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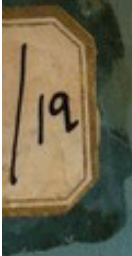
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STATISTICS RELATING TO MORTALITY IN THE MERCANTILE MARINE

Report of the London School of Hygiene and
Tropical Medicine

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FOREWORD BY THE BOARD OF TRADE.

1. The consideration of questions affecting the health of the Mercantile Marine has, in the past, been hampered by the lack of reliable statistics which would enable a just comparison to be made between the health of merchant seamen and the health of persons engaged in shore occupations, or which would even enable reliable conclusions to be drawn as to the improvement or deterioration, from time to time, of the health of merchant seamen as a class, or as to the extent to which they are affected by particular diseases.

2. The general position was reviewed in 1924 and it was found that the Board of Trade had for years made a practice of including, in the Annual Return of Wrecks and Loss of Life at Sea, statistical information regarding the deaths of seamen occurring at sea or abroad shortly after discharge. These statistics, however, took no account of the deaths of seamen occurring in this country from diseases contracted during their service at sea. The statistics published by the Registrar-General of Births and Deaths, on the other hand, had been based primarily on the deaths of seamen on shore in this country and were therefore equally incomplete.

3. Accordingly, the question of the possibility of obtaining improved statistics relating to health and mortality in the Mercantile Marine was referred to a sub-committee of the Permanent Consultative Committee on Official Statistics. In their Report* which was issued in 1926, the sub-committee expressed the opinion that death rates applicable to the Mercantile Marine could only be arrived at by combining, on the one hand, the numbers of seamen on shore and seamen on articles and, on the other hand, the numbers of deaths of seamen on shore and deaths of seamen on articles; and they recommended that a calculation, on these lines, of the mortality rates prevailing in the Mercantile Marine should be incorporated in the review of occupational mortality by the Registrar-General for England and Wales, based on the 1921 Census and the deaths in the three years 1921-1923.

4. The Committee also expressed the opinion that, having regard to the inevitable limitations of the data, a proposal for a statistical report on the health of the Mercantile Marine could not be regarded as a practicable one, and that periodical investigation into occupational mortality afforded the only effective means of obtaining a comprehensive statistical measure of the effect of the occupation on health.

5. The Registrar-General adopted the sub-committee's suggestion and appended to his Decennial Supplement on Occupational Mortality, which was issued in 1927, a statement† on the mortality

* Statistics relating to Health and Mortality in the Mercantile Marine (Published by H.M. Stationery Office, 1926).

† The Registrar General's Decennial Supplement: England and Wales, 1921: Part II: Occupational Mortality, etc., Appendix B. page 126.

of Merchant Seamen which was the result of an attempt to co-ordinate the available data of the deaths of seamen on shore with those of the deaths of seamen at sea and abroad. As is explained in the statement itself, the conclusions given therein can only be accepted with considerable reserve. This is due to various causes, notably the lack of an adequate check which would enable the compiler of the statistics to decide whether or not the persons whose deaths are enumerated on shore should properly be regarded as merchant seamen.

6. In 1929 the matter was referred to the standing Joint Advisory Committee of the Board of Trade and the Ministry of Health which had recently been appointed to advise the two Departments on questions affecting the health of the Mercantile Marine. This Committee came to the conclusion that, while the preparation of complete morbidity statistics for the industry was probably impracticable, it was highly desirable that a thorough statistical investigation of the mortality of merchant seamen should be undertaken. It should be the primary object of such investigation to obtain reliable statistics relating to mortality of British merchant seamen, that is to say, seamen of British nationality whose normal employment was in British seagoing merchant ships. Consideration of the effect of occupation on the health of the personnel of fishing vessels, yachts and harbour craft would not form part of the main Inquiry, partly because different considerations were involved and partly because reliable population figures were not readily available. As regards the classes of seamen to be covered, the Committee took the view that information relating to British seamen employed in foreign ships, even if it could be obtained, would not be directly relevant to an inquiry concerning the British Mercantile Marine; and that the inclusion of particulars of Lascars or foreign seamen employed in British ships would tend to mislead, by reason of the impossibility of obtaining particulars of the deaths of such seamen on shore in their own countries and collating those particulars with the particulars of deaths at sea. The Committee did not wish to exclude from consideration any information concerning these classes of vessels or these classes of seamen that might be obtained in the course of the Inquiry, but they took the view that the results of the examination of any such information should be regarded as supplementary to, and should be kept separate and distinct from, the results of the main Inquiry.

7. Before coming to any conclusion as to the best means of conducting the proposed investigation, the Committee decided, in the first instance, to test the validity of the doubts which had been expressed as to the reliability of the data concerning the deaths of seamen on shore which formed, in part, the basis of the statement appended to the Registrar-General's Decennial Supplement. Arrangements were accordingly made to extract from the records of the Registrars-General of Births and Deaths in London,

Edinburgh and Belfast, particulars of the deaths reported, over a period of three months, as the deaths of merchant seamen. Particulars of each case were then examined and collated with the information available at the Registry of Shipping and Seamen and, where necessary, further inquiries were made of the relatives of the deceased, with a view to ascertaining whether the deceased had, in fact, been employed in British merchant ships, how much time had elapsed since he had left the sea and whether he had been engaged in any shore employment since leaving the sea. The results of this preliminary investigation showed that in about 14 per cent. of the cases the inclusion of the deceased in statistics relating to merchant seamen was open to question even where it was not demonstrably incorrect.

8. After considering these preliminary results, the Committee decided that the investigation should be continued so as to cover the deaths reported during a period of 12 consecutive months and that the particulars obtained, together with the particulars furnished to the Registrar-General of Shipping and Seamen with regard to the deaths of seamen at sea and abroad reported during the same period, should be subjected to a full statistical investigation.

9. Arrangements were made with the London School of Hygiene and Tropical Medicine to carry out this investigation on behalf of the Board of Trade and the results are shown in the Report which follows. The Report has been prepared by Major P. Granville Edge, of the Statistical Department of the School, under the personal supervision of Professor Major Greenwood, the head of that Department; and both the Board of Management of the School and Professor Greenwood approve of the Report.

MORTALITY IN THE MERCANTILE MARINE

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INTRODUCTION.

1. Soon after the passing of the English Registration Act of 1837, numerous investigations into the differing rates of mortality in various parts of the country suggested that the presence of definite local influences were important factors affecting the health and lives of the people; with the accumulation of exactly recorded

facts it was recognised that study of the data with a view to determining whether occupation had a direct influence upon the health and lives of the members of a particular calling opened up vast fields of inquiry.

2. It was soon discovered, however, that inquiries into occupational hazards and mortality were both complicated and difficult undertakings. The trained investigator charged with such a task approaches his analysis with mixed feelings, oppressed by the difficulty of tracing with a sufficient degree of accuracy the silent, subtle influences which he is conscious are at work, preparing and preceding the way to the manifestations he is expected to describe and account for. Some of these influences and causes, and the effects they produce, he may be able to trace and record, yet this he does with the ever-present feeling that many others have escaped his observation; indeed, such studies, and their development, remind one of the old story of the fisherman who unwittingly released the genie from the bottle, on which occasion, it will be remembered, the thin spiral of smoke which first appeared gradually grew in size until it covered the face of the sky. Similarly, the investigator engaged in the analysis of occupational mortality data sees his subject become wider and deeper, and, reflecting upon the mass of conflicting facts, the changing conditions of life, and the complex and numerous influences which various subtle forces exert upon the lives at risk, begins to wonder whether these multitudinous details will not combine to obscure or render impossible any proper interpretation of the data before him.

3. In fact, mortality data alone are inadequate to the establishment of dependable conclusions. It is known that certain occupations exercise a highly selective influence in their demands for a high degree of physical fitness or the possession of other attributes, on the part of workers employed; in addition to the purely occupational risks associated with a particular industry or calling, other factors inimical to health and life may be indirectly related to the occupation, and it follows, therefore, that no attempt to measure the effects of occupation upon health and mortality in a given calling may be considered complete unless steps have been taken in an endeavour to trace both the direct, and indirect influences, bearing upon the health of the workers in that calling.

4. Mortality data, then, need to be supplemented by detailed information touching such matters as the standards of physical fitness ordinarily demanded of new entrants to the calling: of the routine medical examinations designed to preserve that standard: of the conditions under which workers carry on their daily tasks: of the standards of living which their average earnings permit them to enjoy: of the immediate hazards or risks peculiar to the calling; and of other factors, less evident or less easily traceable, yet nevertheless associated with the occupation. Such factors combine to exert their influences, for better or worse, upon the lives of the workers, and have their reflection in sickness

records, assist in producing the special diseases which are prominent in the returns of causes of death, and are definite factors determining the average life-time of persons so employed.

5. The difficulties associated with investigations into occupational mortality among land workers have been discussed by many competent authorities; when an attempt is made to interpret the data relating to the deaths of merchant seamen, and to measure the risks to health and life among workers in that calling, the difficulties appear to become intensified for a variety of reasons. These demand brief comment.

6. Sea life remains, even if in a lesser degree than was demanded in the great days of sail, an exacting, exciting, and somewhat hazardous occupation, calling for a high degree of physical fitness on the part of its followers, and tending to present a particular attraction for young fit males; to this end, some attempt is made to ensure that new entrants to the calling will be capable of the strains the work imposes. The "standard" of fitness varies, however, between somewhat wide limits, according to the minimum requirements of different shipping companies or ships, and it is to be feared that, at times, the medical examination prior to sailing may prove little more than a perfunctory routine operation. This may be particularly true of the examinations of seamen not joining a line or ship for the first time, or of those who have already made several voyages as shown by their discharge papers. Even on the bigger lines, where it is customary to require a complete muster of the crew a day or two before sailing, unless appearances suggest the advisability of a more thorough examination, the ship's medical officer *may* confine attention to cursory consideration for the discovery of major defects for the majority or the whole of the men. These variations touching the important question of efficient medical examination are the direct outcome of the fact that neither the Board of Trade, nor the Merchant Shipping Acts, provide for the compulsory carrying out of medical examination after a prescribed manner. Except as regards the crews of emigrant ships, and young persons under eighteen, *medical inspection is not required by law*. Under Section 306 of the Merchant Shipping Act, 1894, the crew of an emigrant ship must be inspected by a Medical Officer who may or may not be a full-time Officer of the Board of Trade; the scope of the inspection is limited under the terms of the Section quoted, and, in ordinary circumstances, the time may not admit of very exhaustive examination. As regards young persons, the Master of a ship is required under Section 3 of the Merchant Shipping (International Labour Conventions) Act, 1925, to obtain, at least once every twelve months, a medical certificate testifying that such young persons are fit to be employed in the capacities for which they are engaged.

7. For all practical purposes, then, medical inspection of crews is only undertaken when required by shipowners as employers.

Medical Inspectors of seamen, appointed under Section 204 of the Merchant Shipping Act, 1894, are to be found at nearly all ports in the country, but shipowners are under no statutory obligation to employ these Inspectors, and in fact, in actual practice, medical inspection is usually carried out, when at all, either by a Doctor appointed by the Shipping Federation, or by a member of the medical staff of the particular shipping company. No official Board of Trade figures are available, but it is believed that the majority of crews are medically examined in United Kingdom ports before engagement on foreign-going ships, and in many cases, crews on home-trade ships are also so examined.

8. Under Section 34 of the Merchant Shipping Act, 1906, shipowners are responsible for the medical expenses incurred in the treatment of a member of the crew falling sick in a foreign port; and the practice referred to above acts as a useful safeguard and as a check upon claims for compensation. Such examinations are carried out by Medical Officers of the Shipping Federation at a flat rate of about 1s. per head; eyes and teeth are examined, the crews are stripped, and obvious hernias, etc., are noted against the names of individuals on the report of the Medical Officer. These reports which are handed to the captain of the vessel, occasionally contain additional notes recommending that particular individuals may be employed on particular duties, or under specific conditions, e.g., a fireman may be employed as a fireman only if provided with a suitable truss, etc. The expenditure involved in these examinations is, in some cases, recovered by shipowners from the various Clubs to which seamen belong. Officers are occasionally examined, but this practice is not regularly followed, while some of the leading passenger lines have a competent medical service of their own, and presumably do not employ the medical officers of the Shipping Federation.

9. According then to the degree of strictness of the initial selective examination for new entrants to the service, and the exhaustiveness of subsequent routine medical examinations, mortality rates at all ages among seamen will vary between somewhat wide limits. In such circumstances, when these rates are compared with the average rates for males at the same ages in shore occupations, or in the general population, they can have little comparative value. At the younger ages, mortality rates of seamen may show a tendency to remain much below the average rates for males at similar ages ashore if the selective examination reaches a high standard, rising at later ages if the occupation is exercising undue influences of harmful character upon their general health. But how far may we go in determining the comparative value of such assessments or comparisons, having regard to the absence of any prescribed standard of medical examination, and the manifold influences which cumulatively may exert their forces for good or ill upon the lives of seamen? Unlike many shore

occupations, one of the outstanding characteristics of sea service is that which might be termed the bogey of discontinuity. In between voyages, long periods of unemployment may intervene, during which the sailor may secure temporary or permanent employment ashore. In the first of these eventualities, he is at the risk of acquiring some defect or disability which later he may carry to sea. In the second he passes out of the occupation, taking with him any seeds of disease he may have acquired in the course of his sea service, and which may later give rise to a cause of death which will be registered among one or other of numerous shore occupations. There seems, indeed, a tendency on the part of seamen—though one which at present it is utterly impossible to measure with accuracy—to abandon their calling for a variety of reasons. Some of them may soon tire of the service, others may dislike the constant separation from their families, yet others become enfeebled or incapacitated by virtue of the service itself; but whatever the reasons, numbers of these men do seek shore employment, even though the occupations they secure may prove definitely unhealthful or ill-paid, and the effect of these departures must be to reduce the mortality rates of merchant seamen at all ages, and may serve to swell those of the occupations they enter.

10. Still further, and apart from the opportunities which seamen may have of acquiring harmful habits tending to shorten life, there remain the two-fold risks peculiar to the seaman's calling. The shore worker, be he miner, railway worker, or other employee, is exposed to the occupational risks peculiar to his calling only for a limited period each day; the sailor, on the other hand, faces not only the risks associated with his particular task on shipboard, during his watches on deck, or in the engine room, but additionally, is exposed to the hazards of the sea which are present throughout each 24 hours whilst his vessel is at sea. These, then, are some of the restrictions it is necessary to have in mind when approaching any analysis of the mortality data relating to merchant seamen, in an endeavour to discover what interpretation may be placed upon the figures at our disposal.

The Present Investigation.

11. Up to the present, the only information touching the mortality of seamen in the merchant service has been and is that presented in the Board of Trade annual publication entitled "*Return of Shipping Casualties to, and Deaths on, Vessels registered in the United Kingdom.*" The first published return of this kind had reference to the year ending June, 1909, though prior to the appearance of the first report issued to the public, an annual return had been prepared for the use of the Board of Trade—the first return in this series relating to the year 1896. For the years 1866—June, 1887, also, certain particulars relating to the deaths of merchant seamen had been published in

Command Papers, though there would appear to be no such information available between June, 1887, and the end of the year 1895. The Return in its present form, with but slight amendments, has regularly appeared since 1919, but it is to be remembered that owing to various modifications, the data given for the years prior to 1919 are not comparable with those presented for later years.

12. Competent critics have contended that the Return presents an incomplete picture of the actual mortality attributable to sea-service, and that the available information from official sources is inadequate for the systematic study of the health or mortality of members of one of our most important occupations. In these circumstances the Board of Trade sought the advice of the Permanent Consultative Committee on Official Statistics, bringing to their notice the criticisms directed against the Return. The Permanent Consultative Committee in turn referred the matter to a Sub-Committee under the chairmanship of Sir Alfred W. Watson, K.C.B., Government Actuary, and a report was subsequently issued* discussing various aspects of the problem, and presenting the considered conclusions of the Sub-committee in so far as these criticisms were concerned. It is by no means difficult to sit back and criticise, yet no amount of argument can controvert the fact that the abandonment of one system which has functioned for a number of years, and the organisation of official machinery necessary to the establishment of new methods, are measures which may be approached only with caution and after an exhaustive examination of the effects and defects of an existing system, with a view to discovering how, and by what means, it might be replaced by one suited to new conditions and demands.

13. These matters continued to occupy the attention of the responsible authorities, and more recently the Joint Advisory Committee of the Board of Trade and the Ministry of Health directed their endeavours towards determining what steps might be taken for the improvement of the existing system governing the collection and classification of the raw data, and whether the introduction of new and comprehensive methods might enable the Board of Trade authorities to provide more complete information, perhaps of a kind more nearly comparable with that to be found in the Annual Reports relating to the Naval and Military Forces of the Crown, so that the health of merchant seamen might be properly studied and safeguarded. It was decided that a preliminary investigation, limited in the first place to consideration of the data relating to a single complete year, might reasonably be expected to

* Statistics Relating to Health and Mortality in the Mercantile Marine, H.M. Stationery Office. 1926. See also "The Registrar-General's Decennial Supplement. England and Wales. 1921. Part II. Occupational Mortality, pp. 126-128. H.M. Stationery Office. 1927.

throw light upon the problem under discussion. This decision was reached in July, 1930, and, following Treasury sanction for the financial commitments involved, work actually commenced with the receipt of the first batch of official records on the 18th September, 1930. The main purposes to be kept in view during the present special inquiry, as defined by the Board of Trade,* were :—

(1) To try to determine the number of cases in which the seaman's death was, and the number of cases in which it was not, attributable to his employment in the Mercantile Marine.

(2) To see whether it is possible to find a period, say, x years, such that, if all deaths of seamen occurring more than x years after leaving the sea are excluded from the statistics for the industry, the result accurately represents the mortality due to sea service.

(3) By comparison with the population figure obtained at the annual census, to obtain a death rate for the Mercantile Marine; and

(4) By comparison with the rates of mortality from particular diseases among the shore population, to find out whether any specific diseases cause a much larger proportion of deaths among seamen than they do among shore workers.

14. In other words, an attempt is to be made to answer the following and other questions :—

(a) What is the mortality rate per 1,000 seamen in a given year?

(b) What are the principal causes of death?

(c) Is there any excess mortality at particular ages or among particular ratings?

(d) How do mortality rates in the merchant service compare with similar rates among shore occupations?

15. Any attempt to meet the above requirements pre-supposes knowledge of :—

(i) The numbers of merchant seamen " at risk " during the year, with particulars as to age and rating.

(ii) The numbers of seamen who died during the year, tabulated to show causes of death in conjunction with age and rating; additional particulars should supply information relating to length of sea service and period since last sea service.

(iii) Information relating to the numbers of deaths of seamen certified by ship's medical officers, or by other duly qualified medical practitioners, and the numbers of deaths certified by masters and mates.

(iv) Comparable data relating to deaths among male workers in shore occupations.

* Board of Trade Letter, 17th September, 1930.

16. In order that some, or all, of these questions might be answered, the Board of Trade supplied special records relating to deaths of seamen reported to the Registrars-General in England and Wales, Scotland, and Northern Ireland respectively, between October 1st, 1929, and September 30th, 1930, and for the whole year under review, 1929-1930, there became available from these sources, records of 3,065 deaths. It is to be remembered, however, that these returns had reference only to deaths occurring *ashore* in the United Kingdom, originally reported to one or other of the three Registrars-General mentioned above, the relevant particulars being specially extracted and entered upon the schedules G.R. 109* for the purposes of this inquiry. These, then, represented only a part of the total deaths occurring during the whole year under review, for there remained to be included those deaths occurring at sea and abroad, such deaths being reported to the Registrar-General of Shipping and Seamen, and published in the official monthly report G.R. 160. Special arrangements were made for the supply of the original inquiry papers relating to cases of seamen who had died at sea or abroad during the period covered by the investigation, and by these means particulars of a further 1,261 deaths were recorded. (Further reference to all mortality records will be made at a later stage in the present report.†)

17. The present inquiry is designed to provide answers to the four questions prescribed in the preceding pages. It is proposed to discuss the presented requirements, not in the order laid down by the Board of Trade but as follows :—

First.—The determination of a satisfactory population figure for seamen (for the calculation of a dependable death rate, i.e. Question 3).

Secondly.—The determination of the numbers of deaths which may reasonably be regarded on those of “seamen” as defined by the Board of Trade. (The various analyses of the mortality data should provide answers to Questions 1, 2 and 4.)

THE POPULATION OF SEAMEN.

18. With the exception of the War Years, when the practice was suspended for obvious reasons, a quinquennial census of seamen has been taken since 1891‡ the results of such counts supplying, *not* the total numbers of those whose occupation is that of “merchant seaman,” but the numbers, ages, ratings, and nationalities of seamen *employed* on an appointed day.¶ An *annual* enumeration is

* See page 21.

† See page 18 *et seq.*

‡ *Censuses* have been taken on April 5, 1891, March 25, 1896, March 31, 1901, April 4, 1906, April 3, 1911, June 19, 1921, March 31, 1926.

¶ i.e. “*Return of the Number, Ages, Ratings and Nationalities of the Seamen employed on the . . . day of 19 . . . on Vessels registered under Part I. of the Merchant Shipping Act, 1894, in the British Islands.*”

also made of the numbers of seamen employed, and the results presented in the official publication of the Board of Trade entitled, "*Census of Seamen, Number, Ages, and Nationalities of Seamen, and Distribution of Crews employed on Vessels registered in the United Kingdom.*" In this Report are given the numbers of seamen actually in employment on the 31st of March in each year, the relevant information being extracted by the Registrar-General of Shipping and Seamen from the lists of crews and other official returns made to him by Masters and Owners. These lists refer to crews on articles on the 31st of March, and include seamen on vessels commencing their voyages on or about that date, vessels at sea, or vessels terminating their voyages on that date. Section 252 of the Merchant Shipping Act, 1894, requires the Registrar-General of Shipping and Seamen to keep at his office a Register of all persons who serve on ships subject to the Act, this Register being compiled by means of the documents transmitted to that official in pursuance of the Act.

19. Such a record supplies, *not the total numbers of seamen, but only those actually in employment* on a given date, the word "*Seaman*" being held to connote "*all persons without exception who appear as members of the crew upon agreements or lists rendered under Sections 118, 119 or 253, of the Merchant Shipping Act, 1894.*"*

20. These Sections have reference to "*foreign-going*" and "*home-trade*" ships (except yachts and fishing vessels) of more than 80 tons burden only,† and the numbers of seamen recorded in the annual census represent crews in employment on the appointed day on such classes of ships only, and *not* the total crews of all ships registered in the United Kingdom. *Pilots* are not regarded as "*seamen.*" Though the majority of these men hold Board of Trade certificates as masters sail and steam, and have followed the sea for the greater part of their lives, they are excluded from the population, and from the returns of deaths, as *Pilots*, not on the articles of any ship. Similarly any other rating, Master, engineer, fireman, etc., having followed the sea for the greater part of his life, ceases to be a "*seaman*" should he take employment, even temporarily on such craft as tugs (other than deep-sea tugs; and even deep-sea tugs must be "*on service*" at the time of the annual count), dredgers, and other craft of a special kind. These distinctions are of importance when an endeavour is made to arrive at a satisfactory population of seamen. Other and different population figures appear in other official publi-

* *Vide* p. 1 "*Census of Seamen*" Reprinted from *The Board of Trade Journal*. It follows there will be an unknown number of seamen ashore, unemployed, resting between voyages, etc., and therefore not upon any agreement or crew list on the appointed day.

† Section 119. *Merchant Shipping Act, 1894.*

cations of the Board of Trade. For example, the official Census of Seamen taken on 31st March, 1928, supplies the following data :—

Number of Vessels employed ...	...	...	4,876
Net Tonnage ...	...	...	9,617,831
Seamen employed :—			
British ...	...	...	132,377
Foreigners ...	...	...	15,291
Lascars ...	...	...	52,445
Total ...			200,113

21. According to the "Annual Statement of Navigation and Shipping" the number of vessels registered under Part I of the Merchant Shipping Act, 1894, on 31st December, 1928, at ports in the United Kingdom, Isle of Man and Channel Islands, was 18,048 of a total tonnage of 20,420,039 tons gross. The "Annual Statement" contains the following information regarding the persons serving on vessels of 100 tons gross and over employed at some time during the year 1928 :—

Number of Vessels employed ...	...	...	5,185
Gross Tonnage ...	...	...	19,223,095
Seamen employed :—			
British ...	...	...	162,656
Foreigners ...	...	...	18,918
Lascars ...	...	...	56,555
Total ...			238,129

22. The Board of Trade's definition of "*Seaman*" is, then, strictly limited in its application so far as the Annual Census of Seamen is concerned; it does *not* embrace all men of the sea-faring community both ashore and afloat, and moreover, it has the effect of excluding numbers of men who, by the general public, would most probably be regarded as "seamen," in that, while the crews of cross-channel steamers taking between one to six hours for their passages between port and port are technically "seamen," the crews of large drifters, absent on voyages which may extend to six weeks or over, and exposed to every kind of deep-sea hazard, are excluded from this category. To take other contrasted examples, a young man making his *first* voyage as a member of the crew of a Dover-Calais steamer at the time of the annual count, would be enumerated as a "seaman" although his shipboard duties might conceivably consist of little more than putting out deck chairs, attending to passengers' luggage and so on; whereas, another man, having followed the sea since his youth, seeing service on all classes of ship, both sail and steam, yet being compelled through stress of circumstances whether due to age, or disability

arising from his former sea-service, to engage as a hand on board a fishing vessel, tug, or other craft outside the defined category, would not be regarded as a "seaman" for the purposes of the official Census.

23. It will be seen that what constitutes the annual population of seamen in the mercantile marine of this country, the figure that must be related to the mortality data belonging to this occupation, is a population subject to restrictive definitions. These figures are classified in the Annual Census (and in official Mortality Returns) as British, Foreigners, and Lascars, and some reference is necessary to the methods and rules applied to the system governing the allocation of men to one or other of these three categories.

24. *British* seamen are regarded as those (not being Lascars or holders of P.R. or E.D. certificates*) born of parents of British nationality in the United Kingdom, or in any Dominion, Colony or Dependency of the Empire, or who, although not born within the British Empire are recorded as natural-born or naturalised British subjects, engaged in any capacity in vessels registered in the United Kingdom, and serving thereon on European Agreements. It will be gathered that this category will include men who are neither white nor of European race.

25. *Foreigners* are men other than Lascars or British subjects, serving on European Agreements on ships registered in the United Kingdom, but the subjects or nationals of foreign States; this class also may include non-Europeans and non-whites.

26. *Lascars* are defined as natives of Asia or East Africa employed in the mercantile marine *under Asiatic Agreements which open and terminate in Asia*. Under the terms of the Special Restriction (Coloured Alien Seamen) Order, 1925, coloured seamen (other than Chinese or Japanese) who cannot produce documentary evidence of British nationality, are required to register with the Police as aliens. On registration they are granted "P.R." (i.e., Police Registration) certificates. A special scheme of registration by Elder Dempster & Co. has, however, been approved, under which the Company issue certificates to West African natives employed in their ships (i.e., "E.D." certificates). The holders of "P.R." or "E.D." certificates are regarded for administrative purposes as aliens, and are included under the heading *Foreigners* in the Annual Census of Seamen, if, in the articles of engagement they are recorded as holding such certificates.

27. The application of these definitions occasionally produces curious results. For example, a Chinese serving on a European Agreement would be regarded as a *foreigner*, while another Chinese serving on Asiatic Agreement would be classified as a *lascar*; a native of Africa serving on a European Agreement would be

* See para. 26.

British, though another native of the same territory on Asiatic Agreement would be regarded as a *lascar*, while such a seaman being in possession of a "P.R." or "E.D." certificate would be classified among the *foreigners*. However, this is the system, and the figures resulting from the application of existing methods are the only ones available for relating the numbers of deaths, in an endeavour to arrive at some measure of the mortality to which this important occupation is liable.

28. The determination of a satisfactory population of merchant seamen is, then, a problem calling for serious consideration. The difficulties associated with this aspect of any inquiry into the mortality of seamen were discussed in detail by the Sub-Committee of the Permanent Consultative Committee on Official Statistics* who expressed the opinion that "*a very imperfect picture of the mercantile marine would be obtained by a contemplation solely of the Census (i.e., the annual Census) data.*" This Sub-Committee concluded that the most satisfactory figure would be obtained, by taking the figures relating to the occupation resulting from the Decennial Census of the general population, and adding to these, the figures supplied by the Registrar-General of Shipping and Seamen of Crews "at sea" on the night of the general census; the two sets of data combined would provide the total population of seamen.†

29. Unfortunately, at the time of writing, the figures relating to the general Census taken on the night of 26th April, 1931, are not yet available and it is therefore impossible to arrive at the satisfactory population figures referred to in the preceding paragraph. The figures resulting from the Annual Census of Seamen taken on 31st March, 1930, must be regarded as an *under-estimate* of the total population engaged in this particular occupation, and the relation of these figures to the mortality data will have the effect of producing mortality rates which *over-state* the mortality ascribed to sea service. This aspect of the investigation appears to have been overlooked, for of the main purposes to be kept in view during the present inquiry, Question 3 prescribes:—

"By comparison with the population figure *obtained at the annual Census*, to obtain a death rate for the Mercantile Marine."‡

* See pp. 4-5 of "Statistics Relating to Health and Mortality in the Mercantile Marine". H.M. Stationery Office. 1926.

† This was done in the Registrar General's Decennial Supplement 1921, Part II. Occupational Mortality. See pages 33-34.

‡ See p. 12.

MORTALITY RECORDS OF SEAMEN.

30. Even though the registration of a death, whether of a seaman ashore, afloat, or abroad, or of a man engaged in a shore occupation demands, among other details, particulars relating to the name, age, cause of death, and occupation of the deceased person, yet, for a variety of reasons, it has been impossible, up to the present, to establish dependable comparisons between the data relating to the mortality of seamen, and of males engaged in various shore occupations, to calculate reliable mortality rates, or, indeed, to engage in any comprehensive analysis of the mortality data of merchant seamen. With a view to discovering what causes combine to render the data incomparable with those relating to shore occupations, or sufficiently complete for tracing the effects of the calling upon the health and lives of seamen, it becomes necessary to discuss briefly the fundamental principles governing the procedures followed by the Civil Registrars-General in the United Kingdom, and by the Registrar-General of Shipping and Seamen, when dealing with the mortality records with which they are respectively concerned.

The Registrars-General of England and Wales, Scotland, and Northern Ireland.

31. Particulars of all deaths occurring ashore, whether of seamen, or of males in other callings, are recorded by local registrars carrying out these duties under the direction and supervision of the Registrars-General of England and Wales, Scotland and Northern Ireland; these officials are held responsible for obtaining from the persons qualified to supply the relevant particulars all information necessary to permit the inscription of complete entries in the registers, and are required to ensure, by interrogation of the informants, that particulars are accurate in all respects. Records so made are forwarded at monthly intervals (weekly in the case of London and the Great Towns) to the Registrar-General at Somerset House, London, Edinburgh and Belfast, respectively, where each death is allocated to the occupational group corresponding to that stated upon the certificate. Having regard to the responsibilities of local registrars, to the instructions framed for their guidance, and to the official safeguards designed to secure reliable information, statements contained in certificates signed by these local officials are accepted as correct, so that, should the "*Rank or Occupation*" column of a particular certificate declare the decedent to have been a medical practitioner, doctor of medicine, surgeon, etc., the death would be assigned to the occupational group "*Physicians, Surgeons, Registered Practitioners,*" though, unknown to the local registrar, the deceased may never have practised after acquiring his qualification, may have been engaged in a totally different occupation or profession, or may have been so placed

financially as to have made actual engagement in any calling unnecessary. While every precaution is taken to ensure dependability in the records, it will be understood that, excluding exceptional cases in which the local registrar, from precise personal knowledge of a deceased person, may query the accuracy of the information submitted for inscription, he is compelled to rely upon the statements made by informants of the death, who may use the opportunity to declare the "last-known" occupation of the deceased, or, if the deceased had followed several callings during the course of his life, mention only that which conveyed some suggestion of importance, or even—though this is a remote possibility—make a purely fictitious statement touching this matter. In effect, then, our civil registration system results in statements being made, which, once inscribed in the registers, are *regarded as true in substance and in fact*.*

32. Among the deaths recorded by local registrars will occur those of a number of males dying ashore and reputed to have followed service in the mercantile marine in some capacity. Such deaths will, of course, be classified by the Registrars-General in the United Kingdom in the occupational group "Seamen."

The Registrar-General of Shipping and Seamen.

33. But, in addition to the above, there remain the cases of seamen dying on board ships at sea, or in ports abroad. In so far as these are concerned Section 254 of the Merchant Shipping Act, 1894, prescribed:—

(i) That the master of every British ship *whether registered in the United Kingdom or not*, shall record particulars of every birth or death occurring on board his ship.

(ii) Shall transmit particulars relating to such births or deaths to the Registrar-General of Shipping and Seamen.

(iii) May deliver such particulars to prescribed Customs or Consular Officers in ports abroad, in which case, these officers are required to transmit the particulars so received "as soon as may be" to the Registrar-General of Shipping and Seamen.

(iv) The Registrar-General of Shipping and Seamen must send certified copies of all returns relating to such births and deaths to the Registrars-General in the United Kingdom, these officials in their turn being required to maintain in their respective offices a "Marine Register Book" wherein the relevant

* The Civil Registration regulations prescribe that entries shall be inscribed by the Registrar, and then signed by both Registrar and Informants. No additions or corrections can thereafter be made to any original entry without the production of a statutory declaration describing the nature of a reputed error or of other facts which need to be recorded. This statutory declaration must be made by two of the responsible declarants of the death, or, in default of two such persons, by two reliable persons having knowledge of the facts of the case.

particulars are recorded. Still further, Section 339 of the Merchant Shipping Act, 1894, prescribes:—

“Where a ship which is not a British ship carries passengers, whether cabin or steerage, to or from any port of the United Kingdom as the port of destination or the port of departure of such ship, the provisions of Part Two of this Act, with respect to the registration of births and deaths occurring on board, shall apply as if it were a British ship.”

34. The foregoing statutory requirements provide then, for the maintenance of records relating to:—

(a) The deaths of seamen ashore in the United Kingdom, and,

(b) the deaths of seamen on articles at sea,

and for the transmission of the relevant particulars relating to such deaths to the responsible registration authorities in the United Kingdom.

The Registration of Other Deaths Abroad.

35. But a further safeguard is provided with a view to ensuring the registration of the deaths of persons dying abroad (and among these would be included cases of seamen discharged to hospitals ashore in foreign parts, and dying there) under the terms of “*The Registration of Births and Deaths (Consular Officers) Regulations*.”* In every Consular District a Register of Deaths of prescribed form for recording the deaths of British subjects dying in the district is maintained† while, should a death occur outside His Majesty’s Dominions, but not within a district assigned to any British consular officer, the relevant particulars may be registered in any British consular district.‡ Every consular officer is required to forward “*before the first day of February in each year*” to the Registrar-General at Somerset House, certified copies of all entries made during the previous year,|| and in the event of no death being registered during a year, a “*Nil*” return must be rendered.¶

Determination of statistics of deaths of seamen ashore in the United Kingdom.

36. If the components of this comprehensive official registration machinery function satisfactorily—and it is believed under such a system that few deaths escape ultimate registration—then, sooner or later, every death of a merchant seamen, whether occurring at home, on board ship at sea, or abroad, should be recorded by one or other of the three Registrars-General in the

* “*Registration of Births and Deaths Abroad*” Statutory Rules and Orders. 1930. No. 740. H.M. Stationery Office. Price 3d.

† Ibid. para. 2b.

‡ Ibid. para. 10 (1)

|| Ibid. para. 4 (1).

¶ Ibid. para. 4 (2).

United Kingdom, while in addition, the Registrar-General of Shipping and Seamen should have his own records of the deaths of seamen occurring at sea and in ports abroad. It was arranged, therefore, for the purposes of the present inquiry, that copies of all entries relating to the deaths of seamen, and preserved by the Registrars-General of England and Wales, Scotland, and Northern Ireland, and *reported** at any time during the year covered by the present investigation, should be copied upon the Form G.R. 109 specially supplied for the purpose. These G.R. 109 records, were then forwarded to the appropriate department of the Board of Trade, where they were subjected to careful scrutiny with a view to determining whether, in fact, all such deaths might technically be accepted and included in the category "Seamen" as defined by the Board, and which of them, for various technical reasons, should be excluded, selection or exclusion being governed by certain rules adopted by the Registrar-General of Shipping and Seamen. This done, the records compiled under these special arrangements were submitted for analysis together with a covering note indicating which of these reported deaths should, in the opinion of the Registrar-General of Shipping and Seamen, be excluded. It is to be remembered, however, that this action was merely indicative or suggestive and not actual, for *all* records were forwarded to the investigator in charge of the present special inquiry, whose decision touching the inclusion or exclusion of certain deaths of men whose occupation was described as that of "seaman" was independent of the indications submitted by the Registrar-General of Shipping and Seamen. Having regard to what has already been said touching occupational classification of mortality records by the Civil Registrars-General in the United Kingdom,† the procedure followed by the Registrar-General of Shipping and Seamen in dealing with records contained on the forms G.R. 109 is of some significance, and may here be examined.

37. On form G.R. 109, in addition to space provided for inscription of the usual particulars contained in the certificates prescribed under the regulations governing ordinary civil registration, are columns for the inclusion of supplementary information of a special character, and *added, by officials in the Office of the Registrar-General of Shipping and Seamen, after the statements made in the original record of death.*‡ This special information provides particulars relating to the "*Last Sea Service of the Deceased*," by the addition of such facts as :—

The name of the ship in which deceased last served :

Official number of that ship :

Capacity (of deceased) on board :

* See further para. 37 *et seq* and 49.

† See pp. 18-20.

‡ In this connection, see footnote p. 19.

Place of leaving :
 Date of leaving :
 Cause of leaving :

while still further, there may be added :—

The number of any Certificate of Competency (i.e. for Masters, Mates, Engineers, etc.) :

Reported employment subsequent to last sea service :

Additional remarks :

Records of dates of despatch of, and replies to, special letters of inquiry, transmitted by the Registrar-General of Shipping and Seamen, seeking additional information touching the deaths of men stated to have served in the Mercantile Marine.

38. This supplementary information was added in the following manner. Upon receipt of the monthly returns G.R. 109 at the Office of the Registrar-General of Shipping and Seamen, endeavour was made to trace the names of deceased males recorded by civil registrars as "Master Mariner," "Mate," "Marine Engineer," "Seaman," "Marine Fireman" or other occupations which suggest sea service, by referring to the *Central Indexed Register* maintained by the Registrar-General of Shipping and Seamen, this officer being required under Section 252 of the Merchant Shipping Act of 1894, to keep a Register "*of all persons who serve in ships subject to this Act.*" The original form of Register maintained under this instruction proved, in process of time, inadequate to the requirements of the service, and in 1913 an additional *Indexed Register* was introduced, relating solely to the crews of *foreign-going ships* registered in the United Kingdom. To such seamen, Board of Trade Discharge Books are issued when crews are discharged before Superintendents at Ports in the United Kingdom, before British Consular Officers at Havre, Hamburg, Rouen, Rotterdam, Dunkirk, and Antwerp, at Malta, and at certain ports in India.* This *Central Indexed Register* consists of *An Index relating to Engagements*, and *An Index of Discharge Books (Dis. A.) issued*.

39. *The Index relating to Engagements* consists of a number of special cards, officially known as C.R.2, whereon are recorded :—

Number of Discharge Book (Dis. A.).

Number of Certificate of Competency.

Name of Seaman.

Year and Place of Birth.

Rank or Rating.

Name and Official Number of the Ship.

Date of Engagement.

* There are certain exceptions e.g. cattlemen, stowaways, passage-workers, alien seamen engaged abroad who are not allowed to land without restrictions by the Immigration Officer, or who cannot comply with certain specified conditions, Chinese, and natives of West Africa.

For seamen engaged in the United Kingdom, the above particulars are entered at the time of engagement on the special card (C.R. 2) by Superintendents of Mercantile Marine Offices, while particulars relating to engagements outside the United Kingdom are entered on similar cards in the Office of the Registrar-General of Shipping and Seamen, from copies of Agreements and other documents received from Consular, Dominion, and Colonial Officers.

40. *The Index of Discharge Books (Dis. A) issued*, composed of special cards, officially termed C.R. 1, provides the following particulars for individual seamen :—

Number of Discharge Book (Dis. A) issued.

Surname and Christian Names of the individual.

Year and Place of Birth.

Rating.

Number and grade of Certificate, or P.R. certificate, etc.

Health Insurance : Name of Society, Branch, and Membership Number.

Unemployment Insurance : Local Office, name and number of.

Height, Hair and Eye Colour, Complexion, and Distinguishing Marks of the individual.

The issue of Discharge Books to Asiatic and African seamen (other than Chinese and natives of West Africa) is conditional, in that, no such book is issued without the production of duplicate photographs of the individual seaman concerned. The condition also applies to cases of Discharge Books issued to alien seamen discharged at Antwerp, Hamburg, Rotterdam, Rouen, Havre, or Dunkirk. One photograph is affixed to the Discharge Book, and the duplicate to the C.R. 1 relating to the individual concerned.

41. In addition to the two Indexes referred to above, the Register contains a special Index relating to the war-time registration of seamen called for under Regulation FF. of the *Defence of the Realm Regulations and Registration of Seamen Order*, 1918, and covering the period September, 1918, to October, 1921. Under these Regulations, each seaman was required to make application for registration as a merchant seaman, and to provide his own photograph in duplicate, one of these photographs being attached to the *Identity and Service Certificate* issued on registration, the duplicate photograph being forwarded to the Registrar-General of Shipping and Seamen. This special Index provides a means of identifying seamen at present serving in the Mercantile Marine, containing as it does, a photographic record of each man, together with more detailed information (next-of-kin, etc.) than is recorded on the C.R. 1 already described.

42. For purposes of reference, then, the Registrar-General of Shipping and Seamen has at his disposal, not only the Register maintained in accordance with the requirements of the Merchant Shipping Act, 1894, but the various components of the *Central*

Indexed Register, and is able by means of these aids, to trace the previous service of perhaps the majority, *though not all*, merchant seamen; in the original Register, only names and official numbers of *ships* were indexed, and in consequence, it would be practically impossible to trace the former service of a seaman unless the name of the ship in which he last served was supplied; with the establishment of the *Central Indexed Register* in 1913, this disadvantage was removed.

43. For the purposes of the present inquiry, on receipt of the monthly forms G.R. 109 (see pp. 21-22) endeavour was made to trace the names of deceased persons whose occupation had been associated with service at sea. If no record was found by reference to the official authorities quoted above, a letter of inquiry was addressed to the next-of-kin, or should this not be found in the special Index, to the informant of the death or, when death had occurred in such Institutions, then to the Directors of Hospitals, Nursing Homes, etc. These communications, which were strictly confidential, enquired of the next-of-kin or informants,

Date when deceased went to sea,

Date of last sea service, with name of last ship,

If employed on shore after last sea-service, nature of such employment,

and of Hospital and Institution authorities,

Date when deceased was admitted to the Hospital, etc.,

Any available information as to his employment prior to that date.

44. The information obtainable from the various official Indexes, next-of-kin, informants of deaths, hospital and other authorities, was entered upon each G.R. 109 concerned, and in the light of all these particulars, decision was taken as to whether the death might properly be regarded as that of a "seaman," and if so whether the deceased should be classified as "British," a "Foreigner" or a "Lascar,"* or whether the death should be excluded.

45. It is to be remembered, however, that such supplementary explanatory notes appended by the Registrar-General of Shipping and Seamen were designed to *assist* the investigator in his final assessments governing inclusion or exclusion from the mortality records to be used in the inquiry. It is believed that with the assistance of such notes, and the ready help always accorded by the Department of the Registrar-General of Shipping and Seamen (and particularly of the generous co-operation of Mr. Middleton of that office) a reasonable approximation to the truth of conditions affecting the mortality records of seamen has been determined.

46. The foregoing paragraphs may also serve to indicate in broad outline why the data published at Somerset House relating to the deaths of the "*Seamen*" they classify could by no means be considered comparable with the corresponding data published by the

* For these definitions see pp. 16-17.

Registrar-General of Shipping and Seamen, and why the data relating to merchant seamen emanating from the latter office could not be used for comparative purposes against any occupational mortality data compiled by the Registrar-General at Somerset House.* In the one case, statements as to former occupations are accepted as correct and tabulated in the appropriate occupational groups; and the data are more reasonably complete since they include deaths of British subjects occurring in the United Kingdom, on board ships at sea, and in ports and places abroad. On the other hand, the Board of Trade data, ordinarily published in the annual "*Return of Shipping Casualties and Deaths on Vessels Registered in the United Kingdom*" record the deaths due to accident, disease, etc., of *serving* members of crews of British merchant ships only, and by no means indicate the numbers of deaths of *all* men who may legitimately be regarded as "merchant seamen," as may be seen from the figures presented in later pages of this Report.

47. For the purposes of the present investigation the Registrar-General of Shipping and Seamen has had before him many more records relating to mortality in the mercantile marine than are ordinarily analysed and published in the annual "*Return of Shipping Casualties and Deaths*," for the usual data relating to deaths at sea and in ports abroad are in the present instance supplemented by the records supplied by the civil registrars in the United Kingdom. The action of the Registrar-General of Shipping and Seamen when dealing with these special additional records (contained on the schedules G.R. 109) has been applied with a view to assisting the investigator in determining whether a man may, or may not, be regarded as a "*seaman*," in order that an attempt may be made to supply an answer to the first question submitted by the Board of Trade, viz. :—

"To try to determine the number of cases in which the seaman's death was, and the number of cases in which it was not, attributable to his employment in the Mercantile Marine."

The Number of Deaths Attributable, or Not Attributable, to Service in the Mercantile Marine.

48. Total mortality records received from all sources, and relating to males whose occupation was returned as that of "*seaman*," numbered 4,326, distributed as follows :—

	<i>Total Deaths.</i>	<i>Per cent. of Total Deaths.</i>
Deaths ashore in the United Kingdom (G.R. 109)	3,065	70.8
Deaths at Sea and Abroad (G.R. 160)	1,261	29.2
Total	4,326	100.0

* See footnote page 11.

49. The mortality records received for analysis in the present investigation were records of deaths of seamen *reported* during specific months, and not necessarily of deaths *occurring* during those months. In Tables 1 and 1a, pp. 59-60, relating to deaths ashore, and at sea and abroad respectively, the data have been tabulated to show the numbers of records received each month, i.e. the numbers of deaths *reported* during each month of the year under review, and further, the numbers of such deaths actually occurring month by month.

50. It will be seen that in both of the Tables, a column is devoted to recording the numbers of "excluded" deaths—in other words, of those deaths where, though the declared occupation of the deceased person at the time of death was returned as that of "seaman," these cases had reference to men whose service had either been confined to fishing vessels, barges, or other craft* whose populations would not have been included in the Annual Census of Seamen,† or to men who, for other reasons (e.g., foreigners on foreign ships, etc.) were outside the scope of the inquiry. These excluded deaths represent a considerable proportion—no less than 16.3 per cent.—of the total records received for analysis. In this connection it should be said that while every care has been exercised by consideration of each individual record before determining which deaths should, or should not, be included in the final universe of mortality records, it cannot definitely be said that *absolute* accuracy has been attained; among these exclusions would occur a number of cases wherein the "Last Sea Service" was known to have been on Fishing Vessels, Dominion or Foreign Ships, Yachts, Tugs, etc., though it is possible that an unknown number of these men might have served for the greater part of their lives on sea-going British ships. In the absence of dependable information relating to earlier sea-service it was considered desirable to relegate such cases to the list of exclusions.

51. As a result of this selective action, there remain for analysis the following records:—

		<i>Total Deaths.</i>	<i>Per cent. of Total Deaths.</i>
Deaths Ashore in the U.K.	...	2,601	71.8
Deaths at Sea and Abroad	...	1,019	28.2
		<hr/>	<hr/>
		3,620	100.0
		<hr/>	<hr/>

52. For all practical purposes the proportions of deaths ashore and of deaths at sea and abroad respectively, remain substantially unaltered.

* See pp. 13-15.

† See p. 13.

53. The Tables call for brief explanation before an attempt is made towards detailed interpretation of the data. It has been said* that the investigation embraces records relating to one year of time ranging from October, 1929, to September, 1930, though Tables 1 and 1A show a distribution of (a) deaths occurring ashore from August, 1929, to September, 1930, and (b) of deaths at sea and abroad from June, 1927, to September, 1930. In other words, the mortality records provided for analysis, having reference to deaths *reported* during the year under review, do, in fact, refer to deaths actually occurring outside the limits of time with which the investigation is supposed to deal; the "spread" is particularly noticeable in the case of deaths occurring at sea and abroad (Table 1A).

54. The 3,620 deaths referred to above, *reported* during the year under review, must, under the existing system, at this stage of the analysis, be held to represent the numbers of cases of men whose deaths were, on the face of it, attributable to service in the Mercantile Marine. Reference to the Annual Returns of Casualties and Deaths for previous years will indicate that the numbers of deaths annually recorded in those official publications are approximately only one-third of this total (3,620) remaining for analysis in the present Report. It is true that the Annual Returns of Casualties and Deaths provide information relating only to the mortality of seamen "on vessels" (i.e., actually on articles) at the time of death, but it is possible the public at large are inclined to regard the figures as representing the *annual total* deaths of seamen in the British merchant service, and would rarely imagine that the *actual* numbers were in the neighbourhood of *three times* the numbers appearing in the official published Returns.

55. But whether the numbers be 1,000 or 3,000, such figures have little, if any, significance alone; they need to be related to the population of seamen from which they are drawn, in order that a mortality rate may be calculated. And here we approach a difficulty which calls for comment.

56. It may be argued that the only correct mortality rate of seamen may be calculated by taking the population "at risk" in a given year, and relating to that population only those deaths occurring among that population within the limits of the same year. This plan would call for the isolation of deaths occurring "on vessels" or, in other words, of men "on articles" during a particular year, and using as the denominator of the fraction the population determined by the annual Census of Seamen during the same year. On the other hand, a little reflection will make it clear that there must be, at all times in any year, a large but unknown number of men whose occupation is legitimately and solely that of "seamen", though, for one reason or another, these men find themselves, at the time of the annual Census, unemployed.

* See p. 13.

All of these men, at some time during the course of their sea service will have been exposed to the hardships, accidents, and risks of disease peculiar to the calling, and these influences must ultimately play their part in contributing to the cause or causes which finally bring about the deaths of such men. Once it has been established that the occupation of a man was that of "seaman" in the merchant service, his death, whenever this event occurs, when recorded, should be included in the universe of deaths belonging to the occupation for the year in which the death occurred. No other procedure than this would be reasonable, for otherwise, any attempt to compare the mortality rates of merchant seamen with those obtaining in other occupations ashore would demand similar treatment, i.e., the numbers of men ordinarily following, though not actually in work in, their usual occupations ashore at the time when overtaken by illness which terminated fatally would equally need to be eliminated from the total deaths ordinarily ascribed to that occupation. The impossibility of carrying out such selection is so obvious as to call for no comment. It is hoped the above observations are sufficient to justify the claim that the phrases "Deaths in the Merchant Service" or "Deaths of Merchant Seamen" must be deemed to include, not only the deaths of seamen on articles, but also of seamen dying ashore, or unemployed in the service at the time of death. This must not, however, be taken as necessarily including all persons who have served at sea and die ashore.

MORTALITY IN CONJUNCTION WITH NATIONALITY.

57. Since British ships are not manned by all-British crews, it becomes necessary to tabulate mortality returns in order that the relative numbers and nationalities of the decedents might be determined. In Table 2, pp. 61-62, this has been done by grouping the nationalities into three classes, *viz.*, British, Lascars, and Foreigners.

58. Of the 2,601 deaths occurring ashore in the United Kingdom—

- 97 per cent. were British;
- 1.5 per cent. were Lascars;
- 1.5 per cent. were Foreigners.

Of the 1,019 deaths occurring at Sea and Abroad—

- 63 per cent. were British;
- 24.2 per cent. were Lascars;
- 12.8 per cent. were Foreigners.

59. Considerable disproportions are evident between shore and sea deaths, respectively; these disproportions might more reasonably be characterised as apparent than real for the following reasons. A large, but unknown number of both Lascars and Foreigners, having served on British ships, retire to their native countries and

die there, or, alternatively, when sick or disabled, may remain in their own countries, and ultimately succumb to the ailments or disablements which were the direct result of their service in the British merchant service. On the other hand, the majority of seamen of British nationality becoming sick or disabled by virtue of their calling, seek employment ashore in their native country where their deaths are ultimately recorded under the regulations governing compulsory civil registration. Deaths of British seamen, then, may be regarded as reasonably complete; but the numbers of deaths of Lascars and Foreigners most certainly understate the numbers properly belonging to these groups.

MORTALITY RATES.

60. If, however, these deaths (3,620) are held to represent the total numbers of cases during the year under review in which the seaman's death was attributable to employment in the mercantile marine, then, for reasons already advanced the mortality rate resulting from the relation of these figures to the population figure obtained at the Annual Census taken on the 31st March, 1930, would *overstate* the real mortality in this occupation. Such action (prescribed by virtue of Question 3 in the Board of Trade Letter of the 17th September, 1930) would produce the following results :—

Nationality.	Population of Seamen (March 31st, 1930).	Deaths.	Death Rate per 1000.
British	127,518	3,166	24·8
Lascars	52,682	287	5·55
Foreigners	14,433	167	11·6
All Classes	194,633	3,620	18·6

61. Re-classification of the data by rating, nationality and age gives the absolute number of deaths indicated in Table 3, page 63.

62. The Death Rates obtained by relating these figures to the population of seamen as enumerated on 31st March, 1930, are given in Table 4, page 63.

63. Such rates as have been calculated by relating the population enumerated on 31st March, 1930, to the recorded mortality data suggest that mortality among British members of crews, in all ratings, greatly exceeds the mortality among Foreigners and Lascars, while that of Lascars in all ratings is approximately half the mortality occurring among Foreigners.* In all three

* These, and following comparisons are by no means exact having regard to the fact that an unknown number of deaths of Foreigners and Lascars fail to be recorded. See p. 63.

nationalities the lowest mortality appears to occur among members of the Stewards Department, but while among British seamen the death rate ascribed to the Deck Department greatly exceeds that of any other Department, among Foreigners and Lascars the Engine Room occupies this unenviable position.

64. All ratings among British and Foreign seamen exhibit a mortality rate steadily increasing with age. The following features characterise the mortality curves of these nationalities and ratings:—

British.

Deck.—A particularly steep rise commences in the age group 45- and continues thereafter.

Engine Room.—Mortality commences to increase rapidly at age group 25- continues to age 45, at which year the rate of increase becomes greatly accelerated.

Stewards. — Increase steady from the youngest age group to age 45, at which year rate becomes greatly accelerated. At all ages, mortality much below mortality observed in Deck and Engine Room Departments.

Foreigners.

A particularly steep rise commences in the age group 35- and continues thereafter.

Mortality is slightly higher than among British at age 20. A steady increase immediately follows, though from age 25 upwards, mortality is below the British rate. Rate of increase greatly accelerated from age 45 upwards.

A low fluctuating rate between ages 20-45. At 45 a rapid increase in mortality occurs. At all ages mortality much below mortality among British Stewards, and much below mortality observed in Deck and Engine Room Departments.

65. Such rates as the above are, however, unreliable.* The enumerated population of seamen omits any record of the age distribution of the Lascar element among the crews, and this omission precludes the calculation of Lascar death rates at ages, and any consequent comparison of rates between White and Coloured seamen. The enumerated population of seamen (1930) has an age group "65 and over" wherein 777 British and Foreign seamen are recorded, and a group termed "*Unspecified*" (wherein presumably the ages are unknown) having no less than 2,924 British and Foreign seamen. By reference to Table 3, page 63, it will be seen that the total deaths of British and Foreign seamen at ages 65 and over number 1,255, whereas the *population* in this age group amounts only to 777, plus an unknown number within the "Un-

* Apart from reasons which follow, as has already been stated, the Annual Census is an understatement of the numbers of men engaged in the occupation.

specified " group. If the numbers of seamen comprising this " Unspecified " group are distributed among the other age groups proportionately to the numbers contained in those groups, the numbers in the age group " 65 and over " would be increased by 16. In other words, the population in that age group would then be 793, though the recorded deaths number no less than 1,255.

66. This apparent inconsistency may be explained by the fact that the population figure constituting the denominator represents *some, but not all* members of the calling, whereas the numerator comprising the mortality data, refers to the deaths of *all* men whose occupation was stated to have been that of " seaman."

67. The numbers of men aged 65 and over *actually employed* at the time of the Annual Census of Seamen is comparatively small—approximately one-half of 1 per cent. of the total British and Foreign seamen on articles. On the other hand, mortality at ages 65 and upwards amounts to nearly 40 per cent. of the total deaths. Table 17, page 51, throws some light upon this aspect of the problem; it will be seen that of the total 2,524 deaths occurring ashore, 1,226 were at ages 65 and over, but of these, 173 (6.9 per cent.) died within five years, 357 (or 14 per cent.) within 10 years, and 551 (or 21.8 per cent.) over 10 years since last sea-service; in this group there appear 318 deaths (13 per cent.), of which " No Information " is available relating to last sea-service.

Causes of Death.

68. Question 4 formulated by the Board of Trade enumerated the following requirements :—

" By comparison with the data of mortality from particular diseases among the shore population to find out whether any specific diseases cause a much larger proportion of deaths among seamen than they do among shore deaths."

In order to deal adequately with this question, it was first considered necessary to determine a nomenclature of causes of death suited to the needs of this occupation. Such a nomenclature must be sufficiently comprehensive, yet not too detailed to prohibit its adoption for publication in future Annual Reports, and should permit the establishment of dependable comparisons of the data relating to merchant seamen with the mortality data relating to shore occupations as published by the Registrars-General of England and Wales, Scotland and Northern Ireland respectively.

69. The nomenclature of 39 causes of death which is given in Table 5, page 64, is the result of prolonged and careful consideration of the many-sidedness of the problem, and it is believed the result will meet the requirements discussed in the preceding paragraph. The first column contains the *number* of the cause adopted for purposes of coding, the second column the short title of the cause of death, the third column supplies particulars of various certified

causes which have been assigned to one or another of the 39 causes enumerated in this list, while the remaining columns present numbers of actual deaths, and death rates, tabulated for British, Lascar, and Foreign seamen respectively.

70. The mortality rates presented in the Table have been calculated after the method suggested by Question 3 prescribed by the Board of Trade, utilizing the population figure obtained at the Annual Census of Seamen as the denominator of the fraction, e.g.,

$$\frac{\text{Total deaths ashore in the United Kingdom, at Sea, and in Ports Abroad}}{\text{Population figure, Annual Census, 31 March, 1930}} \times 1,000 \\ = \text{Required Rate.}$$

71. By the adoption of this method (which involves the use of a denominator admittedly too small) there results a Crude Death Rate of 18.60 per 1,000 for all Nationalities, Ages, Causes, and Ratings, while classification by Nationalities shows mortality rates of 24.83 per 1,000 for British seamen, 5.45 per 1,000 for Lascars, and 11.57 per 1,000 for Foreigners respectively. The numbers of deaths recorded for Lascars and Foreigners are, however, incomplete* and the low mortality rates related to these nationalities understate the actual mortality belonging to these groups. In the present state of things, it is quite impossible to secure complete records of populations and deaths relating to these elements of crews manning British ships and therefore no useful purpose would be served by discussing in detail the mortality data relating to these two classes of men. On the other hand, the recorded data relating to the deaths of British seamen may be accepted as reasonably complete. If the deaths of *British seamen only* are considered, the mortality rate for these men would read as 24.83 per 1,000. It must not be forgotten, however, that the enumerated population of *British* seamen embraces only those men actually employed at the time of the annual count, though the mortality records considered in the course of this investigation include the deaths of *all* British seamen, whether employed or not.

72. Although an estimate of the *total* population of seamen may not be essential for the present investigation, at least a rough guess may be hazarded, in the hope of reaching some rate of mortality at least roughly comparable with the figures available for other industries.

73. As an alternative to the procedure described later the following method has been suggested. "*The total number of seamen (excluding lascars) serving on ships at sea or abroad on Census Day, 1921, aged 20-65 years, was 77,202. This figure was compiled from information furnished by the Registrar-General of Shipping and Seamen, who states that the number of British Seamen included in the above total was 67,142.*"

* See also pp. 28-29.

74. Seamen aged 20-65 enumerated on shore in 1921 in Great Britain (including the Isle of Man and Channel Islands) numbered 130,141. This figure is subject to certain qualifications in respect of the numbers enumerated in Scotland which may affect the total but not in all probability to any appreciable extent. In order to estimate the proportion of British seamen enumerated in this total, the information obtained in the course of the present investigation as to the relative proportions of British and foreign seamen dying ashore in the United Kingdom has been used. After deducting the 8,037 foreign seamen enumerated in foreign vessels in British ports, about 97 per cent. of the remainder enumerated on shore may be taken as British, i.e., 118,441.

75. On this basis the total number of British seamen aged 20-65 is estimated to have been 185,583 in 1921.

76. The figures published by the Ministry of Labour for 1923 and subsequent years regarding the number of insured persons employed in the shipping service show a moderately steady increase, especially since 1925, and on a conservative basis an increase of 8 per cent. between 1921 and 1929 may fairly be assumed. The Ministry of Labour figures though not strictly comparable with the population figures may, perhaps, be used as a basis for estimating changes in the latter in the absence of any more reliable index, and on this basis the population of British seamen aged 20-65 may be estimated at approximately 200,400, in 1929.

77. The total number of seamen aged 65 years and over enumerated on shore in England and Wales in 1921 was 7,711 or 7 per cent. of the total number aged 20-65 years. Assuming a similar proportion for other parts of Great Britain, the total number of British seamen aged 20 years and over may be estimated at approximately 214,400, in 1929."

78. In my opinion, this method of estimation over-estimates the exposed to risk. It is, I think, wrong to infer a proportional increase in the numbers at risk from the increase in the numbers of insured seamen between 1921 and 1929. Over this period, wages have fallen, and numbers of seamen who, a few years ago were outside the insured class, have, from time to time, found themselves within this group. All other evidence, such as the slightness of the changes in the gross figures of the annual censuses of seamen, the approximate constancy of the proportions of British, Foreign, and Lascar components, and the impressions of shipping officials, lead to the conclusion that the population of seamen has not sensibly increased.

79. On page 128 of the Decennial Supplement, 1921, published by the Registrar-General, England and Wales, it is stated that 130,141 seamen aged 20-65, were enumerated in Great Britain. These figures would relate to all nationalities, but the Registrar-General

of Shipping and Seamen stated that of these, 8,037 were Foreign seamen enumerated in *Foreign vessels* in British ports on the night of the census. Deducting these we have $130,141 - 8,037 = 122,104$ seamen, presumably British, though among them occur an unstated and unknown number of foreign seamen belonging to no crew of any foreign vessel in British ports, but enumerated ashore among the general population. We may then safely assume that the figure 122,104 represents an over-statement of the numbers of *British* seamen, both occupied and retired (vide Decennial Supplement) enumerated ashore, and aged 20-65 years. To determine the numbers of British seamen aged 65 and over we may note that during the 1921 Census, England and Wales, of the total seamen aged 20 years and over (*all nationalities*) 2,776 were aged 65 years and over, while of the "Retired" whose former occupation was stated to have been that of "Seaman" 4,935 belonged to this advanced age-group. We have therefore a total of 7,711 seamen (*all nationalities*), aged 65 and over, omitted from the Registrar-General's figures quoted above. The numbers of Foreign seamen at these ages will be comparatively small, and for all practical purposes we may regard the figures as relating to British seamen.

80. We have now arrived at estimates which should provide maximum figures of the *shore* population of British seamen (a) aged 20-65 years and (b) aged 20 years and over, *viz.* :—

Occupied and retired, 20-65 years = 122,104 (see above)

Occupied and retired, 65 and over = 7,711

Total shore population, aged 20
years and over = 129,815

81. The Registrar-General of Shipping's figures for 1921, for British seamen at sea or serving on ships abroad on the census night were, for men aged 20-65 years, 67,142. The figures for 65 and over are not given, but turning to the results of the last census of seamen it may be seen that approximately 0.6 per cent. of employed seamen enumerated at the annual census are aged 65 and over. Applying this proportion we find 67,142 requires the addition of 403 to give us the probable total of men at sea and abroad aged 20 years and over. Therefore the total population, shore, sea, and abroad may be taken to be :—

	20-65 years.	20 years and upwards.
Shore	122,104	129,815
Sea and abroad	67,142	67,545
	<hr/> 189,246	<hr/> 197,360

82. I see no sufficient ground for increasing this population; indeed, there are reasons which suggest that even this figure is excessive. In the above estimates, general census figures have been used, but it must be remembered that the term "seaman", when used by the civil Registrars-General for decennial census purposes, carries by no means the same interpretation as that imposed by the Board of Trade. In the "Occupations" volume of the census reports, Code Numbers 733-737 refer to men employed on what are termed Water Transport duties (which includes sea service). Some of these ratings deserve notice:—

<i>Code No.</i>	<i>Census Title.</i>	<i>Remarks.</i>
733	Navigating Officers and Pilots	Includes Pilots, Training Ship Officers, Barge Captain (sail or steam), Canal Pilot, Derrick Master, Dock Pilot, Dredge Captain or Master, Hopper Master, Mate on Sail or Steam Barge, River Pilot, Tug Master. <i>All excluded from mortality returns.</i>
734	Engineering Officers	Includes Engineers on Steam Barges, Canal and Ferry Boats, Smacks, Tugs, etc., and "Enginemen" on these craft: Grab-barge Engineer, Steam Dredger Engineer. <i>All excluded from mortality returns.</i>
735	P.O.'s, Seamen, and Deck Hands	Includes Tug Boys and Yachtsmen. <i>Excluded from mortality returns.</i>
736	Firemen, Trimmers, etc.	Includes such workers on Barges, Canal and Ferry Boats, Tugs, Smacks, Dredgers. <i>All excluded from mortality returns.</i>
737	Pursers, Stewards, etc.	Includes Stewards on Yachts. <i>Rating excluded from mortality returns.</i>

83. It will be seen that among the totals of so-called "seamen" in the decennial census data are a large but unknown number of men who, by Board of Trade definition, do not belong to the occupation, and whose mortality records have been excluded from my Report.

84. I do not agree with the suggested arithmetical adjustment of the figure 130,141. The ratio of *deaths* of British and Foreign seamen shown in the present investigation is an irrelevant fact,

since foreign seamen are more likely to return to their countries of origin to die, than to die in England, and as the numbers of *living* British and Foreign seamen were actually recorded in the census, no method of estimation is required.

85. In other words, the suggested estimate for 1921 of British seamen aged 20-65, ought, in my opinion, to have been the same as mine, viz., 189,246, of which 122,104 were the fraction ashore and in home ports. So far as the numbers aged 20 years and over are concerned, it is believed a liberal estimate of the probable numbers over 65 has been made, and a grand total of 197,360 results, which still remains considerably below the estimate of 214,000.

86. Applying these estimated populations to the mortality data we have :—

Age-groups.	Estimated Population.	Recorded Deaths.	Mortality Rate per 1,000	Mortality Rates (Males) England and Wales (1929).
(a) 20 and over	197,360	3,166	16·04	17·61
(b) 20-65 ...	189,246	1,867	9·87	9·70

87. I have already expressed my dissent from the proposal to increase the final figure by 8 per cent., i.e., to infer from data which (*vide supra*) are not *in pari materia*, that the population of an industry passing through a period of unparalleled depression has grown at a much greater rate than the whole population of England and Wales.

88. My conclusion is that the population exposed to risk at all ages is unlikely to exceed 197,000 and almost certain not to exceed 200,000, but, since we are necessarily moving in the realm of conjecture, it is plainly right to give publicity to the estimate of another statistician differing so widely from mine. When the results of the Census of Population for 1931 are available, it will be possible to frame an estimate regarding the population of seamen a year earlier which will be more accurate than any that can be formed from the data available from the 1921 Census.

89. Substituting the larger estimates would have the effect of diminishing the crude rates of mortality for seamen, (a) and (b) above, approximately 9 per cent. and 6 per cent. respectively.

90. Having regard to the age distribution of merchant seamen, which differs very widely from that of the general population, a crude death rate such as is calculated above is not of value as an indication of the healthiness of the mercantile marine as an occupation. The lack of accurate information regarding the population of

merchant seamen and their age distribution at the time covered by the present inquiry, together with the small number of deaths under investigation, have prevented the use of the method of a standardised population normally used by the Registrar General to investigate the mortality for the various age groups, and it has therefore been necessary to resort to that of proportionate mortality (see par. 100).

91. The available population figures related to the numbers of deaths ascribed to various grouped causes contributing to the mortality of merchant seamen provide the following results:—

TABLE 6.

Nationality.	Deaths All Causes.	Rate per 1,000.	Deaths Disease.	Rate per 1,000.	Deaths Drown- ing.	Rate per 1,000.
British	3,166	24·83	2,571	20·16	231	1·81
Lascars	287	5·45	205	3·89	24	0·46
Foreigners	167	11·57	103	7·14	37	2·56
All Nationalities	3,620	18·60	2,879	14·79	292	1·50

Nationality.	Deaths Injury.	Rate per 1,000.	Deaths Suicide.	Rate per 1,000.	Deaths Old Age.	Rate per 1,000.
British	164	1·29	61	0·48	139	1·09
Lascars	35	0·66	21	0·40	2	0·04
Foreigners	16	1·11	11	0·76	—	—
All Nationalities	215	1·10	93	0·48	141	0·72

92. It will be seen that approximately 80 per cent. of all recorded deaths (all nationalities) are due to Disease, 6 per cent. to Injury and Accident, 4 per cent. to Old Age, and 3 per cent. to Suicide.

93. Having regard to the fact that according to the results tabulated in Table 6 above, the deaths of the majority of seamen are due to disease of one kind or another, and that records relating to Lascars and Foreigners are incomplete, it becomes necessary to focus attention upon the data relating to British seamen only, and by detailed analyses to endeavour to discover the principal causes responsible for the deaths of these men. By reference to Table 5 (page 64) it will be seen that of the total of 3,166 deaths of British seamen, 634, or 20 per cent., were due to Respiratory Diseases (Nos.

9, 23-26 of the Nomenclature) 622, or 19.6 per cent., to Circulatory Diseases (Nos. 21-22), 347, or 11 per cent., to Cancer, 172, or 5.4 per cent., to Digestive Diseases (Nos. 27-31) and 197, or 6.2 per cent., to Genito-Urinary Diseases. Such comparisons as are justifiable between this and other occupations will be attempted in later pages; for the present, the following general observations touching the problem of comparability are submitted.

94. Attempts have been made by critics of the statistics of this occupation to compare mortality rates relating to the merchant service with those of shore occupations, or of the Navy, and, not infrequently, conclusions have been reached reflecting adversely upon the health and lives of men in the mercantile marine. Conditions of work and service peculiar to the mercantile marine combine to render the establishment of dependable comparisons between the sea and shore occupations difficult if not altogether impossible by using data at present available. On the other hand, if it is desired to compare rates of mortality in the Royal Navy with those in this occupation, fundamental differences peculiar to the two services may not be ignored.

95. It must be remembered that candidates for the Navy are subjected to strict medical examination on entry to the service, a practice which precludes admission of any but men of sound physique. Once admitted, these men are well clothed, housed, and fed, employed regularly throughout the year, and in the event of disease or casualty receive immediate and efficient medical attention. Mortality rates for the Navy have reference only to men actively employed—in other words they do not include the deaths of men, who, by reason of ill-health have been discharged from the service, nor do they take into account the numbers of pensioned ratings dying after retirement from that service. On the other hand the mortality rates discussed in the present Report relating to Merchant Seamen result from consideration of *all* mortality data, i.e., of the deaths of seamen occurring both ashore and at sea, of employed and unemployed, while the period of time marking the interval occurring between last sea-service and death may range from a few hours to over ten years. Service in the mercantile marine is intermittent—long periods of unemployment may occur between voyages; the majority of entrants to the merchant service are not subjected to such rigorous medical examination, while close supervision of their physical well-being cannot be expected to follow the ordered routine observed in the Royal Navy. In the light of these differences characteristic of the two services, the only approachable comparison possible requires the isolation of the mortality records of British seamen dying at sea and abroad, relating these data to the population figures of British

seamen employed as enumerated at the time of the annual census, March 30th, 1930. This plan has been followed, with results presented below :—

TABLE 7.

Cause of Death.	Merchant Service. British Seamen (1929-30).			Royal Navy (1929).		
	Number of Deaths.	Rate per 1,000.	Per cent. of Total Deaths.	Number of Deaths.	Rate per 1,000.	Per cent. of Total Deaths.
All Causes ...	642	5.04	—	254	2.94	—
Disease ...	295	2.31	45.95	153	1.77	60.23
*Injury ...	109	0.85	16.97	49	0.57	19.29
Alcoholism ...	2	0.02	0.3	1	0.01	0.39
*Drowning ...	205	1.61	31.93	42	0.49	16.53
Suicides...	31	0.24	4.83	9	0.10	3.54
Respiratory Diseases.	61	0.48	9.50	31	0.36	12.20
Phthisis...	22	0.17	3.43	19	0.22	7.48
Heart Diseases, etc.	37	0.29	5.76	8	0.10	3.15
Cancer ...	10	0.08	1.56	8	0.10	3.15
Diseases of Dige- stive System.	46	0.36	7.17	24	0.28	9.45
Genito-Urinary Diseases.	16	0.13	2.49	5	0.06	1.97
Total deaths...	...	...	642	...	...	254
Total Men ...	...	...	127,518	...	...	86,240

96. It might be objected to the results just reached that the denominator is too small, because it is a *de facto* enumeration and therefore gives an instantaneous picture of the living population. The deaths, on the other hand, are—within certain limits of error, complete records of mortality over a period of one year. What one desires to have is the ratio of the deaths to the average population at risk in the occupation during the period of time to which the deaths relate. In the absence of adequate information as to the precise number of this population, various procedures in arriving

* Deaths due to Accidents and Drowning are highly variable from year to year. The year under review was favourable in that no great shipping disasters were recorded. When such events occur, deaths arising from such casualties are relatively more numerous than those resulting from occasional disasters in other occupations (e.g., miners and mining disasters, etc.).

at an estimate have been proposed. It has been suggested that the denominator I have used is too small and that a better choice would be the total number of British seamen serving on vessels of 100 tons gross and over employed *at some time* during the year. In my opinion this denominator would over-state the number of individuals exposed to risk, because the same individual might be included several times and would each time figure as a unit, i.e., as a whole year of life. By the use of the denominator mentioned above (162,656 seamen) and that provided by the Annual Census of seamen figures (127,518 seamen) the following results are reached :—

	Mercantile Marine. Population 162,656 127,518			Royal Navy. Population 86,240	
	Number of Deaths.	Rate per 1,000.	Rate per 1,000.	Number of Deaths.	Rate per 1,000.
Disease... 	295	1·81	2·31	153	1·77
Injury 	109	0·67	0·85	49	0·57
Drowning 	205	1·26	1·61	42	0·49
Suicides 	31	0·19	0·24	9	0·10
All Causes 	642	3·95	5·04	254	2·94

97. I am of opinion that by the use of the larger denominator the resultant rates err much more in the direction of under-statement than those previously given err in the direction of over-statement.

98. Bearing in mind the widely differing conditions of service characterising employment in the Navy and Mercantile Marine respectively, the higher mortality rates due to " All Causes " and to " Disease " in the latter are not excessive, nor are they higher than might have been anticipated. With the exception of the titles " Drowning " and " Heart Diseases ", both of which appear as more frequent causes of death among British merchant seamen, the differences characterising the rates belonging to the remaining titles are so slight as to call for no comment; mortality rates from Phthisis and Cancer are actually below those reported for 1929 in the Navy.

99. When *proportionate* mortality figures are considered, deaths due to " Disease ", " Injury ", " Respiratory Diseases ", " Cancer ", and " Diseases of the Digestive System " are, proportionately to the total numbers of deaths recorded, more frequent causes of death in the Navy than in the Mercantile Marine.

PROPORTIONATE MORTALITY.

100. It will be convenient at this point to inquire how far a high (or low) proportionate mortality figure can be regarded as a measure of a high (or low) *rate* of mortality. The point was studied in some detail by Greenwood and Tebb in 1919.* As a test they studied the relation between proportionate mortality from Phthisis in the age group 35-45, and the death rate from Phthisis in that age group (Persons) for 168 Registration Districts, the population of each of which was at least 50,000. The correlation between the proportionate mortality and the true rate was 0.66. Taking account of the scatter of the rates, this led to the conclusion that a true mortality rate might be deduced from a proportional mortality within a margin of perhaps 50 per cent. on either side of the mean.† This is, of course, a wide variation, yet the association is sufficiently stringent to make it unlikely that very wide divergencies from expectation are fortuitous.

101. Collis and Greenwood applied a more direct test‡. They worked out the proportionate mortality from Phthisis in the age-groups 25-35, 35-45, 45-55, and 55-65, for a series of occupations. They then applied the set of proportions for each occupation to the deaths from All Causes in the age groups for All Males. These calculations will give the "Expected" deaths from Phthisis for each occupation, and if these are divided by the deaths of all males (due to Phthisis) the ratios should be the same as those deduced from the actual mortality rates, if the method of proportion were exact.

102. In four large groups the two methods gave the following results. (The figure in brackets is the true index) :—

147	(145)
134	(132)
106	(105)
88	(97)

103. In only one is there a serious discrepancy. Collis and Greenwood concluded, "The practical inference is that although, as we should have expected, a proportionate index is not just as good, not nearly as good, as a true death rate, yet, if we infer from a high proportionate mortality the existence of a high absolute death rate we shall usually be correct, almost always correct if the proportionate mortality rate is much in excess of its average value".§

* *An Inquiry into the Prevalence and Aetiology of Tuberculosis among Industrial Workers, etc.* Greenwood & Tebb, M.R.C. Special Report Series, No. 22, 1919.

† *Ibid.* pp. 14-15, 59.

‡ *The Health of the Industrial Worker.* Greenwood & Collis. Sec. viii. pp. 60-65. London, 1921.

§ *Ibid.* p. 63

104. For purposes of general comparison in the present investigation, the proportionate mortality standard has been followed, principal causes of death isolated, and certain shore occupations selected wherein a high standard of physical fitness on the part of workers employed is demanded. The results of these calculations are presented in Table 8, page 73.

105. It will be seen that deaths have been tabulated to indicate (a) those dying ashore, (b) those dying at sea and abroad, and (c) the whole of the deaths whether occurring ashore or at sea. For purposes of comparison it would seem appropriate to consider only the group comprising the *whole* of the deaths of seamen, whether afloat or ashore.

Respiratory Diseases.

106. Although it has been observed that these diseases, in the aggregate, constitute one of the principal causes of death among seamen, it will be seen that the mortality among British seamen for All Respiratory Diseases is actually below the average at all ages when compared with the mortality due to the same cause in the selected shore occupations. The highest mortality occurs in the age-groups 20-54 (though these are, without exception, below the mortality at the same ages in the shore occupations) thereafter diminishing with advancing age. When specific respiratory diseases are considered, while *Bronchitis* shows a tendency to increase with age, with but two exceptions, mortality at all ages is higher among workers in shore occupations than among merchant seamen. *Pneumonia* mortality among seamen is at its highest in the age-groups 25-54, though here again, mortality due to this cause is higher in these age-groups among shore occupations, with the single exception noticeable in the age-group 45-54 (Engine Drivers etc.).

Circulatory Diseases.

107. In common with the experience relating to shore occupations in the Table, *Diseases of the Circulatory System* among merchant seamen show a mortality trend definitely increasing with age. These diseases give rise to an excess mortality among seamen at age 55-65, and a considerable excess at age 65 and over, but nowhere else. Within this group of causes of death, *Heart Diseases* exhibit a precisely similar manifestation.

Diseases of the Digestive System.

108. In the age-group "Under 20" the numbers of deaths are so few as to render the proportionate mortality figure an unreliable measure of the mortality due to this cause within the group. At other ages, Diseases of the Digestive System seem to prove a slightly more frequent cause of death among merchant seamen than is the case among some of the shore occupations, but it is at the ages 35-44 that excess mortality is most noticeable.

Cancer.

109. Mortality due to this cause among merchant seamen is higher than that obtaining among selected shore occupations at the two age-groups 35-44, and 65 and over, only. At all other ages it will be seen Cancer mortality is below—in some instances much below—Cancer mortality in other occupations ashore.

110. In this connection the distribution of sites of Cancer given in Tables 9 and 9A, page 85, is not without interest. Cancer of the Pharynx, Oesophagus, Stomach, etc., is responsible for a greater proportion of the total deaths due to all Cancers than any other site, and within this group, Engineers, "Others" (comprising Storekeepers, Painters, etc.), and Firemen are the principal sufferers. Engine-room ratings appear to succumb to this disease more frequently than do members of the personnel of either the Deck or Stewards Departments.

Diseases of the Genito-Urinary System.

111. In the age-group 35-44 mortality slightly exceeds that experienced in other occupations, with further increase at ages over 55.

*Accidents.**

112. At all ages up to 34 merchant seamen occupy second place in the order of mortality due to this cause. In the next two age groups a great improvement is noticeable, merchant seamen returning a favourable experience in this respect. Here it is necessary to call attention to mortality at sea due to this cause; for five out of the seven age-groups appearing in the Table, accidents are a more frequent cause of death among seamen afloat than among any other shore occupation—coal-miners not excepted.

Suicide.

113. Here also, *all ages* considered, the proportionate mortality figure for seamen afloat is in excess of that relating to any shore occupation; viz. :—

	<i>Per cent.</i>
Seamen afloat	4.8
Agricultural Labourers	1.6
All occupied and retired males	1.6

The figure is unusually high between ages 25-54.

Alcoholism.

114. Traditional beliefs die hard; sailor-men are generally regarded as a hard-drinking, intemperate body of men. Indeed, one writer† has observed "*Employed British seamen, in and about 1921, had a death rate 50 times higher from Alcohol than 'All Males, England and Wales'*", though in this connection it is to be remembered the writer based his conclusions on the average deaths due to Alcoholism for the years 1920-1922, appearing in the *Annual*

* See footnote page 39.

† *International Hygiene*. C. W. Hutt, London 1927, p. 151.

Return of Deaths on Vessels, etc., published by the Board of Trade. The figures presented in Table 8 of the present Report may be accepted as a more accurate representation of the mortality due to this cause for the year under review.

115. It will be seen that, *All Ages* considered, mortality due to this cause in the mercantile marine differs little, if at all, from that relating to "Dock Labourers", and "All Occupied and Retired Males". In two out of seven age-groups only is mortality higher among merchant seamen than among those engaged in shore occupations. It can hardly be concluded therefore that the seaman is particularly addicted to habits of intemperance, or that Alcoholism is excessively frequent as a cause of death among these men.

General Observations.

116. Judged by the standard of the single year's mortality experience which the present investigation envisages, it may be said that service in the mercantile marine is no more inimical to life and health than are many of the occupations ashore frequently regarded as healthful; indeed, in many instances, it has been shown the advantage distinctly lies with the seaman. It will have been observed, however (Table 7) that deaths due to Drowning and Injury* among British seamen afloat account for 31.93, and 16.97 per cent. respectively of the total deaths due to All Causes; in other words, in the aggregate, these causes are fatal to more merchant seamen than are all diseases enumerated in the nomenclature. With a view to tracing the contributory circumstances responsible for these high mortalities, the data have been set out as follows:—

TABLE 10.

Deaths due to Drowning.

Sea deaths: British seamen only.

How Drowned.	Deck Department.			Engine Room Department.		Stewards Department.	
	Officers.	P.O.'s	Sailors.	Engineers.	Fire-men.	Stewards.	Other ratings.
Washed Overboard ...	1	—	11	1	1	—	3
Working ship ...	2	1	11	—	1	—	1
Shipwreck, etc. ...	4	—	11	8	4	6	2
Missing ...	5	1	8	2	11	11	—
Intoxicated ...	1	—	12	3	15	6	1
Bathing, etc. ...	1	—	5	4	3	5	2
Returning or leaving the ship.	1	—	3	1	3	2	—
Other causes ...	3	3	9	4	6	4	2
Totals ...	18	5	70	23	44	34	11
Thousands in 1921 Census of Seamen.	10.9	5.2	19.5	10.8	21.8	22.0	5.9

* See footnote, page 39.

117. This tabulation appears to unmask the principal causes of all Drownings at Sea. Twice as many men needlessly lost their lives—and here it will be observed Firemen, Stewards, and Sailors are the principal offenders—because of thoughtless indulgence in intoxicating liquors, as do men, who, in an unfortunate moment, are swept overboard in heavy weather. The “Missing” in the aggregate amount to 38 deaths, an undue share of the total deaths due to Drowning. The majority of these cases merely disappeared—no evidence of suicidal intent being forthcoming; it is curious to find that Firemen and Stewards figure in this list so conspicuously. Even where the greatest precautionary measures are taken accidents whilst working the ship will occur from time to time, but on the other hand the majority of drowning accidents occurring whilst men are bathing, returning to or leaving the ship, etc., might be avoided.

TABLE 11.

*Deaths due to Injuries.**Sea deaths; British seamen only.*

109 deaths were ascribed to injuries due to accidents. Consideration of all these data led us to tabulate these as follows:—

How Drowned.	Deck Department.			Engine Room-Department.		Stewards Department.	
	Officers.	P.O.'s	Sailors.	Engineers.	Firemen.	Stewards.	Other ratings.
Accidents due to heavy weather.	—	—	4	—	—	—	—
Preventible accidents	9	4	29	8	16	7	8
Not connected with shipboard duties.	3	—	3	3	9	6	—
Totals	12	4	36	11	25	13	8

118. What are termed “Preventible Accidents” in the above Table include falls from stagings, loading and unloading accidents, falls down bunkers and holds, winch accidents, etc., whilst those not directly due to shipboard duties were the result of fighting, ptomaine poisoning, and other injuries.

MORTALITY IN CONJUNCTION WITH RATING.

119. It was considered advisable to examine the data by Ratings and Cause of Death with a view to discovering, if possible, whether there exists sufficient evidence indicative of close correlation between specific causes of death and the various ratings comprising the *personnel* of ships' crews, for it has been claimed, or suspected, that

certain ratings manifest a proneness to develop and die from particular diseases, which, on the other hand, appear to take little toll of the lives of other members of crews.

120. In Table 12, page 86, the mortality data have been re-sorted and tabulated after a manner calculated to throw light upon this important aspect of mortality in the mercantile marine, and though limits of time have prevented such a completely exhaustive analysis and survey of the data as is desirable, nevertheless the results of even this preliminary study may be deemed of interest, and perhaps of value.

121. It is to be remembered that the observations which follow are concerned with discussion of the mortality records of *British seamen only*. Attention is also directed to the small numbers recorded of Specific Causes of Death, and of total deaths due to All Causes, among ratings defined as "Petty Officers", "Storekeepers", "Painters, etc.", "Apprentices", "Pursers", "Wireless", and "Others". These numbers are too few to permit the deduction of dependable conclusions, and for that reason consideration of such ratings is omitted.

122. Having regard to *all* deaths of British seamen, both afloat and ashore, it will be seen by reference to Table 13, page 95, that proportionately *All Respiratory Diseases* exact the greatest toll of lives from among Firemen and Stewards, whilst the proportion of deaths of Deck Officers appears to be little more than half that observable among any other of the ratings. Within the respiratory group, *Phthisis* is responsible for a higher proportion of deaths among Stewards and Firemen than among other ratings, while *Bronchitis* claims the majority of its victims from among Seamen and Firemen. Deck Officers and Engineers appear to escape the fatal effects of respiratory affections more frequently than do other elements of crews, a relative immunity probably due to the important factor of Age. It is not possible, at present, to determine from the results of Annual Censuses of Seamen the numbers in age-groups of the various ratings, and therefore we cannot know the proportions employed in each rating in age groups, and particularly at ages under 40. What has been done, however, in the course of the present inquiry, is to tabulate the mortality data by ratings and in age-groups, and the resulting figures demonstrate that, while proportionately only 15 per cent. of the total deaths of Deck and Engineer Officers occur at ages under 45, approximately 40 per cent. of the total deaths of Firemen and Stewards, and 27 per cent. of the total deaths of Seamen, occur within the same age period. Indirect evidence of this kind points to the fact that, the higher proportions of deaths have been harvested from among more numerous communities in the lower ratings, or, in other words that there is a larger proportion of possible victims at ages under 45 among Firemen, Stewards, and Seamen, than there are among Deck and Engineer

Officers. A better measure of the mortality would have been established by classifying the data by Cause of Death, Age, and Ratings, a step unfortunately impossible within the limits of time at disposal.

Cancer.

123. This title appears as a cause of death more frequently among Engineers and Firemen (a fact already noted in an earlier page of the present report*) and with the least frequency among Seamen. It is not without interest to note that, according to the Decennial Supplement 1921, of the Registrar-General†, Cancer mortality among males in the general population shows very definitely a mortality distribution increasing from a minimum in Social Class I (the highest) to a maximum, through the intervening social classes, in Social Class V. The scheme of *classification* provides for the inclusion of *all personnel in the mercantile marine in Social Class II.†* so that it is scarcely possible to establish any comparison of the mortality trend by social groups. Cancer mortality is, however, a function of *Age*, and it is possible that, the mean age of Engineer and Deck Officers being higher than that of Firemen, Greasers, etc., mortality due to this cause is, proportionately, higher among Engineer Officers than among Firemen etc., and proportionately higher among Deck Officers than among Stewards or Seamen. It is noteworthy to find the prevalence so marked among engine-room ratings, and it would have been desirable to have engaged in more searching study of the mortality due to this cause. Tabulation of the data by sites of Cancer in conjunction with Ratings in age-groups might have thrown important facts into clear relief, but limits of time have prevented consideration of these matters.

Heart Diseases.

124. The results of analysis exemplify the important influences of *Age*. Proportionately the mortality of Deck Officers from this cause exceeds that recorded for any other rating, Seamen and Engineer Officers, respectively, following next in order. Mortality due to Heart Diseases is notoriously higher at the later ages of life, and in this connection it is to be noted that since 72 per cent. of the total deaths (All Causes) of Deck Officers, and 56 per cent. of those of Engineer Officers occur at ages 60 and over, and only 30 per cent. among Stewards, it may be assumed that recorded deaths of officer ratings indicate a larger proportion of men (afloat and ashore) at the later ages of life than is the case among Stewards.

* See p. 43.

† Decennial Supplement, 1921, p. xxi.

‡ Decennial Supplement, 1910-12. Table 1, p. ix.

Diseases of the Digestive System.

125. Engineer and Deck Officers appear to die more frequently from these diseases than do any other rating. These results are in general agreement with the findings of the Registrar-General* that the higher social classes, appear to show excess mortalities due to such causes, presumably due to over-indulgence in food (and perhaps drink) by those in a position to commit such errors of indulgence.

Diseases of the Genito-Urinary System.

126. Within this group, Stewards head the list with a mortality percentage to total deaths of Stewards of 7.90. It is possible that more minute analysis of the records, and distribution by ages and ratings, might have shown some relation between such causes and venereal diseases. Such examination has been impossible and, therefore, no definite conclusions can be established.

Accidents.

127. For every death due to accident among Deck Officers, three such deaths occur among Seamen. The deaths of Engineers were equal in number to those of Deck Officers, and were about half those of engine-room ratings (though when deaths at sea are considered, the positions become reversed for Engineers and Firemen) while proportionately Stewards appear to be exposed to but half the risk of dying from accidents as do Seamen. Accidents as a cause of death have already been commented upon in earlier pages of this Report, as have also *Suicides*, *Drowning*, and *Alcoholism*; for reasons mentioned below no further reference to these causes can at present be made.

General Observations.

128. Only the briefest possible discussion of mortality in conjunction with rating and cause of death has been so far possible; barely three months have marked the interval between the receipt of the last of the records and the date decided upon for the closing of this inquiry—a period of time far too limited to do full justice to the material supplied for investigation. Much more extended analysis of the data is desirable—the consideration of mortality in conjunction with ages, ratings, and causes of death, would have been attempted had time permitted.

PERIOD SINCE LAST SEA SERVICE.

129. Question 2 of the schedule submitted by the Board of Trade postulated a requirement difficult, if not impossible, to meet with

* Decennial Supplement, Occupational Mortality. Part II, page xli.

any degree of satisfaction within the limited range of time and data embraced by the inquiry, viz :—

“ To see whether it is possible to find a period, say x years, such that, if all deaths of seamen occurring more than x years after leaving the sea are excluded from the statistics of the industry, the result accurately represents the mortality due to sea-service.”

Such a requirement as this applies solely, of course, to the deaths of seamen occurring ashore in the United Kingdom. The available data permit tabulation after the following manner :—

TABLE 14.

Period since last service.	Numbers of Deaths and Percentages of Totals.							
	British.	Per cent. of Total British Deaths.	Lascars.	Per cent. of Total Lascar Deaths.	Foreigners.	Per cent. of Total Foreigners' Deaths.	Total.	Per cent. of Total Deaths.
Under 1 year	625	24.76	12	Information Incomplete	20	Information Incomplete	657	25.26
1-2 years ...	155	6.14	—		5		160	6.15
2-3 „ ...	98	3.88	—		4		102	3.92
3-4 „ ...	86	3.41	—		—		86	3.31
4-5 „ ...	79	3.13	—		1		80	3.08
5-10 „ ...	294	11.65	2		3		299	11.50
10 years and over.	685	27.14	—		—		685	26.24
No information	502	19.89	26		4		532	20.45
Total ...	2,524	100.00	40		37		2,601	

130. It will be seen that the deaths of Lascars and Foreigners, whose actual sea-service terminated at any time between one and over ten years before death occurred, constitute less than 3 per cent. of the total deaths recorded. The figures are insignificant, and in view of the incompleteness of the records relating to these two classes, no useful comment can be made.

131. The bulk of the deaths, then, occur among British seamen, and this class claims particular attention. Of these men, 41.32 per cent. of the total die within five years of their last sea-service, and 58.68 per cent. at periods of five years and over since last sea-service. Of the latter group it must be noted, however, that no information is forthcoming regarding 34 per cent. of their numbers—a somewhat high proportion.

(a) Mortality within 5 years of last sea-service.

132. Of the total mortality records relating to British seamen (2,524 deaths) 25 per cent. of the deaths occurred within one year of last sea employment; of the total deaths occurring within 5 years since last sea-service (i.e., 1,043 deaths), approximately 60 per cent.

occurred within the first year, while for the remaining divisions of time within this period, mortality diminishes steadily, the respective percentages being 59.92, 14.86, 9.40, 8.25, and 7.57.

133. Of the 625 British deaths occurring within one year of last sea-service, nearly 50 per cent. (actually 47.68 per cent.) occurred within 3 months of last sea employment; thereafter mortality diminishes rapidly for each succeeding quarterly period, *viz* :—

TABLE 15.

Deaths occurring since last sea service within:—	Deaths within one year of Last Sea Service.							
	British Deaths.	% of British Deaths.	Lascar Deaths.	% of Lascar Deaths.	Foreigners' Deaths.	% of Foreigners' Deaths.	Total Deaths	% of Total Deaths.
0-3 months ...	298	47.68	7	58.33	4	20	309	47.03
3-6 „ ...	161	25.76	4	33.33	9	45	174	26.48
6-9 „ ...	90	14.40	1	8.33	4	20	95	14.46
9-12 „ ...	76	12.16	—	—	3	15	79	12.02
Total within 1 year.	625	100.00	12	99.99	20	100	657	99.99

(b) *Mortality 5 years or over since last Sea-service.*

134. Of the remaining 1,481 British deaths, the mortality returns relating to 502 deaths (or 34 per cent.) record “*No Information*” concerning the period elapsing between last sea-service and death.

TABLE 16.

Deaths actually occurred within:—	Deaths occurring 5 years or over since last Sea-Service.							
	British Deaths.	% of British Deaths 5 years and over.	Lascar Deaths.	% of Lascar Deaths 5 years and over.	Foreigner Deaths.	% of Foreigner Deaths 5 years and over.	Total Deaths.	% of Total Deaths.
5-10 years ...	294	19.85	2	7.14	3	42.86	299	19.72
10 years and over.	685	46.25	—	—	—	—	685	45.18
No information	502	33.90	26	92.86	4	57.14	532	35.09
Total, 5 years and over.	1,481	100.00	28	100.00	7	100.00	1,516	99.99

135. In an endeavour to discover the key to the understanding of these figures the data have been set out as follows :—

TABLE 17.

Shore Deaths (British) by Age and Length of time since last Sea-Service.

Ages at Death.	Under 1 year.				Years.						No information.	Total.
	Under 3 months.	Months 3-	Months 6-	Months 9-	1-	2-	3-	4-	5-10	10 and over.		
Under												
20 ...	6	2	4	—	—	—	—	—	—	—	3	15
20- ...	17	10	6	6	6	5	4	3	—	—	4	61
25- ...	47	28	12	10	24	8	5	3	12	5	19	173
35- ...	65	34	19	17	24	16	12	8	15	14	39	263
45- ...	73	27	20	21	30	21	23	8	28	38	43	332
55- ...	37	18	10	12	18	10	8	6	18	31	33	201
60- ...	33	22	11	6	14	14	13	14	37	46	43	253
65- ...	17	18	8	4	36	23	18	33	131	197	145	630
75 ...	3	2	—	—	3	1	3	4	53	354	173	596
Total...	298	161	90	76	155	98	86	79	294	685	502	2,524

(i) *Deaths occurring under one year since last Sea-Service.*

136. 625 deaths were recorded in this group, and of these, 283 (or 45 per cent. of the total) and 424 (or 68 per cent. of the total) died at ages under 45, and 55 years, respectively. Mortality is seen to increase steadily with age; accelerated increase is noticeable at the age-group 35-44, the peak of the mortality curve being reached in the age-group 45-54.

(ii) *Deaths occurring from one to five years since last Sea-Service.*

137. These four periods of time returned a total of 418 deaths, of which 118 (or 28 per cent. of the total) and 200 (or 48 per cent. of the total) died at ages under 45 and 55 years respectively. The trend of mortality throughout all age-groups does not differ greatly from that observed of the mortality records relating to men who died within one year of last sea-service.

(iii) *Deaths occurring from five to ten years since last Sea-Service.*

138. 294 deaths were returned in this group—27 (or 9 per cent. of the total) and 55 (or 19 per cent. of the total) occurring at ages under 45, and 55 years respectively. Mortality, while increasing with age, increases more slowly to the age-group 45-54 than was noticeable in the cases of (i) and (ii) above. Proportionately, fewer deaths are recorded annually than is the case in preceding groups.

(iv) *Deaths occurring over ten years since last Sea-Service, and deaths of which "No Information" is given regarding period since last Sea-Service.*

139. These two groups returned 1,187 deaths, or no less than 47 per cent. of the total deaths recorded of British seamen dying ashore. The only marked difference in the age distribution of these deaths occurs at ages 55 and upwards, where a considerable increase is noticeable.

140. It is somewhat difficult to interpret the meaning inherent in these figures. If it could be shown that the occupation provided such insecurity of tenure than men suffering from minor, obscure, or serious ailments purposely refrained from seeking medical advice by reason of a lurking fear that they would be advised to "lie-up" for a voyage or two, in which case their jobs would be filled by others, it would be reasonable to expect that workers in this calling would continue in their employment until complete disablement ensued, to be followed by early death. In this connection, attention is called to the large proportion of deaths occurring within one year of last sea-service; of these, no less than 70 per cent. die within nine months after last employment in any capacity on shipboard. The problem requires still further data for analysis and consideration before any dependable announcement can be made.

141. On the other hand, if it were definitely established that there occurred a noticeable *increase* in mortality with the passing of time since last sea-service, such manifestation might be held to indicate that the surviving relatives of deceased seamen who, long prior to death, had abandoned their original calling for shore occupations, tended to declare the more attractive or romantic occupation of "Seamen" in preference to the last shore occupation at the time of death. Taking all periods ranging from one day to ten years elapsing between last sea-service and death, it has been seen that the majority of deaths occur within one year of last sea employment, while, as time advances, year by year the numbers of deaths notified become fewer and fewer up to the period where last sea-service occurred from five to ten years prior to death, when an increase is noticeable. The annual average in this group (5-10 years) is, however, below any figure for any previous period, and though it is true that, proportionately, there are fewer deaths of men in this group under 55 years of age, yet the proportion differs but little from that relating to Males aged 20 and over, in the general population England and Wales.

142. The results appear to dispose of any hypothesis based upon the belief that deaths occurring within a short period since last sea-service are comprised mainly of aged, worn-out mariners. Of the men dying within one year since last sea-service, 80 per cent. are under 55 years of age, and of these, 39 per cent. died within three months, 58 per cent. within six months, and 70 per cent.

within nine months respectively, of last sea employment. Of the remaining groups it was found that :—

Of men dying between 1-2 years since leaving the sea, 65.81 per cent. were under 55.

Of men dying between 2-3 years since leaving the sea, 61.22 per cent. were under 55.

Of men dying between 3-4 years since leaving the sea, 60.46 per cent. were under 55.

Of men dying between 4-5 years since leaving the sea, 35.44 per cent. were under 55.

Of men dying between 5-10 years since leaving the sea, 24.83 per cent. were under 55.

Of men dying over 10 years since leaving the sea, 12.84 per cent. were under 55.

Of the group " No Information " 20.08 per cent. were under 55.

143. Men under the age of 55 may not be regarded as aged, nor should they, at that time of life, have out-lived their comparative usefulness; on the contrary they probably represent the most valuable human stock in any commercial undertaking. Judged by available data it would appear that the merchant service exacts a somewhat high toll of the lives of its followers at ages under 55: this is particularly noticeable in the case of mortality records relating to seamen who were employed in their occupation at times ranging from one day up to five years prior to death; of the deaths occurring at any interval of time up to 10 years since last sea employment, 61 per cent. were under 55 years of age. Of Males aged 20 years and over in the general population, England and Wales, approximately 30 per cent. die at ages 20-55.

144. At this stage attention may be drawn to the somewhat striking parallelism noticeable in the fore-going Tables, for it will have been observed that, with the passing of time, whether for periods under one year, or the yearly intervals following one year since last sea-service, mortality shows a tendency to decline until the group is reached comprising those stated to have left the sea ten years or over before the date on which death occurred; here it may be mentioned that as time advances recollection of past events and circumstances tends to become less exact, and it is not impossible that the records relating to this group are less dependable in so far as the time factor is concerned, than are those of preceding groups. There remains the somewhat large group defined " No Information."

145. Associated with the problem arises the additional factor introduced by consideration of the fact whether the decedent had, or had not, followed shore employment since his last sea-service

In the Table below the data have been further classified so that this aspect might be studied.

146. Of the 2,524 deaths reported, 1,203, or 47.7 per cent were definitely stated to have followed no shore employment since leaving the sea, of 742, or 29.4 per cent., no information is available; 579, or 22.9 per cent. were stated to have followed some kind of shore employment, though in the majority of these cases it is not known for how long such employment had continued prior to death. Still further subdivision and treatment of the data provide the following results :—

TABLE 19.

Period since last Sea-Service.

Percentages of totals in each group, employed or not employed in shore occupations.

	Period since last Sea-Service.								Totals
	Under 1 year.	1—	2—	3—	4—	5—10	10 and over.	No in- forma- tion.	
Shore Employment ...	3.5	10.3	16.3	26.7	22.8	21.1	57.5	5.6	22.9
No Shore „ ...	89.3	68.4	60.2	51.2	62.0	52.7	30.2	5.0	47.7
No Information ...	7.2	21.3	23.5	22.1	15.2	26.2	12.3	89.4	29.4

147. For the first six annual periods of time marking intervals between last sea employment and death it is seen that not only did the great majority of decedents not engage in any shore occupation, but that the proportions of these men of whom no information is available are double those who are stated to have followed some kind of shore employment. With the passing of time there is evident a tendency for an increasing proportion of men to find shore employment, except, curiously enough, when the period of time falls between four to ten years since last sea-service, for here it will be noticed changes in the opposite direction are manifest. The period ten years and over since last sea-service shows not only the greatest proportion of men engaged in shore work, but also the smallest-but-one proportion of whom no information is forthcoming. In so far as age distribution is concerned, it was found that of the total deaths of men stated to have followed shore employment, 77 per cent. were aged 60 years and over; of the group "No information," 62 per cent. were aged 60 years and over. On the other hand, only 48 per cent. of the deaths of men said to have followed no shore employment died at ages 60 and over.

148. It has been contended that there exists in this occupation a marked tendency on the part of men to abandon the calling and seek occupation ashore. If the contention is correct, the preceding analyses of mortality data appear to suggest that men originally seamen, finding such employment ashore, regard themselves and are so regarded by relatives, not as seamen, but as members of the shore calling in which they have found employment; the tendency in this direction, which would increase as the period since last sea-service becomes more and more extended, results in fewer deaths of such men being ascribed to their original calling, in that, when death occurs, the declared occupation becomes that of last employment and not of the original calling of seaman.

149. These views are submitted with considerable hesitation, for it is felt that, having regard to the limited data available, relating to but a single year's experience, and to the lack of time for really exhaustive consideration of the problem, it would be unwise to attempt any definite pronouncement touching this aspect of the inquiry. All that may be said at present is, that it would be inadvisable to exclude any mortality record solely on grounds of time elapsing since last sea employment; decision as to exclusion may be determined only after consideration of the merits of each individual case.

SEASONAL DISTRIBUTION OF MORTALITY.

150. Although the original requirements to be kept in view during the course of the present investigation did not specifically refer to inquiry into the seasonal trend of mortality in the mercantile marine, it was considered advisable to make brief reference to this aspect of the study, for no study of mortality records relating to this or to any other calling may be regarded as complete without such consideration, and of the possible factors responsible for observed variation. Mortality records received had reference to deaths *reported* in this or in that month of the year under review; in Table 20, page 98, all the available data have been set out showing the numbers of deaths reported month by month, and the months in which those deaths actually occurred.

151. It will be seen that the *reported* mortality data do not show particular agreement with the actual *monthly occurrence* of mortality among merchant seamen; in this connection, attention is invited to the following analysis:—

Of 332 Deaths reported in September 1930, 82.8 per cent. actually occurred prior to that month.

Of 261 Deaths reported in August 1930, 92.0 per cent. actually occurred prior to that month.

Of 265 Deaths reported in July 1930, 84.9 per cent. actually occurred prior to that month.

Of 251 Deaths reported in June 1930, 91.6 per cent. actually occurred prior to that month.

Of 360 Deaths reported in May 1930, 86.1 per cent. actually occurred prior to that month.

Of 307 Deaths reported in April 1930, 95.1 per cent. actually occurred prior to that month.

Of 372 Deaths reported in March 1930, 95.2 per cent. actually occurred prior to that month.

Of 322 Deaths reported in February 1930, 94.4 per cent. actually occurred prior to that month.

Of 316 Deaths reported in January 1930, 92.7 per cent. actually occurred prior to that month.

Of 333 Deaths reported in December 1929, 79.9 per cent. actually occurred prior to that month.

Of 251 Deaths reported in November 1929, 93.2 per cent. actually occurred prior to that month.

Of 250 Deaths reported in October 1929, 91.6 per cent. actually occurred prior to that month.

Of 3,620 Deaths reported between October 1929—September 1930 3,252 deaths (or 89.8 per cent.) actually occurred in months prior to the month in which they were reported.

152. If mortality is considered in relation to *month* of occurrence, it will be observed that a rise sets in during October, increase immediately follows, and the peak of the curve is reached in December; thereafter mortality remains high (with intermediate depressions) until the following April, when decline sets in and continues until September. In this connection it should be observed that, for the last three months (July-September) of the year under review, there yet remain an unknown number of deaths unreported, which would swell the present figures relating to one or other of these months. (By reference to Table 20 it will be seen that of the 250 deaths *reported* in October 1929, no less than 195 occurred in the month preceding).

153. The problem has difficulties peculiar to this occupation; the lives at risk may experience every variety of climate and season during the course of a voyage or voyages. No further discussion of this aspect of mortality in this calling is attempted at the moment, but it is submitted the important question of classification with a view to determining seasonal incidence is worthy of attention.

CONCLUDING OBSERVATIONS.

154. The Report herewith submitted may be regarded by no means as a definitive and final pronouncement touching various aspects of this important field of work. The investigation, incomplete though it is at the present stage has, nevertheless, occupied more than the half-time attention originally envisaged, of the investigator, for without this additional expenditure of time but

little progress could have been made; it was not until towards the close of the month of April 1931, that any attempt towards serious analyses of the data could be attempted.

155. And yet, though the inquiry is far from complete, it is believed that interesting and suggestive facts, bearing upon various aspects characterising the mortality experience of merchant seamen, have been brought to light. It has been shown that a death rate, calculated by relating the numbers of deaths to the population figure obtained at the Annual Census of Seamen, not only gives an unreliable index of the mortality in the occupation, but further, provides no suitable measure by means of which mortality in this and in other occupations can be compared. Some indication has been given of the specific diseases which appear with the greatest frequency as causes of death among members of this calling. But the whole scope of the inquiry needs to be widened if dependable conclusions are to be reached—the data should relate to a more extended period of time than a single year, and the investigation should be carried out without the imposition of any time limit governing its conclusion—it being understood that no more time would be devoted to the work than efficiency and completeness demanded.

156. So far as can be ascertained, no maritime nation has ever yet engaged in an extended and searching inquiry into the mortality of her merchant seamen. The mercantile marine represents our most important commercial undertaking and, as the leading maritime nation of the world, we should lead the way in this field of work.

Summary of Conclusions.

157.—(1) The deaths analysed in the report relate to merchant seamen dying at sea or on shore, and of the total of these reported to the Registrar General of Shipping and Seamen and to the Registrars General of Births, Deaths and Marriages, it has been found necessary for various reasons to exclude about 16 per cent. (pages 25-26 and 59-60).

(2) The deaths have been classified in accordance with a medical classification specially prepared as appropriate to the merchant service (pages 64 to 72).

(3) The period of twelve months is statistically too short a time on which to base final conclusions of a general nature as to the health of the mercantile marine in comparison with that of other occupations.

(4) A comparison with the Royal Navy has, however, been attempted (pages 39-40) with results not unfavourable to the mercantile marine.

(5) A crude death rate has been calculated (page 32) and for ages 20 and over is found to be lower than that for the general population, but the results cannot be regarded (a) as reliable, owing to the difficulty of estimating a population figure for the mercantile marine at a date about 9 years after the preceding Census of Population (the results of the 1931 Census will enable this to be done with more accuracy); or (b) as furnishing an indication that the mercantile marine is a particularly healthy occupation since the results are affected to a very considerable extent by the age distribution of merchant seamen which is so different from that of the general population.

(6) For the reasons just indicated it has been impossible to use the method of a standardised population to investigate the mortality for the various age groups, and it has been necessary to resort to that of proportionate mortality. Tables are given on pages 73 to 84 comparing the proportionate mortality of British merchant seamen with that in certain shore occupations requiring a high standard of physical fitness.

(7) The conclusion reached (page 44) is that, apart from drowning and injury, service in the mercantile marine is no more inimical to life and health than are many of the occupations ashore frequently regarded as healthful.

(8) Deaths from drowning and injury are analysed on pages 44 and 45, and it is pointed out (page 39) that the year was a favourable one in that no great shipping disaster occurred.

(9) The deaths of British seamen have been analysed on pages 45 to 48 according to their rating, but it has not been possible to investigate this aspect of the subject thoroughly. There are, however, indications that the proportional frequencies of different diseases vary with rating.

(10) The question whether a period can be fixed such that, if all deaths of seamen occurring beyond this period after leaving the sea are excluded from the statistics of the occupation, the result represents the mortality due to sea service, has been examined, but it has been thought inadvisable to exclude any mortality record solely on the ground of the time elapsed since the last sea employment of the deceased, each case requiring to be decided on its merits (page 55).

(11) The seasonal distribution of mortality has also been touched on (pages 55-56).

APPENDIX.

TABLE 1.—DEATHS OCCURRING ASHORE IN THE UNITED KINGDOM (G.R.109)—see page 26.

Date Received.	Number of Records	Referring to Deaths Reported in	Total Deaths Reported.	Exclusions.	Deaths (less exclusions) actually occurred during :—												Total Deaths for Analysis			
					1929.					1930.										
					Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July		Aug.	Sept.	
18. 9.30	2,089	1929— October } November December	191 226 266	36 { 43 54	16 139	183	212		239	233	281	248	1 239	22 175	165 17 10	160 35	168	33	} 155 183 212	
24. 9.30	252	1930— January February March April ... May ... June ... July ... August September	307	68																239
19.10.30	217		275	42																
17.11.30	209		317	36																281
30.12.30	298		285	36						1										261
			304	43																176
			200	24																165
			187	22																165
			209	25																184
			298	35																263
TOTALS	3,065		3,065	464	16	139	183	212	239	234	281	250	254	205	192	195	168	33	2,601	

TABLE 1A.—DEATHS OCCURRING AT SEA AND ABROAD. (G.R. 160)—see page 26.

Date Received.	No. of Records.	Referring to Deaths Reported in	Total Deaths Reported.	Exclusions.	Deaths (less exclusions) actually occurred during:—																								Total Deaths for Analysis.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
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TABLE 3.—ALL DEATHS ASHORE AND AFLOAT BY AGE, NATIONALITY AND RATING—see page 29.

Rating.	Under 20.			20-			25-			35-			45-			55-			60-			65-			75+			Total.		
	B.	L.	F.	B.	L.	F.	B.	L.	F.	B.	L.	F.	B.	L.	F.	B.	L.	F.	B.	L.	F.	B.	L.	F.	B.	L.	F.	B.	L.	F.
Deck ...	40	1	-	63	21	3	126	41	15	152	18	11	168	13	16	112	6	6	143	2	4	359	-	5	422	-	-	1605	102	60
Engine Room	2	7	-	30	43	3	126	51	26	169	27	20	195	6	19	97	2	7	97	-	2	206	-	1	115	-	-	1037	136	88
Stewards ...	11	-	-	33	7	2	75	15	4	92	10	5	106	11	2	42	4	3	41	1	-	80	1	3	44	-	-	524	49	19
Total ...	53	8	-	126	71	8	327	107	45	413	55	46	469	30	37	251	12	16	281	3	6	645	1	9	601	-	-	3166	287	167

TABLE 4.—DEATH RATES PER 1000—see page 29.

All deaths (ashore and afloat)
Population as given by Census of Seamen, 31st March, 1930 $\times 1,000$.

Rating.	Under 20.		20-		25-		35-		45-		55-		65+		Total.		
	B.	F.	B.	F.	B.	F.	B.	F.	B.	F.	B.	F.	B.	F.	B.	L.	F.
Deck ...	5.08	-	7.09	5.41	9.01	10.01	18.40	8.55	27.18	22.38	97.07	42.74	-	-	32.69	5.91	13.17
Engine Room	5.93	-	5.29	6.96	8.71	9.06	17.21	12.94	29.87	23.31	86.03	62.94	-	-	25.88	6.26	13.19
Stewards	2.19	-	4.55	4.34	6.89	3.80	11.61	5.86	22.96	3.98	58.16	21.58	-	-	13.66	3.58	5.93
All Departments	4.01	-	5.78	5.53	8.31	8.30	15.88	10.32	27.07	18.20	84.32	42.64	-	-	24.83	5.45	11.57

TABLE 5.—CAUSES OF DEATH—see page 31.

All Ages and Ratings Classified by Nationality.

Code number of Cause.	Cause of Death.	This Cause includes	Actual number of Deaths.				Death Rates per 1,000 seamen enumerated at Census of Seamen, 1930.			
			B.	L.	F.	Total.	B.	L.	F.	Total.
1.	Typhoid Fever ...	Typhoid and typhoid fever. Pulmonary abscess after typhoid. Enteric fever. Paratyphoid. Supposed typhoid	15	9	2	26	0.12	0.17	0.14	0.13
2.	Malaria ...	Malaria. Pernicious malaria. Cerebral malaria. Natural cause (probably pernicious malaria) ...	19	11	1	31	0.15	0.21	0.07	0.16
3.	Smallpox ...	Smallpox	2	—	—	2	0.02	—	—	0.01
4.	Diphtheria ...	Diphtheria	1	—	—	1	0.008	—	—	0.005
5.	Influenza ...	Influenza. Acute influenzal pleurisy. Acute myocarditis following influenza. Myocardial degeneration due to influenza. Influenzal pneumonia. General weakness accelerated by influenza. Cold followed by relapse	22	1	3	26	0.17	0.02	0.21	0.13
6.	Cholera ...	Cholera	—	2	—	2	—	0.04	—	0.01
7.	Dysentery ...	Dysentery (bacillary). Dysentery (amoebic). Dysentery (unqualified). Dysenteric ulceration of large bowel and rectum	6	1	1	8	0.05	0.02	0.07	0.04

8.	Other epidemic and infectious diseases.	Suspected blackwater fever. Encephalitis lethargica. Erysipelas. Septicaemia. Tetanus. Streptococcal septicaemia ...	23	1	—	24	0.18	0.02	—	0.12
9.	Tuberculosis: Respiratory.	Pulmonary tuberculosis. Pulmonary phthisis. Tuberculosis lungs. Tuberculosis ...	302	45	20	367	2.37	0.85	1.39	1.89
10.	Tuberculosis: Other forms.	Miliary T.B. Renal T.B. T.B. Spine. T.B. Caecum. Abdominal T.B. Generalised T.B. T.B. adenitis of neck. T.B. meningitis. T.B. ulcer ...	16	8	5	29	0.13	0.15	0.35	0.15
11.	Venereal Diseases ...	Syphilis. Secondary syphilis. Syphilitic aortic regurgitation. Vascular syphilis. Syphilitic rheumatism ...	12	2	2	16	0.09	0.04	0.14	0.08
12.	Cancer ...	All sites of cancer. Carcinoma. Epithelioma. Sarcoma. Malignant diseases and tumours. Lymphosarcomas. Neoplasm stomach and lungs. Hypernephroma. Rodent ulcer ...	347	4	5	356	2.72	0.08	0.35	1.83
13.	Rheumatic Fever ...	Rheumatic Fever ...	6	—	—	6	0.05	—	—	0.03
14.	Rheumatoid Arthritis.	Chronic arthritis. Arthritis of shoulder. Rheumatoid arthritis. Septic arthritis of hip ...	9	—	—	9	0.07	—	—	0.05
15.	Beri-beri ...	Heart failure following beri-beri. Beri-beri ...	1	7	—	8	0.008	0.13	—	0.04
16.	Diabetes ...	Diabetes. Diabetic Coma. Diabetes mellitus. Glycosuria ...	23	—	—	23	0.18	—	—	0.12

TABLE 5.—CAUSES OF DEATH—cont.
All Ages and Ratings Classified by Nationality—cont.

Code number of Cause.	Cause of Death.	This Cause includes	Actual number of Deaths.				Death Rates per 1,000 seamen enumerated at Census of Seamen, 1930.			
			B.	L.	F.	Total.	B.	L.	F.	Total.
17.	Alcoholism ...	Excessive alcoholism. Found dead—exposure and drink. Acute alcoholic poisoning. Asphyxia following alcoholic excess	4	1	—	5	0.03	0.02	—	0.03
18.	Meningitis ...	Meningeal haemorrhage. Cerebro-spinal fever. Meningitis	9	2	1	12	0.07	0.04	0.07	0.06
19.	Cerebral Haemorrhage. Apoplexy. Brain softening, etc.	Cerebral haemorrhage. Cerebral thrombosis. Cerebral embolism. Cerebral softening. Cerebral apoplexy. Apoplexy. Apoplectic stroke. Cerebro-spinal specific disease. Paraplegia	220	1	4	225	1.7	0.02	0.28	1.16
20.	Other diseases of Nervous system and organs of special sense.	Acute mastoiditis. Melancholia. Acute mania. Huntingdon's chorea. Locomotor ataxia. Tabes dorsalis. Spastic paraplegia. Coma with degeneration of spinal cord. G.P.I. Cerebral tumour. Organic brain disease. Mental arteriosclerosis. Insanity. Disseminated sclerosis. Ascending paralysis. Spinal sclerosis. Dementia paralytica. Specific myelitis. Brain cyst. Acute bulbar paralysis. Hemiplegia. Epileptiform seizures. Vaccinal encephalitis	100	1	3	104	0.78	0.02	0.21	0.53

21.	Heart Diseases ...	V.D.H. Aortic and Mitral V.D.H. Specific V.D.H. Coronary disease of Heart. Myocarditis. Myocard. degen. Ch. endocarditis. Atheroma of Arteries. Auricular fibrillation. Aortic stenosis. Card. incompetence. Cardiac disease and dropsy. Fatty degeneration of heart. Heart disease. Hypertrophy of heart. Fibroid myocarditis. Fibroid degen. of heart. Cardiac degen. Cardiac dilation. Cardiac muscle failure. Mitral regurgi- tation. Mitral disease. Mitral stenosis. Morbus cardis. Rupture aortic aneurysm. Aortic incom- petence. Aortic regurgitation. Angina pectoris. Malignant endocarditis. Haemorrhage. Cardiac muscle weakness. Ruptured heart. Aneurysm cardiac muscle. Pericarditis. Aneurysm thoracis. Cardiac asthma	527	10	9	546	4.13	0.20	0.62	2.81
22.	Other diseases of the circulatory system.	Pulmonary embolism. Arterio-sclerosis. Senile cardio-vascular degen. Coronary thrombosis. Phlebitis. Ruptured aortic aneurysm. Aneurysm of thoracic aorta. Atheroma of coronary arteries. Cerebral atheroma. Haemorrhage from ruptured aneurysm	95	3	1	99	0.74	0.06	0.07	0.51
23.	Bronchitis ...	Senile bronchitis. Acute bronchitis. Chronic bronchitis. Unspecified bronchitis. Bronchiec- tasis	127	7	2	136	1.00	0.13	0.14	0.70
24.	Broncho-pneumonia	Broncho-pneumonia. Acute broncho-pneumonia. Catarrhal pneumonia	60	4	4	68	0.47	0.08	0.28	0.35

TABLE 5.—CAUSES OF DEATH—*cont.*
All Ages and Ratings Classified by Nationality—cont.

Code number of Cause.	Cause of Death.	This Cause includes	Actual number of Deaths.				Death Rates per 1,000 seamen enumerated at Census of Seamen, 1930.			
			B.	L.	F.	Total.	B.	L.	F.	Total.
25.	Pneumonia ...	Lobar pneumonia. Unspecified pneumonia. Bilateral lobar pneumonia. Double basal pneumonia. Pleuro-pneumonia	106	25	10	141	0.83	0.47	0.69	0.72
26.	Other respiratory diseases.	Bronchial asthma. Lobar pulmonary consolidation. Acute Pleurisy. Pleurisy. Pleurisy with effusion. Gangrene of lung. Empyæmia. Hypostatic pneumonia. Asthma. Emphysema. Pyothorax. Congestion of lungs. Abscess of lung. Hypostatic pulmonary congestion. Laryngeal ulceration ...	39	3	1	43	0.31	0.06	0.07	0.22
27.	Diseases of stomach	Gastric ulcer. Ulcer of stomach. Haematemesis. Duodenal ulcer. Perforated duodenal ulcer. Gastritis. Indigestion. Perforated gastric ulcer. Congestion of stomach. Perforated stomach. Gastro-colic fistula. Stomach disorder. Dilatation of stomach. Internal hæmorrhage and stomach trouble. Internal malady. Gastric colic ...	55	8	4	67	0.43	0.15	0.28	0.34
28.	Diarrhoea ...	Acute enteritis. Ulcerative colitis. Gastro-enteritis. Colitis. Colic. Diarrhoea. Severe diarrhoea ...	13	5	3	21	0.10	0.09	0.21	0.11

29.	Appendicitis ...	Operation for acute appen. Appendicitis. Perforated appendix. Acute suppurative appendicitis ...	20	1	1	22	0.16	0.02	0.07	0.11
30.	Diseases of digestive system.	Strangulated inguinal hernia. Strangulated ventral hernia. Intestinal obstruction. Obstruction of bowels. Primary peritonitis. Peritonitis. Rt. inguinal hernia. Tonsillitis. Colitis. Acute haemorrhagic pancreatitis. Paralysis of muscles of pharynx, (Sulphureic abscess). Rectal abscess. Abscess of abdominal wall. Idiopathic intestinal obstruction. Intestinal perforation. Complicated growth of bowels. Sub-diaphragmatic abscess ...	48	3	4	55	0.38	0.06	0.28	0.28
31.	Diseases of the liver	Cirrhosis of liver. Hepatic cirrhosis. Atrophy of liver. Gallstones. Hepatitis. Cholaemia. Cholecystitis. Liver abscess. Cholelithiasis. Acute catarrhal jaundice. Biliary fistula. Fatty degeneration of liver. Congestion of liver ...	36	5	1	42	0.28	0.09	0.07	0.22
32.	Diseases of the genito-urinary system (non-venereal).	Acute and chronic nephritis. Bright's disease. Nephritis. Uraemia. Chyluria. Pyelonephritis. Cystitis. Urethral stricture. Pyelitis. Interstitial nephritis. Urethral calculus. Renal calculus. Contracted kidney. Kidney disease. Extravasation urine. Adenoma of prostate. Supposed kidney trouble. Uraemia convulsions. Vesicle calculi ...	201	7	3	211	1.58	0.13	0.21	1.08
33.	Old age ...	Senectus. Senile decay. Senility. Senile dementia. Senile asthenia. Senile myocard. failure (over 70). Heart failure (over 70). Cardiac failure (over 70)	132	2	—	134	1.04	0.02	—	0.69

TABLE 5.—CAUSES OF DEATH—*cont.*
All Ages and Ratings Classified by Nationality—cont.

Code number of Cause.	Cause of Death.	This Cause includes	Actual number of Deaths.				Death Rates per 1,000 seamen enumerated at Census of Seamen, 1930.			
			B.	L.	F.	Total.	B.	L.	F.	Total.
34.	External Causes : Accidents, violence, etc.	(a) <i>Among deaths ashore—</i> Street accidents. Railway accidents. Fall down hold. Fall into quarry. Burns and scalds. Winch. Asphyxia. Wounds and affrays. Drank acid in error. Falling coal. Traumatic stricture. Wounded (manslaughter). Others (cause not given) ...								
		(b) <i>Among deaths at sea—</i> Fall down hold. Engine room accidents. Falls from out of ship. Fall on ship. (Un-)Loading accidents. Gas fume accidents. Falls down bunkers and stoke-hold. Winch accidents. Other accidents on board. Accidents on leave. Alcoholic poisoning (not suicide). Bacterial food poisoning. Found shot. Fighting on board. Stabbed. Murdered. Post-operative shock. TOTAL	165	36	16	217	1.29	0.68	1.11	1.11
35.	Suicide	Bullet wound. Lysol poisoning. Hanging. Drowning. Coal gas poisoning. Cut throat. Carbolic poison. Carbon monoxide poisoning. Laudanum poisoning. Jumping overboard at sea (many no doubt are classified under Disappeared at sea (see 36b))	60	21	11	92	0.47	0.40	0.76	0.47

15574	36.	Drowning	...	<i>Shore deaths—</i>	Drowning. Found drowned. Accidentally drowned. Asphyxia due to drowning. Accidentally drowned in docks. Attempting to board ship under influence of drink. Attempting to board tug. Capsized sailing boat. Fall from lighter.					1.50	2.56	0.46	1.81	291	37	24	230
D 3	37.	Heat stroke	...	<i>Sea Deaths—</i>	(a) Fell overboard. Anchor falls into boat. Washed overboard in gale. Fall into dock. Working cargo. Whilst painting ship. Boat capsized re-turning from shore. Overbalanced going aboard (sober). Unmooring ship. Fall from staging. Attempting to rescue passenger's child; and all cases which from the papers show death to be due to special risks of the occupation.					1.50	2.56	0.46	1.81	291	37	24	230
					(b) Missing at sea. Disappeared at sea.												
					(c) Ship foundered. Shipwreck. Drowned when ship sunk in collision.												
					(d) Drowned through fall into dock or harbour when intoxicated.												
					(e) Whilst bathing. Foul play ashore. Boat sailing. When drunk ashore. Attempt at desertion ...												
					Heat Stroke					1.50	2.56	0.46	1.81	291	37	24	230
										1.50	2.56	0.46	1.81	291	37	24	230
										1.50	2.56	0.46	1.81	291	37	24	230

TABLE 8.—PROPORTIONATE MORTALITY (BRITISH SEAMEN ONLY)—see pp. 41-42.

Percentage proportion of Deaths from Special Causes to Total Deaths due to All Causes in Given Age-Periods.

<i>Ages at Death.</i>	<i>All Respiratory Diseases.</i>			<i>Phthisis.</i>		
	<i>Shore.</i>	<i>Sea.</i>	<i>Both.</i>	<i>Shore.</i>	<i>Sea.</i>	<i>Both.</i>
Under 20						
Merchant Seamen	46·7	—	13·2	40·0	—	11·3
	1910/12.	1921/23.		1910/12.	1921/23.	
Coal Miners	24·4	30·0		17·0	19·3	
Agricultural Labourers	25·3	29·1		18·3	22·7	
Carmen, Carriers, etc.	31·6	—		21·5	—	
Rly. Engine Drivers, Stokers, etc.	29·6	38·4		23·9	31·4	
Dock Labourers	45·8	50·0		37·5	40·6	
All Occupied and Retired Males ...	35·3	37·5		26·2	27·8	
20—						
Merchant Seamen	55·7	7·7	31·0	44·3	4·6	23·8
Coal Miners	29·9	39·4		21·2	27·8	
Agricultural Labourers	39·2	44·1		32·0	34·5	
Carmen, Carriers, etc.	44·4	—		30·7	—	
Rly. Engine Drivers, Stokers, etc.	40·7	45·3		30·6	35·4	
Dock Labourers	41·3	59·6		30·6	42·6	
All Occupied and Retired Males ...	47·6	48·7		37·5	38·8	
25—						
Merchant Seamen	53·8	9·0	32·6	40·5	5·8	24·1
Coal Miners	29·8	35·4		19·0	22·9	
Agricultural Labourers	41·4	40·1		31·2	31·3	
Carmen, Carriers, etc.	45·3	—		29·8	—	
Rly. Engine Drivers, Stokers, etc.	33·7	50·7		23·6	35·5	
Dock Labourers	49·7	47·2		33·3	29·4	
All Occupied and Retired Males	47·6	46·2		35·6	33·3	
35—						
Merchant Seamen	41·8	11·4	30·8	27·0	4·7	18·9
Coal Miners	28·8	34·8		15·3	18·9	
Agricultural Labourers	36·0	33·0		22·3	18·2	
Carmen, Carriers, etc.	40·0	—		22·3	—	
Rly. Engine Drivers, Stokers, etc.	29·4	37·6		20·6	17·1	
Dock Labourers	46·2	49·3		26·6	29·6	
All Occupied and Retired Males	40·1	41·1		26·2	25·0	
45—						
Merchant Seamen	31·3	10·9	25·4	19·6	1·5	14·3
Coal Miners	28·3	28·7		10·4	10·8	
Agricultural Labourers	25·7	24·3		12·1	11·0	
Carmen, Carriers, etc.	33·7	—		15·2	—	
Rly. Engine Drivers, Stokers, etc.	21·1	20·2		9·4	10·9	
Dock Labourers	48·1	42·1		17·9	27·0	
All Occupied and Retired Males	30·8	30·1		15·7	14·3	

<i>Ages at Death.</i>				<i>All Respiratory Diseases.</i>			<i>Phthisis.</i>		
				<i>Shore.</i>	<i>Sea.</i>	<i>Both.</i>	<i>Shore.</i>	<i>Sea.</i>	<i>Both.</i>
55—									
Merchant Seamen	...	...	...	16.3	7.6	15.0	7.0	1.3	6.2
				1910/12.	1921/23.		1910/12.	1921/23.	
Coal Miners	...	...	...	27.9	26.1		4.8	4.7	
Agricultural Labourers	...	...	...	20.0	18.5		5.0	4.1	
Carmen, Carriers, etc.	...	...	...	30.1	—		7.6	—	
Rly. Engine Drivers, Stokers, etc.	...	...	...	17.2	15.0		3.5	3.3	
Dock Labourers	...	...	...	36.2	32.5		11.4	9.7	
All Occupied and Retired Males	...	...	...	24.7	19.4		7.3	5.2	
65 and over									
Merchant Seamen	...	...	...	12.3	21.1	12.4	0.7	—	0.7
Coal Miners	...	...	...	24.9	24.8		1.0	0.9	
Agricultural Labourers	...	...	...	16.2	16.6		0.8	0.6	
Carmen, Carriers, etc.	...	...	...	20.5	—		1.6	—	
Rly. Engine Drivers, Stokers, etc.	...	...	...	17.6	17.0		0.7	0.5	
Dock Labourers	...	...	...	28.4	27.5		2.2	2.9	
All Occupied and Retired Males	...	...	...	19.5	18.6		1.4	1.0	
All Ages									
Merchant Seamen	...	...	...	22.7	9.5	20.0	11.1	3.4	9.5
Coal Miners	...	...	...	27.3	28.6		6.9	9.2	
Agricultural Labourers	...	...	...	20.6	20.0		6.1	5.2	
Carmen, Carriers, etc.	...	...	...	33.3	—		13.9	—	
Rly. Engine Drivers, Stokers, etc.	...	...	...	22.8	24.0		9.9	9.9	
Dock Labourers	...	...	...	39.1	36.8		16.6	14.6	
All Occupied and Retired Males	...	...	...	28.0	25.7		11.9	7.6	
<i>Ages at Death.</i>				<i>Bronchitis.</i>			<i>Pneumonia.</i>		
				<i>Shore.</i>	<i>Sea.</i>	<i>Both.</i>	<i>Shore.</i>	<i>Sea.</i>	<i>Both.</i>
Under 20									
Merchant Seamen	...	...	...	—	—	—	—	—	—
				1910/12.	1921/23.		1910/12.	1921/23.	
Coal Miners	...	...	...	0.2	0.4		6.6	9.3	
Agricultural Labourers	...	...	...	0.2	0.5		4.8	4.6	
Carmen, Carriers, etc.	...	...	...	0.4	—		9.7	—	
Rly. Engine Drivers, Stokers, etc.	...	...	...	—	—		5.6	7.0	
Dock Labourers	...	...	...	—	—		8.3	9.4	
All Occupied and Retired Males	...	...	...	0.4	0.5		7.8	8.3	
20—									
Merchant Seamen	...	...	...	—	—	—	—	—	—
Coal Miners	...	...	...	0.5	0.8		7.5	10.2	
Agricultural Labourers	...	...	...	0.9	1.0		5.6	7.8	
Carmen, Carriers, etc.	...	...	...	1.0	—		11.7	—	
Rly. Engine Drivers, Stokers, etc.	...	...	...	0.9	—		9.3	9.4	
Dock Labourers	...	...	...	0.8	1.1		7.4	13.8	
All Occupied and Retired Males	...	...	...	0.6	0.9		8.5	8.1	

<i>Ages at Death.</i>				<i>Bronchitis.</i>			<i>Pneumonia.</i>		
25—				<i>Shore.</i>	<i>Sea.</i>	<i>Both.</i>	<i>Shore.</i>	<i>Sea.</i>	<i>Both.</i>
Merchant Seamen	...	...	...	0.6	0.6	0.6	11.0	1.9	6.7
				1910/12.	1921/23.		1910/12.	1921/23.	
Coal Miners	...	...	...	0.7	1.3		9.2	10.0	
Agricultural Labourers	...	...	...	0.6	0.4		7.9	7.8	
Carmen, Carriers, etc.	...	...	...	1.8	—		12.1	—	
Rly. Engine Drivers, Stokers, etc.	...	...	...	0.6	1.0		8.4	12.8	
Dock Labourers	...	...	...	1.7	2.8		13.1	13.1	
All Occupied and Retired Males	...	...	...	1.1	1.5		9.6	10.2	
35—									
Merchant Seamen	...	...	...	2.3	0.7	1.7	9.5	6.0	8.3
Coal Miners	...	...	...	2.6	2.8		9.4	11.5	
Agricultural Labourers	...	...	...	0.7	2.3		10.9	10.4	
Carmen, Carriers, etc.	...	...	...	3.2	—		13.1	—	
Rly. Engine Drivers, Stokers, etc.	...	...	...	1.0	3.3		7.7	15.9	
Dock Labourers	...	...	...	3.4	4.6		15.1	13.7	
All Occupied and Retired Males	...	...	...	2.3	3.1		9.9	11.4	
45—									
Merchant Seamen	...	...	...	3.9	1.5	3.2	6.9	8.0	7.2
Coal Miners	...	...	...	5.7	5.8		9.8	10.2	
Agricultural Labourers	...	...	...	3.4	2.9		8.2	8.8	
Carmen, Carriers, etc.	...	...	...	6.7	—		9.7	—	
Rly. Engine Drivers, Stokers, etc.	...	...	...	3.8	2.7		4.9	5.5	
Dock Labourers	...	...	...	6.9	8.6		13.8	10.7	
All Occupied and Retired Males	...	...	...	4.5	4.9		8.5	9.1	
55—									
Merchant Seamen	...	...	...	4.0	—	3.4	4.6	11.4	4.7
Coal Miners	...	...	...	12.4	12.2		7.8	7.0	
Agricultural Labourers	...	...	...	5.5	6.2		7.2	6.3	
Carmen, Carriers, etc.	...	...	...	11.3	—		8.6	—	
Rly. Engine Drivers, Stokers, etc.	...	...	...	7.0	5.2		4.7	5.6	
Dock Labourers	...	...	...	14.2	12.0		8.9	9.3	
All Occupied and Retired Males	...	...	...	8.2	6.7		7.0	6.1	
65 and over									
Merchant Seamen	...	...	...	6.9	5.3	6.8	3.4	10.5	3.6
Coal Miners	...	...	...	17.6	18.4		4.1	3.7	
Agricultural Labourers	...	...	...	10.7	12.1		3.3	2.9	
Carmen, Carriers, etc.	...	...	...	16.1	—		4.7	—	
Rly. Engine Drivers, Stokers, etc.	...	...	...	11.9	12.0		3.7	3.6	
Dock Labourers	...	...	...	19.9	16.5		5.1	7.1	
All Occupied and Retired Males	...	...	...	12.2	12.3		4.1	4.1	
All Ages									
Merchant Seamen	...	...	...	4.8	0.8	4.0	5.3	5.8	5.2
Coal Miners	...	...	...	9.2	10.4		7.2	7.3	
Agricultural Labourers	...	...	...	7.9	9.1		5.0	4.5	
Carmen, Carriers, etc.	...	...	...	8.5	—		9.1	—	
Rly. Engine Drivers, Stokers, etc.	...	...	...	6.0	6.6		5.4	6.5	
Dock Labourers	...	...	...	10.0	10.8		10.8	9.8	
All Occupied and Retired Males	...	...	...	7.6	8.2		6.6	6.6	

<i>Ages at Death.</i>				<i>All Circulatory Diseases.</i>			<i>Heart Diseases.</i>		
				<i>Shore.</i>	<i>Sea.</i>	<i>Both.</i>	<i>Shore.</i>	<i>Sea.</i>	<i>Both.</i>
Under 20									
Merchant Seamen	...	...	...	—	—	—	—	—	—
				1910/12.	1921/23.		1910/12.	1921/23.	
Coal Miners	...	...	...	4.6	6.8		2.1	6.6	
Agricultural Labourers	...	...	...	5.2	5.3		3.1	5.0	
Carmen, Carriers, etc.	...	...	...	12.7	—		7.2	—	
Rly. Engine Drivers, Stokers, etc.	...	...	...	2.8	7.0		1.4	7.0	
Dock Labourers	...	...	...	8.3	9.4		4.2	6.3	
All Occupied and Retired Males	...	...	...	8.2	7.4		4.1	7.2	
20—									
Merchant Seamen	...	...	...	1.6	1.5	1.6	1.6	1.5	1.6
Coal Miners	...	...	...	6.1	6.0		3.4	5.7	
Agricultural Labourers	...	...	...	4.5	7.4		2.5	6.9	
Carmen, Carriers, etc.	...	...	...	7.1	—		3.4	—	
Rly. Engine Drivers, Stokers, etc.	...	...	...	7.4	7.2		4.6	4.2	
Dock Labourers	...	...	...	9.9	5.3		5.0	5.3	
All Occupied and Retired Males	...	...	...	6.9	7.8		3.2	7.6	
25—									
Merchant Seamen	...	...	...	7.5	5.2	6.4	7.5	3.2	5.5
Coal Miners	...	...	...	6.4	8.4		3.3	8.1	
Agricultural Labourers	...	...	...	6.6	7.7		2.8	7.5	
Carmen, Carriers, etc.	...	...	...	8.3	—		3.8	—	
Rly. Engine Drivers, Stokers, etc.	...	...	...	7.3	5.4		4.5	4.9	
Dock Labourers	...	...	...	7.7	9.6		4.2	8.9	
All Occupied and Retired Males	...	...	...	7.8	10.3		3.7	9.9	
35—									
Merchant Seamen	...	...	...	10.6	4.0	8.3	9.5	3.4	7.3
Coal Miners	...	...	...	11.0	9.9		5.3	9.2	
Agricultural Labourers	...	...	...	11.4	11.8		5.6	11.2	
Carmen, Carriers, etc.	...	...	...	13.5	—		6.8	—	
Rly. Engine Drivers, Stokers, etc.	...	...	...	13.9	10.2		8.2	9.4	
Dock Labourers	...	...	...	11.5	10.5		6.5	8.8	
All Occupied and Retired Males	...	...	...	11.7	11.5		5.8	10.3	
45—									
Merchant Seamen	...	...	...	13.6	8.0	11.9	11.1	6.6	9.8
Coal Miners	...	...	...	16.3	13.7		7.5	11.5	
Agricultural Labourers	...	...	...	17.4	14.7		7.4	12.8	
Carmen, Carriers, etc.	...	...	...	15.6	—		8.5	—	
Rly. Engine Drivers, Stokers, etc.	...	...	...	16.5	14.2		9.4	10.4	
Dock Labourers	...	...	...	14.6	13.1		6.6	11.0	
All Occupied and Retired Males	...	...	...	15.3	15.1		7.4	12.2	

<i>Ages at Death.</i>	<i>All Circulatory Diseases.</i>			<i>Heart Diseases.</i>		
	<i>Shore.</i>	<i>Sea.</i>	<i>Both.</i>	<i>Shore.</i>	<i>Sea.</i>	<i>Both.</i>
55—						
Merchant Seamen	24.4	11.4	22.5	21.4	8.9	19.5
	1910/12.	1921/23.		1910/12.	1921/23.	
Coal Miners	19.5	19.8		8.5	15.8	
Agricultural Labourers	21.3	21.0		8.9	17.7	
Carmen, Carriers, etc.	18.4	—		7.4	—	
Rly. Engine Drivers, Stokers, etc.	23.7	21.5		9.3	17.5	
Dock Labourers	16.1	18.7		8.3	14.2	
All Occupied and Retired Males	19.7	18.8		8.8	14.3	
65 and over						
Merchant Seamen	31.6	10.5	31.2	26.5	10.5	26.3
Coal Miners	15.9	21.2		6.5	13.7	
Agricultural Labourers	18.5	24.6		7.0	17.5	
Carmen, Carriers, etc.	17.5	—		7.1	—	
Rly. Engine Drivers, Stokers, etc.	22.4	24.9		10.6	17.4	
Dock Labourers	16.8	25.1		7.7	16.2	
All Occupied and Retired Males	18.5	24.8		7.7	16.8	
All Ages						
Merchant Seamen	23.2	5.8	19.6	19.7	4.5	16.6
Coal Miners	13.8	16.1		6.1	12.1	
Agricultural Labourers	17.1	21.3		6.8	16.0	
Carmen, Carriers, etc.	15.0	—		6.8	—	
Rly. Engine Drivers, Stokers, etc.	17.7	18.0		8.5	13.6	
Dock Labourers	14.0	17.4		6.9	12.9	
All Occupied and Retired Males ...	16.0	19.8		7.1	14.6	
<i>Ages at Death.</i>	<i>Cerebral Hemorrhage Apoplexy.</i>			<i>Diseases of the Digestive System.</i>		
	<i>Shore.</i>	<i>Sea.</i>	<i>Both.</i>	<i>Shore.</i>	<i>Sea.</i>	<i>Both.</i>
Under 20						
Merchant Seamen	—	—	—	26.7	5.3	11.3
	1910/12.	1921/23.		1910/12.	1921/23.	
Coal Miners	0.4	0.2		5.7	5.7	
Agricultural Labourers	0.7	0.5		7.9	9.6	
Carmen, Carriers, etc.	0.4	—		7.2	—	
Rly. Engine Drivers, Stokers, etc.	2.8	—		4.2	9.3	
Dock Labourers	—	—		4.2	3.1	
All Occupied and Retired Males	0.4	0.3		7.3	7.6	
20—						
Merchant Seamen	—	—	—	3.3	7.7	5.6
Coal Miners	0.2	0.3		4.5	6.3	
Agricultural Labourers	0.9	0.5		7.5	4.5	
Carmen, Carriers, etc.	0.7	—		7.8	—	
Rly. Engine Drivers, Stokers, etc.	—	1.6		4.6	5.2	
Dock Labourers	0.8	—		10.7	5.3	
All Occupied and Retired Males	0.5	0.5		5.9	5.8	

<i>Ages at Death.</i>	<i>Cerebral Hemorrhage, Apoplexy.</i>			<i>Diseases of the Digestive System.</i>		
	<i>Shore.</i>	<i>Sea.</i>	<i>Both.</i>	<i>Shore.</i>	<i>Sea.</i>	<i>Both.</i>
25—						
Merchant Seamen	—	—	—	4.6	6.5	5.5
	1910/12.	1921/23.		1910/12.	1921/23.	
Coal Miners	0.8	0.8		5.3	5.1	
Agricultural Labourers	1.0	0.8		5.9	4.6	
Carmen, Carriers, etc.	1.2	—		5.9	—	
Rly. Engine Drivers, Stokers, etc.	0.6	0.5		5.6	6.4	
Dock Labourers	1.3	1.1		3.9	3.5	
All Occupied and Retired Males ...	0.8	0.8		5.6	5.3	
35—						
Merchant Seamen	1.5	0.7	1.2	6.1	10.1	7.5
Coal Miners	1.8	1.6		4.7	5.2	
Agricultural Labourers	1.6	2.0		5.6	6.3	
Carmen, Carriers, etc.	2.1	—		5.5	—	
Rly. Engine Drivers, Stokers, etc.	—	1.6		4.1	8.6	
Dock Labourers	1.8	2.3		6.3	5.9	
All Occupied and Retired Males	2.1	1.8		6.0	6.5	
45—						
Merchant Seamen	4.8	5.8	5.1	9.3	4.4	7.9
Coal Miners	3.4	4.3		5.4	5.3	
Agricultural Labourers	3.5	3.6		6.3	6.8	
Carmen, Carriers, etc.	3.7	—		5.9	—	
Rly. Engine Drivers, Stokers, etc.	7.5	5.5		6.8	6.6	
Dock Labourers	3.8	3.0		5.4	5.5	
All Occupied and Retired Males	4.7	4.3		6.9	6.7	
55—						
Merchant Seamen	8.1	7.6	8.1	4.0	8.9	4.7
Coal Miners	7.5	8.0		5.4	4.5	
Agricultural Labourers	5.9	6.4		6.2	5.3	
Carmen, Carriers, etc.	7.6	—		5.3	—	
Rly. Engine Drivers, Stokers, etc.	9.8	9.0		6.7	5.6	
Dock Labourers	5.5	6.0		4.2	4.9	
All Occupied and Retired Males	7.4	6.7		6.2	4.9	
65 and over						
Merchant Seamen	12.0	5.3	11.9	3.8	5.3	3.9
Coal Miners	9.5	12.2		4.2	3.1	
Agricultural Labourers	8.0	9.5		3.8	3.0	
Carmen, Carriers, etc.	8.3	—		3.9	—	
Rly. Engine Drivers, Stokers, etc.	9.1	13.7		1.9	3.4	
Dock Labourers	7.0	8.1		1.0	3.2	
All Occupied and Retired Males	8.7	10.4		4.4	3.4	
All Ages						
Merchant Seamen	8.1	2.5	6.9	5.0	7.2	5.4
Coal Miners	5.3	6.9		4.9	4.4	
Agricultural Labourers	6.3	7.5		4.7	4.0	
Carmen, Carriers, etc.	4.9	—		5.3	—	
Rly. Engine Drivers, Stokers, etc.	6.4	8.4		4.6	5.2	
Dock Labourers	4.2	5.0		4.9	4.6	
All Occupied and Retired Males	6.0	7.1		5.5	4.8	

<i>Ages at Death.</i>				<i>Cancer (all sites).</i>			<i>Genito-Urinary Diseases.</i>		
Under 20				<i>Shore.</i>	<i>Sea.</i>	<i>Both.</i>	<i>Shore.</i>	<i>Sea.</i>	<i>Both.</i>
Merchant Seamen	...	...	...	6.7	—	1.9	—	—	—
				1910/12.	1921/23.		1910/12.	1921/23.	
Coal Miners	...	...	...	0.8	1.4		2.1	2.0	
Agricultural Labourers	...	...	...	1.7	2.1		2.6	2.1	
Carmen, Carriers, etc.	...	...	...	0.8	—		2.9	—	
Rly. Engine Drivers, Stokers, etc.	...	...	...	—	1.2		1.4	1.2	
Dock Labourers	...	...	...	—	—		4.2	—	
All Occupied and Retired Males	...	...	...	1.3	1.4		2.5	2.1	
20—									
Merchant Seamen	...	...	...	1.6	—	0.8	1.6	1.5	1.6
Coal Miners	...	...	...	1.1	1.7		2.4	2.9	
Agricultural Labourers	...	...	...	0.8	1.2		3.0	2.6	
Carmen, Carriers, etc.	...	...	...	1.7	—		2.4	—	
Rly. Engine Drivers, Stokers, etc.	...	...	...	3.7	3.1		1.9	3.6	
Dock Labourers	...	...	...	0.8	1.1		0.8	4.3	
All Occupied and Retired Males	...	...	...	1.6	1.6		2.7	2.6	
25—									
Merchant Seamen	...	...	...	2.9	0.6	1.8	3.5	1.9	2.7
Coal Miners	...	...	...	1.8	2.3		2.6	3.2	
Agricultural Labourers	...	...	...	2.8	2.6		3.8	4.3	
Carmen, Carriers, etc.	...	...	...	2.7	—		3.7	—	
Rly. Engine Drivers, Stokers, etc.	...	...	...	3.4	5.9		2.8	1.5	
Dock Labourers	...	...	...	0.8	4.3		3.9	3.2	
All Occupied and Retired Males	...	...	...	2.4	2.8		3.7	3.3	
35—									
Merchant Seamen	...	...	...	9.1	2.0	6.6	5.7	2.7	4.6
Coal Miners	...	...	...	5.1	6.2		4.4	3.1	
Agricultural Labourers	...	...	...	5.8	5.8		4.6	3.8	
Carmen, Carriers, etc.	...	...	...	5.4	—		4.3	—	
Rly. Engine Drivers, Stokers, etc.	...	...	...	8.2	6.5		6.7	0.8	
Dock Labourers	...	...	...	4.9	4.2		4.1	3.3	
All Occupied and Retired Males	...	...	...	5.4	6.2		4.9	4.0	
45—									
Merchant Seamen	...	...	...	16.0	2.2	11.9	4.5	4.4	4.5
Coal Miners	...	...	...	10.6	12.7		4.0	4.1	
Agricultural Labourers	...	...	...	13.1	15.0		4.7	5.5	
Carmen, Carriers, etc.	...	...	...	11.1	—		4.9	—	
Rly. Engine Drivers, Stokers, etc.	...	...	...	14.3	16.7		7.1	7.7	
Dock Labourers	...	...	...	10.9	13.9		5.1	4.5	
All Occupied and Retired Males	...	...	...	11.6	14.3		6.1	5.4	
55—									
Merchant Seamen	...	...	...	18.9	3.8	16.7	8.1	2.5	7.3
Coal Miners	...	...	...	11.2	15.1		5.5	4.8	
Agricultural Labourers	...	...	...	17.8	20.9		5.6	5.0	
Carmen, Carriers, etc.	...	...	...	13.5	—		5.6	—	
Rly. Engine Drivers, Stokers, etc.	...	...	...	13.0	20.4		7.9	7.1	
Dock Labourers	...	...	...	13.9	18.0		6.1	4.9	
All Occupied and Retired Males	...	...	...	14.5	17.2		7.2	5.6	

<i>Ages at Death.</i>	<i>Cancer (all sites).</i>			<i>Genito-Urinary Diseases.</i>		
	<i>Shore.</i>	<i>Sea.</i>	<i>Both.</i>	<i>Shore.</i>	<i>Sea.</i>	<i>Both.</i>
65 and over						
Merchant Seamen	13·6	—	13·4	9·1	—	8·9
	1910/12.	1921/23.		1910/12.	1921/23.	
Coal Miners	6·5	8·4		4·6	4·4	
Agricultural Labourers	8·7	10·5		5·1	4·9	
Carmen, Carriers, etc.	8·9	—		5·6	—	
Rly. Engine Drivers, Stokers, etc.	13·0	11·1		6·3	6·8	
Dock Labourers	9·7	12·3		5·8	5·4	
All Occupied and Retired Males	9·3	11·3		6·7	6·5	

All ages

Merchant Seamen	13·4	1·6	11·0	7·3	2·5	6·3
Coal Miners	6·7	9·0		4·2	4·0	
Agricultural Labourers	9·5	11·5		4·9	4·8	
Carmen, Carriers, etc.	8·3	—		4·8	—	
Rly. Engine Drivers, Stokers, etc.	10·6	12·0		6·0	5·6	
Dock Labourers	8·9	12·4		5·1	4·6	
All Occupied and Retired Males	9·2	12·1		6·1	5·7	

<i>Ages at Death.</i>	<i>Other Diseases of the Nervous System.</i>			<i>Accidents.</i>		
	<i>Shore.</i>	<i>Sea.</i>	<i>Both.</i>	<i>Shore.</i>	<i>Sea.</i>	<i>Both.</i>
Under 20						
Merchant Seamen	—	2·6	1·9	6·7	26·3	20·8
	1910/12.	1921/23.		1910/12.	1921/23.	
Coal Miners	3·2	5·2		41·8	27·8	
Agricultural Labourers	4·8	6·4		22·0	17·8	
Carmen, Carriers, etc.	3·8	—		19·8	—	
Rly. Engine Drivers, Stokers, etc.	4·2	3·5		33·8	17·4	
Dock Labourers	—	3·1		25·0	12·5	
All Occupied and Retired Males	4·0	5·3		18·3	14·4	

20—

Merchant Seamen	3·3	1·5	2·4	14·8	21·5	18·3
Coal Miners	2·6	3·2		33·9	20·7	
Agricultural Labourers	7·3	6·3		14·4	11·2	
Carmen, Carriers, etc.	2·9	—		10·7	—	
Rly. Engine Drivers, Stokers, etc.	1·9	3·1		20·4	15·6	
Dock Labourers	1·7	2·1		19·8	8·5	
All Occupied and Retired Males	3·5	4·2		12·6	10·2	

25—

Merchant Seamen	3·5	1·3	2·4	5·2	21·9	13·1
Coal Miners	2·9	5·2		31·5	21·5	
Agricultural Labourers	5·0	7·6		10·7	7·7	
Carmen, Carriers, etc.	3·0	—		11·2	—	
Rly. Engine Drivers, Stokers, etc.	4·5	2·5		19·1	12·8	
Dock Labourers	2·9	6·7		13·4	8·2	
All Occupied and Retired Males	3·3	5·0		10·3	8·3	

<i>Ages at Death.</i>	<i>Other Diseases of the Nervous System.</i>			<i>Accidents.</i>		
	<i>Shore.</i>	<i>Sea.</i>	<i>Both.</i>	<i>Shore.</i>	<i>Sea.</i>	<i>Both.</i>
35—						
Merchant Seamen	8.4	—	5.3	3.4	11.4	6.3
	1910/12.	1921/23.		1910/12.	1921/23.	
Coal Miners	3.3	6.3		23.5	15.6	
Agricultural Labourers	5.3	6.6		8.5	9.0	
Carmen, Carriers, etc.	2.6	—		10.9	—	
Rly. Engine Drivers, Stokers, etc.	1.0	8.2		14.9	9.4	
Dock Labourers	2.1	7.9		10.3	6.3	
All Occupied and Retired Males	3.3	6.6		7.9	6.1	
45—						
Merchant Seamen	6.3	0.7	4.7	1.5	11.7	4.5
Coal Miners	3.2	5.9		14.7	11.0	
Agricultural Labourers	4.5	6.4		7.3	6.3	
Carmen, Carriers, etc.	2.1	—		10.1	—	
Rly. Engine Drivers, Stokers, etc.	1.1	7.4		7.9	6.0	
Dock Labourers	2.0	4.5		7.8	4.3	
All Occupied and Retired Males	3.4	5.5		5.5	4.6	
55—						
Merchant Seamen	6.2	1.3	5.4	2.6	21.5	5.4
Coal Miners	3.7	3.8		7.6	5.6	
Agricultural Labourers	3.9	4.1		4.9	4.5	
Carmen, Carriers, etc.	2.8	—		6.3	—	
Rly. Engine Drivers, Stokers, etc.	3.0	5.2		4.0	3.3	
Dock Labourers	2.4	3.2		6.2	2.9	
All Occupied and Retired Males	3.8	3.5		3.5	2.7	
65 and over						
Merchant Seamen	1.2	—	1.2	0.9	5.3	5.4
Coal Miners	3.3	1.8		2.3	2.1	
Agricultural Labourers	3.5	1.7		1.7	1.6	
Carmen, Carriers, etc.	3.6	—		2.8	—	
Rly. Engine Drivers, Stokers, etc.	2.4	2.3		1.1	1.8	
Dock Labourers	3.0	1.4		3.1	1.9	
All Occupied and Retired Males	3.6	2.1		1.8	1.6	
All Ages						
Merchant Seamen	3.7	0.9	3.2	2.2	17.0	5.2
Coal Miners	3.2	3.8		14.9	9.4	
Agricultural Labourers	3.9	3.1		4.2	3.5	
Carmen, Carriers, etc.	2.9	—		7.9	—	
Rly. Engine Drivers, Stokers, etc.	2.5	4.2		8.6	5.6	
Dock Labourers	2.4	3.8		7.8	3.8	
All Occupied and Retired Males	3.6	3.6		4.7	3.8	

<i>Ages at Death.</i>				<i>Suicide.</i>			<i>Alcoholism.</i>		
				<i>Shore.</i>	<i>Sea.</i>	<i>Both.</i>	<i>Shore.</i>	<i>Sea.</i>	<i>Both.</i>
Under 20									
Merchant Seamen	...	...	...	—	2.6	1.9	—	—	—
				1910/12.	1921/23.		1910/12.	1921/23.	
Coal Miners	...	...	...	0.5	0.3		—	—	
Agricultural Labourers	...	...	...	3.5	3.0		—	—	
Carmen, Carriers, etc.	...	...	...	2.1	—		—	—	
Rly. Engine Drivers, Stokers, etc.	...	...	...	—	1.2		—	—	
Dock Labourers	...	...	...	—	—		—	—
All Occupied and Retired Males	...	...	...	1.9	1.2		0.01	—	
20—									
Merchant Seamen	...	...	...	1.6	1.5	1.6	—	1.5	0.8
Coal Miners	...	...	...	2.4	1.8		0.07	—	
Agricultural Labourers	...	...	...	3.0	3.0		0.2	—	
Carmen, Carriers, etc.	...	...	...	2.7	—		0.2	—	
Rly. Engine Drivers, Stokers, etc.	...	...	...	0.9	1.6		—	—	
Dock Labourers	...	...	...	1.7	2.1		—	—	
All Occupied and Retired Males	...	...	...	2.6	1.9		0.08	—	
25—									
Merchant Seamen	...	...	...	1.7	4.5	3.0	—	—	—
Coal Miners	...	...	...	2.0	1.6		0.2	0.04	
Agricultural Labourers	...	...	...	3.1	5.4		0.4	—	
Carmen, Carriers, etc.	...	...	...	3.0	—		0.4	—	
Rly. Engine Drivers, Stokers, etc.	...	...	...	1.1	0.5		—	—	
Dock Labourers	...	...	...	2.0	2.5		2.2	—	
All Occupied and Retired Males	...	...	...	3.1	2.4		0.5	0.04	
35—									
Merchant Seamen	...	...	...	1.9	4.0	2.7	—	—	—
Coal Miners	...	...	...	1.9	2.5		0.2	0.03	
Agricultural Labourers	...	...	...	3.7	3.8		0.1	0.2	
Carmen, Carriers, etc.	...	...	...	1.9	—		0.9	—	
Rly. Engine Drivers, Stokers, etc.	...	...	...	—	2.4		—	—	
Dock Labourers	...	...	...	1.9	2.2		1.3	0.3	
All Occupied and Retired Males	...	...	...	2.9	3.1		0.8	0.2	
45—									
Merchant Seamen	...	...	...	1.5	10.2	4.1	0.6	0.7	0.6
Coal Miners	...	...	...	1.5	2.3		0.7	0.1	
Agricultural Labourers	...	...	...	2.9	3.8		0.2	0.2	
Carmen, Carriers, etc.	...	...	...	2.0	—		0.4	—	
Rly. Engine Drivers, Stokers, etc.	...	...	...	—	1.4		—	—	
Dock Labourers	...	...	...	1.0	1.9		1.2	0.08	
All Occupied and Retired Males	...	...	...	2.4	2.9		0.6	0.2	
55—									
Merchant Seamen	...	...	...	1.8	2.5	1.9	—	—	—
Coal Miners	...	...	...	1.2	1.8		0.2	0.02	
Agricultural Labourers	...	...	...	1.6	2.7		0.06	0.03	
Carmen, Carriers, etc.	...	...	...	1.5	—		0.09	—	
Rly. Engine Drivers, Stokers, etc.	...	...	...	0.7	1.5		—	—	
Dock Labourers	...	...	...	0.9	1.1		0.7	0.07	
All Occupied and Retired Males	...	...	...	1.7	1.7		0.3	0.05	

<i>Ages at Death.</i>				<i>Suicide.</i>			<i>Alcoholism.</i>		
				<i>Shore.</i>	<i>Sea.</i>	<i>Both.</i>	<i>Shore.</i>	<i>Sea.</i>	<i>Both.</i>
65 and over									
Merchant Seamen	...	...	...	0.6	—	0.6	—	—	—
				1910/12.	1921/23.		1910/12.	1921/23.	
Coal Miners	...	...	...	0.4	0.7		0.02	—	
Agricultural Labourers	...	...	...	0.4	0.6		0.03	0.01	
Carmen, Carriers, etc.	...	...	...	0.9	—		0.07	—	
Rly. Engine Drivers, Stokers, etc.	...	...	...	—	0.5		—	—	
Dock Labourers	...	...	...	0.3	0.5		0.2	—	
All Occupied and Retired Males	...	...	...	0.5	0.6		0.05	0.01	

All Ages

Merchant Seamen	...	...	...	1.1	4.8	1.9	0.07	0.3	0.1
Coal Miners	...	...	...	1.2	1.5		0.1	0.03	
Agricultural Labourers	...	...	...	1.2	1.6		0.04	0.03	
Carmen, Carriers, etc.	...	...	...	1.8	—		0.3	—	
Rly. Engine Drivers, Stokers, etc.	...	...	...	0.6	1.1		—	—	
Dock Labourers	...	...	...	1.1	1.3		1.0	0.07	
All Occupied and Retired Males	...	...	...	1.6	1.6		0.3	0.06	

<i>Ages at Death.</i>				<i>All Causes.</i>		
				<i>Shore.</i>	<i>Sea.</i>	<i>Both.</i>
Under 20						
Merchant Seamen	...	...	...	0.6	5.9	1.7
				1921/23.		
Coal Miners	...	...	...	4.5		
Agricultural Labourers	...	...	...	1.8		
Carmen, Carriers, etc.	...	...	...	—
Rly. Engine Drivers, Stokers, etc.	...	...	...	3.1		
Dock Labourers	...	...	...	0.6		
All Occupied and Retired Males	...	...	...	1.8		

20—

Merchant Seamen	...	...	...	2.4	10.1	4.0
Coal Miners	...	...	...	5.1		
Agricultural Labourers	...	...	...	2.6		
Carmen, Carriers, etc.	...	...	...	—
Rly. Engine Drivers, Stokers, etc.	...	...	...	7.0		
Dock Labourers	...	...	...	1.6		
All Occupied and Retired Males	...	...	...	2.8		

25—

Merchant Seamen	...	...	...	6.9	24.1	10.4
Coal Miners	...	...	...	9.1		
Agricultural Labourers	...	...	...	4.0		
Carmen, Carriers, etc.	...	...	...	—
Rly. Engine Drivers, Stokers, etc.	...	...	...	7.4		
Dock Labourers	...	...	...	4.9		
All Occupied and Retired Males	...	...	...	5.9		

*Ages at Death.**All Causes.**Shore. Sea. Both.*

35—

Merchant Seamen	10.4	23.2	13.0
------------------------	------	------	------

1921/23.

Coal Miners	11.0
Agricultural Labourers	4.4
Carmen, Carriers, etc.	—
Rly. Engine Drivers, Stokers, etc.	9.0
Dock Labourers	13.7
All Occupied and Retired Males	9.1

45—

Merchant Seamen	13.2	21.3	14.8
Coal Miners	14.9		
Agricultural Labourers	7.5		
Carmen, Carriers, etc.	—		
Rly. Engine Drivers, Stokers, etc.	13.4		
Dock Labourers	23.1		
All Occupied and Retired Males	14.2		

55—

Merchant Seamen	18.0	12.3	16.8
Coal Miners	20.0		
Agricultural Labourers	15.0		
Carmen, Carriers, etc.	—		
Rly. Engine Drivers, Stokers, etc.	19.0		
Dock Labourers	26.6		
All Occupied and Retired Males	20.3		

65 and over

Merchant Seamen	48.6	3.0	39.3
Coal Miners	35.9		
Agricultural Labourers	64.6		
Carmen, Carriers, etc.	—		
Rly. Engine Drivers, Stokers, etc.	41.1		
Dock Labourers	29.4		
All Occupied and Retired Males	45.9		

TABLE 9.—CANCER (ALL BRITISH DEATHS)—see page 43.

Site.	Deck Department.			Engine Room Department.		Stewards' Department.	
	Officers.	P.O's.	Sailors.	Engin-eers.	Firemen	Stewards	Others.
Buccal Cavity ...	5	1	8	5	12	8	3
Pharynx, Oesophagus, Stomach, etc.	28	2	31	33	33	25	7
Peritoneum, Intes-tines, Rectum.	17	4	19	11	12	9	1
Other sites ...	10	2	17	13	15	12	4
Totals ...	60	9	75	62	72	54	15

TABLE 9A.—PERCENTAGE OF TOTAL DEATHS EACH RATING.

Buccal Cavity ...	0·87	1·35	0·98	1·06	2·01	1·54	2·68
Pharynx, Oesophagus, Stomach, etc.	4·89	2·70	3·79	6·99	5·52	4·82	6·25
Peritoneum, Intes-tines, Rectum.	2·97	5·41	2·32	2·33	2·01	1·73	0·89
Other sites ...	1·75	2·70	2·08	2·75	2·51	2·31	3·57
Totals ...	10·47	12·16	9·17	13·13	12·04	10·40	13·39

TABLE 12.—DEATHS CLASSIFIED BY CAUSE OF DEATH, RATING AND NATIONALITY—see pp. 45-47.

(a) *Deaths Ashore in the U.K.*

Cause of Death.	Officers.			P.O's.			Seamen.			Engineers.		
	B.	L.	F.	B.	L.	F.	B.	L.	F.	B.	L.	F.
1. Typhoid Fever ...	—	—	—	1	—	—	—	1	—	1	—	—
2. Malaria ...	1	—	—	—	—	—	2	—	—	1	—	—
3. Smallpox ...	—	—	—	—	—	—	—	—	—	—	—	—
4. Diphtheria ...	—	—	—	—	—	—	—	—	—	—	—	—
5. Influenza ...	5	—	—	—	—	—	5	—	—	2	—	—
6. Cholera ...	—	—	—	—	—	—	—	—	—	—	—	—
7. Dysentery ...	—	—	—	—	—	—	—	—	—	1	—	—
8. Other Epidemic Dis.	2	—	—	—	—	—	3	—	—	3	—	—
9. T.B. Respiratory ...	10	—	—	7	—	1	54	6	4	39	—	—
10. T.B. Other Forms ...	1	—	—	—	—	—	3	—	2	1	—	—
11. Venereal Dis. ...	1	—	—	—	—	—	3	—	—	—	—	—
12. Cancer ...	60	—	—	9	—	1	72	1	2	62	—	—
13. Rheumatic Fever ...	—	—	—	1	—	—	—	—	—	2	—	—
14. Rheumatoid Arthritis	2	—	—	—	—	—	3	—	—	1	—	—
15. Beri-beri ...	—	—	—	—	—	—	—	—	—	—	—	—
16. Diabetes ...	9	—	—	—	—	—	—	—	—	3	—	—
17. Alcoholism ...	—	—	—	—	—	—	—	—	—	—	—	—
18. Meningitis ...	—	—	—	—	—	—	2	—	—	1	—	—
19. Cerebral Hemorrhage, etc.	61	—	—	2	—	—	55	—	—	32	—	—
20. Other Nervous Dis. ...	18	—	—	1	—	—	22	—	—	12	—	—
21. Heart Diseases ...	121	—	—	9	—	—	155	—	1	79	—	—
22. Other Circulatory Dis.	24	—	—	1	—	—	21	—	—	13	—	—
23. Bronchitis ...	22	—	—	5	—	—	43	—	1	16	—	—
24. Broncho-Pneumonia	10	—	—	1	—	—	17	1	1	8	—	—
25. Pneumonia ...	11	—	—	—	—	—	22	2	—	11	—	—
26. Other Respiratory Dis.	5	—	—	2	—	—	11	—	—	5	—	—
27. Stomach Diseases ...	7	—	—	2	—	—	7	—	—	12	—	—
28. Diarrhoea ...	2	—	—	—	—	—	3	—	—	1	—	—
29. Appendicitis ...	2	—	—	—	—	—	3	—	—	2	—	—
30. Dis. Digestive System	12	—	1	1	—	—	10	—	1	2	—	—
31. Diseases of Liver ...	11	—	—	1	—	—	6	—	—	4	—	—
32. Genito Urinary Dis....	38	—	—	4	—	—	43	—	—	34	—	—
33. Old Age ...	34	—	—	2	—	—	51	—	—	18	—	—
34. Accidents, etc. ...	7	—	—	3	—	—	22	3	—	8	—	—
35. Suicide ...	7	—	—	—	—	—	9	—	—	6	—	—
36. Drowning ...	2	—	—	—	—	—	8	—	1	4	—	—
37. Heat Stroke ...	—	—	—	—	—	—	—	—	—	—	—	—
38. Other Defined Dis. ...	6	—	—	1	—	—	10	—	—	4	—	—
39. Ill-defined Dis. ...	1	—	—	1	—	—	7	—	—	3	—	—
Total ...	492	—	1	54	—	2	672	14	13	391	—	—

TABLE 12—*cont.*(a) *Deaths Ashore in the U.K.—cont.*

Cause of Death.	Firemen, etc.			Stewards.			Painters, Store-keepers, etc.			Apprentices.		
	B.	L.	F.	B.	L.	F.	B.	L.	F.	B.	L.	F.
1. Typhoid Fever ...	—	1	—	2	—	—	—	—	—	—	—	—
2. Malaria ...	1	1	—	2	—	—	—	—	—	—	—	—
3. Smallpox ...	—	—	—	—	—	—	—	—	—	—	—	—
4. Diphtheria ...	—	—	—	1	—	—	—	—	—	—	—	—
5. Influenza ...	7	—	—	1	—	—	—	—	—	—	—	—
6. Cholera ...	—	—	—	—	—	—	—	—	—	—	—	—
7. Dysentery ...	—	—	—	1	—	—	—	—	—	—	—	—
8. Other Epidemic Dis.	2	—	—	3	—	—	—	—	—	—	—	—
9. T.B. Respiratory ...	74	11	7	90	1	—	1	—	—	2	—	—
10. T.B. Other Forms ...	5	4	3	3	—	—	—	—	—	1	—	—
11. Venereal Dis. ...	5	—	—	3	—	—	—	—	—	—	—	—
12. Cancer ...	71	—	—	48	1	1	12	—	—	1	—	—
13. Rheumatic Fever ...	2	—	—	1	—	—	—	—	—	—	—	—
14. Rheumatoid Arthritis	1	—	—	1	—	—	—	—	—	—	—	—
15. Beri-beri ...	—	—	—	—	—	—	—	—	—	—	—	—
16. Diabetes ...	1	—	—	8	—	—	1	—	—	—	—	—
17. Alcoholism ...	2	—	—	—	—	—	—	—	—	—	—	—
18. Meningitis ...	—	—	—	1	—	—	1	—	—	—	—	—
19. Cerebral Hemorrhage, etc.	25	—	—	25	—	—	3	—	—	—	—	—
20. Other Nervous Dis. ...	20	—	—	16	—	1	4	—	—	—	—	—
21. Heart Diseases ...	83	—	—	46	—	—	4	—	—	—	—	—
22. Other Circulatory Dis.	15	—	—	10	—	—	2	—	—	—	—	—
23. Bronchitis ...	23	1	—	13	1	1	—	—	—	—	—	—
24. Broncho-Pneumonia	10	—	1	5	—	—	1	—	1	—	—	—
25. Pneumonia ...	27	3	1	12	—	—	—	—	—	—	—	—
26. Other Respiratory Dis.	11	—	1	1	—	—	—	—	—	1	—	—
27. Stomach Diseases ...	5	1	1	6	—	—	—	—	—	—	—	—
28. Diarrhoea ...	—	—	1	1	—	—	—	—	—	—	—	—
29. Appendicitis ...	2	—	—	2	—	—	—	—	—	1	—	—
30. Dis. Digestive System	5	—	—	6	—	—	—	—	—	—	—	—
31. Diseases of Liver ...	5	—	—	4	—	—	—	—	—	—	—	—
32. Genito Urinary Dis....	27	—	—	35	—	—	4	—	—	—	—	—
33. Old Age ...	11	—	—	11	—	—	5	—	—	—	—	—
34. Accidents, etc. ...	10	—	—	5	—	—	—	—	—	—	—	—
35. Suicide ...	2	—	—	5	—	—	—	—	—	—	—	—
36. Drowning ...	9	—	1	2	—	—	—	—	—	—	—	—
37. Heat Stroke ...	—	—	—	—	—	—	—	—	—	—	—	—
38. Other Defined Dis. ...	10	1	—	11	—	—	—	—	—	1	—	—
39. Ill-defined Dis. ...	3	—	—	2	—	—	—	—	—	—	—	—
Total ...	474	23	17	383	3	3	38	—	1	7	—	—

TABLE 12—*cont.*(a) *Deaths Ashore in the U.K.—cont.*

Cause of Death.	Pursers.			Wireless Electricians, etc.			Others.			Total.		
	B.	L.	F.	B.	L.	F.	B.	L.	F.	B.	L.	F.
1. Typhoid Fever ...	—	—	—	—	—	—	—	—	—	4	2	—
2. Malaria ...	—	—	—	—	—	—	1	—	—	8	1	—
3. Smallpox ...	—	—	—	—	—	—	—	—	—	—	—	—
4. Diphtheria ...	—	—	—	—	—	—	—	—	—	1	—	—
5. Influenza ...	—	—	—	—	—	—	—	—	—	20	—	—
6. Cholera ...	—	—	—	—	—	—	—	—	—	—	—	—
7. Dysentery ...	—	—	—	—	—	—	—	—	—	2	—	—
8. Other Epidemic Dis.	—	—	—	—	—	—	—	—	—	13	—	—
9. T.B. Respiratory ...	1	—	—	1	—	—	1	—	—	280	18	12
10. T.B. Other Forms ...	—	—	—	—	—	—	—	—	—	14	4	5
11. Venereal Dis. ...	—	—	—	—	—	—	—	—	—	12	—	—
12. Cancer ...	—	—	—	—	—	—	2	—	—	337	2	4
13. Rheumatic Fever ...	—	—	—	—	—	—	—	—	—	6	—	—
14. Rheumatoid Arthritis	—	—	—	—	—	—	—	—	—	8	—	—
15. Beri-beri ...	—	—	—	—	—	—	—	—	—	—	—	—
16. Diabetes ...	—	—	—	—	—	—	—	—	—	22	—	—
17. Alcoholism ...	—	—	—	—	—	—	—	—	—	2	—	—
18. Meningitis ...	—	—	—	—	—	—	—	—	—	5	—	—
19. Cerebral Hemorrhage	—	—	—	1	—	—	—	—	—	204	—	—
20. Other Nervous Dis., etc.	—	—	—	1	—	—	—	—	—	94	—	2
21. Heart Diseases ...	1	—	—	—	—	—	—	—	—	498	—	1
22. Other Circulatory Dis.	—	—	—	1	—	—	—	—	—	87	—	—
23. Bronchitis ...	—	—	—	—	—	—	—	—	—	122	2	2
24. Broncho-pneumonia	—	—	—	—	—	—	—	—	—	52	1	3
25. Pneumonia ...	—	—	—	—	—	—	—	—	—	83	5	1
26. Other Respiratory Dis.	—	—	—	—	—	—	—	—	—	36	—	1
27. Stomach Diseases ...	—	—	—	—	—	—	—	—	—	39	1	1
28. Diarrhoea ...	—	—	—	—	—	—	—	—	—	7	—	1
29. Appendicitis ...	—	—	—	—	—	—	—	—	—	12	—	—
30. Dis. Digestive System	—	—	—	—	—	—	—	—	—	36	—	2
31. Diseases of Liver ...	—	—	—	—	—	—	1	—	—	32	—	—
32. Genito Urinary Dis....	—	—	—	—	—	—	—	—	—	185	—	—
33. Old Age ...	—	—	—	—	—	—	—	—	—	132	—	—
34. Accidents, etc. ...	1	—	—	—	—	—	—	—	—	56	3	—
35. Suicide ...	—	—	—	—	—	—	—	—	—	29	—	—
36. Drowning ...	—	—	—	—	—	—	—	—	—	25	—	2
37. Heat Stroke ...	—	—	—	—	—	—	—	—	—	—	—	—
38. Other Defined Dis. ...	1	—	—	—	—	—	—	—	—	44	1	—
39. Ill-defined Dis. ...	—	—	—	—	—	—	—	—	—	17	—	—
Total ...	4	—	—	4	—	—	5	—	—	2,524	40	37

TABLE 12—*contd.*(b) *Deaths at Sea and Abroad.*

Cause of Death.	Officers.			P.O's.			Seamen.			Engineers.		
	B.	L.	F.	B.	L.	F.	B.	L.	F.	B.	L.	F.
1. Typhoid Fever ...	—	—	—	1	—	1	—	2	—	2	—	—
2. Malaria ...	2	—	—	1	—	1	1	2	—	1	—	—
3. Smallpox ...	1	—	—	—	—	—	—	—	—	—	—	—
4. Diphtheria ...	—	—	—	—	—	—	—	—	—	—	—	—
5. Influenza ...	—	—	—	—	—	—	1	—	1	—	—	—
6. Cholera ...	—	—	—	—	—	—	—	—	—	—	—	—
7. Dysentery ...	—	—	—	—	—	—	2	1	—	2	—	—
8. Other Epidemic Dis.	4	—	—	1	—	—	2	—	—	1	—	—
9. T.B. Respiratory ...	2	—	—	2	1	1	2	7	1	2	—	—
10. T.B. Other Forms ...	—	—	—	—	1	—	—	1	—	—	—	—
11. Venereal Dis. ...	—	—	—	—	—	—	—	—	—	—	—	—
12. Cancer ...	—	—	—	—	1	—	3	—	—	—	—	—
13. Rheumatic Fever ...	—	—	—	—	—	—	—	—	—	—	—	—
14. Rheumatoid Arthritis	—	—	—	—	—	—	—	—	—	—	—	—
15. Beri-beri ...	—	—	—	—	—	—	—	1	—	—	—	—
16. Diabetes ...	—	—	—	—	—	—	—	—	—	—	—	—
17. Alcoholism ...	—	—	—	—	—	—	1	1	—	—	—	—
18. Meningitis ...	—	—	—	—	—	—	—	—	—	1	—	—
19. Cerebral Hemorrhage, etc.	3	—	—	—	—	—	4	—	1	5	—	—
20. Other Nervous Dis....	1	—	—	—	—	—	—	—	—	—	—	—
21. Heart Diseases ...	10	—	—	—	—	—	2	5	1	4	—	—
22. Other Circulatory Dis.	2	—	—	1	—	—	—	—	—	2	—	—
23. Bronchitis ...	—	—	—	—	—	—	2	2	—	—	—	—
24. Broncho-pneumonia	—	—	—	—	—	—	2	2	—	1	—	—
25. Pneumonia ...	4	—	—	—	—	—	3	8	2	2	—	1
26. Other Respiratory Dis.	—	—	—	—	—	—	1	2	—	1	—	—
27. Dis. of Stomach ...	1	—	—	1	—	—	3	3	—	2	—	—
28. Diarrhoea ...	—	—	—	—	—	—	—	2	1	3	—	—
29. Appendicitis ...	1	—	—	—	—	—	2	—	—	1	—	—
30. Dis. of digestive sys- tem.	1	—	—	—	—	—	1	—	1	2	—	—
31. Dis. of Liver... ..	—	—	—	—	—	—	—	1	1	2	—	—
32. Genito-Urinary Dis....	3	—	—	—	—	—	3	3	—	—	—	—
33. Old Age ...	—	—	—	—	—	—	—	1	—	—	—	—
34. Accidents, etc. ...	12	—	—	4	—	2	36	16	5	11	—	—
35. Suicide ...	4	—	—	1	—	—	3	3	1	5	—	—
36. Drowning ...	18	—	—	5	—	4	70	7	6	23	—	—
37. Heat Stroke ...	2	—	—	1	—	—	—	—	—	1	—	—
38. Other Defined Dis. ...	—	—	—	—	—	—	1	—	—	—	—	—
39. Ill-defined ...	10	—	—	2	—	1	1	10	3	7	—	—
Total ...	81	—	—	20	3	10	146	80	24	81	—	1

TABLE 12—*cont.*(b) *Deaths at Sea and Abroad.*—*cont.*

Cause of Death.	Firemen, etc.			Stewards.			Painters, Store-keepers, etc.			Apprentices.		
	B.	L.	F.	B.	L.	F.	B.	L.	F.	B.	L.	F.
1. Typhoid Fever ...	—	4	1	2	1	—	—	—	—	3	—	—
2. Malaria ...	2	7	—	2	1	—	1	—	—	—	—	—
3. Smallpox ...	1	—	—	—	—	—	—	—	—	—	—	—
4. Diphtheria ...	—	—	—	—	—	—	—	—	—	—	—	—
5. Influenza ...	1	1	2	—	—	—	—	—	—	—	—	—
6. Cholera ...	—	2	—	—	—	—	—	—	—	—	—	—
7. Dysentery ...	—	—	—	—	—	1	—	—	—	—	—	—
8. Other Epidemic Dis.	—	1	—	1	—	—	—	—	—	1	—	—
9. T.B. Respiratory ...	6	17	5	4	2	1	1	—	—	—	—	—
10. T.B. Other Forms ...	2	2	—	—	—	—	—	—	—	—	—	—
11. Venereal Dis. ...	—	—	2	—	2	—	—	—	—	—	—	—
12. Cancer ...	1	1	—	6	—	1	—	—	—	—	—	—
13. Rheumatic Fever ...	—	—	—	—	—	—	—	—	—	—	—	—
14. Rheumatoid Arthritis	—	—	—	—	—	—	—	—	—	—	—	—
15. Beri-beri ...	1	6	—	—	—	—	—	—	—	—	—	—
16. Diabetes ...	—	—	—	1	—	—	—	—	—	—	—	—
17. Alcoholism ...	1	—	—	—	—	—	—	—	—	—	—	—
18. Meningitis ...	1	1	—	2	1	1	—	—	—	—	—	—
19. Cerebral Hemorrh., etc.	1	1	2	3	—	—	—	—	1	—	—	—
20. Other Nervous Dis....	1	—	1	3	—	—	—	1	—	1	—	—
21. Heart Diseases ...	6	1	4	6	4	2	—	—	—	—	—	—
22. Other Circulatory Dis.	1	1	1	2	2	—	—	—	—	—	—	—
23. Bronchitis ...	1	2	—	1	—	—	—	1	—	—	—	—
24. Broncho-pneumonia	3	1	1	2	—	—	—	—	—	—	—	—
25. Pneumonia ...	5	10	5	6	2	1	2	—	—	—	—	—
26. Other Respiratory Dis.	—	1	—	—	—	—	—	—	—	1	—	—
27. Dis. of Stomach ...	3	3	3	6	1	—	—	—	—	—	—	—
28. Diarrhoea ...	—	1	1	1	2	—	—	—	—	1	—	—
29. Appendicitis ...	—	—	1	2	1	—	—	—	—	—	—	—
30. Dis. of digestive system.	4	—	1	2	3	—	1	—	—	—	—	—
31. Dis. of Liver... ..	—	3	—	2	1	—	—	—	—	—	—	—
32. Genito-Urinary Dis....	3	2	2	6	2	1	—	—	—	—	—	—
33. Old Age ...	—	—	—	—	1	—	—	—	—	—	—	—
34. Accidents, etc. ...	25	10	4	13	5	2	1	2	3	4	—	—
35. Suicide ...	5	11	8	10	7	2	1	—	—	1	—	—
36. Drowning ...	44	11	20	34	4	3	4	2	2	4	—	—
37. Heat Stroke ...	—	2	1	4	1	—	1	—	—	—	—	—
38. Other Defined Dis. ...	—	—	1	2	—	—	—	—	—	—	—	—
39. Ill-Defined ...	6	11	6	13	2	1	—	—	—	2	—	—
Total ...	124	113	72	136	45	16	12	6	6	18	—	—

TABLE 12—cont.

(b) *Deaths at Sea and Abroad.*—cont.

Cause of Death.	Pursers.			Wireless Electricians, etc.			Others.			Total.		
	B.	L.	F.	B.	L.	F.	B.	L.	F.	B.	L.	F.
1. Typhoid Fever ...	—	—	—	3	—	—	—	—	—	11	7	2
2. Malaria ...	—	—	—	1	—	—	—	—	—	11	10	1
3. Smallpox ...	—	—	—	—	—	—	—	—	—	2	—	—
4. Diphtheria ...	—	—	—	—	—	—	—	—	—	—	—	—
5. Influenza ...	—	—	—	—	—	—	—	—	—	2	1	3
6. Cholera ...	—	—	—	—	—	—	—	—	—	—	2	—
7. Dysentery ...	—	—	—	—	—	—	—	—	—	4	1	1
8. Other Epidemic Dis.	—	—	—	—	—	—	—	—	—	10	1	—
9. T.B. Respiratory ...	—	—	—	2	—	—	1	—	—	22	27	8
10. T.B. Other Forms ...	—	—	—	—	—	—	—	—	—	2	4	—
11. Venereal Dis. ...	—	—	—	—	—	—	—	—	—	—	2	2
12. Cancer ...	—	—	—	—	—	—	—	—	—	10	2	1
13. Rheumatic Fever ...	—	—	—	—	—	—	—	—	—	—	—	—
14. Rheumatoid Arthritis	—	—	—	1	—	—	—	—	—	1	—	—
15. Beri-beri ...	—	—	—	—	—	—	—	—	—	1	7	—
16. Diabetes ...	—	—	—	—	—	—	—	—	—	1	—	—
17. Alcoholism ...	—	—	—	—	—	—	—	—	—	2	1	—
18. Meningitis ...	—	—	—	—	—	—	—	—	—	4	2	1
19. Cerebral Hemorrh., etc.	—	—	—	—	—	—	—	—	—	16	1	4
20. Other Nervous Dis....	—	—	—	—	—	—	—	—	—	6	1	1
21. Heart Diseases ...	—	—	—	—	—	—	1	—	1	29	10	8
22. Other Circulatory Dis.	—	—	—	—	—	—	—	—	—	8	3	1
23. Bronchitis ...	—	—	—	—	—	—	1	—	—	5	5	—
24. Broncho-pneumonia	—	—	—	—	—	—	—	—	—	8	3	1
25. Pneumonia ...	—	—	—	—	—	—	1	—	—	23	20	9
26. Other Respiratory Dis.	—	—	—	—	—	—	—	—	—	3	3	—
27. Dis. of Stomach ...	—	—	—	—	—	—	—	—	—	16	7	3
28. Diarrhoea ...	—	—	—	—	—	—	1	—	—	6	5	2
29. Appendicitis ...	1	—	—	1	—	—	—	—	—	8	1	1
30. Dis. of Digestive Sys- tem.	—	—	—	—	—	—	1	—	—	12	3	2
31. Dis. of Liver ...	—	—	—	—	—	—	—	—	—	4	5	1
32. Genito-Urinary Dis....	—	—	—	1	—	—	—	—	—	16	7	3
33. Old Age ...	—	—	—	—	—	—	—	—	—	—	2	—
34. Accidents, etc. ...	—	—	—	1	—	—	2	—	—	109	33	16
35. Suicide ...	1	—	—	—	—	—	—	—	—	31	21	11
36. Drowning ...	—	—	—	2	—	—	1	—	—	205	24	35
37. Heat Stroke ...	—	—	—	—	—	—	—	—	—	9	3	1
38. Other Defined Dis. ...	—	—	—	—	—	—	—	—	—	3	—	1
39. Ill-Defined ...	—	—	—	—	—	—	1	—	—	42	23	11
Total ...	2	—	—	12	—	—	10	—	1	642	247	130

TABLE 12—*cont.*(c) *All Deaths (i.e., Shore and Sea).*

Cause of Death.	Officers.			P.O's.			Seamen.			Engineers.		
	B.	L.	F.	B.	L.	F.	B.	L.	F.	B.	L.	F.
1. Typhoid Fever ...	—	—	—	2	—	1	—	3	—	3	—	—
2. Malaria ...	3	—	—	1	—	1	3	2	—	2	—	—
3. Smallpox ...	1	—	—	—	—	—	—	—	—	—	—	—
4. Diphtheria ...	—	—	—	—	—	—	—	—	—	—	—	—
5. Influenza ...	5	—	—	—	—	—	6	—	1	2	—	—
6. Cholera ...	—	—	—	—	—	—	—	—	—	—	—	—
7. Dysentery ...	—	—	—	—	—	—	2	1	—	3	—	—
8. Other Epidemic Dis.	6	—	—	1	—	—	5	—	—	4	—	—
9. T.B. Respiratory ...	12	—	—	9	1	2	56	13	5	41	—	—
10. T.B. Other Forms ...	1	—	—	—	1	—	3	1	2	1	—	—
11. Venereal Dis. ...	1	—	—	—	—	—	3	—	—	—	—	—
12. Cancer ...	60	—	—	9	1	1	75	1	2	62	—	—
13. Rheumatic Fever ...	—	—	—	1	—	—	—	—	—	2	—	—
14. Rheumatoid Arthritis	2	—	—	—	—	—	3	—	—	1	—	—
15. Beri-beri ...	—	—	—	—	—	—	—	1	—	—	—	—
16. Diabetes ...	9	—	—	—	—	—	—	—	—	3	—	—
17. Alcoholism ...	—	—	—	—	—	—	1	1	—	—	—	—
18. Meningitis ...	—	—	—	—	—	—	2	—	—	2	—	—
19. Cerebral Hemorrh., etc.	64	—	—	2	—	—	59	—	1	37	—	—
20. Other Nervous Dis....	19	—	—	1	—	—	22	—	—	12	—	—
21. Heart Diseases ...	131	—	—	9	—	—	157	5	2	83	—	—
22. Other Circulatory Dis.	26	—	—	2	—	—	21	—	—	15	—	—
23. Bronchitis ...	22	—	—	5	—	—	45	2	1	16	—	—
24. Broncho-Pneumonia	10	—	—	1	—	—	19	3	1	9	—	—
25. Pneumonia ...	15	—	—	—	—	—	25	10	2	13	—	1
26. Other Respiratory Dis.	5	—	—	2	—	—	12	2	—	6	—	—
27. Stomach Diseases ...	8	—	—	3	—	—	10	3	—	14	—	—
28. Diarrhoea ...	2	—	—	—	—	—	3	2	1	4	—	—
29. Appendicitis ...	3	—	—	—	—	—	5	—	—	3	—	—
30. Dis. Digestive System.	13	—	1	1	—	—	11	—	2	4	—	—
31. Dis. of Liver ...	11	—	—	1	—	—	6	1	1	6	—	—
32. Genito-Urinary Dis....	41	—	—	4	—	—	46	3	—	34	—	—
33. Old Age ...	34	—	—	2	—	—	51	1	—	18	—	—
34. Accidents, etc. ...	19	—	—	7	—	2	58	19	5	19	—	—
35. Suicide ...	11	—	—	1	—	—	12	3	1	11	—	—
36. Drowning ...	20	—	—	5	—	4	78	7	7	27	—	—
37. Heat Stroke ...	2	—	—	1	—	—	—	—	—	1	—	—
38. Other Defined Dis. ...	6	—	—	1	—	—	11	—	—	4	—	—
39. Ill-defined ...	11	—	—	3	—	1	8	10	3	10	—	—
Total ...	573	—	1	74	3	12	818	94	37	472	—	1

TABLE 12—cont.

(c) *All Deaths (i.e., Shore and Sea).*—cont.

Cause of Death.	Firemen, etc.			Stewards.			Painters, Store-keepers, etc.			Apprentices.		
	B.	L.	F.	B.	L.	F.	B.	L.	F.	B.	L.	F.
1. Typhoid Fever ...	—	5	1	4	1	—	—	—	—	3	—	—
2. Malaria ...	3	8	—	4	1	—	1	—	—	—	—	—
3. Smallpox ...	1	—	—	—	—	—	—	—	—	—	—	—
4. Diphtheria ...	—	—	—	1	—	—	—	—	—	—	—	—
5. Influenza ...	8	1	2	1	—	—	—	—	—	—	—	—
6. Cholera ...	—	2	—	—	—	—	—	—	—	—	—	—
7. Dysentery ...	—	—	—	1	—	1	—	—	—	—	—	—
8. Other Epidemic Dis.	2	1	—	4	—	—	—	—	—	1	—	—
9. T.B. Respiratory ...	80	28	12	94	3	1	2	—	—	2	—	—
10. T.B. Other Forms ...	7	6	3	3	—	—	—	—	—	1	—	—
11. Venereal Dis. ...	5	—	2	3	2	—	—	—	—	—	—	—
12. Cancer ...	72	1	—	54	1	2	12	—	—	1	—	—
13. Rheumatic Fever ...	2	—	—	1	—	—	—	—	—	—	—	—
14. Rheumatoid Arthritis	1	—	—	1	—	—	—	—	—	—	—	—
15. Beri-beri ...	1	6	—	—	—	—	—	—	—	—	—	—
16. Diabetes ...	1	—	—	9	—	—	1	—	—	—	—	—
17. Alcoholism ...	3	—	—	—	—	—	—	—	—	—	—	—
18. Meningitis ...	1	1	—	3	1	1	1	—	—	—	—	—
19. Cerebral Hemorrh., etc.	25	1	2	28	—	—	3	—	1	—	—	—
20. Other Nervous Dis....	21	—	2	19	—	1	4	1	—	1	—	—
21. Heart Diseases ...	89	1	4	52	4	2	4	—	—	—	—	—
22. Other Circulatory Dis.	16	1	1	12	2	—	2	—	—	—	—	—
23. Bronchitis ...	24	3	—	14	1	1	—	1	—	—	—	—
24. Broncho-pneumonia	13	1	2	7	—	—	1	—	1	—	—	—
25. Pneumonia ...	32	13	6	18	2	1	2	—	—	—	—	—
26. Other Respiratory Dis.	11	1	1	1	—	—	—	—	—	2	—	—
27. Stomach Diseases ...	8	4	4	12	1	—	—	—	—	—	—	—
28. Diarrhoea ...	—	1	2	2	2	—	—	—	—	1	—	—
29. Appendicitis ...	2	—	1	4	1	—	—	—	—	1	—	—
30. Dis. Digestive System.	9	—	1	8	3	—	1	—	—	—	—	—
31. Dis. of Liver ...	5	3	—	6	1	—	—	—	—	—	—	—
32. Genito-Urinary Dis....	30	2	2	41	2	1	4	—	—	—	—	—
33. Old Age ...	11	—	—	11	1	—	5	—	—	—	—	—
34. Accidents, etc. ...	35	10	4	18	5	2	1	2	3	4	—	—
35. Suicide ...	7	11	8	15	7	2	1	—	—	1	—	—
36. Drowning ...	53	11	21	36	4	3	4	2	2	4	—	—
37. Heat Stroke ...	—	2	1	4	1	—	1	—	—	—	—	—
38. Other Defined Dis. ...	10	1	1	13	—	—	—	—	—	1	—	—
39. Ill-defined ...	9	11	6	15	2	1	—	—	—	2	—	—
Total ...	598	136	89	519	48	19	50	6	7	25	—	—

TABLE 12—*cont.*(c) *All Deaths (i.e., Shore and Sea).*—*cont.*

Cause of Death.	Pursers.			Wireless Electricians, etc.			Others.			Total.		
	B.	L.	F.	B.	L.	F.	B.	L.	F.	B.	L.	F.
1. Typhoid Fever ...	—	—	—	3	—	—	—	—	—	15	9	2
2. Malaria ...	—	—	—	1	—	—	1	—	—	19	11	1
3. Smallpox ...	—	—	—	—	—	—	—	—	—	2	—	—
4. Diphtheria ...	—	—	—	—	—	—	—	—	—	1	—	—
5. Influenza ...	—	—	—	—	—	—	—	—	—	22	1	3
6. Cholera ...	—	—	—	—	—	—	—	—	—	—	2	1
7. Dysentery ...	—	—	—	—	—	—	—	—	—	6	1	1
8. Other Epidemic Dis.	—	—	—	—	—	—	—	—	—	23	1	—
9. T.B. Respiratory ...	1	—	—	3	—	—	2	—	—	302	45	20
10. T.B. Other Forms ...	—	—	—	—	—	—	—	—	—	16	8	5
11. Venereal Dis. ...	—	—	—	—	—	—	—	—	—	12	2	2
12. Cancer ...	—	—	—	—	—	—	2	—	—	347	4	5
13. Rheumatic Fever ...	—	—	—	—	—	—	—	—	—	6	—	—
14. Rheumatoid Arthritis	—	—	—	1	—	—	—	—	—	9	—	—
15. Beri-beri ...	—	—	—	—	—	—	—	—	—	1	7	—
16. Diabetes ...	—	—	—	—	—	—	—	—	—	23	—	—
17. Alcoholism ...	—	—	—	—	—	—	—	—	—	4	1	—
18. Meningitis ...	—	—	—	—	—	—	—	—	—	9	2	1
19. Cerebral Hemorrh., etc.	—	—	—	1	—	—	—	—	—	220	1	4
20. Other Nervous Dis....	—	—	—	1	—	—	—	—	—	110	1	3
21. Heart Diseases ...	1	—	—	—	—	—	1	—	1	527	10	9
22. Other Circulatory Dis.	—	—	—	1	—	—	—	—	—	95	3	1
23. Bronchitis ...	—	—	—	—	—	—	1	—	—	127	7	2
24. Broncho-pneumonia	—	—	—	—	—	—	—	—	—	60	4	4
25. Pneumonia ...	—	—	—	—	—	—	1	—	—	106	25	10
26. Other Respiratory Dis.	—	—	—	—	—	—	—	—	—	39	3	1
27. Stomach Diseases ...	—	—	—	—	—	—	—	—	—	55	8	4
28. Diarrhoea ...	—	—	—	—	—	—	1	—	—	13	5	3
29. Appendicitis ...	1	—	—	1	—	—	—	—	—	20	1	1
30. Dis. Digestive Sys- tem.	—	—	—	—	—	—	1	—	—	48	3	4
31. Dis. of Liver ...	—	—	—	—	—	—	1	—	—	36	5	1
32. Genito-Urinary Dis....	—	—	—	1	—	—	—	—	—	201	7	3
33. Old Age ...	—	—	—	—	—	—	—	—	—	132	2	—
34. Accidents, etc. ...	1	—	—	1	—	—	2	—	—	165	36	16
35. Suicide ...	1	—	—	—	—	—	—	—	—	60	21	11
36. Drowning ...	—	—	—	2	—	—	1	—	—	230	24	37
37. Heat Stroke ...	—	—	—	—	—	—	—	—	—	9	3	1
38. Other Defined Dis. ...	1	—	—	—	—	—	—	—	—	47	1	1
39. Ill-defined ...	—	—	—	—	—	—	1	—	—	59	23	11
Total ...	6	—	—	16	—	—	15	—	1	3,166	287	167

TABLE 13.—PERCENTAGES BY RATINGS AND SPECIFIC CAUSES TO TOTAL DEATHS EACH RATING—see page 46.

(a) *Deaths Ashore in the United Kingdom.*

	All Respira- tory Diseases.	Phthisis.	Bron- chitis.	Pneu- monia.	Cancer.	Heart Diseases.	Dis. of Diges- tive System.	Genito- Urinary Diseases.	Accidents.	Suicide.	Drown- ing.	Alcohol- ism.
Officers...	11.79	2.03	4.47	4.27	12.20	24.59	6.91	7.72	1.42	1.42	0.41	—
P.O's. ...	27.78	12.96	9.26	1.85	16.67	16.67	7.41	7.41	5.56	—	—	—
Seamen ...	21.87	8.04	6.40	5.80	10.71	23.07	4.32	6.40	3.27	1.34	1.19	—
Engineers ...	20.20	9.97	4.09	4.86	15.86	20.20	5.37	8.70	2.05	1.54	1.02	—
Firemen, etc. ...	30.59	15.61	4.85	7.81	14.98	17.51	3.59	5.70	2.11	0.42	1.90	0.42
Stewards ...	31.59	23.50	3.39	4.44	12.53	12.01	4.96	9.14	1.31	1.31	0.52	—
Painters, etc. ...	5.26	2.63	—	2.63	31.58	10.53	—	10.53	—	—	—	—
Apprentices ...	42.86	28.57	—	—	14.29	—	14.29	—	—	—	—	—
Pursers...	25.00	25.00	—	—	—	25.00	—	—	25.00	—	—	—
Wireless, etc. ...	25.00	25.00	—	—	—	—	—	—	—	—	—	—
Others ...	20.00	20.00	—	—	40.00	—	20.00	—	—	—	—	—

TABLE 13.—PERCENTAGES BY RATINGS AND SPECIFIC CAUSES TO TOTAL DEATHS EACH RATING—*cont.*
(b) *Deaths at Sea and Abroad.*

	All Respira- tory Diseases.	Phthisis.	Bron- chitis.	Pneu- monia.	Cancer.	Heart Disease.	Dis. of Diges- tive System.	Genito- Urinary Diseases.	Accidents.	Suicide.	Drown- ing.	Alchol- ism.
Officers...	7.41	2.47	—	4.94	—	12.35	3.70	3.70	14.81	4.94	22.22	—
P.O's. ...	10.00	10.00	—	—	—	—	5.00	—	20.00	5.00	25.00	—
Seamen ...	6.85	1.37	1.37	3.42	2.05	1.37	4.11	2.05	24.66	2.05	47.95	0.70
Engineers ...	7.41	2.47	—	3.70	—	4.94	12.35	—	13.58	6.17	28.40	—
Firemen, etc. ...	12.10	4.84	0.81	6.45	0.81	4.84	5.65	2.42	20.16	4.03	35.48	0.81
Stewards ...	9.56	2.94	0.74	5.88	0.74	4.41	9.56	4.41	9.56	7.35	25.00	—
Painters, etc. ...	25.00	8.33	—	16.67	—	—	8.33	—	8.33	8.33	33.33	—
Apprentices ...	5.56	—	—	—	—	—	5.56	—	22.22	5.56	22.22	—
Pursers... ..	—	—	—	—	—	—	50.00	—	50.00	—	—	—
Wireless, etc. ...	16.67	16.67	—	—	—	—	8.33	8.33	8.33	—	16.67	—
Others	30.00	10.00	10.00	10.00	—	10.00	20.00	—	20.00	—	10.00	—

(c) *All Deaths (Shore and Sea).*

	All Respira- tory Diseases.	Phthisis.	Bron- chitis.	Pneu- monia.	Cancer.	Heart Disease.	Dis. of Diges- tive System.	Genito- Urinary Diseases.	Accidents.	Suicide.	Drown- ing.	Alchol- ism.
Officers...	11.17	2.09	3.84	4.36	10.47	22.86	6.46	7.16	3.32	1.92	3.49	—
P.O's. ...	22.97	12.16	6.76	1.35	12.16	12.16	6.76	5.41	9.46	1.35	6.76	—
Seamen ...	19.19	6.85	5.50	5.38	9.17	19.19	4.28	5.62	7.09	1.47	9.54	0.12
Engineers ...	18.01	8.69	3.39	4.66	13.14	17.58	6.57	7.20	4.03	2.33	5.72	—
Firemen, etc. ...	26.76	13.38	4.01	7.53	12.04	14.88	4.01	5.02	5.85	1.17	8.86	0.50
Stewards ...	25.82	18.11	2.70	4.82	10.40	10.02	6.17	7.90	3.47	2.89	6.94	—
Painters, etc. ...	10.00	4.00	—	6.00	24.00	8.00	2.00	8.00	2.00	2.00	8.00	—
Apprentices ...	16.00	8.00	—	—	4.00	—	8.00	—	16.00	4.00	16.00	—
Pursers... ..	16.67	16.67	—	—	—	16.67	16.67	—	16.67	16.67	—	—
Wireless, etc. ...	18.75	18.75	—	—	—	—	6.25	6.25	6.25	—	12.50	—
Others	26.67	13.33	6.67	6.67	13.33	6.67	20.00	—	13.33	—	6.67	—

TABLE 18.—PERIOD SINCE LAST SEA-SERVICE—see pages 53-55.

Classified in Conjunction with Age, indicating numbers employed and not employed in shore occupations.

	Under 1 year.			1—			2—			3—			4—			5-10			10 and over.			No information.			Totals.
	SE	NSE	NI	SE	NSE	NI	SE	NSE	NI	SE	NSE	NI	SE	NSE	NI	SE	NSE	NI	SE	NSE	NI	SE	NSE	NI	
Under 20.	1	9	2																						15
20—	1	35	3																						61
25—	5	82	10																						173
35—	6	117	12																						263
45—	6	128	7																						332
55—	—	71	6																						201
60—	1	70	1																						253
65—	2	41	4																						630
75+	—	5	—																						596
Total	22	558	45	16	106	33	16	59	23	23	44	19	18	49	12	62	155	77	394	207	84	28	25	449	2,524

NOTE.—SE = Having followed shore employment prior to death.

NSE = Not " " " " " "

NI = No information.

TABLE 20.—(COMBINATION OF TABLES 1 AND 1A)—see page 55.
Total Deaths occurring Ashore in the United Kingdom, and at Sea, and Abroad.

Deaths (less exclusions) actually occurred during:—				Total Deaths for Analysis.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
No. of Records.	Total Deaths Reported.	Referring to Deaths Reported in	Exclusions.	1927.				1929.												1930.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
				1927.		May, 1928.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
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