




CSL-AS-54 (R)
AS001861


614 TUR-S



CSL

DEDICATED
TO
THE MUNICIPAL CORPORATION
OF
THE CITY OF BOMBAY,

IN ACKNOWLEDGMENT OF THE ASSISTANCE GIVEN BY THAT
BODY TO THE PUBLIC HEALTH DEPARTMENT AND THE
BOMBAY SANITARY ASSOCIATION TOWARDS
PROMOTING THE EDUCATION OF THE
PEOPLE IN SANITATION AND
PUBLIC HEALTH.



CSL

PREFACE TO THE FIRST EDITION.

DURING the past twelve years the Public Health Department of Bombay has, under the auspices of Government of Bombay, been giving a six months' course of lectures with a view to making provision for a supply of men versed in the theory and practice of sanitation, for employment as Inspectors or Health Officers in mofussil Municipalities. Students come from all parts of India and Burma. At the end of the course an examination is held and certificates are awarded to successful students. Latterly the Royal Sanitary Institute, London, offered to co-operate in the examination and grant its certificates to successful candidates. The offer was accepted and this arrangement has been in force since 1910.

With a view to improving the sanitary condition of the country and securing the better observance of health regulations, the Government of India and the Provincial Governments have recently put in force a scheme for the improvement of the sanitary services and laid down rules for the guidance and instruction of students.

The lectures and demonstrations given to students of the Sanitary Surveyors' Class by the Officers of the Public Health Department, Bombay, have now been elaborated and published in the hope that they may reach a wider circle of students than can manage to attend the Class, and generally provide for Municipalities and others interested in questions of public health and hygiene a handy and practical guide to sanitation in India.

The book aims at providing the sanitary student with information on the practical application of modern sanitary methods adapted to India as well as to other places; for the principles of sanitation are the same in all countries although the conditions may differ.



PREFACE TO THE FIRST EDITION.

As far as possible, each subject has been dealt with in a practical form, so that the book may furnish information which may be of value to the sanitary student in carrying out the duties of a responsible post.

It will be seen that the Public Health Acts and By-laws both in England and India have been given in full on each subject, because we lay great stress on the value of properly constructed laws and regulations for any scheme of sanitary progress in India. As pointed out in the Chapter on Administration, the Acts and By-laws in force in the various towns of India are based on the Public Health Act, 1875, and other English Acts, modified to suit the conditions, but are weak in many respects. The Sanitary Officer should realise the importance of a thorough acquaintance with the sanitary regulations in force in his district and be able to suggest amendments which are required from time to time.

We recognise that there is in the book much that relates to purely local sanitary methods of a large city like Bombay, but we make no excuse for this, for we hold that the highest standard should always be aimed at. All the towns and cities cannot work up to that standard at once. But though some towns and districts can only spend thousands while others spend lakhs, the principle involved is the same.

We do not claim to have covered the whole area of sanitation in India which is a very wide one, but we trust we have introduced some new matter not touched upon before. For contributions on some of the subjects the works of other authorities have been freely consulted. In the Chapter on Malaria the works of Manson, Ross, James, Liston and Bentley have been freely drawn upon, while it also includes a detailed statement of a Malaria campaign in a large city. Maxwell's book on "Refuse Disposal in England," Robertson and Porters' "Sanitary Law and Practice in England" are among other standard works to which we have referred.



A special feature of the book is the insertion of a large number of photographs illustrative, as far as possible, of the sanitary methods dealt with.

Though some of the measures advocated cannot be immediately applied to all parts of India, it is hoped that the example set by the larger cities, which are enumerated in the book, will have the effect of stimulating interest in sanitary matters throughout India, and that many of the growing towns and cities will gradually recognise the importance of organising a trained staff of Sanitary Officials and of carrying out those measures which experience has shown to be both necessary and practicable.

I am deeply grateful to my assistants and staff generally for their valuable co-operation and help ; to Mr. N.S. Kowshik, the Chief Clerk of the Health Department, are due our warmest thanks for his assistance in correcting the proofs and to Mr. Shamrao G. Rajapurkar for many of the drawings. The co-operation of the *Times of India* Press has greatly facilitated the publication of this book.

BOMBAY,
January, 1914. }

J. A. TURNER, M.D., D.P.H.



CSL

PREFACE TO THE SECOND EDITION.

OWING to a continued demand for the book, since the first edition was exhausted towards the end of 1915, the publication of a second edition has become necessary.

The opportunity has been taken to carefully revise the book. Some of the chapters have been re-arranged; parts have been re-written; much new matter has been introduced; new illustrations have been inserted, a few of the old have been withdrawn; and an index has been added. Regulations and details necessary for a closer study of the subject have been given in smaller type.

Some valuable suggestions contained in the reviews which appeared on the publication of the book have been adopted. The original plan and object have, however, been steadily kept in view.

The work of revision, like that of compilation in the first instance, has had to be accomplished when circumstances permitted under conditions not favourable to constant attention, and a few omissions and typographical errors may still exist.

To Dr. Goldsmith and Mr. N. S. Kowshik and my assistants my thanks are due and I have much pleasure in associating their names with mine in the publication of the book, which, we trust, may prove increasingly useful and acceptable to those for whom it was originally intended.

BOMBAY,
1st February, 1917. }

J. A. TURNER, M.D., D.P.H.



CSL

PREFACE TO THE THIRD EDITION.

THE second edition having run out of print towards the beginning of 1921, a fresh edition has become necessary to meet the demand.

In the publication of this edition, the original plan and object have been adhered to, and the book has been thoroughly revised and brought up to date. The sections on water, plague, tuberculosis, leprosy and influenza have been rewritten and much fresh material inserted in almost every chapter. The latest available statistics have been given and the index has been made more copious.

For this I am indebted to my late colleagues Drs Sorab C. Hormusjee, K. B. Shroff, C. Coutinho and Mr. N. S. Kowshik, to whom I again give my most grateful thanks.

My thanks are also due to Mr. De Joss, Conservancy Supervisor, who has revised and partly re-written the portion dealing with rats in relation to plague after a special study of the subject at the Government Plague Laboratory at Poona.

I regret, however, that owing to the sad death of Dr. Goldsmith in December 1919, I have been denied in the preparation of this edition the very valuable assistance which he so abundantly gave in the preparation of the first two.

BOMBAY, }
February 1922. }

J. A. TURNER, M.D., D.P.H.



CONTENTS.

CHAPTER I.

ADMINISTRATION OF PUBLIC HEALTH ACTS IN INDIA.

	PAGE
Administration of Public Health Acts in India	1
Sanitary Administration in England and India	2
Sanitary Administration in Bombay City	10
Duties of Sanitary Staff in Bombay City	13
Guide to Public Health Laws	21
Health Department and other By-Laws	37
Sanitary Administration of a Port	60

CHAPTER II.

COLLECTION, REMOVAL AND DISPOSAL OF TOWN REFUSE.

Provisions of the Bombay, Calcutta, Madras and the District Municipal Acts	77
Composition of English and Indian Refuse	81
Collection and Removal of Refuse in Bombay	82
Removal of Refuse by Motors in London	88
Removal of Refuse by Motors in Bombay	92
Disposal of Refuse	98
Disposal of Refuse by Incinerators or Destructor	103
Types of Destructor	105
Small Incinerators in use in Madras	121
Summary for Practical Guidance	125

CHAPTER III.

COLLECTION, REMOVAL AND DISPOSAL OF SEWAGE.

Collection, Removal and Disposal of Sewage	129
Amount of Excreta and Collection	130
Collection and Disposal of Sewage in Bombay	132
The Trenching of Night-soil	137
Evolution of the Water-closet	143
Practical Application to India	152
Public Latrines and Sanitary Conveniences	155
London County Council Requirements	162



CONTENTS.

CSL

	PAGE
Bombay Municipal Requirements	171
Inspection of Water-closets	182
Inspection of Drains	183
Amount of Water for Water-closets	187
Sewers	188
Modifications of the Water Carriage System	195
Methods of Removal of Sewage in Sewers.	197
Shone's Ejectors	200
Disposal of Sewage	205
Purification of Sewage	206
Treatment of Sewage on Land	207
Tests for Sewage Effluents in relation to Standards	219
Combined Refuse and Sewage Disposal	223
Practical Application	224

CHAPTER IV.

WATER.

Composition of Water	237
Sources of Water Supply	239
Sub-soil Waters	246
Types of Water-Pumps	254
Hardness of Water	259
Treatment of Hard Waters	261
Action of Water on Pipes	262
Collection and Storage of Water	265
Distribution of Water	268
Sources of Impurity in the Water Supply	271
Effects of Insufficient and of Impure Water Supply	273
Purification of Water	277
Filtration of Water	288
Examination of Water	303
Proposed Standards	319
Protection of Water Supplies	325
Municipal Regulations relating to Water Supply in Bombay	326
Bombay Water Works	336
Calcutta Water Works	338

CHAPTER V.

FOOD AND MILK.

Necessary Constituents of Food	339
Dieteries of Individuals	343
Fish as an article of Diet	347
Vegetable Foods	350
Cereals	356



	PAGE
Parasites affecting Food Stuffs	360
Fruits	365
Condiments, Spices, etc.	365
Inspection of Food Supplies	366
Sources of Alteration in the quality of Flesh	374
Diseases in Animals affecting Meat	375
Parasitic Diseases of Animals	395
Preservation of Food	406
Preservation by Cold, Drying, Salting, Smoking and Heat	406
Preservation by means of Chemical Substances	413
Milk	419
Constituents of Milk	420
Composition of Milk and Milk Standards	422
Bacteria in Milk	429
Acute Infectious Diseases and Milk	431
Bacteriological Examination of Milk	433
Preservation of Milk by Pasteurisation, Refrigeration, Sterilisation, etc.	437
Preparations from Milk	443
Regulations for Licensing premises for Manufacture of Ghee	446
Regulation and Control of the Sale of Milk	450

CHAPTER VI.

INFECTIOUS DISEASES AND THEIR PREVENTION.

Laws for Prevention and Notification of Infectious Diseases	454
Dangerous Infectious Diseases in India and the Tropics	461
Plague in India	464
Plague Mortality in India and Bombay City (1896-1921)	470
The Diagnosis of Plague in the Rat	472
Rats	474
Damage done by Rats	481
Rat Fleas	479
Measures for the Prevention of Plague	488
Destruction of Rats (Poisoning and Trapping)	493
Disinfection for Plague	506
Inoculation	508
Tuberculosis	515
Bovine and Human Tuberculosis	517
Work done in India	518
Results of Investigation in Bombay	524
Practical Precautions and Measures	531
Measures carried out in Bombay—King George V Anti-Tuberculosis League	540
Cholera	542
Etiology of Cholera	543



	PAGE
Bacteriology of Cholera	547
Investigation into possible Causes of Outbreak	548
Personal Elements in the Spread of Cholera	554
Cholera Carriers	558
Precautions to be taken before and after a Village has become infected	560
Instructions for the Prevention of Cholera	561
Small-pox and Vaccination	574
Vaccination in Bombay	576
Calf Inoculation	578
Small-pox	581
Duration of Immunity conferred by Vaccination	582
Effect of Vaccination on Small-pox	586
Enteric (Typhoid)	588
Yellow Fever	597
Etiology of Yellow Fever	598
Method of spread of the Disease	598
Stegomyia Survey	604
Phlebotomus or Papatasi or Sand-Fly Fever	616
Diarrhoea, Dysentery and Sprue	624
Directions for feeding Infants and Precautions against Infantile Diarrhoea	625
Dysentery	627
Sprue	628
Beri-Beri	628
Rabies or Hydrophobia in Man	635
Pasteurian Treatment for the Prevention of Rabies	638
Typhus Fever	641
Life History of the Body Louse	644
Destruction and Avoidance of Lice	646
Malta Fever or Mediterranean Fever	648
Dengue Fever	648
Trypanosomiasis of Man or Sleeping Sickness	649
Methods of Prevention	650
The Tsetse Fly	653
Cerebro-Spinal Fever; Etiology	661
Leprosy—Its Prevention	667
Anthrax or Splenic Fever	671
Erysipelas	675
Tetanus	676
Measles	678
Whooping Cough	681
Diphtheria	683
Scarlatina	686
Chicken-pox	687



	PAGE
Influenza	688
Mumps	700
Puerperal Fever	701
Epidemic Pneumonia	702
Period of Isolation of the Infected in various Infectious Diseases ..	704
Table of Incubation and Quarantine Periods	705
Flies	705
Life History of the Fly	711
Length of Life of the Fly	715
Precautions against Flies	718

CHAPTER VII.

MALARIA AND MOSQUITOES.

Malarial Parasite—The Cause of Malarial Fever	722
Complete Cycle of the Parasites	723
Mode and Duration of Infection	730
Measurement of Malaria in a Locality	735
Facts about Mosquitoes	736
Description of an Adult Mosquito or Imago	738
Anopheline Mosquitoes in Bombay	744
Mosquitoes and their Eggs	749
Mosquitoes arva	751
Structures of Different Species of Anopheles	756
Prevention of Malaria	762
Prevention of Malaria in Bombay	766
Malarial Nomenclature	782

CHAPTER VIII.

DISINFECTION.

Disinfection and Cleansing	785
Disinfection by Steam	787
Disinfection by Chemical Substances	796
Liquid Disinfectants	809
Solid Disinfectants	812
Pulicides	815
Disinfection of Excreta and Discharges	820
Disinfection of the House	823
Disinfection of the Clothing	824
Instructions to the Disinfecting Staff in Bombay	829

CHAPTER IX.

DANGEROUS, OFFENSIVE AND OTHER TRADES.

The Sanitary Inspector's Position in regard to Nuisances	833
The Spread and Intensity of Trade Nuisances	834



	PAGE
Classification of Nuisances	836
Nuisances from the Keeping of Animals	839
By-laws relating to Stables	842
The Keeping of Pigs	850
Slaughter-House	851
Offensive Trades (Glue Making, Gut Scraping, etc.)	858
Sources of Nuisance in the Foregoing Trades	862
Ferro-Silicon : its Uses and Dangers	865
Manufacture of Patent Fuel with Pitch	869
Sugar Refining and Sugar Refineries	870
Silver Smelting, Casting Metals, &c.	873
Parching of Rice	881
Eating Houses	883
Sweetmeat Shops	887
Aerated Water Factories	891
Bake-Houses	892
Provisions of the City of Bombay Municipal Act regarding Dangerous, Offensive and other Trades	896

CHAPTER X.

SCHOOL HYGIENE AND MEDICAL INSPECTION OF SCHOOLS.

School Hygiene	900
Site and Surroundings	901
Light and Ventilation	903
Sanitary Conveniences	909
Walls and Flooring	910
Position of Schools	912
Medical Inspection of Schools	913
Organization in England	918
Character and Degree of Medical Inspection	921
The Problem in India	926
Physical Census of School Children in India	928
Instructions for Medical Inspection of Schools	931

CHAPTER XI.

HABITS AND CUSTOMS IN RELATION TO HEALTH.

How Habits and Customs affect People's Health	935
Habits and Customs of various Communities inhabiting a large Indian City (Bombay)	940
The Labouring Classes	951
The Depressed Classes	952



CHAPTER XII.

HOUSING OF THE WORKING CLASSES IN LARGE CITIES
IN INDIA.

	PAGE
Housing and Town-planning in India	956
Housing of the Working Classes in Indian Cities	960
Insanitary Conditions	961
Houses Unfit for Human Habitation	965
Type of Working-Class Dwellings Required	968
Provisions regarding the Ventilation of Buildings in Towns	970

CHAPTER XIII.

VITAL STATISTICS.

Sources of Information for the Sanitarian	979
The Census	979
Births, Marriages and Deaths	987
Birth-Rates	987
Marriage-Rates	992
Death-Rates	994
Factors affecting Death-Rates	999
Infantile Death-Rates	1009
Infant Mortality in Bombay City	1012
Practical Remedies for the Control of Infant Mortality	1017
Causes of High Infant Mortality	1020
Maternity Welfare and the Care of Infants	1028
Zymotic Death-Rates	1030
The Phthisis Death-Rate	1033
Classification of Statistical Data	1034
Statistical Evidence of the Health of Communities	1036
Death Registration in Bombay City	1038
Defective Registration in India	1047

CHAPTER XIV.

ROUTINE WORK OF THE SANITARY OFFICIAL.

The Health Officer in England and India	1050
Conservancy Inspectors	1055
Routine Work of Sanitary Inspectors and the Sanitary Provisions of the City of Bombay Municipal Act	1056
Action before the Magistrate	1067

CHAPTER XV.

METEOROLOGICAL INSTRUMENTS.

	PAGE.
Temperature	1074
Thermometers	1078
Causes of Interchange and Variation of Temperature	1081
The Barometer or Measure of Weight	1085
Humidity	1091
Direct Hygrometers	1093
Rainfall	1098
APPENDIX	1102
A.	
Useful Memoranda	1102
B.	
Sanctioned Strength of Superior Sanitary Organisation in India	1111
INDEX	1115



SANITATION IN INDIA.

CHAPTER I.

ADMINISTRATION OF PUBLIC HEALTH ACTS IN INDIA.

THE Acts and Bye-laws, which regulate and control Public Health in different parts of the world, vary with the progressive tendency of the people.

In England, the Public Health Act, 1875, forms the basis of all laws regulating and dealing with the control of Public Health, and these laws are extended or curtailed to meet the requirements of any particular locality.

The English Public Health Acts apply to urban and rural districts and some are adoptive, but it is the tendency of every urban and rural district to adopt all those sections relating to Public Health.

The laws controlling Public Health in India are administered by the Municipality and comprise the Bombay Municipal Act and Bye-laws, and the District Municipal Act and Bye-laws, the Calcutta Municipal Act and Bye-laws, the Madras Municipal Act and Bye-laws. There are also the Cantonment Municipal Acts and the Municipal Act of Native States, where Municipalities exist.

These Acts are very different in many respects, especially those sections dealing with Buildings, Housing, Overcrowding, Registration of Births and Deaths, Nuisances, Disposal of the Dead and Control of Infectious Diseases.

In large cities and towns in India, the executive control is vested in the officer appointed by Government. In Bombay he is called the Municipal Commissioner; in Calcutta, Chairman of Commissioners; in Madras, President; and in other towns, Chief Municipal Officer; in the Districts, with a population of not less than 100,000, and also in other



SANITATION IN INDIA.

CSL

Districts where specially appointed, the Municipal Commissioner (Bombay Act VIII of 1914.)

The sections of the Act read thus :—

The Commissioner,	} may—or it is the duty of the—or the C. shall take measures for secur- ing, &c., when it appears to the C., &c.
The Chairman,	
The President,	
The Collector,	
The Chief Officer,	

Certain sections of these Acts make it incumbent on the Executive Officer to obtain the sanction of the Standing Committee of the Corporation, or Commissioners, or the Council.

The Public Health Acts in British India, therefore, vary in degree according to the character of the district, urban or rural, and are amended and added to from time to time.

They are based on the English Public Health Act, 1875, and other English Acts; the Municipal Executive Officer—Commissioner, Chairman, President or Collector—taking the place of the Sanitary Authority in the English Act.

Notices are signed by the Municipal Commissioner or the Chief Officer as the case may be.

Under certain sections of the various Indian Municipal Acts, the local Authority has power to make Bye-laws.

In the larger cities in the Presidencies of Bombay, Calcutta and Madras, the Executive Health Officer and the Executive Engineer are appointed by the Municipalities subject to the approval of Government, and the subordinate staff by the Commissioner, or the Municipality. The staff varies according to the size and importance of the city.

SANITARY ADMINISTRATION.

The Public Health Administration in England is now controlled first, by the Ministry of Health, a Department of Government; secondly, by County Councils who appoint a County Medical Officer of Health; thirdly, by the Urban and Rural District Council; fourthly, by the Parish Council. In



many counties of England, there is a County Medical Officer of Health, and in addition there are combined districts comprising urban and rural areas, which also appoint a whole-time Medical Officer of Health for the combined district; and there are also Medical Officers of Health of large cities, county boroughs and smaller towns and rural districts: in the case of these latter, the M. Os. may or may not be whole-time officers. All these officers are appointed by the various local Authorities subject to the sanction of the Ministry of Health and, in the majority of cases, are whole-time men and half their salary is paid by the County Council out of the County rates.

The local Authority administers the various Acts concerned with the Public Health, *viz.*, the Public Health Act, 1875, and the Public Health Act, 1890; the Rivers Pollution Prevention Act, the Factory and Workshops Act, Housing of the Working Classes Acts, Infectious Diseases Prevention Act, the Sale of Food and Drugs Act, the Margarine Act, the Dairies, Cowsheds and Milk-shops Orders, Canal Boats Act, Infant Life Protection Act, &c.

In large cities of England, the local Authority is the Corporation, which is divided up into Committees for different Departments,—Health Committee, Cleansing Committee, Lighting Committee, Streets and Buildings Committee, etc.

In London, the County Council is the local Authority, with separate medical and administration staff, &c., but for Public Health Administration, London is divided into 42 Metropolitan Boroughs, and the City and Port of London, each having its own Medical Officer of Health, Engineer, &c.

The Ministry of Health is the supreme Authority and can insist on the proper administration of the Acts by the local Authority.



In India the sanitary administration of many large cities is carried on by a municipality with a Chairman, Commissioner or President, appointed by Government.

In Bombay, the local Authority is the Corporation, with a Commissioner appointed by Government. The Municipality of Bombay is the controlling body, and is comprised of a Corporation partly nominated by Government, partly elected by ratepayers and the Bench of Justices of the Peace, the Chamber of Commerce and the University, the Port Trust and the Improvement Trust.

In Calcutta, this Authority is called Commissioners, with a Chairman appointed by Government, and the Commissioners are elected, as in Bombay, by ratepayers and nominated by Government, and elected by Justices, the Chamber of Commerce, &c.

The local Government is the supreme Authority and can insist on the proper administration of the Acts.

The Executive in Bombay consists of the Municipal Commissioner appointed by Government.

The Executive Health Officer is appointed by the Corporation, subject to the approval of Government.

The Executive Engineer is also appointed by the Corporation, subject to the approval of Government.

In Madras, the local Authority is Commissioners with a Chairman appointed by Government, and the Health Officer now appointed by the Corporation.

In the other towns, Cawnpore, Ahmedabad, Poona, Surat, Delhi, Lahore, Lucknow, Agra, Nagpur, &c., the local Authority is the Municipality.

The Government Sanitary Service in India consists of a Sanitary Commissioner to the Government of India and to each local Government, and in addition Deputy Sanitary Commissioners.



The Government of India have within recent years decided to improve and strengthen the Sanitary Service, and the following is the Resolution dealing with Sanitation in India :—

No. 921.—36, dated Simla, the 23rd May 1912.

RESOLUTION.—By the Government of India, Department of Education, (Sanitary.)

“The Government of India have had for some time under their consideration the question of the improvement and strengthening of the sanitary services in India. The Plague Commission in 1901 strongly urged the necessity for the improvement in certain directions of the organization of the Sanitary Department in India, with the object of dealing more effectively with outbreaks of plague and other epidemics and with the general sanitation of India. In 1905 a scheme was formulated by the Royal College of Physicians for the creation of a medical and sanitary organisation in India, and the inadequacy of the sanitary services, as then constituted, was again emphasised.

In 1907 the Government of India addressed all local Governments inviting them to consider certain proposals for reform. The views of local Governments have been considered in detail, and a scheme has now been formulated which has received the sanction of the Secretary of State. The object of this Resolution is to indicate for general information the lines on which it is proposed that re-organization should proceed.

2. The administrative machinery of the Sanitary Department is already in most respects fairly complete and efficient. The improvements that the Government of India desire to effect are in the direction of further decentralisation of control; of widening the field of recruitment by throwing open the higher posts to fully qualified Indians of proved aptitude; of strengthening the staff in some provinces in which at present it is admittedly inadequate.

3. Hitherto the appointment of Sanitary Commissioner in all provinces, with the exception of Madras and Bombay, has rested with the Imperial Government. The Government of India have now authorized all local Governments to select their Sanitary Commissioners from officers serving in the Provincial Sanitary Department, provided that no officer of less than fifteen years' service be appointed without their previous sanction. They will also retain the selection in their own hands when no suitable officer is available in the province, or when the local Government desires to appoint an officer serving in another province. The Government of India further do not consider it desirable that there should be any limitation to the tenure of the office of Provincial Sanitary Commissioners and the existing orders on the subject contained in the Home Department Resolution No. 4340-51, dated the 7th June 1888, are cancelled.

4. It has become evident that the existing number of Deputy Sanitary Commissioners in more than one province is inadequate in view of the exacting nature of the duties which they have to perform, and the un-



wildly size of their charges. The area served by these officers ranges from 129,241 square miles in Madras to 24,597 square miles in Bombay and the population from 36½ millions in Madras to 3½ millions in Bombay. The Government of India have now decided to create eight additional appointments of this class, two each in the three provinces of Madras, Bengal and the United Provinces and two which were originally proposed for Eastern Bengal and Assam. The allotment of these posts, with those sanctioned for Bengal, will require re-adjustment in view of the recent administrative changes.

The appointments of Deputy Sanitary Commissioners will no longer be reserved for officers of the Indian Medical Service, and Indians possessing the necessary qualifications will be eligible for these posts. The selection of candidates for Deputy Sanitary Commissionerships, whether officers of the Indian Medical Service or not, will remain with local Governments subject to the following conditions :—

- (1) that the candidate holds a British diploma in public health and a registrable medical qualification ;
- (2) that no officer is appointed who is not an accepted candidate for the Sanitary Department ; and
- (3) that the Government of India is asked for an officer when the local Government has no candidate available who is qualified and on its accepted list of candidates.

5. The Government of India consider that the terms to be offered to Deputy Sanitary Commissioners, not belonging to the Indian Medical Service, should be non-pensionable, but that the scale of pay should consequently be fixed at rather more than two-thirds of the pay of Indian Medical Service officers in the department. The scale which they have determined is as follows :—

Years of service.

	Rs.
1-2 (probationary)	500
3-5	600
6-10	700
11-15	800
16 and over	900

For approved service of over 20 years, pay of Rs. 1,000 will be given up to 25 years which will ordinarily be the limit of service. Officers appointed on this scale will be eligible for leave under the Indian Service Leave Rules. First appointments will be made on probation for a period of not less than two years, and no officer will receive any increment of pay during the probationary period of his service ; but in the case of men who have rendered approved service as municipal officers of health, the period of probation may be dispensed with at the discretion of local Governments and the full rate of pay (*viz.*, Rs. 600) allowed. All Deputy Sanitary Commissioners will be debarred from private practice.



6. Another part of the administrative machinery which has attained a position of varying usefulness in different provinces is the Sanitary Board. These Boards are beneficial in emphasising the importance of the subject of sanitation, in correlating sanitary schemes with administrative exigencies and in securing direct discussion between sanitary experts and those who can appreciate and represent the attitude of the general population. The constitution of these Boards should, the Government of India consider, be determined by the local Government with reference to the functions with which they are to be entrusted. If the Board is purely an advisory body, it should contain the smallest number of persons sufficient to ensure that projects submitted to it will be examined adequately from the points of view of public health, of engineering and of finance and general administration. If the Board has specific powers of sanction, and is, within certain limits, practically to represent the local Government in matters of sanitation, it will appropriately be larger; but it cannot, in the Government of India's opinion, be desirable that a large body of officials without power to sanction schemes should be interposed between the local authorities and the provincial Government.

7. The weakness of the executive establishment of the service, and the inadequacy of the staff of trained officers of health, is a defect which has been prominently brought to the notice of the Government of India, the remedy for which is a necessary preliminary to any substantial improvement of sanitation. The Presidency towns and a few of the larger cities have such officers; but as a rule the Civil Surgeon is the only health officer of the towns in a district. It is difficult for him to give sufficient attention to the sanitary requirements of the head-quarters town; it is impossible for him to make more than an occasional inspection of other towns. The scheme now sanctioned provides for the appointment of health officers of the first class for larger municipalities and of the second class for the smaller towns, in accordance with detailed proposals received from the local Governments. A health officer of the first class will be required to have a registrable medical qualification and a British diploma in public health. The necessity for a British diploma will however be only temporary, as the Government of India trust that it may be possible to remove the second restriction so soon as arrangements can be made in India which will enable Indians trained in this country to become health officers of the first class. For health officers of the second class the main qualifications will be a good general education, supplemented by a course of training in public health approved by the local Government. A salary of Rs. 300-20-500 is considered suitable for officers of the first class (with higher pay in exceptional cases) and of Rs. 150-10-300 for officers of the second class. The Government of India leave it to local Governments to determine in the case of both classes, whether a provincial service should be constituted or whether the appointments should be local; but they consider that grants-in-aid by local Governments should be made only on conditions which will ensure that qualified men are appointed, and that they will have reasonable secu-



SANITATION IN INDIA.

CSL

city of tenure. They also consider that the necessary power should be vested in local Governments to require a municipality to appoint a health officer and to veto the appointment of an unfit person.

In order to assist local Governments to establish this trained service, the Government of India have offered to grant an annual subsidy to those Governments which cannot find the money from provincial funds, to the extent of the entire cost of the additional Deputy Sanitary Commissioners (calculated at the rates proposed for men not belonging to the Indian Medical Service) *plus* half the cost of the municipal health officers in the towns in which local Governments consider they should be appointed. It is hoped that the balance can then be found by the municipalities and local Governments concerned.

8. The subordinate supervising staff of the conservancy establishment also calls for improvement. In most towns there is an official whose functions resemble those performed by an inspector of nuisances in England. It is however exceptional to find in this position a man who has any technical knowledge of his work. The Government of India think it desirable that a service of trained sanitary inspectors should be organized in municipalities, based on such standard of population, income or area as commends itself to the local Governments. They have recommended to the notice of the other provinces the system in force in Madras, whereby every municipality is required to employ at least one trained inspector, a second inspector if the population exceeds 30,000 and three inspectors if the population exceeds 50,000; but they leave it to local Governments to determine the preliminary qualifications to be required from candidates, the course of training they must undergo and the rates of pay to be given. They trust that local Governments will be able to give assistance to such municipal bodies as require it in the organization of this subordinate staff.

9. The Government of India are confident that the schemes now sanctioned will mark a substantial advance towards the organization of a trained sanitary staff capable of further expansion in the future, and that it will prove an efficient agency for extending a knowledge of elementary hygiene among the people."

SANITARY ADMINISTRATION OF TOWNS IN INDIA.

Towns in India, in which any attempt at sanitary administration is made, vary in population from 30,000 to 1,000,000. In the majority of the smaller towns, the duties of the Health Department, if one exists, are very ill-defined and perfunctorily carried out. No actual hard and fast rules can be laid down—much depending on the rateable value, the commercial enterprise and importance as a residential centre, the class



of inhabitants, the climatic conditions and facilities for communication.

In view of the desire of the Government of India to improve the sanitary administration of the Empire, certain principles may be laid down with regard to the following:—

1. Water-supply.
2. Drainage and Sewage disposal.
3. Refuse collection and disposal.
4. Registration of Births and Deaths.
5. Control of Infectious Diseases.
6. Supervision and Control of Trades and Factories.
7. Condition of Houses, their improvement.
8. Re-arrangement of crowded areas and Town-planning.
9. Medical Relief, Malaria, Tuberculosis.
10. Disposal of the Dead.
11. Pollution of Rivers and Wells.
12. School Medical Inspection.

A Health Officer should be appointed either in a town or combined district with 30,000 persons or more. He should be a qualified medical man with experience in public health work.

He should have a staff of Conservancy and Sanitary Inspectors—one to each 20,000 population.

For the registration of births and deaths, there should be a Registration Office, with Branch Offices if the district has a population of over 50,000—or is a combined one.

The Registrars should be qualified medical men, or Sub-Assistant Surgeons, with training in sanitation.

On taking over charge of a town or district, the Health Officer should first obtain an accurate map giving the area, number of inhabited houses, streets, lanes and oarts and the



population of each section. He should divide the district into sections and put each section under a Sanitary Inspector, who should be an educated and trained man.

The extent of labour staff required will depend largely on the particular industry or occupation of the people concerned.

Details of every street and house should be available and a house to house inspection made by the Sanitary Inspectors and the method of drainage, night-soil disposal, and refuse collection and disposal laid down.

In every town or district of any size, a large number of huts or small houses exist occupied by the poorest classes.

It is not to be expected that modern sanitary methods which are adopted in large cities can be applied here, but some attempt can be made to improve their surroundings.

In the majority of these districts it will be many years before the inhabitants can be taught the value of cleanliness in and around the dwellings: nor will it be possible to drain *all* sullage water and night-soil or adopt other than existing methods, but there are many ways of improving the sanitation of a district besides expensive drainage schemes.

Land is plentiful and labour is cheap and the climate is favourable for disinfection by the sun and wind.

These conditions should be taken advantage of, for even the poorest class of huts can be improved by regulating their position and putting a mukadam in charge who can supervise the cleaning of the surroundings, disposal of night-soil, filling in of damp places and keeping of a register of births, deaths and sickness.

BOMBAY.

Bombay may be taken as an example of a large city in India where modern sanitary methods are applied.



The population of Bombay is about 1,200,000 and in point of numbers it is the third City in the Empire.

Name of City.	Population.	Area.
Bombay	11,72,953	14,575 acres.
Calcutta	12,44,824	20,547 „
Madras	5,22,707	17,280 „
Manchester	7,31,556	20,799 „
Liverpool	7,67,992	21,219 „
Glasgow	10,32,228	19,183 „
Birmingham	8,59,644	43,537 „

Name of City.	Rateable Value.	Annual Expenditure, Cleansing Department.
	£	£
Bombay	5,149,828	145,761
Calcutta	2,500,000	78,000
Madras	94,933	23,000
Manchester	4,554,958	242,000
Liverpool	4,783,000	120,000
Glasgow	5,960,000	130,000

The Head of the Health Department is the Executive Health Officer.

For administration purposes, the City has been divided into seven wards, each under the subordinate charge of an Assistant Health Officer, who is responsible both for the conservancy and sanitary work of his ward. The Assistant Health Officers are assisted by a staff of Sanitary and Conservancy Inspectors, Assistant and Sub-Inspectors. They are under the control and work under the general orders of the Executive Health Officer, who is assisted by two Assistants.

There is also a Medical Superintendent in charge of the Arthur Road Hospital for infectious diseases and the Maratha Hospital for Plague.



SANITATION IN INDIA.

CSL

For analytical and bacteriological examination there is a Municipal Analyst in charge of a fully equipped chemical and bacteriological Laboratory.

The Veterinary staff includes four qualified Veterinary Surgeons with 11 Veterinary Overseers, who inspect the milch-cattle stables in the City and the Municipal bullocks, and are in charge of the Municipal Bullock Hospital.

The Vaccination staff includes the Superintendent, the Assistant Superintendent and ten Vaccinators.

The Sanitary and Conservancy Staff, exclusive of the labour staff, consists of —

- 10 Senior Medical Inspectors.
- 10 Junior Medical Inspectors
who are also District Registrars in charge of the ten
Registration Districts of the City.
- 50 Medical Assistants in charge of sections.
- 11 Leave Reserves.
- 10 Jamadars.
- 11 Disinfecting Sub-Inspectors.
- 5 Milk Sub-Inspectors.
- 1 Junior Medical Inspector, Malaria.
- 1 Medical Assistant Inspector, Malaria.
- 16 Junior Overseers, Malaria.
- 2 Sub-Inspectors for the destruction of stray,
ownerless dogs.

CONSERVANCY.

- 1 Conservancy Assistant.
- 5 Supervisors.
- 12 Assistant Supervisors.
- 5 Senior Overseers.
- 49 Junior Overseers.
- 12 Leave Reserves.
- 22 Sub-Inspectors.



DUTIES OF THE STAFF.

The duties of the staff are on the same lines as those in English cities, but are of a more multifarious and exacting character. The habits of the people, their caste prejudices and religious susceptibilities and the difficulties of enforcing the Acts and Bye-laws, and the control of a large staff of labourers render the work of the Health Officer much more arduous; and he must be as much a teacher as an Executive Officer; and while exercising tact and discretion, must possess a firm, guiding hand both with regard to the people and the authorities under whom he serves.

The Executive Health Officer is, under the Municipal Commissioner, the chief supervising officer.

ASSISTANT HEALTH OFFICERS.

The Assistant Health Officer is the Health Officer of a Ward which has a population of 85,000 to 250,000.

The duties of the Assistant Health Officer are—

- (1) to inform himself, as far as practicable, respecting all influences affecting or threatening to affect injuriously the public health in his Ward;
- (2) to inquire into and ascertain the causes, origin or distribution of diseases within his Ward, and to ascertain to what extent the same has depended on conditions capable of removal or mitigation;
- (3) by systematic and daily inspection in his Ward to keep himself informed of the conditions existing therein and injurious to health; submit reports to the Health Officer on outbreaks of infectious disease or special mortality occurring in any house or section; report to the Health Officer on any matters likely to affect the health of the City generally, and on any matters which should be brought to his notice;
- (4) to exercise full administrative control over his Ward and to carry out the sanitary provisions of the Municipal Act;

(5) to supervise the work of the sanitary and conservancy staff, and to see that the conservancy of the Ward is efficiently carried out ;

(6) to supervise the work of the District Registrars and their Dispensaries and offices, to inquire into any outbreak of infectious disease reported by the District Registrar, to arrange and supervise removal of the suffering to hospital, disinfection and other measures necessary for dealing with such cases of infectious disease ;

(7) to supervise the carrying out of all special Plague measures, such as disinfection, evacuation of infected houses, removal of cases to hospital and contacts to health camps, and supervision of health camps in his Ward ;

(8) to inquire into complaints made by the public, to make reports, when required, to the Health Officer and the Municipal Commissioner ;

(9) to serve notices on owners of premises in which there are sanitary defects and to conduct prosecutions in the Police Court against offenders of sanitary provisions of the Municipal Act ;

(10) to carry out all orders and instructions of the Municipal Commissioner and the Health Officer.

The staff of a Ward consists of an Assistant Health Officer, his office staff and outdoor staff of Medical Assistants in charge of Dispensary, Visiting Nurse and Midwife, birth registering Karkoons, Sanitary and Conservancy Inspectors, Sub-Inspectors, Mukadams and labour staff of bigaries, cart-drivers and halalkhors, and Cemetery Clerks who are in charge of cemeteries and burning ghats.

Outdoor Staff.—Each registration District is in charge of a Medical Inspector, who is a qualified medical man, having under him two Medical Assistants, who are Sub-Assistant Surgeons, Visiting Nurse and Midwife, birth and death registration Karkoons, disinfecting gangs in charge of an Inspector, and ambulance coolies.



Sanitary Staff.—There are a Medical Inspector in each of the ten Districts and a Medical Assistant for each of the fifty units.

Conservancy Staff.—There is a Conservancy Assistant with Supervisors, Assistant Supervisors, Senior and Junior Overseers and Sub-Inspectors.

House drain cleaning work.—This work is now done under the Assistant Supervisors, by masons and the staff of drain-cleaning bigaries of each section. In each Ward there is a gully-flushing engine and a gang in charge of a Sub-Inspector.

The labour staff is directly controlled by Mukadams.

It consists of bigaries to sweep the roads and footpaths and house-gullies ;

Cart fillers to fill the cutchra carts and cart-drivers for the carts ;

Gully plungermen to clean gully traps ;

Halalkhors to clean privies and remove night-soil to depôts.

Vacant ground cleaners to remove night-soil from vacant ground, street corners, &c. ;

Public latrine and urinal cleaners.

This staff clean house-drains, repair broken house-drains and gully traps, sending in bills to the house-owners concerned. They also clean waste-water pipes and all connections to house-drains.

The routine work of an Assistant Health Officer consists of a visit to his Ward stables and Dispensary and inspection of some part or parts of his Ward in the early mornings between 6 and 10 A.M., and from 11 to 5 P.M. or later, office work and outdoor supervision work are carried on. It includes also the following :—

Special inspections in the afternoons or evenings, and attendance at muster early morning and during the day at the Ward stable at least once a week. Surprise visits to the stables at least twice a week to inspect the feeding of bullocks.



Visits to places or premises for inquiry into complaints made by the public, which cannot be dealt with by the Sanitary Inspectors, or for reports to be made to the Municipal Commissioner or the Executive Health Officer.

Inspection of sites or premises for which building plans have been submitted and which require special inspection.

Inspection of premises in which the privy accommodation is insufficient, or for sanitary reasons objectionable, with a view to action being taken under sections 248 and 249.

Examination of wells, tanks, fountains, basins, and other collections of water for presence of larvæ of anopheles mosquitoes, or for cleaning, covering, filling in, &c., under section 381.

Inspection of premises, for which notices for lime-washing and sanitary improvements under sections 257, 375 and 377 have been served, to see if the work has been satisfactorily carried out.

Inspection of licensed stables with special reference to the carrying out of the requirements of the bye-laws, the prevention of overcrowding, daily removal of dung and litter; and in case of milch-cattle stables, for prosecutions for feeding cows and buffaloes, &c., on stable litter under section 384, clause (c).

Inspection of houses, where cases of Plague or other infectious disease have occurred or which are insanitary, for reports to be made to the Executive Engineer for action to be taken for their improvement.

Inspection of hotels, restaurants, eating houses, tea shops, sweetmeat shops, dairies, bakeries and hair-cutting saloons and places where indigenous cigarettes are made as these last have been found in some places to be centres of tubercular infection.

Inspection of places, where refuse is thrown into the gullies and streets, for prosecution under section 372, clauses (a), (e) and (f).



Inspection of food exposed for sale and the seizing of same, if necessary, under sections 413 to 417A.

Collection of samples of milk, butter, foods, drinks, drugs, for forwarding them to the Municipal Analyst for analysis.

Inspection of milk and ghee exposed for sale and collection of samples, if necessary, for analysis and action under the special Ghee Act.

Inspection of public latrines and urinals to see if the same are in good repair and proper working order and are being kept in a cleanly state.

Selection of sites where new public latrines and urinals are required and reporting the same to the Health Officer.

Inspection of Health Department carts and bullocks and chawls occupied by bigaries and halalkhors.

Inspection of factories, &c., for smoke nuisance and action under section 391.

Supervision of the work of the Nurses, birth Karkoons and death registration Ramosis.

Surprise visits to the various night-soil depôts in the Ward and inspection of the register kept by the tripmarker.

Inspection of the work of cleaning house drains and replacing broken gully traps, drain pipes, &c.

Special inspection of premises about which action is being taken in the Police Courts.

Visiting premises for reporting to the Municipal Commissioner if licenses for stables or firewood depôts should be granted, or permits issued for proposed factories worked by steam, water or other mechanical power.

Inspections on above lines are made in the early mornings and afternoons.

The office work of each Assistant Health Officer includes the writing of reports to the Municipal Commissioner and the Executive Health Officer; to the Executive Engineer, Drainage Engineer and Water Engineer for action required to be taken by their Departments; to the Superintendent of



Licenses informing him of the infringement of the terms of their licenses by licensees of stables and other licensed premises :

Drafting and signing letters in reply to complaints, or requiring house-owners to carry out certain works.

The examination and disposal of building plans.

The preparation of pay abstracts of all the supervising and labour staff.

Disposal of defaulter sheets and reports, by the District Registrars and Inspectors, of offences committed daily and infliction of fines or other punishments.

Attending the Police Court every week to conduct cases.

Inspecting or dealing with any urgent nuisances reported by the Sanitary Inspector of the Ward, who attends every day for the purpose at the office of the Assistant Health Officer.

Submitting and receipting bills for works carried out by the Health Department for private persons, such as cleaning, repairing house-drains and their connections, sweeping certain private roads and compounds and removing refuse.

Reporting to the Executive Engineer, Drainage Engineer and Water Engineer, defects in public latrines, stables, chawls and other buildings belonging to the Municipality which are in the charge of the Health Department and certifying the bills for the necessary works carried out.

Sending in indents for the feed of Health Department bullocks, for brooms, baskets, lime and other articles required by the Health Department for the use of the Wards.

Arranging for the removal of refuse and night-soil from military camps, circuses, private camps, &c.

Arranging for the supply of special and ordinary halalkhor service to private houses, hotels, factories, camps, &c., and calculating the taxes leviable for such special halalkhor service on observations taken of the amount of night-soil and cesspool water removed.



DISTRICT STAFF.

For the purposes of medical relief, registration of births and deaths, and taking measures against infectious diseases, the City of Bombay is divided into ten parts called Districts, and each District is in charge of a fully qualified Medical Officer, called the District Registrar, who has under him the following staff :—

1. Four or more qualified Sub-Assistant Surgeons, one for each unit, called the Assistant Medical Inspector, whose duty is to check immediately all death reports received from cemeteries or death ramosis, to make house-to-house inspection and find out sickness and births, to treat poor patients at their houses, to supervise disinfection, to report to the District Registrar sanitary defects observed in houses, to check the work of birth Karkoons and to assist the District Registrar generally. He has to reside in his own section, and in the Dispensary of the District if there is accommodation.

2. One fully qualified midwife, called the Nurse, whose duty is to make house-to-house inquiry, so as to instruct the female population as regards the feeding of infants, domestic and personal hygiene, and other sanitary matters, to conduct delivery cases in poor families and to find out births.

3. Three or more birth Karkoons, one for each section, whose duty is to make house-to-house inspection, and collect information regarding births and sickness and to serve vaccination notices.

4. Cemetery Karkoons in charge of each cemetery. In large cemeteries there are fully qualified Sub-Assistant Surgeons. Their duty is to register deaths at the cemeteries and to ascertain the cause of death from the relatives of the funeral party.

5. Death registration Ramosis, six or more for each District. Their duty is to attend day and night at specified



places in their section and to give a pass to the funeral party after personally ascertaining the proper address of the deceased. One of these death-passes is presented at the cemetery and the other is sent to the District Registrar of the District for immediate inquiry as to the cause of death.

6. A Disinfecting Sub-Inspector to carry out disinfecting operations.

7. Mukadams, a gang of coolies, camp master, clerks, peons, &c.

The District Registrar, who generally resides in his own District or close to it, is in charge of all sections of his District and is personally responsible for them. His duties are to attend both in the mornings and in the afternoons, the Municipal Charitable Dispensary which is situated in the central part of his District, to treat, at their own residence, poor patients who are unable to move out of their houses, to check death reports, to supervise the work of Sub-Registrars and birth Karkoons and the Nurse, to supervise the disinfection of infected houses, evacuate houses where necessary, to make special reports to the Health Officer on the outbreak of any special diseases, to report to the Assistant Health Officer all insanitary houses and any sanitary defects observed during his rounds, and to assist the Assistant Health Officer and the Health Officer generally. He has also to look after the camps and take prompt measures to prevent the spread of sickness in them.

Each Dispensary is also the office of the District Registrar and is provided with a telephone connection to receive information of infectious diseases from the public. Special arrangement is made to receive messages at any time during the day and night. On the occurrence of cases of Plague, Cholera, Typhoid Fever, Relapsing Fever, Small-pox and Phthisis, disinfection of the infected clothes, etc., is carried out.



GUIDE TO PUBLIC HEALTH LAWS.

(Notes are local to Bombay.)

*The City of Bombay Municipal Act of 1888 as modified up
to 31st May, 1920.*

- (a) *The City*.—Means the City of Bombay.
- (b) *The Corporation*.—Means the Municipal Corporation of the City of Bombay.
- (c) *Councillor*.—Means a member of the Corporation.
- (d) *The Commissioner*.—Means the Municipal Commissioner for the City of Bombay.

(e) *Bakehouse*.—Means any place in which are baked bread, biscuits or confectionery, from the baking or selling of which a profit is derived.

(f) *Owner*.—When used in reference to any premises means the person who receives the rent of the said premises, or who would be entitled to receive the rent thereof if the premises were let: and includes:—

I. An Agent or Trustee who receives such rent on account of the owner.

II. A receiver appointed by any Court.

(g) A person is deemed "*to reside*" in any dwelling which he sometimes uses, or some portion of which he sometimes uses, though perhaps not uninterruptedly, as a sleeping apartment.

(h) *Eating House*.—Means any premises to which the public are admitted and where any kind of food is prepared or supplied for consumption on the premises for the profit or gain of any person owning or having an interest in or managing such premises.

(i) *Building*.—Includes a house, out-house, stable, shed, hut and every other such structure whether of masonry, bricks, wood, mud, metal, or any other material whatever.

(j) *Premises*.—Includes messuages, buildings and lands of any tenure, whether open or enclosed, whether built on or not and whether public or private.

(k) *Water Work*.—Includes a lake, stream, spring, well, pump, reservoir, cistern, tank, duct, whether covered or open, sluice, mainpipe, culvert, engine and any machinery, land, building or thing for supplying or used for supplying water.

(l) *A Sweetmeat Shop*.—Means any premises or part of any premises used for the manufacture, treatment or storing for sale, or for the sale, wholesale or retail, of any ice-cream, confections or sweetmeats whatsoever, for whomsoever intended, and by whatsoever name the same be known, and whether the same be for consumption on or outside the premises.

(m) *Drain*.—Includes a sewer, pipe, ditch, channel or any other device for carrying off sewage, offensive matter, polluted water, sullage, waste water, rain water or subsoil water, and any ejectors, compressed air mains, sealed sewage mains and special machinery or apparatus for raising, collecting, expelling or removing sewage or offensive matter to the sewage outfall.

(n) *Land*.—Includes land which is being built upon or is built upon or is covered with water.

(o) *House-gully*.—A passage or strip of land, constructed, set apart or utilised for the purpose of serving as a drain or of affording access to a privy, urinal, cesspool or other receptacle for filthy or polluted matter, to municipal servants or to persons employed in the cleansing thereof or in the removal of such matter therefrom.

(p) *Street*.—Includes any highway and any causeway, bridge, viaduct, arch, road, lane, footway, square, court, alley or passage, whether a thoroughfare or not, over which the public have a right of passage or access or have passed and had access uninterruptedly for a period of 20 years.

(q) *Public Street*.—Means any street heretofore levelled, paved, metalled, channelled, sewered or repaired by the Corporation, and any street which becomes a public street under any of the provisions of the Act.

(r) *Private Street*.—Means a street which is not a public street.

(s) *Nuisance*.—Includes any act, omission, place or thing which causes or is likely to cause injury, danger, annoyance or offence to the sense of sight, smelling or hearing or which is, or may be, dangerous to life or injurious to health or property.

(t) *Dangerous Disease*.—Means Cholera, Plague, Small-pox, Leprosy, Enteric or Typhoid, Relapsing Fever, Malaria, Tuberculosis, Measles, Whooping Cough, Erysipelas, Scarlet Fever, Diphtheria, Sleeping Sickness, Yellow Fever, Kala-Azar, Influenzal Pneumonia and any endemic, epidemic, or infectious disease by which the life of man is endangered.

Obligatory duties of the Corporation—Section 61—

- (a) Construction, &c., of drains and drainage works, and of public latrines, urinals and public conveniences.
 - (b) Supplying water.
 - (c) Scavenging, &c.
 - (d) Abatement of all nuisances.
 - (e) Regulation of places for the disposal of the dead.
 - (f) Registration of births and deaths.
 - (ff) Public vaccination.
 - (g) Prevention of the spread of dangerous diseases.
 - (gg) Public medical relief.
 - (h) Provision of markets and slaughter houses.
 - (i) Regulation of offensive and dangerous trades.
- &c. &c. &c. &c.

Section

- 68 (1) The Municipal Commissioner may empower in writing any Municipal Officer to perform, under the Municipal Commissioner's control and subject to his revision, any of the powers, duties or functions described in sub-section (2), and the word "Commissioner" includes such officer so empowered.



Section

- (2) The sections, sub-sections and clauses of this Act referred to in sub-section (1) (*pertaining to the Health Department*) are the following :—

82-84-112-228-234-240-243 (2)-246A-248-249-249A
250 (2)-251-251B-253-257-258 (a), (b), (c)-374-375
375A-377-379-379A-380-381-381A-383-384 (a)-384A-
394-396 (1)-410 (1)-412 (1), (2)-413 (1)-415-416-422-424
(1)-425 (1)-427 (3)-479 (5)-488 and 517 (a).

LEAVE OF ABSENCE, ACTING APPOINTMENTS, &c.

- 81 Standing Committee to frame regulations for grant of leave, &c.
82 Power of appointing Municipal Officers vests in the Municipal Commissioner.
83 Power of suspending, punishing and dismissing vests in the authority by whom such officer or servant is appointed.
84 Leave of absence may be granted by the Municipal Commissioner.
86 Municipal Officer or servant not to be interested in any contract, &c., with the Corporation.
141 Water tax on what premises to be levied.
142 Halalkhor tax on what premises to be levied.
181 Exemptions from the tax on vehicles and animals kept for Municipal purposes.
220 *Municipal Drains*.—Municipal drains to be under the control of the Municipal Commissioner.
220a Vesting of water courses.
221 Drains to be constructed and kept in repair by the Municipal Commissioner.
222 Power of making drains.
223 Buildings should not be erected without permission over any Municipal drain.
224 Alteration and discontinuance of drains.
225 Cleansing of drains.
227 *Drains of Private Streets and Drainage of Premises*.—Power to connect drains of private streets with Municipal drain.
228 Power of owners and occupiers of premises to drain into Municipal drains.
229 Connections with Municipal drains not to be made except in conformity with section 227 or 228.
230 Rights of owners and occupiers of premises to carry drains through land belonging to other persons.
231 Municipal Commissioner may enforce drainage of undrained premises situated within a hundred feet of a Municipal drain.
232 Municipal Commissioner may enforce drainage of undrained premises, not situated within 100 feet of a Municipal drain.



Section

- 232a Municipal Commissioner may enforce drainage of premises in combination.
- 233 Municipal Commissioner may close or limit the use of existing private drains.
- 233a Vesting and maintenance of drains for sole use of properties.
- 234 New buildings should not be erected without drains.
- 235 Excrementitious matter not to be passed into cesspool, except with permission of the Municipal Commissioner.
- 236 Obligation of owners of drains to allow use thereof or joint ownership therein to others.
- 237 How right of use or joint ownership of a drain may be obtained by a person other than the owner.
- 238 Municipal Commissioner may authorize person other than the owner of a drain to use the same or declare him to be a joint owner thereof.
- 239 Sewage and rain water drains to be distinct.
- 240 Drains should not pass beneath buildings.
- 241 Cesspools not to be constructed beneath buildings nor within 20 feet of any well, &c.
- 242 Right of Corporation to drains, &c., constructed, &c., at charge of Municipal Fund on premises not belonging to the Corporation.
- 243 All drains and cesspools to be properly covered and ventilated.
- 244 Municipal Commissioner may affix pipes to any building, &c., for ventilation of drains, &c.

DISPOSAL OF SEWAGE.

- 245 Municipal Commissioner may appoint places for emptying of drains and disposal of sewage.
- 246 Provision of means for disposal of sewage.

WATER-CLOSETS, PRIVIES, URINALS, &C.

- 246a (1) No water-closet or privy for any premises should be constructed except with the written permission of the Municipal Commissioner who may determine—
- (2) (a) Whether the premises shall be served by a water-closet or by a privy, and
- (b) the site or position of each water-closet or privy.
- (3) If any water-closet or privy is constructed in contravention of sub-section (1), the Municipal Commissioner, with the approval of the Standing Committee, can demolish the same.
- 247 (1) Water-closet and other accommodation, including washing and bathing places, should be provided in buildings newly erected or re-erected, and



(2) In prescribing such accommodation the Municipal Commissioner may determine in each case—

- (a) whether water-closet or privy should be erected, and
- (b) prescribe the site or position of each water-closet, privy, urinal, or bathing or washing place, and their number.

248 When any premises are without a water-closet or privy or urinal or bathing or washing place, or such existing accommodation is insufficient, inefficient, or on any sanitary grounds objectionable, the Municipal Commissioner, with the approval of the Standing Committee, may take action for such requirements.

N.B.—The usual rule of the Health Department is to demand one privy seat for every 5 rooms, each occupied as a separate tenement.

[The standard under the Indian Factories Act (XII of 1911)—

Chapter III (13): Every factory shall be provided with sufficient and suitable latrine accommodation, and if the local Government so requires, with separate urinal accommodation for the persons employed in the factory. Provided that the Inspector may, subject to such conditions as the local Government may lay down in this behalf, by an order in writing exempt any factory from the provisions of this Section.

SECTION 37 (2) (h):—STANDARD OF LATRINE AND URINAL
ACCOMMODATION :—

18 (1) Every factory which has not been exempted under the proviso to Section 13 of the Act, shall be provided with latrine accommodation, which shall be in a place detached from the other factory buildings and on the following scale:—

Where the number of operatives does not exceed 50	3
Where the number exceeds 50 but does not exceed 150	4
Where the number of operatives exceeds 150 but does not exceed 200	5
Where the number of operatives exceeds 200	1 seat for every 50 or fraction of 50.

12758

(2) If females are employed, separate latrines screened from those for males and marked in the Vernacular in conspicuous letters "for females only" shall be provided. Those for males shall be similarly marked "for men only".

(3) In Factories which employ more than 100 hands and which do not provide flushing arrangements in the latrines, one urinal shall be provided for every 100 operatives or fraction of 100.

The standard under the English Factory Act is as follows :—

The accommodation in the way of sanitary conveniences provided in a factory or work shop shall be deemed to be sufficient and suitable within the meaning of this section if the following conditions are complied with and not otherwise.

1. In factories or workshops where females are employed or in attendance, there shall be one sanitary convenience for every twenty-five females.

In factories or workshops where males are employed or in attendance, there shall be one sanitary convenience for every twenty-five males : provided that—

(a) in factories or workshops where the number of males employed or in attendance exceeds one hundred, and sufficient urinal accommodation is also provided, it shall be sufficient if there is one sanitary convenience for every twenty-five males up to the first hundred, and one for every forty after :

(b) in factories or workshops where the number of males employed or in attendance exceeds five hundred, and the district inspector of factories certifies in writing that by means of a check system, or otherwise, proper supervision and control in regard to the use of the conveniences are exercised by Officers specially appointed for that purpose, it shall be sufficient if one sanitary convenience is provided for every sixty males, in addition to sufficient urinal accommodation. Any certificate given by an Inspector shall be kept attached to the general register, and shall be liable at any time to be revoked by notice in writing from the Inspector.

In calculating the number of conveniences required by this Order, any odd number of persons less than twenty-five, forty, or sixty, as the case may be, shall be reckoned as twenty-five, forty or sixty.

2. Every sanitary convenience shall be kept in a cleanly state, shall be sufficiently ventilated and lighted, and shall not communicate with any work-room except through the open air or through an intervening ventilated space : provided that in work-rooms in use prior to 1st January, 1903, and mechanically ventilated in such manner that air cannot be drawn into the work-room through the sanitary convenience, an intervening ventilated space shall not be required.

3. Where persons of both sexes are employed, the conveniences for each sex shall be so placed or so screened that the interior shall not be visible even when the door of any convenience is open, from any place where persons of the other sex have to work or pass ; and, if the conveniences for one sex adjoin those for the other sex, the approaches shall be separate.]

Section

249 Power to require privy accommodation, &c., for factories, &c. in which persons exceeding 20 in number are employed.



UNHEALTHY PRIVIES.

Section

249A When any privy by reason of its not being sufficiently detached from any building is likely to cause injury to health, the Municipal Commissioner, with the previous approval of the Standing Committee, may ask for following requirements :—

- (a) To close up such privy and to provide in lieu thereof water-closet or privy or urinal as the Municipal Commissioner may prescribe;
- (b) To provide an open "chowk" within the owner's own limits, 3 feet in width, between the said privy and the building.

250 Provisions as to privies :—

- (a) Open chowk, or air space 3 feet in width;
- (b) Screen walls;
- (c) Trap doors not to open into street.

251 Provisions as to water-closets.

251A Position of water-closets and privies :—

- (a) Not to be directly over or under any room or building other than another water-closet or privy or a bathing place, bath-room or terrace.
- (b) Not to be within a distance of 20 ft. from any well, &c.

251B Use of places for bathing or washing clothes or domestic utensils.

252 Public conveniences.

INSPECTION.

253 Drains, &c., on private premises to be subject to inspection and examination.

254 Power to open ground, &c., for purpose of such inspection and examination.

255 When the expenses of inspection and examination are to be paid by the Municipal Commissioner.

256 When the expenses of inspection and examination are to be paid by the owner.

257 Municipal Commissioner may require repairs, &c., to drains, ventilation shaft, or pipe, cesspool, house-gully, water-closet, privy, latrine, urinal, bathing or washing place to be made.

257A Cost of inspection and execution of works in certain cases.

258 No person shall—

- (d) Drop, pass, or place, or cause or permit to be passed, dropped, or placed into or in any drain, any brick, stone, earth, ashes or any substance or matter by which such drain is likely to be obstructed;



Section

- (e) Pass, or permit or cause to be passed into any drains provided for a particular purpose, any matter or liquid for the conveyance of which such drain has not been provided;
- (N. B.—Action for passing dung into drains in milch-cattle stables is taken under these sub-sections).
- (f) Discharge into any drain any hot water, steam, fumes, or any liquid which would prejudicially affect the drain.
- 260 Municipal Commissioner may execute certain works, under this chapter of the Act, without allowing option to persons concerned of executing the same.
- 265 Power of carrying water mains, etc.
- 267 Prohibition of building and other acts which would injure sources of water-supply.
- 268 Buildings, &c., not to be erected over Municipal water main without permission.
- 274 Provision as to storage cisterns and other fittings, &c., to be used for connections with water-works.
- 275 Water pipes, &c., to be kept in efficient repair by owner or occupier of premises.
- 278 Municipal Commissioner may inspect premises in order to examine taps, water fittings, &c.
- 279 Power to cut off private water-supply or to turn off water.
- 281 Water pipes not to be placed where water will be polluted.
- 294 Minimum width of new public streets—40 feet if made for carriage traffic or 20 feet if such streets be made for foot traffic only.

PROVISIONS CONCERNING PRIVATE STREETS.

- 302 Notice of intention to lay out *new private streets* to be given to the Municipal Commissioner.
- 303 Level, direction, width and means of drainage of *new private streets* and of the buildings on either side thereof to be determined by the Municipal Commissioner.
- 305 Levelling and draining of private streets.
- 306 Power to declare private streets when sewered, &c., to be public streets.
- 316 Prohibition of tethering of animals in public streets.
- 333 Manner of laying gas pipes; (gas pipes should be at the greatest possible distance from water pipes and gas pipes shall be laid above the water pipe when it is necessary for a gas pipe to cross a water pipe).
- 335 Buildings, &c., not to be erected without permission over Municipal gas pipes.

BUILDING REGULATIONS.

- 337 Notice to be given to the Municipal Commissioner of intention to erect a building.



Section

- 338 Municipal Commissioner may require plans and other documents to be furnished.
- 339 Municipal Commissioner may require plans, &c., to be prepared by a licensed Surveyor.
- 340 Additional information, &c., may be required.
- 341 Effect of non-compliance with requisition under section 338 or 340.
- 342 Notice to be given to the Municipal Commissioner of intention to make additions, &c., to a building.
- 343 Plans and additional information to be called for.
- 345 Within 30 days, the applicant must receive a reply of approval or disapproval or for production of further particulars.
- 347 When work may be commenced.

PROVISIONS AS TO STRUCTURE, MATERIALS, &C.

348 Buildings which are to be newly erected—

- (c) Shall not be constructed on any site which has been filled up with excrementitious matter, &c.;
- (d) Shall have the plinth at least 2 feet above the centre of the nearest street;
- (e) Shall be so constructed that the whole of at least one side of every room thereof shall either be an external wall or abut on an interior open space. Such external wall, except where it faces a street of not less than 15 feet in width, shall have between it and the boundary line of the owner's premises an open space, extending throughout the entire length of such wall, at least two feet wide, or in the case of a chawl or building intended to form a range of separate rooms for lodgers, at least 5 feet wide. Such interior open space shall have an area equal to not less than $\frac{1}{10}$ th of the aggregate floor area of all the rooms abutting thereon and shall not be in any direction less than 6 feet across. And every open space, whether exterior or interior, required by this clause, shall be and be kept free from any erection thereon and open to the sky and shall be and be kept open to access from each end thereof;
- (f) The rooms shall be in every part at least 10 feet in height from the floor to the ceiling, except a room in the roof thereof;
- (g) The room in the roof of a building shall have an average height of at least 8 feet from the floor to the ceiling and a minimum height of not less than four feet;
- (h) Every room shall have a clear superficial area of not less than 100 square feet;
- (i) The ventilation of each room should be by doors and windows which open directly into the external air and



Section

have an aggregate opening equal to not less than $\frac{1}{4}$ th of the superficial area of the side of the room which faces an open space.

349 Roofs and external walls of buildings not to be of inflammable material.

349A Maximum height of buildings,—70 feet.

349B Height of buildings with reference to width of streets.

353A Completion Certificates ; permission to occupy or use.

SANITARY PROVISIONS.

365 Cleansing of streets and removal of refuse.

367 Provision and appointment of receptacles, dépôts, and places for refuse, &c.

368 Duty of occupiers to collect and deposit refuse, &c.

369 Provision may be made by Municipal Commissioner for collection, &c., of excrementitious and polluted matter.

370 Collection and removal of excrementitious and polluted matter when to be provided for by occupiers.

371 Halalkhor's duties may not be discharged by private individuals without Municipal Commissioner's permission.

372 Prohibition of—

(a) Failure to remove refuse, &c. (which should not be allowed to accumulate on the premises for more than 24 hours) ;

(b) Removal of refuse, &c., without proper precautions ;

(c) Failure to clear away any refuse, &c., which drops during removal ;

(d) Leaving filth carts, &c., unnecessarily in the streets ;

(e) Throwing or placing refuse, &c., in any place not appointed for the purpose ;

(f) Allowing filthy matter to flow or soak or to be thrown from any premises in such a way as to cause nuisance.

373 Presumption as to offender : it shall be presumed that the offence has been committed by the occupier of a building or land, if it be shown that refuse, etc., was thrown or placed in contravention of (e) from that building or land.

INSPECTION AND SANITARY REGULATION OF PREMISES.

374 Power to inspect premises for sanitary purposes.

375 Cleansing and lime-washing of any building.

375A Removal of building materials which constitute a harbourage or breeding place for rats or other vermin.

376 Abandoned or unoccupied premises.

377 Neglected premises. Notice for removal of kutchra, rank vegetation, &c.



- Buildings, U. H. H. (after inspection by Executive Health Officer and Executive Engineer).
- 379 Municipal Commissioner may call for a statement of accommodation, *viz.*, total number of rooms, cubic capacity of each room, &c.
- 379A Overcrowded dwellings—(1) Application to be made to a Presidency Magistrate who prescribes the maximum number of persons in each room and may require the owner to abate overcrowding within 10 days.
- (4) A room used exclusively as a dwelling shall be deemed to be overcrowded when the floor space to each adult is less than 25 square feet or 250 cubic feet (two children under ten years of age counting as one adult).
- (5) A room *not exclusively* used as a dwelling shall be deemed to be overcrowded when the floor space to each adult is less than 30 square feet or 300 cubic feet (two children under ten years of age counting as one adult.)
- 380 Insanitary huts and sheds.
- 381 Filling in of pools, wells, ponds, quarry holes, drains or water courses or low ground which are a nuisance.
- 381A (1) Digging or constructing well, tank, pond or fountain.
(2) Requisition to fill in or demolish well, etc.
- 382 Dangerous quarrying may be stopped.
- 383 Removal and trimming of trees, shrubs and hedges.
- 384 Prohibition as to keeping animals : No person
- (1) (a) Shall keep any swine without the written permission of Municipal Commissioner ;
(b) Shall keep any animal on his premises so as to be a nuisance or dangerous to any person ;
(c) Shall feed any animal upon excrementitious matter, dung, stable refuse, &c.
- (2) Any swine found straying may be destroyed.
- 384A Stabling animals or storing grain in dwelling houses may be prohibited.
- 385 Removal of carcasses of dead animals.

REGULATION OF PUBLIC BATHING, WASHING, &c.

- 386 Places for public bathing, &c., to be fixed by the Municipal Commissioner.
- 387 Regulation of use of public bathing places, &c.
- 388 Prohibition of bathing, &c., contrary to order or regulation.
- 389 Prohibition of corruption of water by steeping therein animals or other matter, &c.



Section

REGULATION OF FACTORIES, TRADES, &C.

- 390 Factory, &c., not to be allowed to be worked without Municipal Commissioner's permission.
- 391 Furnaces used in trade or manufacture to consume their own smoke.
- 392 Sanitary regulation of factories, bake-houses, &c.
- 393 Prohibition of the use of steam whistle, or steam trumpet without Municipal Commissioner's permission.
- 394 Certain things not to be kept, and certain trades and operations not to be carried on without a license and except in conformity with the terms and conditions of such license.
- 395 Prohibition of corruption of water by chemicals, &c.
- 396 Inspection of premises used for manufactures under section 394.
- 397 Regulation of washing of clothes by washermen.

MAINTENANCE AND REGULATION OF MARKETS AND SLAUGHTER HOUSES.

- 398 What to be deemed Municipal markets and slaughter-houses.
- 399 Provision of new Municipal markets and slaughter-houses.
- 400 Municipal markets and slaughter-houses may be closed.
- 401 Prohibition of sale in a Municipal market without a license from the Commissioner.
- 402 Opening of new private markets.
- 403 Private markets not to be kept open without a license from the Municipal Commissioner.
- 404 Prohibition of sale in unauthorised private market.
- 405 Private markets and slaughter-houses to be paved and drained.
- 406 Regulations to be framed for markets and slaughter houses.
- 410 Prohibition of sale of meat, fish, &c., except in a market. (This does not apply to fresh fish sold from or exposed for sale in a vessel in which it has been brought direct to the seashore after being caught at sea.)
- 411 Butchers and persons who sell the flesh of animals to be licensed.
- 412 Prohibition of import of cattle, sheep, goat, &c., into the city without permission.
- 412A License required for dealing in milk.
- 413 *Inspection of places of sale, &c.*—Municipal Commissioner may enter any place where slaughter of animals or sale of flesh contrary to the provisions of this Act is suspected.
- 414 Provision for inspection of articles exposed for sale for human food (includes inspection of animals, carcasses, meat, poultry, game, flesh, fish, fruit, vegetables, corn, flour, ghee, milk, &c.).
- 415 Unwholesome articles, &c., to be seized.
- 416 *Perishable articles* to be destroyed, viz., meat, fish, vegetables, &c., if found diseased, unsound, unwholesome or unfit for human food.



Section

417 *Non-perishable articles :—*

- (1) Any animal or any article not of a perishable nature seized under section 415 shall forthwith be taken before a Presidency Magistrate.
- (2) If the Magistrate is satisfied that such animal or article is diseased, unsound, or unwholesome or unfit for human food, he may cause the same to be destroyed.

417A Penalty for representing any article (*Ghee*) to be what it is not.

PREVENTION OF SPREAD OF DANGEROUS DISEASES.

- 421 Medical Practitioners to give information of existence of dangerous disease.
- 422 Inspection of places for the purpose of preventing the spread of dangerous disease.
- 423 Prohibition of use for drinking of water likely to cause dangerous disease.
- 424 Municipal Commissioner may order removal to Hospital of patients suffering from a dangerous disease.
- 425 Disinfection of buildings, &c.
- 426 Destruction of huts and sheds, when necessary.
- 427 Place for disinfection may be provided.
- 428 Persons suffering from dangerous disease not to enter a public conveyance without notifying the existence of the same.
- 429 Municipal Commissioner to provide ambulances and vans for conveyance of patients.
- 430 Provisions as to carriage of persons suffering from dangerous disease in public conveyances.
- 431 Public conveyance which has carried a person suffering from dangerous disease must be disinfected.
- 432 Infected articles not to be transmitted, &c., without previous disinfection.
- 433 Infected buildings not to be let without being first disinfected.

SPECIAL SANITARY MEASURES.

- 434 Municipal Commissioner may take special measures on outbreak of any dangerous disease (*e.g.*, small-pox, foot and mouth disease amongst cattle and glanders in horses).

DISPOSAL OF THE DEAD.

- 435 Places for disposal of the dead to be registered.
- 436 Provision of new places for disposal of the dead.
- 437 New places for the disposal of the dead not to be opened without permission of Municipal Commissioner.



Section

- 438 Governor in Council may direct the closing of any place for disposal of the dead.
- 439 Governor in Council may sanction the re-opening of places, which have been closed, for the disposal of the dead.
- 440 Burials within places of worship and exhumations not to be made without the permission of the Municipal Commissioner.
- 441 (c) No person shall carry a corpse along any street, along which the carrying of corpses is prohibited by a public notice.
- (f) No person shall bury any corpse at a less depth than 6 feet from the surface of the ground.
- (g) No person shall build or dig any grave at a less distance than 2 feet from the margin of any other grave or vault.
- (i) No person shall re-open a grave or vault for the interment of a corpse without the written permission of the Municipal Commissioner.

VITAL STATISTICS.

- 442 Appointment of registrars for births and deaths.
- 443 Registrars to reside in their respective districts.
- 444 Register books of births and deaths to be supplied.
- 445 Registrars to inform themselves of all births and deaths.
- 446 Information of birth to be given within seven days.
- 447 Information respecting finding of new-born child to be given.
- 448 Officers to be appointed to receive information of deaths at places for disposal of the dead.
- 449 Information of death to be given at the time when the corpse of the deceased is disposed of.
- 450 Medical Practitioner who attended a deceased person in his last illness to certify the cause of his death.
- 451 Preparation of register books of deaths and of mortality returns, &c.
- 452 Correction of errors in birth and death registers. (An error of fact or substance cannot be corrected except on the production of a declaration made before a Magistrate by two persons and certified by such Magistrate to have been made in his presence.)
- 453 Registration of name of child or of alteration of name.

TAKING OF A CENSUS.

- 454 to 460—Taking of a Census.

BYE-LAWS.

- 461 The Corporation may make bye-laws with respect to—
- (a) Construction, maintenance, &c., of drains, cesspools, water-closets, privies, urinals, &c.;
- (b) Water-supply;
- (c) Structure of walls, &c.;



Section

- (d) Provision and maintenance of sufficient open space for ventilation of buildings ;
 - (e) Provision of house-gullies ;
 - (f) Control and supervision of all dangerous and offensive trades
 - (g) Construction, &c., of milch cattle stables ;
 - (h) Cleanliness, &c., in dairies ;
 - (j) Notice whenever any milch animal is suffering from any dangerous disease ;
 - (k) Inspection of markets, slaughter-houses, &c. ;
 - (l) Control and supervision of butchers ;
 - (m) Regulations for Municipal markets, &c. ;
 - (p) Regulations for places for disposal of the dead ;
 - (q) For accurate registration of births and deaths.
- 462 Punishment may be imposed for breach of bye-laws.
- 463 Bye-laws must be confirmed by Government.

PENALTIES.

- 471 Prescribes penalties.
- 472 Continuing offences to be punished after first conviction with a daily fine.
- 473 Offences punishable under the Penal Code.
- 474 Punishment for acquiring share or interest in contract, &c. with the Corporation.
- 475 Punishment of offences against section 267.
- 476 Punishment of offences against section 391.
- 477 Extent of penal responsibility of agents and trustees of owners.
- 479 (3) Licenses and written permissions may be suspended or revoked by the Municipal Commissioner.
- 482 Consent, &c., of Commissioner may be proved by written document under his signature.

SERVICE OF NOTICES, &c.

- 483 Notices, &c., to be served by persons authorised by the Municipal Commissioner.
- 484 Service of notices, &c., how to be effected on owners of premises and other persons.
- 485 Service of notice, &c., on "owner" or "occupier" of premises how to be effected—
- (a) By giving or tendering the said notice, &c., to the owner or occupier ;
 - (b) If the owner or occupier is not found, by giving or tendering the said notice, &c., to some adult male member or servant of the family of the owner or occupier ;



Section.

(c) If none of the means aforesaid be available, by causing the said notice, &c., to be affixed on some conspicuous part of the building or land to which the same relates.

486 The three last sections (483, 484, and 485) are inapplicable to Magistrates' summonses.

487 Signature on notices, &c., may be stamped.

POWER OF ENTRY.

488 Municipal Commissioner, &c., may enter any premises for purposes of inspection, survey or execution of necessary work.

ENFORCEMENT OF ORDERS TO EXECUTE WORKS, &c.

489 Works, &c., which any person is required to execute may in certain cases be executed by the Municipal Commissioner at such person's cost.

RECOVERY OF EXPENSES BY THE COMMISSIONER.

491 Expenses recoverable under this Act shall be payable on demand ; and, if not paid on demand, may be recovered as an arrear of property tax.

492 If the defaulter is the owner of premises in respect of which expenses are payable, the occupier to be also liable for payment thereof.

499 In default of owner, the occupier of any premises may execute required work and recover expenses from the owner.

500 Limitation of liability of agent or trustee of owner.

507 Remedy of owner of building or land against occupier who prevents his complying with any provision of this Act.

508 Power to summon witnesses and compel production of documents.

PROCEEDINGS BEFORE MAGISTRATE.

513 Cognizance of offences by Presidency Magistrates.

514 Complaints of offences shall be made before Magistrates within three months next after the commission of such offence.

515 Complaint by any person concerning nuisances may be made to a Magistrate.

516 Offenders against this Act may in certain cases be arrested by Police Officers.

LEGAL PROCEEDINGS.

517 Provisions respecting institution, &c., of Civil and Criminal actions and obtaining legal advice.



Section

- 521 All Municipal servants are public servants within the meaning of section 21 of the Indian Penal Code.
- 522 Co-operation of Police for carrying into effect and enforcing provisions of this Act.
- 523 Computation of time. Protection of Municipal officers or servants acting under this Act against suits.

BYE-LAWS MADE BY THE MUNICIPAL CORPORATION UNDER
SECTION 461 OF THE MUNICIPAL ACT.

REVISED BYE-LAWS WITH RESPECT TO BUILDINGS.

"*Plinth*" means the portion of the external wall between the level of the street and the level of the first floor above the street, and, except in the case of stables, godowns, and buildings of the warehouse class, shall in no part be less than 2 feet above the level of the centre of the adjacent portion of the nearest street or below such standard level as may from time to time be fixed by the Commissioner.

"*Topmost storey*" means the uppermost storey in a building, whether constructed wholly or partly in the roof or not, and whether used or constructed or adopted for human habitation or not.

"*Public building*," except where otherwise defined, means a building used or constructed or adapted to be used, either ordinarily or occasionally, as a place of public worship, or as a hospital, college, school (not being merely a dwelling house so used), hotel, restaurant (not being merely a shop so used), theatre, public hall, public concert-room, public lecture room, public exhibition-room, or as a public place of assembly or entertainment for persons admitted thereto by tickets or otherwise, or used or constructed or adapted to be used, either ordinarily or occasionally, for any other public purpose.

"*Building of the warehouse class*" means a warehouse, factory, manufactory, brewery, or distillery, or other place in which operations are conducted by mechanical power.

"*Domestic building*" means a dwelling house or an office building or other out-building appurtenant to a dwelling-house, whether attached thereto or not, or a shop or any building not being a public building, or a building of the warehouse class.

"*Dwelling-house*" means a building used or constructed or adapted to be used wholly or principally for human habitation.

"*Masonry-walled building*" means a building the external walls of which are constructed of brick, stone or other similar material, without the aid of timber, iron or steel framing.

"*Frame-building*" means a building the external walls of which are constructed of timber, iron, or steel framing, filled in or wholly or partially covered with brick, stone, iron plates, or other material, and the stability of which depends mainly upon such framing.

"*Open building*" means a shed or other structure consisting of a ground floor storey covered with a roof erected on posts without any filling between such posts, either of masonry, iron sheets, or any other materials, and no such structure shall be deemed to be the subject of, or referred to, in any of the following bye-laws save where the expression "open building" is used to denote the same.

"*Composite building*" means a building of which part is masonry-walled building, and part is either open building or frame building, or a building of which part is open building and part is frame building, to each of which classes of building, the bye-laws relating to masonry-walled buildings, open buildings and frame buildings, respectively, shall apply.

"*Chawl*" means a building so constructed as to be suitable for letting in separate tenements each consisting of a single room, or of two rooms, but not of more than two rooms.

"*Privy on intermediate system*" means a privy the excrementitious matter from which is collected in a suitable receptacle on the ground-floor and flushed therefrom with water at regular fixed intervals by means of an automatically discharging tank fixed at a height of not less than six feet above the receptacle and kept continually supplied with water by means of a separate supply tank.

"*Water-closet.*"—(a) Every water-closet to be separated from any room intended to be used for human habitation by a dead wall, which shall be lined internally to a height of six feet with a smooth impervious non-absorbent coating of neat Portland cement not less than half an inch in thickness, or of glass, glazed tiles or polished marble.

- (b) Every water-closet should have a window of not less than 3 square feet opening upon an external open space.
- (c) The entrance to such water-closet should be through a lobby or bath-room having at least one window, or through a gallery which is entirely open to the outer air on one side.
- (d) A water-closet should not be constructed within a distance of 3 feet from the boundary of the owner's premises, provided that this rule shall not operate to prevent a water-closet being constructed to abut on a street or service passage or open space intended to be permanently reserved as such.

"*Privy*" (including in this expression a privy on the intermediate system):—

- (a) Every privy should have on each side, except the entrance side, an open space, 3 feet in width, within the owner's own limits and open to the sky.
- (b) The entrance gallery or communicating bridge should be at least 3 feet in width and open to the external air on both its sides and be shut off from any portion of any dwelling house by a closely fitting door.



Every privy should have a window in one at least of the walls of not less than 3 square feet opening upon an external open space.

- (d) Every privy should have its walls lined internally with a smooth, impervious, non-absorbent coating of neat Portland cement or of glass or glazed tiles to a height of not less than 5 feet above the floor of such privy.

CELLARS.

Except with the written permission of the Municipal Commissioner no person shall construct any cellar, vault, or underground room, either under or as part of a building, or otherwise.

Paving, &c., of floors and damp-proof courses for walls—

- (a) Every water-closet, privy, urinal, washing or bathing place and water-room and every portion of every ground-floor and also—
- (b) In the case of a chawl—
- (i) every part of each floor included in such work, and
 - (ii) every communicating passage on an upper floor included in such work, and not being an external verandah, to be laid or paved with stone, slate or non-absorbent tiles laid on cement, or with asphalt, cement, koba or other durable material impervious to moisture.

Damp-proof course.—In the case of masonry buildings, the owner shall provide, in each brick wall included in such work, which is below the level of the lowest floor, a *damp-proof course* which shall consist of sheet lead, asphalt, slates laid in cement, vitrified bricks or any other durable material impervious to moisture.

Provided, however, that it shall be in the discretion of the Commissioner by order in writing to dispense with either or all of the details provided for in this bye-law in any case in which, in his opinion, this can properly be done.

Provided also, in the case of buildings other than chawls timber flooring may be allowed to be superimposed on the concrete or other impervious material.

Construction of Moris.—No wooden beam or joist shall be directly under such moris. The moris to be of impervious material and perfectly water-proof and to be sufficiently supported along all its four sides.

Construction of Staircases.—(f) Where the staircase is in a dwelling house, and is not otherwise ventilated, it shall be ventilated at the top by means of a window, or a ventilator or sky-light in the roof.

With respect to the provision and maintenance of sufficient open space, either external or internal, about buildings to secure a free circulation of air, and of other means for the adequate ventilation of buildings (clause (d), section 461.)



41. Every person who shall undertake construction work on a building

(a) Area bounded by Rampart Row, Esplanade Road, Hornby Road, Fort Street, Mint Road, Custom House Road.

(b) Area bounded by Carnac Road, 1st Marine Street, Queen's Road, Lamington Road to Bellasis Road to Morland Road to Sankli Street, Parel Road to Babula Tank Road, Jail Road East, Dongree Street to 1st Chinch Bunder Road to G. I. P. Railway and G. I. P. Railway to Carnac Road.

Excluding Improvement Trust Estates.

shall, if such building is situate within either of the areas scheduled in the margin hereof, cause the whole of at least one side of every room included in such work and intended for human habitation to abut on an interior or exterior open air space of the width or dimensions, and fulfilling the conditions hereinafter prescribed for such open air spaces respectively or on an open verandah opening on to such an interior or exterior open air space as aforesaid.

(a) Every such interior open air space shall be of a minimum width in accordance with the following scale :—

Minimum width of interior open air space throughout

10 feet.
12 „
14 „
16 „
18 „
20 „

Where height of building (above the plinth) adjoining the interior open air space does not exceed

22 feet.
33 „
44 „
55 „
66 „

Where height exceeds 66 feet.

(b) Every such exterior open air space shall, subject as hereinafter provided, extend throughout the entire length or depth, as the case may be, of the building on the side of which such room so abuts and shall, unless the same is a street, be maintained for the benefit of such building exclusively and its minimum width shall subject to Bye-law 41-B be in accordance with the following scale, varying according to the variation (if any) in the height of such building where it immediately adjoins such open air space, that is to say :—

Minimum width of exterior open air space throughout

10 feet.
12 „
14 „
16 „
18 „
20 „

Where height of building above the plinth does not exceed

22 feet.
33 „
44 „
55 „
66 „

Where height exceeds 66 feet.



Provided that in determining the exterior open air space required, any neighbouring open air space which is assured by legislative enactment, or by Municipal Bye-laws, or by contract to be permanently and irrevocably appropriated as an open air space, may be treated as a permanently open air space required for the purposes of this Bye-law.

Provided further that an exterior open air space 10 feet wide within the plot on which such room is situate shall be considered sufficient for the purposes of this Bye-law if the following conditions are satisfied :—

- (a) that at least one-fourth of the site as defined by Bye-law 41-A is kept open to the sky and unbuilt upon above the first floor level, and
- (b) that the building is not more than 44 feet high above plinth level where such building abuts on the said 10 feet wide open air space, and that if more than 44 feet high above plinth level such building is set back 1 foot for every extra 2 feet in height.

41-A. The following provisions shall have effect with respect to construction work on a building on land previously unbuilt upon or on which buildings of a moveable or temporary character only shall be standing or shall have stood previously or which is situated in any area of the City other than those scheduled in Bye-law 41 :—

Every person who shall undertake on such land construction work on a building including work such as is referred to in Section 342 (a) of the Act but not including work such as is referred to in Section 342 (b), (c), (cc) or (d) of the Act, shall provide adequate means of access for external air on its front and rear sides and shall provide every room intended for human habitation or capable of being so used with adequate means of access for external light and air to the satisfaction of the Commissioner in accordance with the following rules :—

Definitions.

I. The plane contained between the ground in front of the building and the straight lines drawn downwards and outwards from the line of intersection of the outer surface of any front wall of the building with the roof perpendicular to that line, and at an angle of $63\frac{1}{2}^{\circ}$ to the horizontal is for the purposes of these rules described as "front air plane."

Note.—The $63\frac{1}{2}^{\circ}$ angle has a tangent of 2:1; so, if the ground is level, the air plane reaches the ground at a distance from the exterior wall equal to half the height of the wall above the level of that ground.

II. The plane contained between the ground behind the building and the straight lines drawn downwards and outwards from the line of intersection of the outer surface of any rear wall of the building with the roof perpendicular to that line, and at an angle of $63\frac{1}{2}^{\circ}$ to the horizontal is for the purposes of these rules described as a "rear air plane."

In all cases it shall rest with the Commissioner to decide which are the rear walls of the building.

Note.—In case of the front or rear wall of a building being curved or irregular, the front rear air plane shall be as determined by the Commissioner.

III. The plane lying between the line of intersection of the floor of any room in a building with the outer surface of an

"Light plane."

exterior wall of the building and the straight lines drawn upwards and outwards from that line perpendicular thereto and at angle of $63\frac{1}{2}^{\circ}$ to the horizontal is for the purposes of these rules described as a "light plane."

Note.—For the purposes of the above definition of light plane the outer surface of any verandah abutting on an interior or side open space shall be considered to be the exterior wall of the building.

"Permanently open air space." IV. An air space is deemed to be permanently open if—

- (i) it is encroached upon by no structure of any kind, and
- (ii) its freedom from encroachment in future by a structure of any kind is assured either by legislative enactment or by Municipal Bye-laws or by contract or by the fact that the ground below it is a street or is permanently and irrevocably appropriated as an open space :

Provided that in determining the open air space required in connection with construction work on a building, any space occupied by an existing structure may be treated as if it were already a permanently open air space if it is ultimately to become a permanently open air space when this Bye-law is applied to the said existing structure or to any building to be erected on the site of the said existing structure.

V. For the purposes of these rules, the word "site" shall include not

"Site."

only the land actually covered by the building, but also the land at the front, rear and sides of such building required by these rules to be left open and the words "an inseparable part of the site" shall mean that part of the site which is the property of the owner of the land on which the building stands.

"Inseparable part of the site."

Standards.

VI. Subject to Rules VIII and IX a building is deemed adequately provided on its front and rear sides with means of access for external air, if the whole space vertically above all its front and rear air planes is a permanently open air space.

"Front and rear air space."

VII. Subject to Rules VIII to X a room is deemed adequately provided with access for external light for the purpose of human habitation, if the whole space, vertically above at least one of its light planes is a permanently open air space

"Lighting of rooms for human habitation."

*Minimum front, rear and side open spaces around buildings.*

VIII. No building shall be erected within 15 feet from the centre line of any street as determined by the Commissioner, and every building not fronting on a street shall

"Front." have a permanently open air space in front thereof not less than 15 feet wide forming an inseparable part of the site of such building.

IX. Every building shall have a permanently open air space in the rear "Rear." not less than 10 feet in width, such air space forming an inseparable part of the site.

X. Every habitable room not receiving its light and air from either the front or rear of a building in accordance with the "Side." 63½ rule shall have whole of one side thereof abutting on a permanently open air space of not less than 10 feet in width.

41-B. (1) Every person who shall undertake construction work, other than that described in section 342 (b), (c), (cc) or (d) of the Act, on a building situated away from a street, shall provide, in front of the said building and extending throughout its entire frontage an open air space at least half as broad as the building is high. Such open air space shall form an appurtenance of such building alone and of no other and shall be inclusive of any means of access required under these Bye-laws. In the event of any dispute as to what constitutes the front of such building the same shall be referred to the Commissioner whose decision shall be final.

(2) Every building on which construction work, other than that described in section 342 (b), (c), (cc) or (d) of the Act, is undertaken and which or any portion of which comes, or, after alteration, will come within the definition of a "dwelling house" as defined by these Bye-laws, and which, or any portion of which, is distant more than 80 feet from the street nearest to such building shall so far as it lies at a greater distance than the 80 feet aforesaid abut on an open air space at least half as broad as the building is high and co-extensive with the external walls of the said building and such open air space shall form an appurtenance of the said building alone and of no other and the said open space shall be provided with suitable and sufficient means of access to the satisfaction of the Commissioner.

41-C. No addition to a building shall be allowed unless the addition is such as would be permissible if the whole building were reconstructed from the plinth with the open spaces required under the Bye-laws appropriate to the site of the building and no addition to a building shall be allowed which would diminish the extent of open air space below the minimum which is required by the Bye-laws appropriate to the site of the building.



41-D. Every open space, whether exterior or interior, provided in pursuance of these Bye-laws, shall be, and be kept, free from any erection thereon and open to the sky, and no cornice, roof or weather shade shall overhang or project over the said open space so as to reduce the width to less than the minimum provided by these Bye-laws. No open drain, except for rain water, shall be constructed in any open space required by these Bye-laws.

42. Every person who shall erect a storey on a building intended to be used as a dwelling shall construct every room intended to be inhabited in that storey, except a room in the roof thereof, so that the same shall be in every part at least ten feet in height from the floor to the ceiling.

He shall so construct every such room in the roof of such building that the same shall have an average height of at least 8 feet from the floor to the ceiling, and a minimum height of not less than four feet.

He shall so construct every such room that the same shall have a clear superficial area of not less than one hundred square feet.

He shall so construct every such room that the same shall be ventilated by means of doors or windows which open directly into the external air, and have an aggregate opening equal to not less than one-fourth of the superficial area of that side of the room which faces an open space.

43. In back to back rooms, and other single or two rooms tenements in addition to any other means of ventilation required in these bye-laws, every such room shall have a ventilator of at least 3 square feet in area near the top of each of two of the walls of such room and such ventilators shall be as far as practicable opposite to each other. In the case of upper rooms, one of such ventilators may be represented by a ridge ventilator or ventilating tiles.

44. Every corridor in a chawl shall be and shall be kept open to the open air at each of its ends. Every such corridor which is more than fifty-five feet in length shall be provided at intervals of not more than fifty-five feet with an opening on both sides of the corridor of not less than five feet square communicating wholly with the open air to its full height.

The separation between the corridor and such air shafts shall be by a parapet wall not exceeding four feet in height or by an iron railing.

With respect to the provision and maintenance of suitable means of Access to Buildings (clause (dd), section 461).

45. Every person who shall erect a building shall provide as means of access to such building a pathway not less than 8 feet in width from a



street to the door of such building, such pathway to be, so long as it is used as a means of access to that building, maintained free from any obstruction and shall not at any time cause or permit any portion of any building below a height of twelve feet to overhang or project over or into such passage.

He shall indicate upon any plan, required to be furnished by him under section 338 or 343, the whole area of such means of access by a distinguishing colour and description.

He shall not at any time erect or cause or permit to be erected or re-erected any building which in any way encroaches upon or diminishes the area so set apart for this purpose.

The space so set apart shall be separately distinguished from any house-gully or open space required to be provided under any other bye-law made under this Act.

46. A person who shall undertake construction work on a building shall not reduce the access to any building previously existing below the minimum width of eight feet.

47. The means of access under these bye-laws shall not be deemed to be suitable and sufficient until they have been approved by the Commissioner who shall have power to prescribe the street with which they shall communicate.

48. Every person who shall commit any breach of any of the foregoing bye-laws shall be punishable with fine which may extend to twenty rupees, and in the case of a continuing breach, with fine which may extend to ten rupees for every day after conviction for the first breach or after receipt of written notice from the Commissioner to discontinue the breach, during which the breach continues.

49. Whenever, under any of the foregoing bye-laws, the doing or the omitting to do a thing or the validity of anything depends upon the sanction, permission, approval, order, direction, requisition, notice or satisfaction of the Commissioner, a written document signed by the Commissioner or by any Municipal Officer to whom the Commissioner may have delegated his powers, duties or functions, in that behalf, purporting to convey, or set forth his sanction, permission, approval, order, direction, requisition, notice or satisfaction, shall be sufficient *prima facie* evidence of such sanction, permission, approval, order, direction, requisition, notice or satisfaction.

50. Notwithstanding anything in the foregoing bye-laws, it shall be in the discretion of the Commissioner by written permission—

- (a) to permit any of the dimensions prescribed by any such bye-law to be modified in respect of a building; or



- (b) to exempt from the operation of the said bye-laws, or any of them, any temporary structure intended to stand for a shorter period than three months;

but subject in each case to such conditions, if any, as he may think proper to attach to such permission or exemption.

PROVISIONS AFFECTING THE DUTIES OF A SANITARY INSPECTOR.

Under section 68 of the Bombay City Municipal Act, the Municipal Commissioner empowers any of the Municipal Officers to exercise, perform, or discharge, as the case may be, several powers, duties, and functions conferred or imposed upon or vested in the Commissioner by the several sections, clauses and sub-sections of the said Act mentioned hereafter:—

Ex. H. O., Assistant H. O.s., & D. H. O.s.

Sections.—82 and 84 (subject to certain limitations prescribed by rules), 112, 228, 234, 240, 243 sub-section (2), 246A, 248, 249, 249A, 250 sub-section (2), 251, 251B, 253, 257, 258 clauses (a), (b) and (c), 374, 375, 375A, 377, 379, 379A, 380, 381, 381A sub-sections (1) and (2), 384 clause (a), 384A, 394, 396 sub-section (1), 410 sub-section (1), 412 sub-sections (1) and (2), 413 sub-section (1), 415, 416, 422, 424 sub-section (1), 425 sub-section (1), 427 sub-section (3), 479 sub-section (5), 488, and 517 clause (a).

The Conservancy Superintendent, District Registrars, Sanitary, Conservancy, House Drain, and Assistant, Sanitary Inspectors:—

82 (Halalkhores and Bigaries only), 253, 374, 396 sub-section (1), 413 sub-section (1), 415, 424 sub-section (1), 427 sub-section (3), 479 sub-section (5), and 488.

Sub-Registrars, Nurses, Milk, Disinfecting and Malaria Inspectors, also Veterinary Inspectors:—

253, 374, 396 sub-section (1), and 488.

Under clause (f).—By-laws for the control and supervision of premises used or offensive trades, &c., under section 394 of the Act.

1. Written application to be made by the applicants for licenses.
2. Owners to furnish the names of occupants.
3. License-holders to afford facilities for examination of premises.

Premises used for *manufacturing, &c., cloths in indigo or other colours*:—

4. License-holders not to store materials not required for immediate use.
5. To adopt the best means of rendering vapours innocuous.
6. To cleanse premises daily.
7. To keep floors, &c., in good repair.
8. To keep drying ground free from hollows, &c.
9. To maintain drainage in good order.



Premises used for *manufacturing, &c., blood, bones, candles, cat-gut, fat, manure, meat offal, oil-cloth, soap and tallow* :—

10. License-holders to cause premises to be cleansed daily and cause refuse fragments to be collected and removed.
11. All receptacles to be kept clean.
12. To store materials not required for immediate use so as to prevent emission of effluvia.
13. To adopt best means of rendering vapours innocuous.
14. To keep all internal surfaces of walls and floors in good order.
15. To lime-wash the interior twice a year or oftener.
16. To maintain drainage in good order.
17. To maintain ventilation in good order.
18. To adopt and maintain appliances, &c., for preventing nuisance.
19. Buildings used for storing not to be inhabited.

Premises used for *preparing hides or skins* :—

20. Premises to be swept daily, and hair, flesh, &c., to be collected and removed.
21. To cause implements and apparatus to be kept clean.
22. To cause waste lime to be removed from premises with proper precautions.
23. To cause walls to be scraped or otherwise cleansed periodically and interior to be lime-washed.
24. To cause walls and floors to be kept in good repair to prevent absorption of noxious matter.
25. To maintain drainage in good order.

Premises used for *storing or pressing hides or skins* :—

26. To lime-wash the interior periodically.
27. To maintain ventilation in good order.
28. Buildings used for storing not to be inhabited.
29. These do not apply to the storing of properly tanned and dressed leather.

Premises used for *manufacturing, &c., cotton refuse or seed, fins, fish, horns, hoofs, hair, rags and wool, etc.* (See Schedule M).

30. Premises to be kept thoroughly clean.
31. The interior to be lime-washed periodically.
32. To maintain drainage in good order.
33. To maintain ventilation in good order.
34. To adopt and maintain appliances, &c., for preventing nuisance.
35. Buildings used for storing not to be inhabited.
36. License-holder to furnish names of all owners of animals stabled.
37. Dung not to be deposited so as to pollute water.
38. Floors to be paved so as to prevent soakage.

Premises used for *keeping horses, cattle or other four-footed animals for sale, or hire, or for sale of the produce thereof or for any purpose for which any charge is made or any remuneration is received.*

SANITATION IN INDIA.

39. *Receptacles* for dung to be provided. Such receptacles to be constructed with floors not lower than surface of adjoining ground and so constructed as to prevent escape or soakage of contents and should be provided with covers.
40. Paved space should be provided for *washing cattle*.
41. Drainage to be maintained in good order.
42. Premises to be thoroughly *cleansed daily*. (All dung, refuse, &c. should be removed by the license-holders in their own carts to the place appointed by the Municipal Commissioner for the final disposal thereof.)
43. *Dimensions*.—Stables for horses or cattle shall not be less than 12 feet in height, and, if for one row of animals, the breadth shall be 12 feet (measuring from the outside of the manger to the opposite wall), and for a double row of animals 25 feet (measuring from one manger to the other) if the mangers are placed against the external walls, and 24 feet in breadth (measuring from the external walls) if the mangers are placed in the centre. The space to be allowed to each horse shall be 6 feet in width, and for each bullock, 4 feet in breadth.

Under clause (g)—Regulations for construction of new Dairies and Milk Cattle Stables :—

1. License-holders (in addition to observing preceding by-laws) to bring out animals for inspection.
2. Water-supply to be provided. Well water not to be used.
3. (a) The building shall be open on all sides (weather protections may be allowed.)
(b) The roof shall be tiled or of corrugated iron sheets supported by wooden posts or iron columns.
(c) The floor shall be paved throughout with stone and properly sloped.
4. (a) An open space 15 feet in width should be provided all round the stable.
(b) No milch cattle stable should be erected within a distance of 15 feet from any street or 25 feet from any dwelling-house or from a verandah or gallery attached to it.
5. Proper drains should be provided as approved by the Drainage Department.

Under clause (h).—Regulations for securing cleanliness of milk shops and milk vessels :—

1. Milk not to be sold in dwelling-houses, &c.
2. Internal surfaces of walls and ceilings of every room, in which milk is kept or sold, to be limewashed twice at least in every year or oftener if so required by the Commissioner.
3. Milk vessels to be rinsed and thoroughly cleansed before and after use.



4. Water from Municipal mains and approved wells only to be used for washing milk vessels.

Under clause (j)—Precautions against any contagious or infectious disease:—

1. Immediate notice to be given of any outbreak of sickness, and sick animals to be segregated.
2. Sickness in a Municipal milch cattle stable should be reported in the first instance to ramoshi in charge.
3. Milk of diseased animals not to be sold or used for domestic purposes.
4. No person suffering from dangerous or infectious disease to be permitted to sell or distribute milk.
5. No person engaged in sale or distribution of milk to come in contact or communication with diseased persons.

Under clause (p)—By-laws for regulating and maintaining all places for disposal of dead :—

1. No grave shall be re-opened for another interment within 12 months, when the body of a person has been buried without a coffin.
2. In case of burial in *unlined wooden coffin*, no grave shall be re-opened for another interment within 18 months.
3. In case of burial in a *coffin composed of or lined with tin, lead or other metal*, no grave shall be re-opened for another interment within a period of 7 years.
5. *Regulations for graves :—*
 - (a) All graves shall be made in regular lines.
 - (b) All graves should be properly filled in, &c.
6. All places for the disposal of the dead shall be kept clean and in good order.
7. No person shall retain a corpse on any premises, without burning, burying, or otherwise lawfully disposing of the same, for more than 24 hours.
8. *Corpses for removal to Kerbela :—*
 - (a) No such corpse shall be retained on any premises other than a registered place of burial.
 - (b) No such corpse shall be retained for more than two months without Municipal Commissioner's sanction.
 - (c) Every such corpse shall be enclosed in a suitable dampered box, soldered metal case, coffin, or other covering so as not to cause any nuisance, &c.
9. Coffins intended to be removed by sea or rail shall be protected by an outer casing or cover so as to guard against damage in transit.
10. No such coffin shall be removed except under a certificate of the Health Officer stating that such coffin is in fit state to be removed.



11. In Municipal burning and burial grounds, fees shall be charged according to the scale fixed.

BY-LAWS RELATING TO MARKETS AND SLAUGHTER-HOUSES.

1. No person shall bring any dog, or knowingly permit any dog to follow him, into any Municipal market.
2. Every tenant or occupier of any shop, stall, godown, or standing in a Municipal market shall at all times afford free access thereto for purposes of inspection to the Commissioner, the Health Officer, or the Superintendent, or to any Municipal Officer appointed in that behalf by the Commissioner.
3. A tenant or occupier of any shop, stall, godown, or standing in a Municipal market shall not cause or allow any goods, provisions, marketable commodities or articles to be deposited or exposed for sale in or upon such shop, stall, godown, or standing, so that such goods, provisions, marketable commodities or articles or any part thereof shall project beyond the line of such shop, stall or godown, or beyond the limits assigned to such standing so as to obstruct the passage of any person or of any goods, provisions, marketable commodities, or articles in or through the market or any part thereof.
4. Every tenant and occupier of any shop, stall, godown, or standing in any Municipal market shall daily arrange his goods before the hour of 6 a.m. and shall remove or put them away, and, in the case of a tenant or occupier of a shop, stall or godown, close such shop, stall or godown before the hour which may for the time being be prescribed by the Commissioner as the hour for closing such market, so as to admit of the market being thoroughly cleansed.
5. Every tenant and occupier of any shop, stall, or godown in a Municipal market shall cause the same to be kept in a cleanly condition, shall allow no refuse or garbage to remain about it, but shall cause the same to be put in a tub, box, or basket and to be carried to the proper receptacle.
No person shall waste the water supplied in any Municipal market by the Corporation.
6. Every tenant and occupier and every servant of a tenant or occupier of any shop, stall, godown or standing in any Municipal market shall at all times be decently and properly dressed when present in the market; and no tenant or occupier of a stall at which meat or fish is sold shall sit in or upon his stall so as to be in contact with such meat or fish.
7. No person shall in any Municipal market smoke, spit the juice of "pan-supari", or wilfully or negligently throw or drop in



or upon any avenue or passage of such market or any of the immediate approaches thereto, any orange peel, vegetable substance, or other matter whatsoever to the danger or damage of any person.

8. No person shall loiter or stand in any of the avenues or passages of any Municipal market or its immediate approaches to the annoyance or obstruction of any person.
9. No person shall remove any meat or offal from any Municipal market without first wrapping the same up in cloth or paper so that it shall not be exposed to the public view.
10. No person shall sleep in or on any shop, stall, godown, or other place within the limits of any Municipal market.
11. No person shall ply for hire as a helkari or cooly in any Municipal market unless he be in the service of a tenant or occupier of some shop, stall, godown or standing in such market, or be brought into such market by a person resorting thereto for the purpose of purchasing therein.
12. Every person plying for hire as a helkari or cooly as aforesaid shall wear a badge on the sleeve of his left arm granted to him by the Superintendent, for which a deposit of Re. 1 will be required, together with the name and address of the holder to be entered in a register kept for the purpose, and such badge may be withdrawn at any time.
13. Every person to whom a license has been or may be granted by the Commissioner, under Section 403 of the Act, to keep open a private market, shall cause such market to be properly lighted to the satisfaction of the Commissioner by gas or oil lamps or electricity from sunset until the hour which may for the time being be prescribed by the Commissioner as the hour for closing such market.
14. Every person to whom a license has been or may be granted by the Commissioner, under Section 403 of the Act, to keep open a private market, shall comply with the following regulations for securing and maintaining such market in a proper sanitary condition :—
 - (a) He shall twice at least in every year, and oftener if required so to do by the Commissioner, cause the said market to be limewashed both internally and externally to the satisfaction of the Commissioner.
 - (b) He shall once at least in every two years, and oftener if required so to do by the Commissioner, cause all wood-work or iron work in the building of the said market to be painted to the satisfaction of the Commissioner.
15. A person bringing an animal intended for slaughter to the Municipal slaughter-houses at Bandra shall present such animal for



inspection to the Superintendent or his Assistant at the fair ground attached to the said slaughter-houses (and which forms part of the slaughter-house premises) at least 48 hours before the time at which such animal is intended to be slaughtered, and shall pay the fair ground fee for such animal according to the scale for the time being in force.

16. The Superintendent or his Assistant for the time being in charge at the fair ground shall inspect and examine every animal so presented, and shall cause to be branded with some distinctive mark (but in such manner as not to cause pain) every such animal which he may consider fit to be slaughtered for human food.
17. An animal so marked will, on payment of a slaughter and carrying fee at the rate for the time being in force, be admitted for slaughter into the inner yard of the slaughter-houses, provided that no animal shall be permitted to pass into the inner yard of the slaughter-houses at a later hour in the day than 5 p.m. during the period from 1st October to 28th February, or than 5-30 p.m. during the period from 1st March to 30th September.
18. The Superintendent or his Assistant whose duty it is to inspect any animal presented for inspection shall reject any such animal as for any reason may appear to him unfit to be slaughtered for human food. The owner of an animal so rejected shall cause it to be forthwith removed from the slaughter-house premises.
19. A person shall not under any circumstances pass or attempt to pass into the inner yard of the slaughter-houses any animal which has not been inspected and branded as fit for slaughter as aforesaid.
20. Any animal which has not been branded as aforesaid found within the inner yard of the slaughter-houses will forthwith be removed from the slaughter-house premises, and if it appears to be diseased, unsound, or unfit for human food, will be dealt with pursuant to the provisions of Sections 415 and 417 of the Act.
21. Should the carcass of an animal which has been inspected and branded as aforesaid be found after slaughter to be diseased, unsound, or otherwise unfit for human food, it will, notwithstanding the animal was so branded, be dealt with pursuant to the provisions of Section 416 of the Act. All fees paid in respect of the animal, except the slaughter-fee in the case of animals slaughtered, will be refunded on application to the Superintendent.
22. A person bringing a pig intended for slaughter to the Municipal slaughter-house for pigs at Sonapore shall present such pigs for inspection to the Superintendent, or his Assistant in charge, at



the slaughter-house who shall inspect and examine every pig so presented, and shall pass every such pig as he may consider fit to be slaughtered for human food. A pig so passed will, on payment of such slaughter-fee as may from time to time be fixed by the Commissioner with the approval of the Standing Committee, under the provisions of Section 407 (a) of the Act, be admitted for slaughter in the said slaughter-house. Provided that no slaughtering shall, without the previous special permission in writing of the Commissioner, be permitted in such slaughter-house at night between the hours of sunset and sunrise.

23. (a) A tenant or occupier of any shop, stall, godown, or standing in a private market shall not for any longer time or in any other manner than shall be reasonably necessary for the conveyance of any goods, provisions or marketable commodities to or from such shop, stall, godown, or standing, or any part of such market, place or deposit or cause or allow to be deposited in any passage or place adjoining such shop, stall, godown, or standing or elsewhere in such market, or in any of the immediate approaches thereto, any hamper, crate, basket, box, barrel, or other receptacle for any goods brought into such market for the purpose of sale or of exposure for sale.
- (b) A tenant or occupier of any shop, stall, godown, or standing in such market shall not cause or allow any goods, provisions, marketable commodities, or articles to be deposited or exposed for sale in or upon such shop, stall, godown or standing so that such goods, provisions, marketable commodities, or articles, or any part thereof shall project beyond the line of such shop, stall, or godown, or beyond the limits assigned to such standing, so as to obstruct the passage of any persons or of any goods, provisions, marketable commodities, or articles in or through the market or any part thereof.
- (c) Every tenant and occupier of any shop, stall, or godown in such market shall cause such shop, stall, or godown to be kept in a cleanly condition, and shall allow no refuse or garbage to remain about it, but shall cause the same to be put into a tub, box, or basket, and to be carried to the proper receptacle.
24. Every person to whom a license has been or may be granted by the Commissioner, under Section 403 of the Act, to keep open a private market shall cause or procure to be laid into the premises a water-connection of not less than one inch in diameter from the Municipal water main, and shall cause such connection and all fittings thereof to be kept at all times in proper order and efficient action so as to provide for use on the premises a



sufficient supply of water for the purpose of thoroughly washing and cleansing the premises.

He shall cause all filth, garbage and refuse which may be produced or may accumulate in any part of such market to be promptly removed, in such a manner and with such precautions as not to create a nuisance in the process of removal, to such public receptacle, depôt, or place as may for the time being be provided or appointed by the Commissioner for the temporary deposit thereof.

He shall cause such market to be thoroughly swept and cleaned to the satisfaction of the Commissioner each morning and evening, and to be washed down every evening.

He shall cause every stall or bench, on which articles of food or drink are kept or exposed for sale, to be thoroughly cleansed daily, and every board or place on which meat or fish is kept to be scraped.

25. Every person to whom a license has been or may be granted by the Commissioner to keep open a private market shall observe and comply with the following regulations for the proper ventilation of such market:—

- (a) A clear open space of not less than 30 feet in width shall be maintained around the market.
- (b) At least one entrance of not less than 10 feet in width shall be maintained in front of the market if the said market does not exceed 60 feet in length in front; if it exceeds that length, then at least two entrances, each of not less than 10 feet in width, shall be maintained.
- (c) In all cases in which gates are provided to any entrance to the market, such gates shall be constructed of iron work or open wood-work.
- (d) The entrances shall be so placed as to secure a free circulation of air throughout the market.
- (e) The walls of roof columns shall not be less than 20 feet in height from the floor of the market to the wall plate, or tie bar, and no lofts or other similar structures shall be erected under the roof.
- (f) The roof shall have ridge ventilation throughout their length, and shall be fitted with movable louver boards or shutters which can be closed in wet weather.
- (g) In the space between each roof truss and under the projecting eaves of gutter way, an opening shall be kept at the top of the wall for not less than half the length of the space and not less than 18 inches deep. This opening may be grated or covered with wire netting to keep out birds.



(h) If the market has brick or masonry built walls, there shall be in every 10 feet of wall length at least one window of not less than 8 feet in height by 4 feet in width, and such windows shall be not less than 8 feet above the floor level.

(i) If the market is supported on pillars and has open sides fitted with shutters, such shutters shall be so arranged and fitted as not to obstruct ventilation.

26. Passages or spaces not less than 8 feet in width shall be maintained between the rows of stalls or benches in each market.

The following are the sections of the Bombay District Municipal Act of 1901, corresponding to those of the Bombay City Act :—

	District Municipal Act Sections.	Bombay City Act Sections.
Definitions	3	3
Power to make Bye-laws	48	461
Duties of Municipalities :—		
Obligatory	54	61
Discretionary	56	63
Taxes to be imposed	59	139
Publication of sanctioned rules with notice ..	62	466—467
Power to fix a special rate in lieu of special sanitary cess	71 (2)	172
Power to require repairs, etc., to private streets and to declare such streets public streets	90 (3) 90 (4)	305
Notice of intention to erect new buildings	96	337
Right to proceed with new buildings if no re- ply received within one month	96 (4)	345
Definitions of "to erect a building"	96 (6)	337 (2)
Municipal control over drains	99	220
Powers for making drains	100	222
Sufficient drainage of houses	101	228
Cesspool if no drain within 50 ft.	101 (a)	231—232
Powers of owners and occupiers of buildings to drain into Municipal drain	102	228
Right to carry drain through land belong- ing to other persons	103	230
Provision of privies	106	248
" for workmen exceeding 20	106 (2)	249
" for screening privy from view	106 (3)	250
Power of demolishing privy, etc., which is a nuisance	107 (2)	249A
No building shall be built over any sewer, drain, etc.	110 (2)	223
Inspection of drains	111	253
Execution of drainage works without allow- ing option	112	230



	District Municipal Act Sections.	Bombay City Act Sections.
Ruinous or dangerous buildings	119	354
Powers with regard to dangerous, stagnant or insanitary sources of water supply ..	120	381
Obstructions and encroachments on public streets	122	308
Dangerous quarrying	126	382
Depositing dust, refuse, filth, etc.	127	372 (e)
Discharging sewage	128	372 (f)
Non-removal of filth, etc.	129	
Filthy buildings	131 (1)	377
Buildings U. H. H.	131 (2)	378
Deserted or offensive buildings	131 (3)	376
Power to enter and inspect buildings ..	132	374
Using or storing offensive manure	136	377 & 372
Feeding animal on filth	137 A	384 (c)
Consumption of smoke	138	391
Licensing of markets & slaughter houses ..	139 & 140	402
Search for and inspection of unwholesome food	142-(1) (a)	412 to 415
Perishable articles to be destroyed and non- perishable to be taken before a Magistrate	142 (1) (b)	416
Bombay Prevention of Adulteration Act, Ghee Act	142 (2)	417 A
Powers to be conferred for prevention of dangerous diseases	144 (1) (2)	} 434
Duties of Municipality on threatened or actual outbreak of dangerous diseases ..	145	
Duties in respect of diseases among cattle	147	} 379, 379-A
To abate overcrowding	148	
Closing of places for the disposal of the dead	150	438
Regulation of trades	151	394
Prohibition of steam whistles	151 A	393
Service of notices	154	483 to 485
Municipality may carry out works and re- cover expenses	156 (1)	489
Improvement of expenses	156 (1) (b)	494
Entry for purposes of the Act	159	488
Municipality may prosecute for any public nuisance within six months next after the commission of such offence	161	514(3months)
Power to compromise or compound	165	517
Powers of Police officers	168	522
Collector's powers of suspending execution of orders, etc., of Municipalities	174	
Governor in Council may require any City Municipality to appoint a Chief Officer, Health Officer or an Engineer	177	
Power of Government to provide for per- formance of duties in default of Municipa- lity	178	



	District Municipal Act Sections.	Bombay City Act Sections.
Power of Government to supersede Municipa- lity in case of incompetency or abuse of powers	179	
Constitution of City Municipalities	181	
City Municipality may appoint Chief Officer, Health Officer and Executive Engineer ..	182	
Powers of Chief Officer	183	
Chief Officer's powers of appointment and punishment	184	
Delegation of Chief Officer's powers	185	
Appointment of Municipal Commissioner ..	186 (A)	54
Powers of Municipal Commissioner	186 (g)	
Delegation of powers of Municipal Commis- sioner	186 (m)	68

BOMBAY ACT No. V OF 1890.

(MUNICIPAL SERVANTS' ACT.)

Whereas it is expedient to make better provision in the City of Bombay and elsewhere for the enforcement of regulations regarding certain classes of municipal servants whose functions intimately concern the public health or safety, and regarding the duties, withdrawal from duty, and leave of such servants; It is enacted as follows:—

Short title.

1. (1) This Act may be cited as the Bombay Municipal Servants' Act.

Commencement and
extent.

(2) It shall come into force in the City of Bombay at once.

(3) The Governor in Council may, by notification, extend all or any of its provisions, on and after a day not less than two months after the date of such notification, to any municipal district in the Bombay Presidency.

He may also cancel or vary such notification consistently with the provisions of this Act.

Interpretation.

2. (1) Unless there be something repugnant in the subject or context, all words, used in this Act, shall have respectively the meanings assigned to them in the City of Bombay Municipal Act, 1888.

(2) This Act shall, in so far as it affects the City of Bombay, be read with the City of Bombay Municipal Act, 1888, and in so far as it affects any other part of the presidency of Bombay, shall be read with the Bombay District Municipal [a] Act, 1901 [a].

Act to be read with
Municipal Acts in force.



Conditions as to resignation, withdrawal and absence from specified duties.

3. (1) Any municipal officer, servant or other person employed by, or on behalf of, the Corporation or a Municipality to perform any of the duties specified in the schedule, who—

(a) without the written permission, in the City of Bombay of the Commissioner or a person by him deputed in that behalf, and elsewhere of the officer authorized by the Municipality to give such permission, resigns his office without at least two months' notice given in writing to the Commissioner or person by him deputed, or to such officer, or withdraws or absents himself from the duties thereof, except in case of illness or accident disqualifying him for the discharge of such duties or other reason accepted as sufficient by such Commissioner or person by him deputed, or such officer, or

(b) is guilty of any wilful breach or neglect of any provision of law or any rule or order which as such municipal officer, servant or other person employed by, or on behalf of, the Corporation or a Municipality it is his duty to observe or obey, or

(c) who abets an offence under clause (a) or clause (b), shall be liable to forfeit his pay accruing due under a current term of service, and arrears of pay due for a term of not more than one month, and in addition to such forfeiture and any other penalty which may be imposed on him under any enactment or rule for the time being in force, shall be liable, on conviction by a Magistrate, to imprisonment which may extend to three months or to fine, or to both imprisonment and fine :

Provided that if any such officer, servant or other person produces a certificate signed by the medical officer appointed in the City of Bombay by the Commissioner, and elsewhere by the Municipality in this behalf, of a present incapacity to perform his duties which will probably endure for a month or more, the necessary permission to resign shall forthwith be granted;

Provided further that no fee shall be taken from a person on account of such certificate as aforesaid or of examination in connection therewith.

(2) The provisions of clauses (a) and (b) of sub-section (1) shall not apply to persons at the date of the passing of this Act in the employment of the Corporation or of a Municipality until the lapse of two months from such date.

Power to dispense with two months' notice or with services after tender of resignation.

4. (1) The Commissioner or officer authorized by the Municipality under section 3 (a), may,

(a) at his discretion, accept any resignation to take effect at a time less than two months from the date thereof, or

(b) at any time after any municipal officer, servant or other person employed as aforesaid, has tendered his resignation, dispense with the services of such officer, servant or person.



(2) Any such officer, servant or other person whose services are dispensed with under sub-section (1), clause (b), shall, subject to any agreement in writing previously made between him and the Corporation or Municipality or its representative, be entitled, in addition to any wages which he may have earned at the date of tendering his resignation, to fifteen days' wages or to wages for such period longer than fifteen days, as his services may, after such tender of resignation, have been retained by the officer authorized in that behalf.

5. (1) It shall be lawful for the Governor in Council on the request of the Corporation or of a Municipality from time to time, by notification, to declare that from a date to be fixed therein which shall not be less than two months from the date thereof, any specified class of duties which concern the public health or safety, shall be deemed to be included in the schedule to this Act, and from the date fixed on that behalf in such notification the provisions of section 3 shall apply to all persons employed by, or on behalf of, the Corporation or a Municipality to perform any duty of the class so specified in such notification.

(2) The Governor in Council may withdraw such notification and may from time to time cancel or vary the same consistently with the preceding clause and with the other provisions of this Act, and may also limit the operation of any notification to any Municipality or place wherein this Act is in operation.

6. Every person employed by, or on behalf of, the Corporation or a Municipality to perform any of the duties set forth in the schedule, shall, on entering the service, and every person now so employed shall forthwith, receive gratis, and shall at any time thereafter, on payment of one anna, be entitled to receive in the City of Bombay from the Municipal Commissioner for the City of Bombay, and elsewhere from the President of a Municipality, a copy of this Act and of the notifications issued thereunder, applicable to such person or to the class to which he belongs, in the English, Marathi, Gujarathi, Canarese or Sindhi language.

SCHEDULE.

(Vide Section 3.)

Duties which render the provisions of section 3 applicable to the persons employed by, or on behalf of, the Corporation or a Municipality to perform them.

Class I.—Duties connected with the public health :

- (a) scavenging or cleansing streets or premises,
- (b) cleansing or flushing drains,



- (c) removing or disposing of excrementitious or polluted matter, from houses, latrines, privies, urinals, or cesspools,
- (d) removing carcasses,
- (e) preventing nuisances generally.

Class II.—Duties connected with the public safety:

Duties of—

- (a) members of a fire-brigade,
- (b) persons, however designated, employed on, or in connection with, the maintenance or service of any municipal water-work, drain, pumping station or fire hydrant, including—
 - (1) inspectors,
 - (2) sub-inspectors,
 - (3) foremen,
 - (4) mechanics,
 - (5) drivers,
 - (6) watchmen,
 - (7) labourers,
 - (8) workmen;
- (c) lamp-lighters.

[a-a] The reference to Bombay Acts VI of 1873 and II of 1884 is altered in accordance with Bom. III of 1901, s. 2 (1) proviso (c).

SANITARY ADMINISTRATION OF A PORT.

The Port Health Authority consists of a Port Health Officer, appointed and paid by Government, and his assistants, whose duties are to carry out the inspection of shipping entering and leaving the harbour, and the disinfection of ships and crews.

In exercise of the powers conferred by section 6, sub-section (1), clause (p), of the Indian Ports Act 1908, as amended by the Indian Ports (Amendment) Act IV of 1911, the.....is pleased to make the following regulations in respect of the following diseases: (1) *Small-pox*, (2) *Chicken-pox*, (3) *Measles*, (4) *Plague*, (5) *Cholera*, (6) *Yellow Fever*, (7) *Sleeping Sickness*, (8) *Typhus*, (9) *Scarlet Fever*, and (10) *Jigger*, occurring on vessels coming to or leaving ports in.....or for the time being in port in.....and in respect of any death on a vessel not carrying a *medical officer* coming to or leaving port in.....or for the time being in port in.....

PART I.—DEFINITIONS.

1. In these Regulations

- (1) "Health Officer" means any person appointed by the local Government, either by name or by virtue of his office, to be Health Officer of a port, and includes an additional or Assistant Port Health



Officer and any officer appointed by the local Government either by name or by virtue of his office, to perform any of the duties of a Health Officer of a port;

- (2) "healthy vessel" means a vessel,
 - (a) which, even though coming from an infected port, has not had on board any death from unknown or suspicious cause, or any person suffering, or suspected to be suffering, from any of the diseases enumerated in the preamble, or any unusual mortality amongst rats either *at the time of departure*, or during the voyage from the last port of call, or on arrival; and
 - (b) which has not, within a period of twelve, or in the case of plague, five days immediately preceding her arrival, left an infected port or communicated (except orally without contact or by signal) with a vessel which has left an infected port within that period;
- (3) "infected vessel" means a vessel which has on board one or more cases of any of the diseases enumerated in the preamble, or on board of which a case or *suspected case* of any of those diseases has occurred either at the time of departure or during the voyage from the last port of call or, in the event of such voyage exceeding twelve days, *within* the twelve days (in the case of plague seven days) immediately preceding her arrival at a port in British India, or on which rats have died from plague during the voyage from the last port of call.
- (4) the term "infected," when used with reference to any articles, means articles which the local Government may, by notification in the local official Gazette, declare to be infected with any of the diseases in question.
- (5) the term "infected port," when used with reference to a port in British India, means any port which the local Government may by notification in the local official Gazette, declare to be infected.
- (6) "suspected vessel" means a vessel on board of which there has been a case or *suspected case* of any of the diseases enumerated in the preamble, or a death from unknown or suspicious cause at the time of departure or during the voyage from the last port of call but on board of which no fresh case or suspected case of such disease has occurred *within* twelve days (in the case of plague seven days) immediately preceding her arrival, or on which unusual mortality among rats *not definitely known to be due to plague* has been observed.
- (7) "master," when used with reference to a vessel, means any person (except a pilot or harbour master) having for the time being charge or control of the vessel.
- (8) "Port Officer" includes any person, acting under the authority of the local Government, in charge of port discipline.

Every vessel which has come from the East Coast of Africa within the limits of Port Sudan and Durban or from any other locality declared to



be infected with sleeping sickness or jigger is a "suspected vessel" for the purposes of these regulations, unless during the voyage there has been one or more cases or suspected cases of either of these diseases on board when it will be considered an "infected vessel."

Every vessel which has within a period of two months immediately preceding her arrival started from, or touched *en-route* at, a port infected with yellow fever or communicated (except orally without contact or by signal) with a vessel either infected or which has left an infected port within that period is a "suspected vessel" for the purposes of these regulations, unless within the same period there has been on board a case or suspected case of yellow fever when it will be considered an "infected vessel."

PART II.—VESSELS ARRIVING AT PORTS IN BOMBAY PRESIDENCY
EXCLUDING SIND AND ADEN.

2. The master of every *suspected or infected* vessel, arriving at any port, shall hoist a signal which shall be—

by day the Code Flag over Flag L of the Commercial Code, which is a square flag of yellow and black borne quarterly, and

by night three lights, at a height of not less than 20 feet above the hull of the ship, which shall be arranged at a distance of not less than six feet apart, in the form of an equilateral triangle, and of which the light at the apex of the triangle shall be white and the lights at the ends of the base shall be red,

and shall report every such case or death that may have occurred from any of the causes enumerated above, or in the case of a vessel not carrying a *medical officer* any death from any cause, to the pilot or other boarding officer at the earliest opportunity, and shall also comply, on arrival at such place as may be appointed in this behalf by the local Government, with such regulations as may be made by the local Government in regard to—

- (i) signalling the name of the port from which the vessel has come,
- (ii) stopping at a particular place,
- (iii) refraining from communication with the shore, and
- (iv) taking measures for giving effect to the present regulations.

3. If the vessel be at anchor within port limits when such disease first breaks out or such death occurs, the master shall hoist the signals specified in rule 2.

4. The pilot or other boarding officer shall promptly report the circumstances of the case to the Port Officer, who shall immediately forward any report so made, or give notice of any signal hoisted, to the Port Health Officer.

5. (1) When any *healthy* vessel is within sight of a port in British India, the master may intimate the fact by signal.

(2) Such intimation shall ordinarily be accepted by the Port Officer and if so accepted, the Health Officer need not visit the vessel, which may be considered to have pratique.



PART III.—BERTHING OF VESSELS.

6. (a) If the number of deaths from or cases of the diseases enumerated in the preamble, with the exception of plague and yellow fever, does not exceed two, the vessel will not be prohibited from taking up the usual place of anchorage in the harbour or port, except that she may not enter the docks without the written permission of the Health Officer, and the passengers and crew not suspected of having any of the diseases in question need not, except in the case of pilgrim and emigrant ships *and those not carrying a medical officer*, be detained on board pending the inspection of the Health Officer. The master of the vessel shall be responsible that no one of the passengers or crew, except those referred to above, is allowed to leave the vessel before inspection by the Health Officer, and shall prevent the landing of infected bedding, clothes, or other personal effects which he has reasonable cause to consider likely to be infected.

(b) If the number of cases or deaths within the previous twelve days has exceeded two, or when from their occurrence on pilgrim or emigrant ships or for other special reasons, further precautions may be deemed advisable, the pilot, or in his absence the master, shall keep hoisted by day or night, as the case may be, the signals prescribed by regulation 2 and shall anchor the vessel in the place appointed for the purpose and not allow any of the passengers or crew to leave the vessel except with the permission of or under such instructions as may be issued by the Health Officer.

7. If a case of yellow fever or of plague or unusual mortality among rats has occurred on board, the vessel shall not take up the usual place of anchorage pending the visit of the Health Officer; in the meanwhile the vessel shall stop at such place as the local Government may by order provide.

8. So long as the signals prescribed by regulation 2 are shown, *no tidal* or other person in charge of or navigating any boat shall, without the permission of the Health Officer, attempt to take it alongside such vessel.

PART IV.—INSPECTION OF VESSELS.

9. Whenever the Health Officer receives the notice referred to in regulation 4, he shall, without unnecessary delay, proceed on board and examine the vessel, and the master shall give him every facility for the examination of the passengers, crew, personal effects, cargo, and any part of the ship the Health Officer thinks necessary. The Health Officer may require a declaration on oath from the medical officer (if any) of the vessel or from the master or from both, whether any death or sickness from an unknown or suspicious cause, or any case of any of the diseases enumerated in the preamble, has occurred on board the vessel either during the voyage or before her departure, and with reference to plague whether any unusual mortality has been observed among rats. If the



Health Officer is satisfied that such deaths as may have occurred were not due to any of the causes enumerated in the preamble, he shall permit the vessel to proceed to the usual place of anchorage and to discharge passengers and cargo, without any further restrictions. If he is not so satisfied, he shall proceed as provided in those regulations. The inspection by the Health Officer will ordinarily take place between sunrise and sunset.

10. As a result of every inspection the Health Officer shall classify the vessel as infected, suspected, or healthy, *in accordance with the definitions given in Part I.*

11. On the completion of the inspection prescribed by regulation 9, such of the passengers and crew as *have been detained under regulation 6 (a), but who* are found to be free from any of the diseases in question and unlikely to carry infection shall be allowed to land. All baggage, personal effects and cargo, except such articles as the Health Officer is entitled to disinfect, may also be landed.

12. If a case of any of the diseases enumerated in the preamble occurs on any vessel after she has entered dock or has been moored at a wharf, the master shall forthwith cause information thereof to be given to the Dock Master or Superintendent of the Wharf, who shall communicate the information to the Health Officer (through the Port Officer) and to the Superintendent of Police, and shall be responsible that the sick person shall be isolated as much as possible, and that free communication with the wharf is stopped until the Health Officer has inspected the vessel.

PART V.—REMOVAL OF THE SICK.

13. When on inspection the Health Officer considers it necessary in order to prevent the spread of disease, he shall take the measures indicated in Part VI of these regulations as the case may be.

14. Unless a vessel shall have had communication with the shore under the proviso to regulation 43, and *except as provided for under regulation 19 (2)*, the removal of *sick* passengers is not to be enforced in the case of persons bound for an onward port unless under the clearest necessity of which the Health Officer shall be the judge, and in every such case a special report explaining the reasons for the action taken must be submitted by the Health Officer to the local Government.

15. The Health Officer shall inform the Municipal Health Officer in all cases in which he arranges for the conveyance of a patient to a sanitarium or hospital or other place within municipal limits, and shall furnish the Municipal Health Officer with the address of any private residence to which he permits the removal of a patient.

16. Where small-pox is the disease on account of which the vessel is deemed to be infected, the Health Officer shall offer, without charge, vaccination or re-vaccination to all persons willing to be operated upon, and shall cause to be vaccinated, if their guardians or those in charge of them consent, all children below 10 years and over 6 months of age who do not



bear marks of vaccination or of small-pox. In the case of plague, inoculation may similarly be offered free of charge to all willing to be inoculated.

**PART VI.—MEASURES TO BE TAKEN IN THE CASE OF HEALTHY,
INFECTED AND SUSPECTED VESSELS.**

17. Vessels classed by the Health Officer after inspection as healthy shall be given free pratique save as otherwise provided in rule 23. Other vessels will be dealt with in accordance with rules contained in Parts VI (A), VI(B), VI(C), VI(D) or VI(E) according to the disease.

**PART VI-A.—SMALL-POX, CHICKEN-POX, MEASLES, CHOLERA,
TYPHUS AND SCARLET FEVER.**

18. In the event of a vessel being classed either as infected or suspected on account of any of the above mentioned diseases, the Health Officer

- (1) shall arrange for the conveyance of any person suffering or suspected to be suffering from such disease to a sanitarium or hospital, unless the sick person or his friends can make adequate provision elsewhere of which the Health Officer must satisfy himself, but he shall not enforce the removal from the vessel of any person or persons bound for an onward port, except as provided for in regulation 14;
- (2) shall either himself undertake, or direct the master of the vessel to undertake, the destruction or disinfection of all clothing, bedding and other articles that he may consider infected;
- (3) may, when a vessel with one or more of the above-mentioned diseases on board has in his opinion passengers or crew in a filthy and unwholesome condition, cause the clothing and personal effects of such persons to be disinfected before allowing them to leave the vessel;
- (4) may, in the case of undecked craft, direct the disinfection, or in special cases the destruction, of food-stuffs which have been exposed to contamination and are considered likely to be infected;
- (5) may order that any portion of the vessel that has actually been exposed to contamination or is in a filthy or insanitary condition, or which he considers likely to be infected, should be disinfected and cleansed as he may direct and may prohibit the discharge of bilge water or water ballast within port limits without previous disinfection;
- (6) may, in the case of cholera, direct the master to have the bilges and water tanks emptied and cleaned and disinfected.

PART VI-B.—PLAGUE.

19. In the case of infected vessels the following measures shall be taken :—



- (1) All persons on board shall be medically examined as prescribed in regulation 9.
- (2) All persons suffering from plague shall immediately be disembarked under the directions of the Health Officer and isolated in the camp or hospital, whether ashore or afloat, appointed by the local Government for the purpose.
- (3) At the discretion of the Health Officer, other persons shall also be disembarked, and be subject to observation * or surveillance, or observation followed by surveillance during a period which shall not exceed five days.
- (4) Such soiled linen, wearing apparel and articles belonging to the crew and passengers as are, in the opinion of the Health Officer, infected, shall be disinfected.
- (5) All parts of the vessel which have been occupied or frequented by plague patients shall be disinfected; and any other parts of the vessel that, in the opinion of the Health Officer, are infected shall be disinfected.
- (6) The rats on board shall be destroyed, either before or after discharge of the cargo, in either case as quickly as possible, and in such manner as to avoid damage to merchandise and to the ship's plating and engines. In the case of ships in ballast, this process must be carried out as soon as possible before embarking cargo.
- (7) Passengers arriving by an infected ship and subjected to the provisions of clauses (2), (3) and (4) above are entitled to obtain from the Health Officer a certificate showing the date of their arrival and the measures taken as regards themselves and their baggage.

20. When the measures prescribed in regulation 19 have been duly taken in respect of any vessel, the Health Officer shall by written order grant *pratique*, provided that, if a case of plague, or of illness suspected to be plague occurs on board subsequent to the grant of the above certificate, the certificate shall become invalid and the vessel again become subject to the requirements of the regulations regarding infected vessels.

21. In the case of suspected vessels the following measures shall be taken :—

- (1) All persons on board shall be medically examined as prescribed in regulation 9.
- (2) The destruction of rats may be ordered at the discretion of the Health Officer, and if ordered shall be carried out in the terms of regulation 19 (6).

* "Observation" means isolation either on board the ship or in a sanitary station appointed for the purpose before the grant of *pratique*. Passengers under "surveillance" are not isolated; they receive *pratique* at once and are at liberty to proceed to their destination, but the authorities at those places are informed of their coming and they are subjected to medical examination for such period as may be fixed in these rules.



- (3) All soiled linen, wearing apparel and personal effects of the crew and passengers which are, or are suspected to be, infected, shall be disinfected.
- (4) All parts of the vessel which have been occupied or frequented by plague patients shall be disinfected; and any other parts of the vessel that, in the opinion of the Health Officer, are infected, shall be disinfected.

22. When the measures prescribed in regulation 21 have been taken in respect of any vessel, the Health Officer shall by written order grant *pratique*.

23. In the case of healthy vessels *pratique* shall ordinarily be given at once as provided for in regulation 17, but the Health Officer may in his discretion, if special circumstances appear to him to require it, impose any or all of the following measures :--

- (1) medical examination as prescribed in regulation 9;
- (2) disinfection of soiled linen, etc., as prescribed in regulation 19;
- (3) destruction of rats as prescribed in regulation 19 (6); but the process of deratisation must not occupy more than 24 hours.

24. In exercise of the functions imposed upon him by regulations 9, 19 and 21, the Health Officer shall--

- (a) attach due importance to the presence on board the vessel of a medical officer and to the provision of apparatus for disinfection by means of saturated steam and for the destruction of rats, and
- (b) shall take into account the sanitary or insanitary, and roomy or crowded condition of the vessels.

25. If, in the case of any vessel making a passing call, the communication with the shore is restricted to the landing of passengers, mails or goods, the Health Officer may, in his discretion, enforce the provisions of regulations 19, 21, or 23, as the case may be, to such extent only as may in his opinion be necessary for the purpose of controlling the actual communication with the shore.

Provided (a) that any persons on board the vessel whom the Health Officer has reason to believe to be suffering from plague shall be landed and kept under observation.

Provided also (b) that ships from an infected place that have been disinfected and have undergone adequate sanitary measures shall not, on their arrival in another port, be subjected to these measures a second time if no case has occurred since the disinfection was performed and if they have not called at an infected port. A ship which has merely disembarked passengers and their baggage or mails, without having been in communication with the shore, shall not be regarded as having called at the port.

26. The Health Officer shall whenever requested furnish the master, the ship-owner or the ship-owner's agent, with a certificate stating that



measures of rat destruction have been carried out and giving the reasons why they were resorted to.

27. The foregoing regulations shall not prevent the transshipment, under restrictions to be imposed by the Health Officer in conformity therewith, of passengers, mails or goods between vessels which have not been granted pratique.

28. If any case of plague occurs among any group of persons who are being kept under observation, the patient shall be isolated or sent to a hospital, and the other persons shall continue to be detained and segregated as aforesaid for a period not exceeding five days from the date on which the group became free from plague. The clothes and effects of the patients and of such persons as have been in contact with the patient shall be disinfected at the discretion of the medical officer in charge.

29. The medical officer-in-charge of any place appointed for the isolation of any persons under these regulations may, in his discretion, by written order, direct that any person who is kept there under observation shall be allowed to depart and shall be subject to surveillance.

30. If the system of surveillance to which any person is subjected on shore requires his daily attendance before a medical officer, the Health Officer may, by written order, exempt such person from such attendance on being satisfied that he may be relied upon to send in a prompt report if he should fall sick.

31. Persons subjected to surveillance shall submit to, and comply with, all directions as to medical supervision or otherwise which may be given by written order of a medical officer appointed by the local Government in this behalf.

PART VI-C.—YELLOW FEVER.

32. In the case of vessels which have, within a period of two months immediately preceding their arrival, started from or touched *en-route* at a port infected with yellow fever or communicated (except orally without contact or by signal) with a vessel either infected or which has left an infected port within that period, the following procedure shall be observed:—

- (1) The vessel shall be anchored at sea at such special anchorage as may be fixed for this purpose by the local Government but in no case less than half a mile from the land at low water. The visit of the Health Officer shall be made during the day as early as possible, and all persons on board shall be medically examined as prescribed in regulation 9.
- (2) Any person suffering from yellow fever, if in the first four days of the disease, or if there is any doubt about the duration of the disease, shall be protected from the approach of mosquitoes by means of curtains, and shall be treated on board for at least four days. Any person suffering from fever shall similarly be isolated.



be protected from the approach of mosquitoes by curtains and treated on board for at least four days. All passengers in perfect health (with normal temperature, etc.) may be landed, and shall be kept under close observation for a period of at least eight days, extensible at the discretion of the Health Officer to a maximum of twelve days, special precautions being taken throughout the whole of this period to prevent mosquitoes having access to them.

- (3) In no case should any person sick of yellow fever be landed during the first four days of his illness without the special sanction of Government. If such sanction is given, the most minute precautions to prevent mosquitoes reaching him shall be taken, including a mosquito-proof cabin on the launch, mosquito-proof ambulances and a mosquito-proof ward in an isolation hospital.
- (4) The crew of the vessel should be required to sleep in airy places preferably on deck, and should be protected by mosquito curtains.
- (5) The ship shall be cleared of mosquitoes by the systematic fumigation,* under efficient supervision, of every cabin, store-room, alley-way and hold.
- (6) All water in which mosquitoes could breed should be emptied into the sea and all drains flushed by means of a hose. The bilge should be pumped out or oiled. The drinking water tanks should be emptied to get rid of larvæ, fresh water being taken and the tanks completely filled so as to drown any adult mosquitoes which may be present in them.
- (7) Provided, if no case of yellow fever has occurred on board within two months immediately preceding the vessel's arrival, only such of the above measures in addition to those described in paragraphs (1), (5) and (6) shall be carried out as are considered by the Port Health Officer necessary in the circumstances of the case.
- (8) No ship shall leave the anchorage for the purpose of taking up her berth until the measures described in paragraphs (5) and (6) have been carried out.

PART VI-D.—SLEEPING SICKNESS.

33. In the case of a vessel having on board a person suffering, or suspected to be suffering, from sleeping sickness, the person or persons shall not be permitted to land without the specific written permission of the Health Officer, who may, pending the receipt of written instructions from the local Government, permit the landing of such persons only if arrangements can be made for their strict isolation on shore.

In the case of Aden, the Health Officer may prevent the embarkation of or, subject to the arrangements above referred to, may disembark any person proceeding to India, who is suffering or suspected to be suffering from sleeping sickness.

* Sulphurous acid SO_2 is probably the best gas to use.

34. *In the case of a vessel arriving from the East Coast of Africa within the limits of Port Sudan and Durban or from other localities declared to be infected, the procedure prescribed by rule 2 shall be complied with and the crew or passengers, etc., shall be medically inspected in accordance with rule 9.*

PART VI.E.—JIGGER.

35. In the case of a vessel having on board any person or persons suffering from jigger—

- (1) the Health Officer shall carefully examine every person on board and any person or persons found to be suffering may be removed to hospital for treatment;
- (2) the clothes of infected persons shall be disinfected, and the Health Officer may, in his discretion, order the disinfection of the clothes, bedding, etc., of all persons on board;
- (3) any part of the vessel likely to harbour jigger fleas shall be thoroughly washed with a watery solution of kerosine oil emulsion or in a recognised solution of tar acid which is accepted by the Health Officer;
- (4) the ballast of such vessel, if of earth or sand, shall not be landed without the permission in writing of the Health Officer, who, if he considers it necessary, may order that it shall be discharged into the $\frac{\text{sea}}{\text{river}}$ at such places as shall be appointed for the purpose by the local Government.

PART VII.—GENERAL.

VESSELS.

36. The master of any vessel coming under these regulations shall comply with all directions which the Health Officer may consider necessary under the foregoing rules.

37. The master of any vessel who may object to submit to the foregoing regulations may put out to sea again, provided that objection has been taken before there has been any communication, except by signal or through the port authorities, between such vessel and the shore or with any other vessel in port. Goods may be landed from such vessels after precautions have been taken to isolate the ship, crew and passengers and on condition that such information as the Health Officer may require regarding the mortality among rats is duly supplied: Passengers may be disembarked at their own request on condition that they submit to all the measures prescribed by the local authorities.

38. In the event of any vessel putting back to sea, the Health Officer shall intimate the fact by telegraph to the next port of call if in British India.



PERSONS.

39. All persons removed to hospital or kept under observation at any place shall obey and conform to the rules, regulations and orders for the time being in force at such hospital or place and shall be liable to pay all such charges as for the time being may, under the sanction of the local Government, be made against them.

40. When a suspected case of any infectious disease is removed from a vessel at an Indian port, the Health Officer shall report the confirmation or otherwise of the diagnosis, by telegraph, to the Health Officer of the next port of call, if that port is in British India, Ceylon or the Straits Settlements. In other cases a note shall be made on the bill of health stating the nature of the suspected infectious disease and the precautions taken in connection therewith.

DEAD BODIES.

41. Disposal shall be as follows :—

- (1) If death occurs on board a vessel before entering port limits, the body shall, unless there are special reasons to the contrary, be buried at sea in not less than nine fathoms of water, in such manner as shall secure its immediate sinking and remaining below the surface.
- (2) If death occurs during the day on board a vessel within the port limits the ensign and house flag, if there is one, are immediately to be lowered half-mast and kept in such position from sunrise till sunset as long as the body remains on board. If death occurs between sunset and sunrise, one red light is to be hoisted at the peak, half-mast high.
- (3) The master of the vessel shall cause the death of a person on board to be intimated forthwith to the police, either by letter or otherwise, and shall forward to the Port Officer a written report as soon as possible after the occurrence, in which all the circumstances attending the death must be fully detailed.
- (4) No dead body shall be removed from a vessel within port limits without the permission of the police, which shall not be given until the Health Officer has certified either—
 - (a) *that the death is not due to infectious disease ; or*
 - (b) *that, in the case of infectious disease, the Port authorities have given permission for burial on shore.*

If the Port authorities, in consultation with the Health Officer, decide that burial on shore cannot be permitted, the body must be buried at sea in such manner as the Health Officer may direct.

DISINFECTION.

42. All disinfection prescribed by these regulations shall be carried out, unless otherwise specifically provided for, in the manner prescribed in the Appendix thereto.

PART VIII.—VESSELS LEAVING PORTS IN THE BOMBAY PRESIDENCY
(EXCLUDING SIND) AND ADEN FOR PORTS
BEYOND INDIA.

43. No vessel shall leave any port *which has been declared to be infected with any contagious or infectious disease* for any port beyond India until—

(1) all persons sailing by the vessel, whether as passengers or as members of the crew, have been medically examined by the Health Officer;

(2) in the case of Plague—

(a) all persons sailing by the vessel, either as passengers or as members of the crew (except such onward bound passengers as have not remained one night on shore and such members of the crew, *as have not remained one night on shore* or have not newly joined, who may be examined on board), have been medically examined by the Health Officer on shore by day as shortly as possible before embarkation;

(b) all merchandise or articles of any sort which the Health Officer may consider to be infected with plague have been disinfected on shore previous to embarkation;

(c) all clothing, bedding and infected articles belonging to Asiatic and African members of the crew, not being officers, engineers or doctors, to deck and fourth class passengers and to third class passengers not entitled to cabin accommodation, which the Health Officer may consider to be infected with plague and, if the Health Officer thinks fit so to direct, all clothing, bedding and infected articles belonging to passengers of any class higher than the third and of any members of the crew have been disinfected on shore by day as shortly as possible before being placed on board;

3) the Health Officer has given to the master of the vessel a bill of health stating that the medical examination and disinfection prescribed by this regulation have been carried out.

In the case of any disease other than plague, the Health Officer may, in his discretion, enforce the provisions of clauses 2 (b) and 2 (c) above.

Provided that, if the vessel is only making a call at the port in question, the medical examination and disinfection prescribed by this regulation shall be made only in the case of persons joining the vessel there and articles belonging to them, unless there is communication between the vessel and the shore. The Health Officer shall decide, for the purpose of this



proviso, what constitutes communication between the vessel and the shore. The bill of health in such case need only take the form of an endorsement on the last bill of health held by the vessel and need only refer to the passengers and crew embarking at the port in question.

44. It shall be open to the Consular representative interested in any vessel to be present, if he so desires, at the medical examination and disinfection prescribed by regulation 43.

45. If any vessel does not leave port *within 24 hours after* the medical examination made under regulation 43, she shall not leave until

- (a) a fresh medical examination of the passengers and crew has been made under that regulation, and
- (b) a fresh bill of health has been given to the master under that regulation.

Provided that such fresh examination may be conducted on board the vessel, whether or not there has been communication with the shore since the previous examination was made, and provided that if the time of departure be after sunrise on the day after that of inspection, the master of the vessel shall send the bill of health to the Health Officer to have the date of departure amended.

46. If, after a bill of health has been given to the master of any vessel and before the vessel leaves the port, any cargo or goods of any kind be placed on or taken off the vessel *except in such manner as may be directed by the Health Officer*, the vessel shall not leave the port until—

- (a) such further medical examination and disinfection as the Health Officer may consider necessary have been made under regulation 43, and
- (b) a fresh bill of health has been given to the master under that regulation.

Provided that such further examination and disinfection may be conducted on board the vessel.

47. (1) After a bill of health has been given to the master of any vessel, no person except the pilot or *person authorised by the Health Officer* shall be permitted to embark on the vessel unless he has been medically examined by the Health Officer as prescribed in regulation 43.

(2) If any such person is permitted to embark, the Health Officer shall amend the bill of health accordingly.

48. Port-clearance shall not be granted for any vessel, unless and until the master produces the bill of health prescribed by the foregoing regulations.

Provided that at any port where, in the opinion of the local Government, local conditions render this relaxation advisable, the authority responsible for granting port-clearance may grant port-clearance for any vessel on receiving from the Agents of the vessel a written guarantee that a duplicate of such bill of health, signed by the Health Officer, will be furnished by them to him within forty-eight hours.



49. (1) If the Health Officer considers that any passenger is suffering from, or is in the incubation stage of, any infectious or contagious disease, he shall prevent such passenger and his or her relatives and attendants from embarking or sailing; and their baggage and personal effects shall not be allowed on board the vessel and, if already placed on board, shall be removed as early as possible.

(2) For the purposes of this regulation, the term "relatives" shall mean such persons as have been living with, or have been, in the opinion of the Health Officer, in dangerous communication with the suspected passengers.

50. (1) If the Health Officer considers that any member of the crew of the vessel is suffering from, or is suspected to be in the incubation stage of, any infectious or contagious disease—

(a) he shall prevent such member from re-embarking on such vessel and shall refuse to give a bill of health until the baggage and personal effects of such member have been removed from the vessel and such parts of the vessel as have been occupied or frequented by such member have been disinfected; and

(b) the baggage and personal effects of such persons as were in immediate contact with such member of the crew shall be disinfected and the names of such persons shall be given to the medical officer or master of the vessel for supervision on the voyage.

(2) All action taken under clause (1) of this regulation for the disinfection of a vessel shall be noted in the bill of health.

51. Any person who is prevented by the Health Officer under the foregoing regulations from embarking or sailing may be removed to and kept at a hospital or kept under observation; or, if any such person gives a genuine address, he may, at the discretion of the Health Officer, be subjected to surveillance for a period not exceeding five days.

52. At all ports declared to be infected with plague, proper measures shall be taken to prevent rats obtaining access to vessels (Appendix B).

53. Regulations 43 to 52 shall apply to all pilgrim or emigrant ships and may, by order of Government, be applied to vessels leaving a port in India or Burma for another in India or Burma.

(See Regulation 42.)

APPENDIX A.

INSTRUCTIONS FOR DISINFECTION.

1. Personal effects, such as rags, bandages, papers and other articles without value which, in the opinion of the Health Officer, are deemed likely to carry infection, should be destroyed by fire.

2. Underclothing, bedding, wearing apparel, mattresses, carpets, etc., which are contaminated or suspected, and other articles to be disinfected, should be exposed for 15 minutes to saturated steam—under pressure if possible—at a temperature of not less than 100° C. (212° F.), care being taken that the steam shall reach all parts of each article to be disinfected.



3. *Disinfecting Solutions.*

- (a) Solution of corrosive sublimate of 1 part in 1,000 with the addition of 2 parts in 1,000 of hydrochloric acid or 160 grains of chloride of soda in one gallon. The solution should be coloured with aniline dye or indigo : it should not be placed in metal vessels.
- (b) A 5 per cent. solution of pure crystallized carbolic acid, or 5 per cent. of crude commercial carbolic acid free from tar oils in a warm solution of soft soap.
- (c) Freshly prepared lime-wash.*
- (d) Such proprietary tar acid compound as the Health Officer may approve of.

4. *Special instructions to be observed in the employment of disinfecting solution.*—The linen, clothing and articles soiled by the excreta of patients should be soaked in the solution of corrosive sublimate. The solution of pure carbolic acid and the solution of soap and carbolic acid are equally suited to the purpose. The articles should remain in the solution for at least six hours.

Articles which cannot be subjected to the temperature of 212° F. without injury, as leather goods, wooden articles stuck together with glue, felt, velvet, silk, etc., should be washed with a disinfecting solution : coins can be disinfected with the solution of soap and carbolic acid. Persons engaged in nursing the sick should wash their hands and faces with one of the carbolic solutions. The carbolic solutions will be useful more particularly for disinfecting articles such as metal or instruments which can neither be subjected to a temperature of 212° F. nor placed in contact with corrosive sublimate. Chlorinated lime is particularly recommended for disinfecting excreta. Expecterated matter should be burnt.

5. *Disinfection of ships on which plague has occurred among human beings or rats.*—All rats on board shall be destroyed by means of sulphurous anhydride or other suitable disinfectant. The cabins, etc., occupied by the sick or those suspected to be suffering from plague shall, at the discretion of the Health Officer, be treated with a solution of corrosive sublimate and thoroughly cleansed with soap and water. In the case of pneumonic plague, preliminary disinfection with corrosive sublimate solution shall be invariably carried out.

6. *Disinfection of the hold of an infected ship.*—The bilge-water shall be pumped out, and the hold washed with sea-water, a sufficient quantity of a solution of corrosive sublimate being subsequently thrown in at the discretion of the Health Officer. The bilge-water shall not be pumped out when the vessel is in harbour without the written consent of the Health Officer.

*The lime-wash should contain 20 per cent. of lime, and may be prepared as follows:—Take 2 pounds of good quick-lime and slake it by moistening it gradually with about half a pint of water. When the operation is completed, the resulting powder must be kept in an air-tight vessel in a dry place.

For use the quantity of slaked lime obtained from 2 pounds of quick-lime should be placed in a convenient vessel and water added to make one gallon.