 crates rabbits and ducks (dock water damaged).

Buried—155 tons bananas (decomposed); 88 boxes fish (decomposed); 178 cases 68 tins canned meat (blown); 232 cases, 218 cartons, 768 tins canned fruit (burst, blown and leaky); 814 baskets tomatoes (decomposed); quantity onions (decomposed); 50 casks apricot pulp (fermented); 280 cases fruit (wasting); 305 cases tomato puree and paste (burst, blown and leaky); 320 cartons smoked cod roes (metallic contamination).

Boiling down—857 cases, 45 cartons, 16 tins canned meats (burst, blown and leaky); 57 drums 4 casks, 13 cartons butter and lard (dirty); 26 cases sausage meat (dock water damaged); 190 boxes sweetened fat (rancid); a quantity of carcasses sheep and lambs, pieces beef, pork, etc. (dock water damaged, brine damaged, iced, decomposed, mutilated, dirty and moulds).

Cattle food—1,041 tons bananas (decomposed); 715 bags flour (weevilly and out of condition); 162 bags wheat germ (wet damaged); 252 boxes figs (out of condition); 132 cartons biscuits (rodent damaged and wasting); 11 tons potatoes (wet and rotting); 104 cases, 444 tins tomato pulp and puree (burst, blown and leaky); 250 crates cabbages (decomposed); 363 boxes cherries and prunes (contaminated with pine tar).

Re-export—17 cases celery powder (excess of lead); 125 cartons stewed steak, 380 cases hams, 80 cartons and 100 tins pork in natural juice, 256 cartons luncheon meat and 880 cartons canned cherries (blown); 42 barrels pig maws, 64 barrels sheep casings, 60 casks beef casings, 10 barrels hog casings and 86 cartons luncheon meat (uncertificated); 401 cases canned pork luncheon meat (rancid fat).

Released to other districts—850 cartons canned bilberries, 743 cartons cherries, 49 cases canned peach pulp and 131 cartons tomato juice (blown tins); quantity of rejected ship's stores (weevilly and out of condition) reconditioned or converted to animal feeding under the supervision of the local Medical Officer of Health.

Reconditioning—13 crates cheese, 233 cartons raisins, 28 cases sultanas, 98 bags cocoa beans, 24 bags tapioca, 206 boxes, 70 bags cake mixture (wet damaged); 36 bags apricot kernels, 175 bags walnut kernels (weevilly); 5 boxes sugar glucose mixture (extraneous matter); 240 boxes sweetened fat (rancidity); 18 boxes, 1 cask butter (dock water damaged).

Refining—3,470 bags sugar sweepings (dirty); 4 cartons margarine (dock water damaged); 41 crates piping jelly, 574 cases and 95 drums lard (extraneous matter).

Industrial—60 cartons and 70 casks salad cream (rancid and sour); 145 cartons and 45 tins canned cherries (blown and leaky); 3 chests tea (wet damaged).

PUBLIC HEALTH (IMPORTED FOOD) REGULATIONS, 1937 and 1948. OFFICIAL CERTIFICATES.

Circular MF 1/52 dated 4th March, 1952, from the Ministry of Food directs that the Minister caused to be published in the London Gazette of the 11th March, 1952, a notice containing in the Schedule thereto descriptions of certificates issued by the Republic of Argentina which have been recognised as Official Certificates for the purposes of the Public Health (Imported Food) Regulations, 1937 and 1948.

The Notice reads as follows :—

“ The Minister of Food gives notice in pursuance of the above-named Regulations, that he hereby recognises the official certificates of which particulars are given in the Schedule thereto, as showing (a) that the meat to which they relate or the meat from which the meat product to which they relate was prepared, was derived from animals inspected ante and post mortem and passed in accordance with criteria satisfactory to the Minister ; and (b) that all necessary precautions for the prevention of danger to public health were taken in the dressing and preparing of the meat or meat product.

The certificates hereby recognised are in substitution for the certificates numbered (3) (4) (5) and (6) reproduced in Part I of the Schedule to the notice published in the London Gazette of the 15th March, 1938.”

The certificates are as follows :—

1. A printed or branded stamp completed by the insertion of the Establishment for meat and meat products, contained in wrappers, boxes, cases or barrels.

2. An embossed stamp completed by the insertion of the Establishment for tins containing meat products.

3. An inscription in black paint on the wood of one of the lids of the barrel containing edible fats and completed by the insertion of the number of the Establishment, the description of the contents, the gross weight and tare and the month and year of manufacture.

4. Leaden tags 2 centimetres wide, to be fixed by a string to sausages and similar meat products filled in casings and completed by the insertion of the number of the Establishment.

Circular MF 11/52 of the Ministry of Food, dated 6th October, 1952, directs that the Minister caused to be published in the London Gazette of the 26th September, 1952, a notice, containing in the Schedule thereto, the description of a certificate issued by the Republic of Turkey which has been recognised as an Official Certificate for the purposes of the Public Health (Imported Food) Regulations, 1937 and 1948.

The Notice reads as follows :—

“ The Minister of Food gives notice in pursuance of the above-named Regulations that he hereby recognises the Official Certificate of which particulars are given in the Schedule thereto as showing (a) that the meat from which the meat product to which the certificate relates was prepared, was derived from animals inspected ante and post mortem and passed in accordance with criteria satisfactory to the Minister ; and (b) that all necessary precautions for the prevention of danger to public health were taken in the dressing or preparing and packing of the meat product.

The certificate being in the form of a label, recognition will apply only if the label is securely affixed to the package containing the meat product and the label has not in any other circumstances been used as an Official Certificate.”

The certificate is in respect of animal casings only and will be completed by the insertion of the serial number of the certificate, the number of the Establishment and by the stamp of the appropriate veterinary department.

DANGEROUS DRUGS.

During the year twenty-six certificates authorising the purchase of scheduled Dangerous Drugs were issued under the Dangerous Drugs (No. 3) Regulations, 1923, amending the Dangerous Drugs Regulations, 1921, Regulation 15 of which is as follows :—

“ If a foreign ship in any port in Great Britain requires to obtain a supply of any of the drugs in order to complete the necessary equipment of the ship, the master of the ship is authorised to purchase and be in possession of such quantity of any of the drugs as may be certified by the Medical Officer of Health of the Port where the ship is (or in his absence by the Assistant Medical Officer of Health) to be necessary for the purpose, the quantity not to exceed what is required for the use of the ship until it next reaches its home port. The certificate given by the Medical Officer of Health of the Port shall be marked by the supplier with the date of the supply, and shall be retained by him and kept available for inspection.”

PUBLIC HEALTH ACT, 1936. PART X—CANAL BOATS.

On the 31st January, 1953, the Port Medical Officer made a report on the steps taken to carry into effect the provisions of Part X of the Public Health Act, 1936, relating to Canal Boats within the district of the Port Health Authority, during the year ended 31st December, 1952.

Thirty-six vessels were inspected during the year of which twenty-five were found to conform with the Regulations.

The remaining eleven infringed the Regulations in respect of absence of certificate, marking, painting and dilapidation. In each case the owners attention was called to the infringement and all were subsequently attended to.

No new boats were registered during the year under review, the actual number of Canal Boats on the Register on the 31st December, 1952, being 156.

PARROTS (PROHIBITION OF IMPORT) (REVOCATION) REGULATIONS, 1951.

The above-mentioned Regulations came into force on the 8th January, 1952.

These Regulations revoke the Parrots (Prohibition of Import) Regulations, 1930, and a circular from the Ministry of Health accompanying the Regulations, reads as follows :—

“ 1. I am directed by the Minister of Health to say that he has been considering the need for retaining these Regulations which were made following a world-wide outbreak of psittacosis among birds of the parrot species.

2. It was believed at the time that the only birds in which the disease occurred were of that specie, but research has since shown that it also occurs in other birds such as seagulls, pigeons, ducks, turkeys, etc., and is understood to exist in an enzootic form among birds in this country at the present time.

3. The Minister is advised that there is no reason on health grounds for maintaining the ban against the import of parrots and he has accordingly made the enclosed Statutory Instrument revoking the Regulations of 1930, with effect from the 8th January, 1952."

LEGAL PROCEEDINGS.

A consignment of 792 cases of canned hams and luncheon meat arrived in the Tilbury Dock on the 15th November, 1951, from Belgium and was detained by an Officer of the Port Health Authority since the consignment did not comply with the requirements of the Public Health (Imported Food) Regulations, 1937 and 1948, in the matter of "official certificates."

A subsequent inspection of the consignment revealed that a considerable proportion of the cans were burst, blown and leaky and furthermore, the contents of the cans not showing obvious signs of deterioration were found to be stale, mouldy and unsuitable for human consumption.

After lengthy and unsatisfactory correspondence with the Belgian Embassy, the Importers and the Underwriters, an application was made to a Justice of the Peace for the condemnation of the consignment as unfit for human consumption.

The application was upheld by the Justice of the Peace who issued an Order that the said food be destroyed or disposed of under the supervision of the Medical Officer of Health in such a manner as to prevent its being used for human consumption.

A consignment of 39 cases of Pork in natural juices arrived in the Surrey Commercial Dock on the 24th June, 1952, from Germany and was detained on the grounds that, on examination, a number of the tins were found to be blown.

The consignment was sorted with the result that approximately 86 per cent. of the tins were found to be apparently sound, but in view of the progressive deterioration and blowing of these apparently sound tins it was considered that the whole consignment was potentially unsound, unwholesome and unfit for human consumption and the Importer was called upon to authorise the destruction of the whole consignment under the supervision of the Medical Officer of Health.

After correspondence with the Underwriters and the Importer, the latter being reluctant to authorise the destruction of the goods an application was made to a Justice of the Peace for a condemnation of the consignment as unfit for human consumption.

The application was upheld by the Justice of the Peace who issued an Order that the said food be destroyed or disposed of under the supervision of the Medical Officer of Health by such means and in such a manner as to prevent its being used for human consumption.

APPENDIX I.

MEDICAL INSPECTION—From 1st January to 31st December, 1952.

GRAVESEND.

	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	TOTAL.
No. medically inspected ...	136	168	186	181	160	164	179	178	146	157	151	134	1,940
No. of Passengers ...	972	815	1,151	1,504	2,449	5,098	6,108	5,404	3,891	1,377	707	657	30,133
No. of Crew ...	469	934	573	677	965	486	316	466	1,077	706	1,006	730	8,405
No. of Foreign Arrivals ...	839	821	892	882	896	907	917	891	804	882	858	839	10,428

APPENDIX II.

INFECTIOUS DISEASES.

Disease.	1943	1944	1945	1946	1947	1948	1949	1950	1951	Mean Annual No. for 10 years ending 31st December, 1952	1952
(a) Cases reported—											
Cholera (including suspected cases) ...	—	—	—	—	—	—	—	—	—	—	—
Plague do. ...	—	—	—	—	—	—	—	—	—	—	—
Yellow fever do. ...	—	—	—	—	—	—	—	—	—	—	—
Typhus fever ...	—	—	1	—	—	1	5	—	—	0.7	—
Smallpox ...	—	1	—	5	2	3	2	4	6	2.3	—
Scarlet fever... ..	5	4	5	2	10	3	3	7	3	4.2	—
Enteric fever ...	—	—	4	9	5	10	82	9	7	13.4	8
Measles ...	1	1	8	11	26	99	80	58	74	41.4	56
German measles ...	1	—	2	6	5	3	3	17	67	11.7	13
Diphtheria ...	3	5	5	8	5	2	1	—	—	3.1	2
Erysipelas ...	—	—	—	—	—	1	—	1	—	0.2	—
Pulmonary tuberculosis ...	12	6	14	21	27	32	43	41	53	31.6	67
Other diseases (including Chickenpox)	273	180	115	79	102	106	124	114	130	135.1	128
TOTALS ...	295	197	154	141	183	259	343	251	340	243.7	274
(b) Admitted to Hospital—											
Cholera (including suspected cases) ...	—	—	—	—	—	—	—	—	—	—	—
Plague do. ...	—	—	—	—	—	—	—	—	—	—	—
Yellow fever do. ...	—	—	—	—	—	—	—	—	—	—	—
Typhus fever ...	—	—	—	—	—	1	3	—	—	0.4	—
Smallpox ...	—	—	—	—	—	—	—	—	—	—	—
Scarlet fever... ..	5	4	4	2	—	3	—	—	1	1.9	—
Diphtheria ...	2	4	5	7	4	2	—	—	1	2.5	—
Enteric fever ...	—	—	3	—	2	3	—	6	—	1.5	1
Measles ...	—	1	4	6	10	24	8	5	12	7.3	3
Parotitis ...	2	3	1	5	1	4	3	1	13	3.7	4
Dysentery ...	—	—	1	8	9	3	1	—	1	2.4	1
Other diseases (including Chickenpox)	16	34	50	43	60	80	34	56	35	44.3	35
TOTALS ...	25	46	68	71	86	120	49	68	63	64.0	44

APPENDIX III.

DENTON HOSPITAL.

Disease.	Admitted.	Discharged.	Transferred to other Hospitals.	Died.	Remaining in Hospital.
Chickenpox	13	8	5	—	—
Parotitis	4	4	—	—	—
Measles	3	2	1	—	—
Enteric fever	1	—	1	—	—
German measles	4	4	—	—	—
Pneumonia	1	—	—	1	—
Dysentery	1	—	1	—	—
Other diseases	17	7	9	1	—
TOTALS	44	25	17	2	—

Remaining in Hospital on 31st December, 1951 Nil.

Admitted during 1952 44

Discharged, transferred or died 44

APPENDIX IV.

RETURN OF RATS CAUGHT AND DESTROYED DURING THE YEAR 1952.

	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
LONDON DOCK—													
Warehouses ...	41	47	42	36	26	43	33	35	14	51	33	41	442
Vessels ...	2	—	3	25	—	2	—	—	—	—	—	—	32
ST. KATHARINE DOCK—													
Warehouses ...	13	1	12	—	15	21	25	6	9	4	3	3	112
Vessels ...	—	—	—	—	—	—	—	—	—	—	—	—	—
SURREY COMMERCIAL DOCK—													
Warehouses ...	14	13	8	4	4	4	10	9	4	8	8	2	88
Vessels ...	21	2	—	—	2	—	—	—	—	57	20	—	102
EAST INDIA DOCK—													
Warehouses ...	3	10	4	44	20	4	—	—	—	2	11	1	99
Vessels ...	—	—	—	—	—	—	—	—	—	—	—	—	—
WEST INDIA DOCK—													
Warehouses ...	123	14	32	58	53	55	26	15	37	163	40	105	721
Vessels ...	53	22	52	95	24	70	49	—	—	—	17	46	428
MILLWALL DOCK—													
Warehouses ...	94	74	57	31	101	34	63	13	10	129	96	30	732
Vessels ...	—	6	26	—	56	—	—	16	—	—	3	—	107
ROYAL ALBERT DOCK—													
Warehouses ...	31	29	29	32	47	27	32	48	25	44	16	14	374
Vessels ...	47	—	17	69	95	96	148	109	68	39	20	27	735
ROYAL VICTORIA DOCK—													
Warehouses ...	41	74	58	63	65	55	55	39	54	74	62	16	676
Vessels ...	5	3	13	—	12	17	—	28	33	16	3	9	139
KING GEORGE V. DOCK—													
Warehouses ...	15	26	18	38	35	23	32	14	12	17	14	12	256
Vessels ...	—	—	—	18	47	—	16	6	18	43	13	7	168
TILBURY DOCK—													
Warehouses ...	87	64	81	344	271	76	72	224	72	72	26	40	1,429
Vessels ...	41	59	26	14	113	44	26	10	81	49	29	64	556
REGENT'S CANAL DOCK—													
Warehouses ...	11	13	13	1	2	—	4	7	7	10	3	7	78
Vessels ...	—	—	—	—	—	—	—	—	—	—	—	—	—
RIVER—													
Vessels ...	—	—	—	—	—	—	—	—	—	—	—	—	—
TOTALS ...	642	457	491	872	988	571	591	599	444	778	417	424	7,274

APPENDIX III

RETURN OF RATS CAUGHT AND DESTROYED DURING THE YEAR 1952.

	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
LONDON DOCK—													
Warehouses ...	41	47	42	36	26	43	33	35	14	51	33	41	442
Vessels ...	2	—	3	25	—	2	—	—	—	—	—	—	32
ST. KATHARINE DOCK—													
Warehouses ...	13	1	12	—	15	21	25	6	9	4	3	3	112
Vessels ...	—	—	—	—	—	—	—	—	—	—	—	—	—
SURREY COMMERCIAL DOCK—													
Warehouses ...	14	13	8	4	4	4	10	9	4	8	8	2	88
Vessels ...	21	2	—	—	2	—	—	—	—	57	20	—	102
EAST INDIA DOCK—													
Warehouses ...	3	10	4	44	20	4	—	—	—	2	11	1	99
Vessels ...	—	—	—	—	—	—	—	—	—	—	—	—	—
WEST INDIA DOCK—													
Warehouses ...	123	14	32	58	53	55	26	15	37	163	40	105	721
Vessels ...	53	22	52	95	24	70	49	—	—	—	17	46	428
MILLWALL DOCK—													
Warehouses ...	94	74	57	31	101	34	63	13	10	129	96	30	732
Vessels ...	—	6	26	—	56	—	—	16	—	—	3	—	107
ROYAL ALBERT DOCK—													
Warehouses ...	31	29	29	32	47	27	32	48	25	44	16	14	374
Vessels ...	47	—	17	69	95	96	148	109	68	39	20	27	735
ROYAL VICTORIA DOCK—													
Warehouses ...	41	74	58	63	65	55	55	39	54	74	62	16	676
Vessels ...	5	3	13	—	12	17	—	28	33	16	3	9	139
KING GEORGE V. DOCK—													
Warehouses ...	15	26	18	38	35	23	32	14	12	17	14	12	256
Vessels ...	—	—	—	18	47	—	16	6	18	43	13	7	168
TILBURY DOCK—													
Warehouses ...	87	64	81	344	271	76	72	224	72	72	26	40	1,429
Vessels ...	41	59	26	14	113	44	26	10	81	49	29	64	556
REGENT'S CANAL DOCK—													
Warehouses ...	11	13	13	1	2	—	4	7	7	10	3	7	78
Vessels ...	—	—	—	—	—	—	—	—	—	—	—	—	—
RIVER—													
Vessels ...	—	—	—	—	—	—	—	—	—	—	—	—	—
TOTALS ...	642	457	491	872	988	571	591	599	444	778	417	424	7,274

APPENDIX V—General Summary and Analysis of the Sanitary Inspections, etc., in the Port of London for the year ended 31st December, 1952.

FOREIGN.		INLAND NAVIGATION.—Continued	
Steam—		Sail—	
Inspected	8,190	Inspected	16
Defective	34	Defective	—
To be cleaned	604	To be cleaned	4
Sail—		Lighters—	
Inspected	21	Inspected	990
Defective	1	Defective	4
To be cleaned	1	To be cleaned	14
COASTWISE.		Canal Boats—	
Steam—		Inspected	36
Inspected	2,335	Defective	6
Defective	68	To be cleaned	—
To be cleaned	161	SHORE PREMISES.	
Sail—		Inspected	8,889
Inspected	18	Defective	55
Defective	—	To be cleaned	349
To be cleaned	3	Sick Seamen referred to Hospital	
INLAND NAVIGATION.		96	
Steam—		WATER BARGES.	
Inspected	143	No. in district in good condition on 31st	
Defective	2	December, 1951...	
To be cleaned	11	New Barges	
		Condemned	
		Use discontinued	
		Previously withdrawn and since resumed work	
		No. in district on 31st December, 1952	

Inspections.	Dock and River.	No.	Nationalities.	No.
Total Inspections	London and St. Kats.	821	American	97
1st January to			Argentinian	28
31st December, 1952 :—	Regent's Canal	551	Belgian	90
Foreign ...	Surrey Commercial	1,082	Brazilian...	1
Coastwise...			British	8,063
Inland Navigation	East India	225	Chilian	—
Shore Premises			Costa Rica	9
Total	West India	860	Danish	228
	Millwall	628	Dutch	1,181
	Royal Albert	861	Egyptian	1
	Royal Victoria	510	Finnish	116
" Alfred Roach "	King George V.	491	French	88
" Howard Deighton "			German	374
" Frederick	River—Upper	1,597	Greek	60
Whittingham "			Honduras	9
" Alfred	River—Middle	1,106	Icelandic	8
Robertson "...			Indian	40
	River—Lower	2,009	Israeli	30
	River Medway		Italian	57
	Tilbury	972	Japanese...	16
			Liberian	11
			Monrovia	—
			Pakistan...	11
			Panamanian	100
			Polish	21
			Portuguese	10
			Roumanian	1
			Russian	43
			Spanish	25
			Swede and Norwegian	886
			Swiss	10
			Turkish	14
			Uruguayan	—
			Yugo Slavian	85
In Docks, etc.	Total Vessels	11,713	Total Vessels	11,713
Shore Premises	Shore Premises	8,889	Shore Premises	8,889
Total	Total	20,602	Total	20,602

APPENDIX VI.

DOCKS WITHIN THE JURISDICTION OF THE PORT HEALTH AUTHORITY.

<i>Docks.</i>	<i>Water Area.</i>		<i>Lineal Quayage.</i>	
	<i>Acres.</i>	<i>Yards.</i>	<i>Miles.</i>	<i>Yards.</i>
Regent's Canal	11	38	—	966
St. Katharine	10	488	—	1,654
London	34	4,460	3	119
Surrey Commercial... ..	161	2,717	16	200
West India	97	3,957	4	1,134
East India	31	2,878	1	1,242
Millwall	35	3,217	2	155
Royal Victoria	95	1,772	5	1,479
Royal Albert	87	213	3	905
King George V.	64	997	3	663
Tilbury	104	2,166	3	1,667

The River distance between the Western and Eastern limits of the Port is about 68½ miles.

POWERS.

The work of the Port of London Health Authority is carried out under the following Acts of Parliament and Statutory Instruments :—

CONSTITUTION OF THE AUTHORITY.

Public Health (London) Act, 1936.

ASSIGNMENT OF POWERS.

L.G.B. Order, Port Sanitary Authority Assignment of Powers, Port of London, 25th March, 1892.

L.G.B. Order, Port Sanitary Authority Assignment of Further Powers, Port of London, 29th December, 1894.

L.G.B. Order, Port Sanitary Authority Assignment of Powers, Port of London, 30th June, 1898.

London Port Sanitary (Additional Powers) Order, 1922. S.R. & O. No. 781.

London Port Sanitary (Additional Powers) Order, 1923. S.R. & O. No. 812.

Port of London (Assignment of Powers) Order, 1933. S.R. & O. No. 803.

ADMINISTRATION.

Port Sanitary Administration and Medical Inspection of Aliens under the Aliens Order, 1920. (Grants in Aid).

City of London (Various Powers) Act, 1922, Part IV, Section 30.

City of London (Various Powers) Act, 1933, Part III, Sections 6 and 7.

Sanitary Officers Order, 1926. S.R. & O. No. 552.

Sanitary Officers (London) Regulations, 1951. S.I. No. 1021.

INFECTIOUS DISEASE.

Prevention of Epidemic Diseases Regulations as to Plague. Destruction of Rats, 1910. S.R. & O. No. 1165.

Public Health (Notification of Infectious Diseases) Regulations, 1918. S.R. & O. No. 67.

Infectious Diseases (London) Regulations, 1927. S.R. & O. No. 1207.

Public Health (Acute Poliomyelitis, Encephalitis and Meningococcal Infection) Regulations, 1949. S.I. No. 2259.

Public Health (Leprosy) Regulations, 1951. S.I. No. 1036.

Puerperal Pyrexia Regulations, 1951. S.I. No. 1081.

Public Health (Ships) Regulations, 1952. S.I. No. 1411.

CANAL BOATS.

Public Health Act, 1936.

FOOD.

Public Health (Meat) Regulations, 1924-1948 (Part IV) S.R. & O. 1924. No. 1432 ; 1935 No. 187 ; S.I. 1948, No. 1119.

Public Health (Preservatives, etc., in Food) Regulations, 1928. S.R. & O. 1925, No. 775 ; 1926, No. 1577 ; 1927, No. 577.

Public Health (Imported Milk) Regulations, 1926, S.R. & O., No. 820.

Public Health (Imported Food) Regulations, 1937 and 1948, S.R. & O., 1937, No. 329 ; S.I. 1948, No. 886.

Food and Drugs (Whalemeat) Regulations, 1949. S.I. No. 404.

Food and Drugs (Whalemeat) (Amendment) Regulations, 1950. S.I. No. 189.

SHELLFISH.

- Public Health (Shellfish) Regulations, 1934. S.R. & O. No. 1342.
Medway (Shellfish) Regulations, 1935. S.R. & O. No. 1221.

RATS AND MICE.

- Prevention of Damage by Pests Act, 1949.
Prevention of Damage by Pests (Application to Shipping) Order, 1951. S.I. No. 967.

SMOKE ABATEMENT.

- Public Health (London) Act, 1936.

ABATEMENT OF NUISANCES AND REMOVAL OF REFUSE.

- Public Health (London) Act, 1936.

FERTILISERS AND FEEDING STUFFS.

- Fertilisers and Feeding Stuffs Act, 1926.
Order appointing 1st July, 1928, as the date for the coming into operation of the Fertilisers and Feeding Stuffs Act, 1926. S.R. & O. 1928. No. 439.
Fertilisers and Feeding Stuffs Regulations, 1932. S.R. & O. No. 658.
Fertilisers and Feeding Stuffs (Amendment) Regulations, 1951. S.I. No. 1189.

DANGEROUS DRUGS.

- Dangerous Drugs (No. 3) Regulations, 1923. S.R. & O. No. 1095.

ALIENS.

- Aliens Order, 1920. S.R. & O. No. 448.

AIRCRAFT.

- Public Health (Aircraft) Regulations, 1952. S.I. No. 1410.

IMPORTATION OF CATTLE.

- Ministry of Agriculture and Fisheries Animals (Importation) Order, 1930, dated 4th November, 1930. Part III, Article 22; Part IV, Articles 23, 24 and 25.
Ministry of Agriculture and Fisheries Animals (Landing from Ireland, Channel Islands and Isle of Man) Order, dated 17th January, 1933. Part II, Article 17.

BYE-LAWS.

Bye-laws have been made by the Port of London Health Authority :—

1. For preventing nuisances arising from barges or vessels carrying offensive cargoes.
2. For removing to hospital any person suffering from dangerous infectious disorders, and for the keeping therein of such persons as long as may be deemed necessary.
3. With respect to Houseboats used for human habitation within the limits of the Port of London.

1. The first part of the report deals with the general situation of the health services in the country. It is based on a survey of the health services in the country in 1965. The survey was carried out by the Ministry of Health and the World Health Organization. The results of the survey are presented in the following tables.

Year	Population	Health Services
1965	10,000,000	100,000
1966	10,500,000	110,000
1967	11,000,000	120,000
1968	11,500,000	130,000
1969	12,000,000	140,000
1970	12,500,000	150,000

2. The second part of the report deals with the health services in the urban areas. It is based on a survey of the health services in the urban areas in 1965. The survey was carried out by the Ministry of Health and the World Health Organization. The results of the survey are presented in the following tables.

Year	Population	Health Services
1965	5,000,000	50,000
1966	5,200,000	55,000
1967	5,400,000	60,000
1968	5,600,000	65,000
1969	5,800,000	70,000
1970	6,000,000	75,000

3. The third part of the report deals with the health services in the rural areas. It is based on a survey of the health services in the rural areas in 1965. The survey was carried out by the Ministry of Health and the World Health Organization. The results of the survey are presented in the following tables.

Year	Population	Health Services
1965	5,000,000	50,000
1966	5,300,000	55,000
1967	5,600,000	60,000
1968	5,900,000	65,000
1969	6,200,000	70,000
1970	6,500,000	75,000

4. The fourth part of the report deals with the health services in the mountain areas. It is based on a survey of the health services in the mountain areas in 1965. The survey was carried out by the Ministry of Health and the World Health Organization. The results of the survey are presented in the following tables.

Year	Population	Health Services
1965	1,000,000	10,000
1966	1,050,000	11,000
1967	1,100,000	12,000
1968	1,150,000	13,000
1969	1,200,000	14,000
1970	1,250,000	15,000

5. The fifth part of the report deals with the health services in the coastal areas. It is based on a survey of the health services in the coastal areas in 1965. The survey was carried out by the Ministry of Health and the World Health Organization. The results of the survey are presented in the following tables.

Year	Population	Health Services
1965	1,000,000	10,000
1966	1,050,000	11,000
1967	1,100,000	12,000
1968	1,150,000	13,000
1969	1,200,000	14,000
1970	1,250,000	15,000