[Report 1949] / Medical Officer of Health, Cork County Borough.

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COUNTY BOROUGH OF CORK

REPORT OF THE CITY MEDICAL OFFICER

FOR THE YEAR

1949

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J. C. SAUNDERS, M.D., D.P.H.,
City Medical Officer.

CORK
EAGLE PRINTING COMPANY, LTD., SOUTH MALL

1950

PUBLIC HEALTH STAFF

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J. C. Saunders, M.D., D.P.H.

Assistant City Medical Officers

Patrick F. Fitzpatrick, M.B., B.Ch., D.P.H. (Tuberculosis)

Colm G. Quigley. M.B., B.Ch., D.P.H. (School Medical) (Temporary)

Shiela O'Donovan, M.D., L.M., D.C.H. (Child Welfare) (Temporary).

School Dentists:

Mr. R. F. Twomey, B.D.S.
Mr. S. Morrogh, B.D.S.

Public Analyst:

Daniel J. O'Sullivan, M.Sc., F.I.C.

Chief Veterinary Officer:

S. R. J. Cussen, D.V.S.M., M.R.C.V.S.

Assistant Veterinary Officer:

P. A. Meegan, M.R.C.V.S.

Chief Health Inspector:

Thomas F. Murray, M.R.San.I.

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Daniel J. Murphy
Robert F. Hunter
Leo. J. Woodnutt
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Miss N. Dunn

Tuberculosis Nurse:

Miss L. Lyndon.

Maternity and Child Welfare Nurses:

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Miss H. Neville
Miss E. McSweeney

School Nurses:

Miss M. Lordan
Miss M. O'Sullivan
Miss C. Curran.

School Dental Nurses:

Miss M. Bowen.
Mrs. M. Shanahan.

Clerk and Inspector to Port Sanitary Authority:

J. P. Kieran

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SUMMARY OF STATISTICS.

Area (in Acres)	2,511
Population (Census of Population 1946)	75,595
Density of Population (persons to the acre)	30.1
Rateable Value	£250,229
Sum represented by a Penny Rate	£1,010
Number of Births	1,885
Birth Rate	25.0
Number of Deaths	1,055 *
Death Rate	14.0
Maternal Mortality Rate	0.5
Infantile Mortality	68
Zymotic Death Rate	0.7
Tuberculosis Death Rate	1.1

* Includes 7 deaths over and above corresponding figure in body of report. These represent transfers to area by Registrar General of which we have no particulars.

To the Lord Mayor, Aldermen and Councillors,
of the County Borough of Cork.

My Lord Mayor and Gentlemen,

It affords me pleasure to submit my Annual Report for the year 1949. There was a slight increase in the general death-rate compared with the previous year (which was a record one from the point of view of health statistics) and an appreciable rise in infant mortality. Apart from these aspects it may be said that there was nothing abnormal in the returns for the year. The tuberculosis death-rate was, in fact, the lowest so far recorded, for the third year in succession there was no death from diphtheria (the number of cases was the lowest on record)and there was no case of typhoid. The main facts and comments are set out in the foreword.

Once more I have to acknowledge the assistance of those who have contributed to this report : Prof. W. J. O'Donovan, Prof. H. N. Walsh, Mr. D. J. O'Sullivan (City Analyst), Mr. S. R. J. Cussen (Chief Veterinary Officer), Mr. M. J. Riordan (Water Engineer), and Capt. J. P. Kiernan whose capable administration in the Port Health Department is deserving of special tribute. I am indebted to Miss F. Corcoran for her invaluable help in the preparation of material and the correction of proofs. Once again I have to thank Mrs. Dorothy West for her very interesting and informative monthly weather reports from Ballinacurra. These reports have been included in the section on Meteorology. In particular I desire to thank Dr. P. F. Fitzpatrick for his contribution on tuberculosis control in Ontario. Dr. Fitzpatrick's most informative and interesting report on his observations in Canada is included in the foreword.

I have the honour to remain,

Your obedient servant,

J. C. SAUNDERS.

FOREWORD

Vital Statistics.

The *population* of the city, as revealed by the Census of Population 1946, suffered a rather marked contraction. The broad outline of the diminution has been known for the past year or two but it was only with the publication of the long-awaited official census report that the details have come to hand. These details will be found in the first table in the body of this report. It will be noted that the comparison is between the two census years of 1936 and 1946. The table should be studied in conjunction with that published in the Annual Report for 1945 (which established a comparison between the census year of 1936 and the intercensal year of 1941. During the latter year a Register of Population was made for rationing purposes). Differing explanations have been forthcoming as to the shrinkage. One accounts for the difference on the assumption that large numbers of city residents have moved into the suburban areas outside the city's bounds and this view is borne out by an examination of Table 9 of the Census Report which, in addition to shewing fluctuations in the population of the city itself, also gives corresponding figures for the surrounding areas. Between the two census takings the city population declined from 80,765 to 75,595, a total reduction of 5,170 (6.4 per cent. of the 1936 population). During this period there was an appreciable increase in the number of persons in the surrounding areas, which is as follows :—

District	1936	1946
Ballintemple	1,904	1,864
Blackrock	1,814	1,914
S.E. Suburbs	7,407	8,103
S.W. Suburbs	5,150	6,179
Spangle Hill	—	1,737
	16,275	19,797

There has, therefore, been an increase of 3,522 in the population of the suburbs and if we take this total from the total depreciation in the city population there are 1,648 persons unaccounted for. This may (or may not) be regarded as a relatively insignificant figure but the curious feature about this movement of population is the considerably greater reduction among males, as compared with females. The census report puts the decline in males in Cork City at 9.8 per cent. and that of females at 3.3 per cent. The total reduction in males is, in fact, 3,751 as against 1,419 females. One would have expected a more uniform reduction in the two sexes if it were merely a question of city families moving out to new municipal and private housing schemes in the outlying areas. Certainly large numbers of young people left the city for England during the war and this would account for the great preponderance of males in the fall, particularly in the groups from 20 to 50 years as shewn in the 1945 table.

Whatever the cause (and no doubt the real explanation will be forthcoming) the fact remains that the population of this city has undergone a serious shrinkage *vis-a-vis* the other county boroughs. It amounts to a

figure of 6.4 per cent. Meanwhile the population of Dublin has *increased* by 7.0 per cent. while that of Limerick and Waterford also increased (4.6 and 1.1 per cent. respectively). Let us hope that it will eventually be found that our citizens have only passed out into the surrounding areas and that the city (and country) is not the poorer of their loss.

I think it is perhaps worth while directing attention to the relative *congestion* of this city. Reference to table 2 shows that there are over 3,000 persons to the 100 acres (as compared with 2,300 in Dublin, 2,000 in Limerick and 1,400 in Waterford). No doubt this congestion has been determined by the terrain of the city, so difficult from the building point of view. The contours of the locality present great difficulty to siting of houses (this became acute in recent years when it was a question of finding suitable places for hospitals and other large institutions). I think Cork must be unique in this respect, certainly so in relation to the other Irish county boroughs in which the terrain lends itself much more readily to building. In the past our vital statistics have compared somewhat unfavourably with those of the other cities (in tuberculosis, for example), this difference would be readily accounted for by greater congestion of the population in houses. It seems somewhat incongruous that a city like Cork should be confined within an area of 2,500 acres while Limerick (with considerably less population) extends to 2,000 acres).

Whatever the cause of the decline in our population we may take heart from the fact that other figures show no real decline in vitality. The marriage-rate at 9.5 per 1,000 remains the highest of the four county boroughs, while the birth-rate remains undiminished at 23.4 and the natural increase is 7.2 per 1,000 of the population. I feel sure that there is a mine of useful and interesting information in the Report of the Director of Statistics if one only knew how to extract it.

The *death rate* at 14.0, while slightly above that of 1948 (at 13.2) is well below the average for this locality (15.2). The principal cause of death was heart disease, with cancer second and cerebral haemorrhage third while, for the first time in our records tuberculosis deaths recede to fourth place. The number of such deaths was the lowest ever recorded.

In the case of *infant mortality* I remarked in last year's report that " the fall for 1948, however, is too sharp to be attributed to administrative action and, accordingly, we must expect a somewhat poorer showing perhaps for the next year or two." This prediction has been justified by the event. The figure for the current year is 68, as against 47 for 1948. By ordinary standards 68 is a very high figure for infant mortality (it was only 34 in England and Wales for 1948) but again it was well below the average for this area. The great bulk of infant deaths came under the heading of *gastro-enteritis* an eminently preventible condition which is due almost entirely to the institution of artificial feeding. Its prevalence is a poor tribute to our hygienic standards. For years I have been inveighing against the practice of bottle feeding and now feel that until such time as the medical and nursing professions become alive to their responsibilities in this matter, we will make no substantial headway in reducing infant mortality.

Maternal mortality was again very low. The figure (0.5) represents a single death. The general trend is depicted in Table 49—which goes back to 1924 (the rate was 6.1 in that year). That pregnancy has now become relatively so much safer may almost entirely be attributed to the introduction of the sulphonomide drugs and of penicillin.

Epidemic Diarrhoea.

There was a very sharp rise in the notifications of this condition, which may now be regarded as the principal infant killing disease, 40 of the 131 recorded infant deaths were due to it and, as has been stressed in the body of this report, *all these deaths occurred amongst infants who were bottle-fed.* Naturally one associates digestive disturbance with the institution of artificial feeding and it is only logical to expect that gastro-enteritis will be particularly associated with bottle-fed babies but it is not alone in regard to this disease that bottle-feeding exerts its baneful influence. In last year's report all the deaths of infants over 1 month and under 12 months which occurred during the years 1943 to 1948 inclusive were investigated as to feeding. These deaths included such diverse conditions as gastro-enteritis, broncho-pneumonia, whooping-cough, marasmus, tuberculosis, infectious diseases, convulsions, meningitis, etc. They totalled 514 and of this number 474 had been bottle-fed (92 per cent.). It is now generally conceded that breast milk contains some active principle which prevents neo-natal infection so that, apart from its unique quality in favouring the optimum growth and development of the infant, it also protects it against disease.

Of the 147 notifications the majority were in the third quarter (72) so that in this respect the disease ran true to type, but very substantial numbers were notified in the other three-quarters as well ; 23 in the first, 18 in the second and 34 in the last (of the latter 24 were received during the month of October), so that the blame for the prevalence of the disease cannot be attributed to climatic conditions entirely. Apart from such conditions as prematurity, congenital debility and certain inherited defects (which conditions do not lend themselves to administrative control) gastro-enteritis is undoubtedly the principal factor in infant mortality. Our record in regard to it has not been good, but there is at least now hope that a beginning has been made to put a check upon it. I refer to the institution of a pediatric unit at the District Hospital with a pediatric specialist at its head. There is every reason to believe that with the logical development of this service and co-operation between it and the child welfare clinics we may look forward to a material reduction in our figures for infant mortality.

Infectious Disease.

For the third year in succession there has been no death from *diphtheria* while the number of cases notified (7) was the lowest ever recorded. The statistical history of this disease is set out in Table 13 from which it would appear that the incidence was as low in earlier years but, as I pointed out in last year's report, notification was obviously very

defective at this time. For instance, during the decennium 1881-90 only 53 cases of diphtheria were notified while 73 deaths were recorded. It must be obvious, therefore, that notification was very defective during this period.

The almost complete absence of diphtheria has had an unfortunate effect on our immunisation figures from which it would appear that the majority of parents will not avail of the services placed at their disposal except in the face of an active threat of the disease. We are now immunising less than half the numbers required to keep the disease in abeyance and, if this state of affairs continues it is merely a question of time before the disease makes its appearance again in epidemic form. Unless the numbers are considerably increased we cannot hope for the complete elimination of the disease. As pointed out in last year's report the requirements for this desideratum are that :

1. All children born during the next and the succeeding years should should be immunised by the time they are one year old or by 15 months at the latest.
2. All children under 5 years, who have not been immunised, should be so protected immediately.
3. All children who have been immunised for more than 3 or 4 years should be brought again for test and further treatment if necessary.

Theoretically such a programme should be easy to carry out but, since it depends for its success on the goodwill of parents, it does not work in practice. Unfortunately so many parents are indifferent to the welfare of their children and of the community as to render complete implementation impossible. In this connection I would once more bring to your notice the significant fact in connection with our immunisation scheme that *to date we have treated over* 28,000 *without a single fatality from diphtheria*. This is a good record but it could be improved on if we had complete co-operation for then, we have no hesitation in saying, diphtheria would be completely eliminated from this community.

Whooping Cough caused 4 deaths during the year (out of 80 cases notified). During the year we experienced the usual triennial visitation of *measles*. 340 cases of this disease were recorded and the number of deaths from it was 4. This outbreak was anticipated in last year's report in which reference was made to the fact that the last previous epidemic was in 1946 and since it occurs in this area in cycles of two or three years " we may anticipate a full epidemic in 1949." Fortunately, the disease was mild and only 4 deaths were recorded. Once again there was no case of *typhoid fever*, this having been the fourth year in succession during which the disease was absent from the city and the sixth in which we have been free from it. Four cases of *paratyphoid* were reported during the year. They are dealt with elsewhere.

One case of *Weil's disease* came to our notice during the year. The patient was admitted to the Cork District Hospital on 30th July, 1949, and died there on 9th September following. The case was not notified.

There is scarcely any doubt that this disease is much more prevalent in this country than is generally believed (particularly in rural areas where it appears to be associated with the increased acreage under sugar beet and the consequential increase in the rat population. At least so it is argued). One knows of several instances in which personal acquaintances have become infected and died. It does not seem to be generally appreciated among the medical profession that this is a notifiable disease. The disease is primarily one of the rat in which the infecting organism does not appear to affect its host, or only in a mild degree. It is voided in the rat's urine and consequently those most at risk are they who would have the handling of materials so contaminated. Sewer workers, in particular, are liable to contract it ; mine workers, agricultural workers and persons who swim in stagnant waters are also liable to suffer. The organism almost always enters the body by some scratch, abrasion or other injury to the skin and having done so gives rise to the characteristic symptoms which have given it its scientific name—haemorrhagic jaundice. In the case under review there was a history of having fallen into the river Lee some time before the illness developed. I am obliged to Dr. Andrew Whelton for permitting me to examine his records in this case, to Dr. John Fitzgerald who drew my attention to it and who submitted a copy of the patient's case sheet and to Dr. J. C. Broom of the Wellcome Laboratories of Tropical Research, London, who carried out serological investigation and kindly placed his results at my disposal.

Two cases of *cerebro spinal meningitis* were reported, both in the same day, from the North Fever Hospital. Both were females. One was a woman, aged, 53, years who had been transferred from the Victoria Hospital. She was taken ill on 20th January and was admitted to hospital three days later complaining of severe frontal headache and vomiting which was constant. A lumbar puncture was carried out and meningococci were found in the cerebro spinal fluid. She was treated with large doses of penicillin and with sulphamethazine and was admitted to the fever hospital in a semi-conscious condition. Under treatment she ran an irregular temperature until the 29th January after which she gradually improved and was eventually discharged on 15th February. The second case was a child aged 5 years who presented similar symptoms and, in addition, had some neck rigidity. In her case also the diagnosis was confirmed by the finding of meningococci in the spinal fluid. She improved steadily under treatment and was discharged on 8th February.

Scarlet fever pursued its accustomed mild course during the year. There were 45 cases and no death. The disease has been of mild character for many decades and has had a very low mortality rate. An interesting incident came to our notice during the year in connection with a small private day school in which two cases occurred. The children were taken ill and on investigation it was learned that another pupil had been operated on for what had been diagnosed as mastoid disease. This operation was carried out in February 1949. This boy returned to school on 3rd May and the first case arose two days later, the second child was taken ill on 20th May. At the time of investigation the original child was not attending school and I went to his home to see him. I confirmed that he had been operated on and on examination found him to have a partly healed scar, covered with dried crust, behind the left ear. Some of this

crust was removed and an area of moist exudation exposed (there was no pus present). The area of exudation was swabbed. There was no discharge from the ear. On bacteriological examination of this swab beta haemolytic streptococci (type 4) were isolated. Throat swabs from the two affected contacts also yielded beta haemolytic streptococci of the same type. The interest in this case is that, though the original boy did not at any time suffer from clinical scarlatina, he certainly infected the two other children and caused a clinical attack of the disease in them.

TUBERCULOSIS.

The mortality figures from this disease are lowest which have been recorded so far. There were 69 deaths from pulmonary tuberculosis (as compared with 81 the previous year, and 126 in 1947) and for the first time the *phthisis* death rate was below unity. The figure for non-pulmonary deaths was 14, which was one of the lowest so far recorded (it was excelled once only, in 1938, when the figure was 13). The combined figure for pulmonary and non-pulmonary forms was therefore 83 which yields a *tuberculosis death rate* of 1.10 per 1,000 which by reference to table 36 in the appropriate section will be seen to be the lowest so far achieved. The death rates for the other county boroughs (as recorded in the Annual Summary of the Registrar General) were as follows : Dublin, 1.0 ; Limerick, 1.5 ; and Waterford, 0.8, while the rate for the whole country was 0.8 per 1,000. Deaths from tuberculosis contributed 7.9 per cent. of all deaths in the area. The greatest proportion fell in the 45-55 years group in which they amounted to 23 per cent. of the total. In the 25-35 group they were 17 per cent. of the total, while in the 15-25 group they were 13 per cent. These figures would seem to indicate that these age-groups are particularly vulnerable, and so they are, but a true perspective is not obtained by an examination of them unless they are correlated with the actual number of persons in each group. This has been made possible by the publication of the Census Report and the result may be seen in table 33 in which the number of deaths in each group has been worked out as rate per 1,000 persons in the group. It will be noted that this has effected a considerable flattening of the curve of mortality. In table 34 the rate has been worked out for each year from 1943 to 1943 and an average figure calculated which would establish that 35-45 and 45-55 groups are the most affected.

The figures for the current year taken in conjunction with those for 1948 and the previous years (with the exception of 1947, when we experienced a serious set-back due, in my opinion, to the very severe economic and climatic conditions then prevalent) would seem to justify the note of optimism which I sounded last year in referring to the efforts of the central health authority, in co-operation with local authorities, to open up institutions for the reception of cases of tuberculosis. When we reach the position of having *sufficient beds to accommodate all our open infectious cases*, we may look forward to a more striking and permanent reduction in our mortality figures. W. H. Frost, the celebrated epidemiologist has postulated as the measure best calculated to effect a reduction in the incidence of tuberculosis ; the isolation of the open infectious case for the longest possible period of time coupled with a generous measure of financial assistance to his dependents. During the year 1949, over £10,000

was paid out under the Infectious Diseases (Maintenance) Regulations, 1948 to persons in this city suffering from tuberculosis while over £1,900 was spent in affording them extra nourishment, clothing, beds and bedding. For a community the size of ours these are formidable figures and those who provide the money are entitled to an account of how it has been spent. At the moment we are not in a position to provide beds for all our infectious cases, but when we are there should be no doubt in anyone's mind as to how these Regulations should be administered. *Isolation with a generous measure of financial assistance* (and no one can possibly say that the financial assistance now afforded to our patients is not generous) is the keynote of Dr. Frost's advice, and the stress is on isolation. In present circumstances our policy can only be regarded as partially successful.

Over and over again it has been stressed that it is the open sputum-positive case who is responsible for the spread of the disease in the community. He is the source of new cases of pulmonary tuberculosis and he is, in particular, the cause of the most fatal tuberculous meningitis in infants. I have frequently, in these reports, adverted to the significant rôle played by the indiscriminate cougher and spitter, the infective person who frequents dance halls and picture houses without any regard to the welfare of his neighbour and who generally conducts himself with a complete disregard for others. He is the main cause of the spread of the disease. On the other hand the patient who has learned the lesson inculcalated in sanatorium and who conscientiously applies it is little or no danger at all to the community. (It has been stated that none of the children born and brought up in Papworth colony has developed tuberculosis, notwithstanding the fact that at least one of the parents has been tuberculous). Until public opinion declares spitting to be taboo we will always have a tuberculosis problem to face.

PARATYPHOID FEVER.

As mentioned earlier, four cases of this disease were reported during the year. They were investigated by Dr. Fitzpatrick in my absence. The number of cases involved is, fortunately, small but were it not for the prompt action of my colleague (who desires me to stress the assistance which he received from Dr. M. Thompson, Department of Bacteriology, University College) it might have been much larger. They were all notified in August, three in the second and one in the third week of the month.

In such cases it is the rule to question closely concerning food habits, the kinds of food eaten and where, where purchased, visits to other places and so on. A standard enquiry form is used for this purpose which has proved very helpful. Such foodstuffs as milk, shell fish, water cress, salads, ice cream and cooked meat are naturally under suspicion and specific enquiries are made in regard to the habits of the patients in relation to these commodities. As a result suspicion quickly centred on cooked ham as the possible source of infection because the first three cases gave a history of having eaten it. These three cases, in fact, gave a history of buying it at the same shop. The fourth case purchased cooked ham at another establishment. The findings naturally suggested investigation of the shop under suspicion. The proprietor was approached and the position

explained to him. He was most co-operative. His employees also had the situation explained to them and they too agreed to co-operate in every way possible. Each one of these persons was supplied with an outfit and instructed to place a small amount of faecal matter and urine into the container for examination. This was done and it was found that two of the employees (a boy and a girl), both of whom at some time or other had the handling of the cooked ham, were carriers of paratyphoid B of the same strain as the original cases.

Acting on our advice the employer ceased handling any cooked meat. The two carriers were put off and since both of them resided in the functional area of the County Medical Officer of Health, they were referred to him for administrative supervision. At this juncture it is of interest to note that such persons need no longer suffer financial embarrassment as a result of these proceedings as the benefits of the Infectious Diseases (Maintenance) Regulations apply to them.

So far the investigations were straightforward enough and the evidence pointed strongly to the cooked ham sold at this establishment as being the source of infection and this was confirmed by the fact that, when its sale ceased and the two carriers were put off work, the epidemic (if it could be dignified by such a title) came to an end. Nevertheless, it must be admitted that it was only circumstantial. There is the fourth case. In this instance the cooked ham was purchased at another shop.

Assuming that the source of infection was the cooked ham purchased at establishment A the problem was to trace it to its source and, if possible, determine how it became infected. So far as we are concerned, this proved insoluble; for it was found the proprietor of the shop got his supplies from five different firms, four were factories in the city and the fifth was a factory located in another county.

It seems appropriate here to refer to the position generally in the remainder of the country so far as paratyphoid is concerned. The disease was undoubtedly widespread at this time, sporadic cases occurred in the most divergent places. So far as I can glean from the Weekly Returns of the Department of Health the first cases were reported in Dublin about the middle of July. A total of 7 cases diagnosed " salmonella infection " were notified during that month. In August 29 cases were reported, 5 in Dun Laoghaire, 4 each in Carlow, Dublin, Thurles and Cork, two in Kilkenny and one each in Cork County, Edenderry, Mullingar and Waterford. In September there were 13 cases—6 in Ballinasloe, 2 in Dublin and one each in Cavan, Galway, Westmeath, Kilkenny and Dublin County. In October there were 18 cases—3 each in Dun Laoghaire, Galway and Kilkenny, 2 in Thurles and one each in Clonmel, Waterford, Kilkenny County, Longford, Wicklow and Dublin. Up to the end of October 67 cases were notified of which 56 occurred in urban areas and 11 in rural districts.

I think that this distribution is significant. Unfortunately, I am not in a position to speak authoritatively but the fact that so many occurred in towns does suggest the consumption of food purchased cooked. It is notorious that the sale of such commodities has increased enormously and particularly among the poorer classes. We should, of course, be in a

position to say definitely whether this was a factor or not but I do know that in several instances, embracing Cork County and other counties, there was a history of having eaten cooked ham. It would be of great epidemiological interest if, by a nation-wide, collection of information, one were able to narrow down the source to one concern. In a restricted area such as this it would be impossible to achieve this. Practically all traders here receive supplies from the four city factories, but if one supplier were found to be common to all the other cases reported from other areas it would be highly significant.

It is necessary to discuss the rôle of the two carriers who were discovered during the course of this investigation. Were they responsible for the outbreak? Personally I am inclined to the belief that they were not but rather, that they were infected by the ham. It is reasonable to assume that they ate some of it (although they did not admit to this). At any rate they handled it and we may be sure that they nibbled scraps from time to time. It is many years since a case of para-typhoid occurred in the city and, in neither of these instances, could any contact with previous cases be traced.

The fact that the disease made its appearance here, taken in conjunction with the fact that scattered cases were occurring all over the country and that in all these cases from which information is available, the strains of paratyphoid B isolated were identical with the strains isolated here in Cork, lends support to the view that there was some common source of infection. This view is further reinforced when we take into consideration the fact that before 1949 there was very little paratyphoid in the country.

In cases of this sort it is difficult to know at what point to bring the facts to the public notice. On the one hand there is the possibility of creating an unnecessary scare and, on the other, the danger of further spread of the epidemic if the public is not warned of the danger. In this instance it was decided that the best policy would be to circularise the medical profession first to put it on its guard and, in actual fact, one of our cases came to light as a result of the circular issued. This is, of course, an obvious precaution and it has worked well in previous outbreaks. It was further decided, having made the profession generally aware of the situation, to await results before taking further action. Fortunately such action was not required. In conclusion it is only necessary to express regret that no information has been forthcoming from the investigations carried out in other areas. The correlation of such findings might have led to very important practical results.

VACCINATION.

The repeal of the Vaccination Acts by the Health Act, 1947 sounded the death-knell of vaccination in this country. There is a table at the end of the infectious disease section of this report which merits consideration. It shows the position of affairs in the four county boroughs before and after the passing of this Act. It will be noted that for Cork the figure fell from 73 per cent. in 1945 to 19 per cent in 1946 (the direct result of publication of the draft of the *Bill* in that year). In 1947 it dwindled

to 10 per cent (representing 188 children vaccinated). In 1948 and 1949 the actual numbers vaccinated were 53 and 72 respectively. One side-effect of the repeal of the Vaccination Acts may be referred to (although it has a somewhat anticipatory character). On the 4th May 1950 I received a request from the Harbour Board on behalf of two Scotsmen (skilled workers engaged in work on a crane) who wished to return to Glasgow. It will be recalled that there was a severe outbreak of smallpox in Glasgow at this time. Ordinarily one never experienced the slightest difficulty in obtaining vaccine lymph for such purposes. One had merely to apply to any of the dispensary doctors and a supply was forthcoming at once. On this occasion however, it was impossible to procure a tube in any of the City dispensaries. Requests for vaccination had been at zero for many months and, as a result, the doctors had ceased ordering lymph. It is almost impossible to exaggerate the difficulties which have been created for Public Health administrators by the abolition of compulsory infant vaccination but the situation is well summed up in the following extract from *The Lancet* (April 8, 1950, 683) :—

> " It is impossible," Dr. E. T. Conybeare writes, " at present to be certain of the causes of this substantial decline in the acceptance of infant vaccination. The outcome of any introduction of smallpox into this country now depends to a great extent on whether the disease is detected during the first generation of cases, and also on the degree of movement of infected persons before they are diagnosed and isolated. Prompt detection and isolation of smallpox patients cannot be guaranteed, and the greater the decline in the acceptance of routine infant vaccination the heavier becomes the responsibility of those called upon to decide about the policy of recommending general vaccination in dealing with a smallpox outbreak in the initial stages, when its source and full extent may be uncertain. Where, as in Glasgow during 1942 and again in New York during 1947, the populations exposed to infection were very large the wisdom of the decision to recommend general vaccination in the face of an outbreak of smallpox which had escaped detection and control in the earliest stage can hardly be questioned."
>
> Dr. Conybeare goes on to remark that it does not seem to be realised widely enough that the vaccination of a civilian population is now increasingly affected by international considerations as well as by those which are national or individual. There is no young infant for whom parents may be sure that in future there will be no obligation to undertake military service or to travel abroad. " If, as is generally believed, primary vaccination can be most easily and safely performed in infancy then it becomes the duty of parents to see that it is not postponed to a later age."

THE RHESUS FACTOR.

> Under no circumstances whatever should blood be injected either intravenously or intramuscularly into a female child or woman of child-bearing age without previous Rh investigation and the use only of compatible blood.
>
> Allott, A. N. and Holman C. A. The Lancet 5 Feb. 1949.

An important health service was initiated on 1st July 1949, with the establishment of the municipal Rhesus factor testing scheme. The credit

for this is almost entirely due to energy and enthusiasm of Professor W. Kearney ably seconded by his colleague Dr. J. A. Ryan, M.O., Cork Blood Transfusion Service. Prof. Kearney and Dr. Ryan discussed the need for such a service with me and together the headings of a scheme were hammered out and submitted to the City Manager for his approval (which was readily granted) and later to the Department of Health, which also expressed its sanction of the project. There is no doubt of the importance of such a service, especially in connection with the working of our antenatal clinics, to determine the nature of the " Rhesus factor " in the expectant mother's blood. (It is so called because the first work in this field was carried out in rhesus monkey). It is now customary to refer to it as the Rh factor.

The theory underlying this considerable advance in medical science is exceedingly complicated. Briefly it may be stated that there is a proportion of women who lose their babies every year because there is a certain factor present in the male parents' blood which (being a Mendelian dominant) is transmitted to the unborn child. This factor passes into the maternal blood during pregnancy and if her Rh factor is negative (to the husband's Rh +) antibodies develop in her blood. These antibodies then pass in turn into the foetus and *destroy its blood-forming mechanism* so that when it is born it can only manufacture immature or undeveloped red blood cells. This is the underlying factor in the tragedy of infants, born apparently healthy, who die of jaundice within a few days of birth. These deaths can, to a very considerable extent, be prevented if the Rh character of the parents' blood be determined beforehand.

We were fortunate in Cork in having a blood transfusion service already established so that the scheme got underway at once, once the necessary sanctions were forthcoming. To the end of 1949, 207 women had been investigated of whom 38 were found to be negative—a significant number. During the preliminary discussions Prof. Kearney submitted to me a memo setting-out the reasons for establishing this service and as it appears to me to be one of great importance and practical value it is reproduced herewith :—

PROF. KEARNEY'S MEMORANDUM.

Significant Data concerning the Rh Factor and Erythroblastosis

When an Rh positive man marries an Rh negative woman their children are usually Rh positive because the Rh factor is a Mendelian dominant. It has been shown that in a certain percentage of such marriages the Rh positive factor of the infant in utero passes into the maternal circulation, there, causing iso-immunization of the mother and the production in her blood of Rh antibodies. These antibodies pass back into the foetal circulation and react upon the infant's blood producing erythroblastosis foetalis in one or other of its forms. The production of Rh antibodies can be demonstrated in the maternal blood during pregnancy in these cases.

As the frequency of Rh positive foetuses is 85 per cent. and of Rh negative mothers 15 per cent. Theoretically, foetal erythroblastosis should

occur in about 12 per cent. of cases. In practice it is found in only 2 per cent. of all pregnancies and it is thought that this is because usually the placenta acts as an effective barrier to the passage of the immunising factor and that only in a minority of cases is it capable of passing through (probably where there is some placental damage).

A patient who is Rh negative must be carefully supervised during the pregnancy and her blood taken at intervals in order to see if antibodies are present. If antibodies are demonstrated in the maternal blood in the later months of pregnancy it may be necessary to terminate the pregnancy before they have an opportunity of causing irreparable damage to the infant in utero. Besides premature induction of labour or caesarean section before term in certain cases, the only additional form of treatment of an erythroblastotic infant is frequent transfusion with Rh negative blood after birth. By transfusion the lives of many infants can be saved.

It is a clinical fact that most women who have erythroblastotic infants have at least one and usually two healthy children. These are nearly always the first two births. It is thought that in most cases it takes two or more pregnancies for the antibodies to develop. Erythroblastosis foetalis is therefore a much greater problem in Catholic Ireland where large families are the rule and where contraception and sterilisation are not practised. This fact also means that the first two children of an Rh negative mother are exceptionally valuable (as they may well be the only living children she will have). Consequently it is important that the doctor in charge of such a patient should know her Rh reaction as no risks to the infant should be taken at delivery.

If a woman who is Rh negative is transfused with Rh positive blood she will probably develop Rh antibodies in her blood (this is very likely to occur as there is no placental barrier as in the pregnancy cases). If she receives subsequent transfusions of Rh positive blood she may have very grave and even fatal reactions due to haemolysis. Similar reactions will occur if an Rh negative mother, who has developed antibodies in her blood owing to having had erythroblastotic infants, is transfused with Rh positive blood. As 85 per cent. of blood is Rh positive there is a real danger of these reactions when blood is given to an Rh negative woman.

If an Rh negative woman receives a transfusion of Rh positive blood she is very likely to develop antibodies in her blood and even if these do not produce a transfusion catastrophy they are very likely to produce an obstetrical tragedy. If the patient with these antibodies in her blood subsequently has a child there is a grave danger that the child will have erythroblastosis foetalis. Many cases have already been reported where a woman unknown to be Rh negative has been transfused with Rh positive blood and developed antibodies. All children subsequently born have been still-born, etc. Therefore, all females aged from 0 to 45 should have their blood Rh tested before transfusion. *It is true to say that many unborn infants are doomed to die because of indiscriminate blood transfusion.*

Blood transfusion is one of the great advances in modern obstetrics. It is materially lowering the maternal mortality rate and preventing prolonged ill-health and convalescence following upon haemorrhage. It would be a tragedy if its obvious advantages were neutralised by the

dangers and complications enumerated above. These can be entirely overcome by an Rh testing service. In other countries facilities are available for the routine testing of the Rh reaction of every pregnant woman during pregnancy. It is all important that the Rh reaction should be known before the emergency arises as invaluable time would be lost trying to get the patient's Rh determined (several hours).

Cork is indeed fortunate in having a blood bank. One of its great advantages is the immediate availability of blood. This blood is grouped and Rh tested. However, if we do not know the Rh reaction of the recipient we run a definite risk by giving the blood, and if we delay whilst her Rh is being tested she may well lose her life.

If a woman is Rh negative and her husband is Rh positive it does not necessarily mean that once she has developed antibodies in her blood all subsequent children will suffer from erythroblastosis foetalis. This will depend upon whether her husband is homozygous RH.RH. or heterozygous RH.rh. If heterozygous it is possible that some of the subsequent pregnancies would be normal as the child might be Rh negative and therefore the antibodies in the maternal blood would not affect it. Consequently, it would be important to have facilities to test the husband's blood of an Rh negative woman, to see if he is heterozygous or homozygous as the result will affect the prognosis.

SUMMARY :

(1). A certain proportion of women with Rh negative blood, usually after one or two normal pregnancies have erythroblastotic infants in subsequent pregnancies.

(2). If an Rh negative woman, either before or after marriage is transfused with Rh positive blood she develops antibodies. These antibodies will produce severe and perhaps fatal reactions if she is subsequently transfused with Rh positive blood. If she marries and has children, these children are very likely to be born with erythroblastosis foetalis.

(3). Only a minority of women with Rh negative blood produce erythroblastotic infants. These can be diagnosed immediately by frequent assessments of the blood of all Rh negative women during pregnancy for the presence of antibodies.

(4). By routine investigation of the Rh reaction of every pregnant woman (and preferably of every woman aged 0 to 45 years who is to receive a blood transfusion) the following advantages may be obtained :—

(*a*) The Rh reaction is known so that if an emergency blood transfusion is required no time need be wasted.

(*b*) The dangers of transfusing an Rh negative patient with Rh positive blood are removed. In an extreme emergency these risks would have to be taken as it would be better to have a live Rh negative woman with antibodies in her blood than a dead patient. Obviously it would be better that the situation should not arise.

(*c*) Pregnant patients with Rh negative blood would be carefully supervised and a watch kept for the development of antibodies.

(*d*) The likelihood of an erythroblastotic infant being born would be realised and all preparations made beforehand for transfusing it immediately following birth with Rh negative blood.

(*e*) The husband's blood could be investigated to see if he is homozygous or heterozygous—of importance from a prognostic point of view.

It only remains to refer to the headings of this scheme which are set out for the benefit of any party interested. In effect it means that this service affords to every woman in the city the opportunity of having her blood tested to determine the nature of her Rh factor, the knowledge of which may be a matter of life or death to her or to her future children. In conformity with the first article in the scheme, every practising physician in the city was duly notified of the establishment of the service. The response was very disappointing. The great bulk of the specimens submitted came from the ante-natal clinic attached to Erinville Hospital and from our own ante-natal clinic.

SCHEME FOR INVESTIGATION FOR THE Rh FACTOR DURING AND AFTER PREGNANCY

1. Notification will be sent to all doctors practising in the City of the setting-up of the service.

2. Blood to be collected by the doctor in charge of case and transmitted to the Blood Transfusion Officer for investigation.

3. Investigations are to be made by the Blood Transfusion Officer of the Cork Blood Transfusion Service (the present Blood Transfusion Officer is Dr. J. A. Ryan).

4. The Blood Transfusion Officer will make reports in triplicate on each case (a) one to be sent to the practitioner concerned ; (b) one to the City Medical Officer ; and (c) one to be retained by him for record purposes.

5. The service will be free of charge.

6. Persons entitled to receive the benefits of this scheme are :

   (i) Pregnant women.
   (ii) Any female about to receive a blood transfusion.
   (iii) Males about to receive a *second* transfusion more than ten days after a previous one.

7. The Corporation will be responsible for the payment of fee in respect of all persons resident in the County Borough.

8. The charges to be made in respect of these investigations are as follows :—

(i)	Rh investigation	5/- (five shillings).
(ii)	Anti-bodies investigation	5/- (five shillings).

9. In some cases of urgency it may be necessary for the Blood Transfusion Officer to attend at one of the hospitals at short notice (very often at night). In addition to the personal inconvenience caused, this involves setting up special tests and added expense. It is suggested that a fee of £1 1s. be paid in such instances.

MILK AND THE PUBLIC HEALTH

Dr. Charlotte Naish in her guide to the Natural Feeding of Infants draws attention to a phenomenon which appears to have escaped general notice. " Owing," she says, " to the peculiar helplessness of the new-born human being, human reproduction cannot be considered a completed task until (at the earliest) the infant is weaned on to solid food. In some parts of the earth the species has maintained itself through long ages in the absence of any other mammalian species that it could rob of its milk : and in these circumstances human beings may be considered free-living animals. In Western Europe it is an open question whether the human species may not ultimately have to be classed as a parasite on the cow."

This penetrating comment reaches right into the core of our problem and it is indeed because man has become parasitic on the cow that we are met at all to discuss the problem of milk in relation to public health. Even the most superficial observation shews us that in the scheme of nature the means employed to secure the survival of individual species are, so far as one can judge, perfect. Cows' milk is the perfect medium for the nourishment of the calf. It contains the exact substances required for this purpose in the right amounts and the mechanism of suckling is such as to avoid all risk of contamination. In short, as taken by the calf, the milk is sterile so far as bacteria harmful to it are concerned, assuming that the mother is healthy as assuredly she would be in a state of nature.

It is when man enters into the picture that the trouble begins, because milk not only contains organisms necessary to the nutriture of the calf but it is, of its very nature, an ideal medium for the growth of all sorts of other organisms harmful both to man and beast. At one end of the scale are the relatively inoffensive organisms which cause the milk to sour if not consumed soon after milking and, at the other end, bacteria which may cause serious disease in man (and cattle) such as tuberculosis. In between lie a considerable number of other infective agents added to the milk by human beings during the handling between production and consumption. I would like to stress at this point that, in the natural state, tuberculosis does not occur amongst cattle. It is the intervention of man in animal husbandry that has determined the introduction of the disease to animals. And we must note that the same conditions which favour its spread in human beings are also operative so far as cattle are concerned—bad housing, overcrowding, lack of ventilation, bad feeding and so on.

Milk, as an article of food, has entered so largely into the life of civilised man that we are apt to overlook the fact that it was not originally intended for this purpose at all. If we can grasp this point we are on our way to understanding some of the difficulties which have arisen in connection with it and the problem which will have to be solved before it can be regarded as a perfect food for human beings.

I think it is true to say, so far as we in this city are now concerned, that the concurrence of two circumstances has precipitated what may be termed a crisis in the milk supply. The first of these was the adoption some years ago, as an emergency measure, of a once-a-day delivery of milk, the second was the advent of a prolonged spell of very hot, dry

weather. The result was souring of milk on a very extensive scale—one might almost say, on an unprecedented scale. It was apparent that the current method of distribution was not suited to the methods of production *generally* in vogue and that the resultant milk could not stand up to the test of storage before delivery. I stress the word *generally* because there were some notable exceptions in which it came through the trying conditions imposed with much credit. These were the cases in which methods of production were satisfactory.

It is of interest to take a backward glance into this question and to learn, if we can, how the problem affected our ancestors. In his book "The Englishman's Food," Professor Drummond quotes the following extract from "The Expedition of Humphrey Clinker" by Smollet, published in 1771 :—

> "But the milk itself should not pass unanalysed, the produce of faded cabbage-leaves and sour draff, lowered with hot water, frothed with bruised snails ; carried through the streets in open pails, exposed to the foul rinsings discharged from doors and windows, spittle, snot, and tobacco quids, from foot passengers ; overflowings from mud carts, spatterings from coach wheels, dirt and trash chucked into it by roguish boys for the joke's sake ; the spewings of infants, who have slobbered into the tin measure, which is thrown back in that condition into the milk, for the benefit of the next customer ; and, finally, the vermin that drops from the rags of the nasty drab that vends this precious mixture, under the respectable denomination of milkmaid."

This is a picture of 18th century London and it affords us a clue as to the conditions then prevalent. Indeed much progress was not made ; for in 1847 the *Lancet* strongly condemned the unhygienic character of the milk supply of the City, and pointed out that doctors were coming to believe that it was responsible for a good deal of scrofula. It is not surprising that many of the cattle were diseased and the milk heavily infected before it was drawn from the udder. Here is a description of the cowsheds in Golden Square :

> "Forty cows are kept in them, two in each seven feet of space. There is no ventilation, save by the unceiled tile roof, through which the ammoniacal vapours escape . . . Besides the animals, there is at one end a large tank for grains, a storeplace for turnips and hay and between them a receptacle into which the liquid manure drains, and the solid is heaped . . . the stench thence arising is insufferable."

The conditions here described are a far cry from the environment of the cow in the natural state and it is scarcely to be wondered at that the consequences were disastrous to man and cow alike. The picture differs only in degree from that which we see in many places to-day and, indeed, from some cases it would not appear to be so very far removed at all. It is these unhygienic conditions which have given rise to nine-tenths of our problems and which precipitated the crisis earlier referred to. Added to them was the question of adulteration. Watering the milk or removing the fat were very common practices. The crafty milkman had discovered that by decreasing the specific gravity of the milk by adding water, and

then removing some of the fat, which is lighter than water, the gravity could be brought back again within the normal range. It was not until chemical means of estimating the real amount of fat had been devised that this fraud was countered. I think it is only right to add that, at any time, only a small proportion of dealers were guilty of this practice and that it has long ceased almost entirely. The credit for putting an end to it must go to Wakley, the fearless editor of the *Lancet*, who exposed that fraud and many another in his day.

We may infer from all this that the problem of the milk supply is not a recent one though in some respects it may be said to be more acute to-day than it ever was. This arises from the fact that we are now armed with types of knowledge which were not available to former generations. This knowledge has been placed at our disposal as a result of research in the fields of chemistry and bacteriology, especially bacteriology. Our predecessors knew that milk could be bad but they did not know *how* bad. We know much about this to-day, but we know, also, how good it can be. For this we are indebted to the relatively new science of nutrition. It is essential that we adopt a balanced view in examining this vexed question.

In an address which I gave to the Dairy Congress at Mallow in January, 1942, I referred to milk as being the keystone in the arch of nutrition. This view still holds good. In milk all the elements essential for the maintenance of health are presented in a form which renders them ideal from the nutritive point of view. The fat holds in solution two very important vitamins concerned with the promotion of growth and the maintenance of health, the protein supplies material for the replacement of broken down tissues and also provides material for the rapidly growing cells of the young. This protein is especially valuable because it is of the group which is readily assimilated by the body tissues. Carbohydrate supplies heat and energy and, lastly, the mineral salts of calcium and phosphorus, which are of such fundamental importance in the development of the teeth and bony structures, are present in abundance and in the form best suited for absorbtion by the growing body.

I would like to refer very briefly to the celebrated experiment of Dr. Corry Mann in 1926 on behalf of the Medical Research Council. The subjects were boys living in an institution in which the food had long been regarded as ample—that is to say that the number of calories yielded by the various constituents was in amount equal to that regarded as sufficient for the boys' needs. On examination, however, it was found that the amount of first-class protein was less than it should have been and to remedy this state of affairs one pint of milk per day was added to each boy's diet. The result was remarkable. The average increase in weight was raised from 3.5 pounds per year to 7 lbs. per year and the average increase in height from 1.8 inches per year to 2.6 inches. In addition, it was noted that there was a great increase in the vitality and high spirits of the boys receiving the milk. The findings in this investigation have had ample corroboration in subsequent years.

It is, perhaps, in the field of infant nutrition that milk reaches its greatest importance. For reasons which we do not fully understand a great many mothers nowadays appear to be incapable of nursing their babies. On this account artificial feeding has become almost universal

and cow's milk plays an important part in it. That it is a practice fraught with grave danger goes without saying. This arises, in the first instance, from the fact that cow's milk is not a suitable food for infants and, accordingly, has to be altered to suit the needs of the case. The necessary modification is brought about by the addition of water and sugar. The dangers inherent in this procedure are manifold but they do not concern us now. Secondly, the risk of conveying germs of disease in the milk is great and unless the milk is carefully sterilised the infant is exposed to great hazard.

What are these risks ? From my experience of this city I would say that the greatest of them is gastro-enteritis. It is the principal factor in infant mortality and accounts for nearly half of the preventible deaths of infants under one year. Gastro-enteritis may be due to careless methods in preparing the feeds or it may be due to organisms present in the milk, particularly organisms found in stable manure which find their way into the milk as a result of unhygienic methods of production. Tuberculosis is another risk. This disease may affect older children as well as infants. We may regard tuberculosis as one of the *intrinsic* dangers of milk since it is a disease of the cow transmissable to man. Into this category also would fall undulant fever and streptococcal sore throat, the former due to contamination of the milk with the organism of contagious abortion and the latter with that of septic mastitis. These are diseases more prone to attack adults than children.

Then there is the group of *extrinsic* diseases in which the contagion is introduced somewhere between milking and consumption and for which man is responsible. This group is a large one and embraces many infectious diseases—typhoid fever, diphtheria, scarlet fever, septic sore throat and dysentry have all resulted from the contamination of milk in transit. Into this group also falls gastro-enteritis.

It is because it is a nearly perfect food for man that milk is also a nearly perfect medium for the growth of organisms harmful to man. If we reflect for a moment we must realise that the normal habitat of such organisms is on or in the bodies of human beings and that they cannot exist very long outside the body unless they can find some medium suitable for their existence. They find this in milk. The discovery of this fact has explained many outbreaks of disease in the past and it has pointed the way to their avoidance in the future.

This is, of course, an over-simplification. The problem is how to transmit the accumulated knowledge to the vast army concerned in the production and consumption of milk. If we could conceive, for instance, the whole body of milk producers, dairymen, milkers, and vanmen equipped with an adequate knowledge of bacteriology the problem would be relatively simple, but who could say that even one per cent. of these persons have any such knowledge ? Similarly, how many housewives know of the risks incurred by taking milk into dirty vessels and leaving it exposed to dirt and dust and flies in their homes ? The task appears to be insoluble.

And yet we know that it is possible to produce perfectly healthy clean milk without resort to any artificial treatment between cow and consumer. This would appear to be the ideal, but so much care, foresight and expense is involved that one doubts if it is within the capacity of the great bulk of milk producers. We know well that the general level of intelligence and industry among the farming community is up to that of any other group or to that of the general population ; but we know equally well that in all these groups there are varying levels of intelligence and industry—from the very good to the very bad—and it is this which creates our problem. We are handling a food which rightfully does not belong to us and if we do not handle it carefully and skillfully we will have to pay the price.

We may put the problem in this way—is it better to have a milk supply produced under sound hygienic conditions, from cows which are perfectly healthy, handled by persons with an intelligent knowledge of the risks inherent in the product and delivered to the consumer in the most hygienic manner possible: or is it better to rely on the easier and cheaper way of haphazard production and to treat the milk in such a way as to render it inocuous before consumption, that is to say, pasteurisation ? Speaking personally, I must say I would favour the former. But this is only a personal view and before answering the question one would have to consider carefully all the contingent circumstances and, in particular, the probability of ever achieving the ideal formulated so far as the great bulk of the milk supply is concerned. It must be admitted that this prospect is very remote and, consequently, one is forced to the conclusion that pasteurisation has become a necessity.

Reviewing the history of the milk supply we note that most of the gross evils associated with it have been removed but not the hidden dangers. It has assumed a growing importance in the diet of the people and, as its consumption has increased, so have these dangers become more pronounced. With its background of technical knowledge the great bulk of scientific opinion is in favour of pasteurisation and the process has made rapid strides in recent years. It is not necessary to go into technical details. It should suffice to say that it consists in raising the milk to a specified temperature, holding it at that temperature for a certain time and then cooling it rapidly. The result of this manipulation is to kill off all bacteria harmful to man as well as those which cause the souring of milk thus greatly improving the keeping qualities. If skillfully carried out the process does not materially alter the nutritive value or the flavour of the milk.

The problems concerned with the provision of safe milk of high quality were recently considered in England by a joint committee of the British Medical Association and the National Veterinary Medical Association, which issued a memorandum during last November. The second clause in this memorandum states that milk production methods may adversely affect the health of the consuming public through either of the following ways : (a) the milk consumed may carry pathogenic organisms either of bovine or human origin ; (b) the quantity of milk produced may be very materially reduced because of ill-health in the dairy herds or bad management on the farm.

It goes on to say that disease control measures for dairy cattle cannot be adopted if liable seriously to reduce the output of milk for human food. Consequently, a policy of eradication of tuberculosis based on slaughter of animals reacting to the tuberculin test is not immediately practicable and measures have to be adopted to ensure that unsafe milk produced shall be rendered safe for human consumption. The maintenance of live-stock in adequate numbers on the farm is an integral part of agricultural economy in that it enables the economic conversion of grass into human foodstuffs as well as being essential to maintain soil fertility and thereby increase crop production. There seems to be little doubt that the effects of immediate eradication of all positive reactors would be disastrous from every point of view, consequently the plans which have been formulated envisage a period of twenty years before complete eradication has been achieved.

The committee was unanimously of the opinion that there should be only two designations of milk—tuberculin-tested and pasteurised. It further deplored the trends in legislation which have put too much emphasis on milk as an agricultural product and too little on milk as a food of importance to health. Commenting on this aspect of the report the *British Medical Journal* states that the committee is right beyond question : if milk production is controlled by those whose interests are wholly agricultural it follows that nutritional and health interests tend to be neglected. Clearly, as the report suggests, the officers of local health authorities are the proper persons to supervise milk from cow to consumer, and their powers should be increased rather than diminished. The medical officer of health and his staff have long experience in milk sampling and testing : more important still he is the guardian of community health and the medical representative of the consumer.

This viewpoint can be commended to the consideration of our public representatives. There has been a decided tendency in this country in recent years to remove milk supervision further and further from the control of the local authority and to reduce the power and influence of the Department of Health. In England, it would appear, that milk control has become enormously complicated. In addition to three Ministries (those of Health, Agriculture and Fisheries, and Food), five subsidiary authorities are concerned. The report points out that the Ministry of Health would appear to occupy the rôle of very junior partner in so far as the milk problem exists. It is, I think, true to say that a similar comment would apply to this country.

The Committee felt very strongly that the importance of milk, both as an essential food and the most dangerous vehicle for the spread of disease, calls for a duty being placed on the State to protect the consumer against adulteration and for ensuring that the article supplied is hygienic and safe. The citizen and the Local Authorities, the Report points out, look to the Minister of Health as head of the department responsible for the maintenance of health and prevention of disease and it recommends that the Ministry of Health, in co-ordination with the other Departments concerned, should exercise an active responsibility for the efficient organisation of sampling and testing to ensure the safety of milk during all stages of production and distribution.

The point here is that this joint committee of medical men and veterinary surgeons were of the opinion that the health authority should

be brought back more prominently into the picture so far as control of milk is concerned and few will disagree with it. This report is of considerable importance inasmuch as it voices the unanimous opinion of these two bodies. Its view of pasteurisation may be inferred from the relevant paragraph of the summary : " All milk should be from tubercle free cows and should be pasteurised. In the meantime, the number of designated milks should be reduced to two : (a) Tuberculin Tested ; (b) Pasteurised."

This report is, perhaps, one of the most authoritative ever produced concerning the supervision and control of milk. It represents the considered views of the medical and veterinary professions. It is in fact the opinion of those best entitled to speak so far as the preservation of health in man and animal is concerned and it is impossible to ignore its recommendations in regard to pasteurisation. Clearly it is a declaration that, notwithstanding the wealth and organisation behind milk production in England, production by the old haphazard methods has been a failure. Consequently we are forced into the position of saying that pasteurisation has become a necessity.

It is well to make it perfectly clear, at this juncture, that pasteurisation is no panacea. It is not sufficient to find the necessary capital anp to erect the most modern plant and then to hope that all our troubles will have been automatically resolved. On the contrary, we may have focussed them into a very much smaller area of control but we will have increased them greatly in intensity. The inherent weakness of centralisation lies in the fact that if there is any breakdown in the administrative or executive machinery the consequences are very much more serious than if the older and more haphazard methods had been relied upon. One of the greatest epidemics of typhoid fever on record emanated from a pasteurisation plant.

This occurred in Montreal in the year 1927. Beginning in late February, the first wave of the epidemic involved 2,603 cases with 233 deaths by the end of April, and by early July brought the deaths to more than double and the cases to nearly twice the former figure. There were, therefore, over 5,000 cases and over 450 deaths. It was confirmed that the epidemic was milk-borne, which has special interest, as 95 per cent. of the milk supply of Montreal was pasteurised. Inquiries among dairy employees brought to light a typhoid carrier employed as a foreman in a pasteurisation plant, where his work required the handling of some of the apparatus. He had been six years at work in the milk trade, but was employed on the receiving side of the plant until, a fortnight before the appearance of typhoid fever, he was transferred to the pasteurising apparatus.

This incident illustrates in the most graphic way one of the dangers inseparable from centralisation. We have had a similar example in our own country in the epidemic (again typhoid) which hit the inhabitants of the Dingle Peninsula in the early summer of 1939. In this instance the focus of infection was a local creamery. Milk from one household, in which there was a typhoid carrier, infected the whole of the bulked milk in the creamery so that practically everyone who consumed the separated milk developed typhoid. This outbreak involved 103 persons and caused 9 deaths. This particular epidemic is not an argument against pasteurisation but it is one against centralisation. In actual fact it would not have occurred if the separated milk had been pasteurised before distribution.

One of its immediate effects was the installation of a pasteurisation plant in the creamery, since when there has been no outbreak of the disease. Incidentally, it was a rather disturbing revelation of standards which permitted the feeding of separated milk to children instead of whole milk.

This bad effect of bulking of milk is alluded to in the *British Medical Journal's* comment on the Report already discussed. It refers to the annual report of the Medical Officer of Health of Manchester for 1948, in which it is pointed out that of ungraded milks 15 per cent. contained tubercle bacilli, while samples taken from the tanker lorries coming into the city were all unsatisfactory bacteriologically and 86 per cent. were found to contain tubercle bacilli. Once again this finding is not a condemnation of pasteurisation since all these samples were taken from supplies on their way to the plant and before treatment. The relevance here arises from the fact that there is now in Cork (and presumably in other urban areas in this country) a good deal of bulking of milk. Every year more and more producers are going out of the retail distribution business and selling their milk to persons interested only in the retail end of the trade.

In view of what has been said this tendency can only be viewed with the gravest misgivings. In effect it means a mixing of good and bad supplies and in such a case it is, unfortunately, the bad supply which determines the quality of the milk as it reaches the consumer. In my opinion it is this practice, more than the one daily delivery, which has caused the outcry about the quality of the milk. Many producers, unfortunately, are simply not interested in clean milk production and are not provided with the necessary equipment and, when milk from such sources is bulked with good milk, the keeping quality of the latter is destroyed. Needless to say, the position is aggravated by keeping the evening supply overnight to mix with the morning's milking.

In the time at my disposal I can only refer very briefly to the procedure adopted in Northern Ireland to meet the problem. There they recognise four grades of milk which are designated simply A, B, C and D, and these categories are based on cleanliness. The first three grades require licence for production, no licence is required for Grade D, but such milk is not permitted to be sold for human consumption. (It would correspond to the great bulk of milk supplied to our creameries). Grade A, naturally, is the highest standard and it is from cows which have been tuberculin-tested. In the case of Grades B and C, the cows must be clean and healthy, the byres and equipment must comply with certain standards and the milk must be cooled at the farm to not less than 60°F. The inspection of herds, byres and equipment of A, B and C producers is carried out by whole-time veterinary officers of the Ministry of Agriculture. The price of milk is fixed by a Joint Milk Council, which has power to impose levies on producers. The maximum levy on Grades A and B is 1d. per gallon and on Grade C, 3d. per gallon. In practice the levy on Grade A is 0.6d. per gallon, on Grade B, 0.75d., and on Grade C, 2.25d. The current prices chargeable for milk do not differ much in the three grades. They work out at 3/2d. per gallon for Grade A, 3/- per gallon for B, and 2/10d. for C. The real difference in the return to the producer is represented by the difference in the rate of levy, namely 2.25 (2¼d.) on Grade C and 0.75 (¾d.) on Grade B.* The distributor can purchase Grade B at practically

* Recent letter from Mr. J. L. T. McAdam (Ministry of Agriculture—N.I.). Indicates a change in details. Premiums are now paid as follows :—

Grade B	....	....	.... 1¼d. per gallon.
Grade A	....	....	.... 3.65 pence per gallon.

and system appears to have replaced the levies previously mentioned.

the same price as Grade C and naturally will only purchase Grade C when there is no Grade B available. All Grade A milk must be bottled at the farm. Grade B must be sold in bottles, but bottling may be carried out either on the farm or at the distributors' premises. Grade C may be sold loose from churns which have to be prominently labelled as Grade C. Finally it is of interest to note that of the Joint Milk Council, a body consisting of seventeen members, three are appointed by the Minister of Home Affairs to represent the consumers.

I have earlier alluded to the coincidence which produced what, for convenience, we may term the present crisis in our milk supply. On tracing back our efforts to effect some improvement in this essential commodity it is interesting to note that in my annual report for the year 1933, when discussing the working of the first scheme sponsored by the Cork Corporation for the distribution of free milk, allusion is made to the fact that it was decided to concentrate on Grade A milk (so called) and it is noted that, in the case of one particular contractor, who was unable to install an essential piece of plant (a cooler) for some two or three days after the scheme came into operation, for these few days the milk went sour. The report goes on to say " this defect was quickly remedied and after this there was at no time any complaint whatever about the quality of the milk, notwithstanding the fact that there was only one delivery in the day, in distinction to the double delivery which is customary throughout the city."

This observation is of some interest. We note in the first place the effect on the milk of failure to cool and, in the second, that the custom of a double daily delivery was then in vogue and that it apparently masked the grosser results of defective methods of production at any rate so far as keeping qualities are concerned.

It is of interest too to note from former reports the attempts made to effect a permanent improvement in the quality of the milk supply when this scheme was first mooted. Inspection was made of numerous dairy premises in the neighbourhood of the city with a view to selecting those most likely to yield a supply up to recognised standards. Meetings were arranged with the selected producers at which we laid before them our views in regard to the housing of cattle, equipment of premises, installation necessary for washing and sterilising vessels, cooling of milk and bottling. With one or two exceptions this involved fairly heavy financial outlay, in consequence of which a number dropped out. Sufficient, however, decided to go on with the scheme to justify us specifying Grade A milk for our scheme and so was laid down the nucleus of a system which it was hoped would extend to the City generally in the course of time. This hope, unfortunately, was not realised and so, for practical purposes, only those who were receiving milk for nothing continued to get the best of the supply.

It would be a mistake to blame the producers for this state of affairs. The consumers themselves were very largely to blame. One can scarcely expect a milk producer to incur the heavy expense of installing apparatus and improving his sheds if he can find no market for the improved final product. In the period under review there was only one dairyman in this area who went to the trouble and expense of producing the highest grade of milk (which was designated Grade A, T.T.). For many years his pre-

mises and herd had been placed voluntarily under our control and the work of eradicating tuberculin-reacting cattle went on until at length his herd was completely freed from tuberculosis. All this, of course, entailed a very heavy expenditure for equipment and replacement of stock and it is a poor reflection on the discrimination of the period that he was forced to go out of business through financial loss. His customers simply refused to pay the extra ½d. or ¾d. per pint over and above what their neighbours paid for their indifferent milk. There has, in fact, been no real encouragement to produce high grade milk and any such milk as has been produced up to this has been largely subsidised out of the public purse by way of grants for free milk schemes, so that we have the somewhat paradoxical position (already alluded to) that those of our citizens who pay nothing for it receive the best of the city's milk supply.

It is indeed very regrettable to note that the high grade milk producers are dropping out of the market one by one over the past few years. A very large proportion of those who have not actually ceased production are no longer selling retail. They sell their milk in bulk to retailers for admixture with other supplies (often of indifferent quality). The inducement to produce high grade milk in this area has, in fact, been wanting and so we are forced to the conclusion that we are now getting the kind of supplies we deserve.

Sooner or later, it was inevitable that this problem would force itself into public notice and it may have been a very good thing that the climatic conditions earlier referred to unmasked the very unsatisfactory conditions under which the great bulk of our milk is being produced. I have indicated, I think that pasteurisation appears to be the only solution but I think it is necessary to give warning that pasteurisation alone will not solve our problems. It will be necessary to press forward with plans for improved methods of production. Dirty milk is not going to be made clean by pasteurisation alone and some inducement will have to be forthcoming to persuade dairymen to improve their methods. We have seen how this was brought about in another area. It will be necessary too to exercise the most careful supervision of the process of pasteurisation at all its stages, including supervision of the health of the operatives.

All this will require careful planning and organisation and finally there will have to be decided the question as to whom pasteurisation shall be entrusted. Shall this be by private enterprise, public monopoly or by co-operative effort on the part of the producers ? These are difficult points and this is scarcely the occasion to discuss them. Of one thing, though, I am certain and it is this : that, if it is decided by legal enactment to secure that the milk supply of this area must undergo pasteurisation, then the health authority should be invested with sufficient powers of supervision and control, not only over the plant but also over the personnel to ensure that no harm is done to the health of the citizens who will have to consume the final product. In short, the emphasis must be on milk as a food of importance to health and not as an agricultural product.

The above is the text of a paper read by me at University College, Cork, 12th February, 1950. In view of the present position in regard to the milk supply it appears to be appropriate for inclusion here.

THE IRISHMAN'S FOOD

History can provide no more striking example of the vagaries of fortune than the changing lot of the Irish peasant in the last hundred years. At the time of the great famine in 1845–47, the story of which has been brilliantly retold by SALAMAN in his *History and Social Influence of the Potato*, a large proportion of the poor people in Ireland were subsisting almost wholly on potatoes. Owing to an insufficiency of land and the uncertainties of agriculture, the Irish peasant's hold on life was then as precarious as it often is now in the rice-growing countries of the East. Hunger was his daily companion ; starvation a not infrequent intruder. Further, the almost exclusive rôle of the potato in the economic life of the peasants enabled the economically stronger landlords to dominate them completely and reduce them to a state of serfdom paralleled by the absolute subservience of the potato-eating natives of the Andes to their Inca rulers. SALAMAN has demonstrated convincingly how the cultivation of the potato by an agricultural community to the exclusion of all other crops reduces that community to the lowest levels of human degradation. The vast difference in the conditions of to-day is revealed in the reports of the National Nutrition Survey,[1] sponsored by the Medical Research Council of Ireland, discussed at a meeting of the Nutrition Society in Dublin on April 15. The food consumption of 948 families of small farmers, in all parts of Ireland except Ulster, was determined by weighing over a period of a week. The average weekly consumption per person was 11.1 oz. of butter, 11.6 oz. of sugar, 9.2 pints of milk, 6.4 eggs, 10.6 oz. of bacon, 25.8 oz. of other meat, 162.7 oz. of potato, 65.5 oz. of flour, and 38.2 oz. of bread. These figures will satisfy the dictates of the most rigid nutritionists, and the diet they represent would make the ordinary British citizen's mouth water. Another survey of 200 families cultivating small holdings on poor land on the west coast showed that here the living was not so high, though physiological requirements were more than met. The main reason for this extraordinary change in a hundred years is the disappearance of the landlords. An Irish speaker at the Nutrition Society meeting said : "The Irish peasant is the only farmer in Europe to-day who owns his own land." This striking statement went unchallenged, and, as regards Ireland at least, represents the facts. More than to any other factor, the Irish peasant owes the change in his fortunes and his satisfactory diet to the present system of land tenure.

In the urban population the general position is not so uniformly satisfactory. The surveys of 500 Dublin familes, 329 families in other large towns, and 516 families in small towns show that economic factors play a big part in determining the townsman's diet. Thus the average weekly consumption of milk per head varied at different income levels from 2.7 to 6.7 pints ; of eggs from 1.0 to 5.9 ; of meat from 8.6 to 55.4 oz. ; and of vegetables from 12.6 to 41.9 oz. Consumption of bread and potatoes was always adequate. Analyses revealed no serious shortage of calories or proteins in any large group, but important sections of the population were receiving amounts of calcium, vitamin A, and riboflavine well below any acceptable physiological standard. These findings confirm the impression of the casual visitor to Dublin. There he will find hotels and restaurants in which those with money may buy unlimited quantities of the best and

[1] National Nutrition Survey, Parts I to IV. 1949. Stationery Office, 3-4, College Street, Dublin. 2*s*., 1*s*., 1*s*. 6*d*., and 1*s*.

richest foods. But outside he will find beggars in the streets who look undernourished. How big are the underfed and overfed minorities in Dublin and other Irish cities is uncertain ; probably both are small. For the majority the hard tacts of pounds, shillings, and pence ensure a diet that is frugal but sufficient, and in most respects differs little in nutritional value from the diets in England to-day. Tradition, however, still determines that all Irish families, whatever their economic status and both in town and country, eat more potatoes and less bread than corresponding families in England. The Irish also eat little cheese or fruit and are largely dependent on the potato for supplies of vitamin C.

The four parts of the Nutrition Survey so far published cover only the findings of the dietary surveys. While these were in progress a widespread clinical nutritional survey was also undertaken. This is now completed, but the data are not yet fully analysed, and until these clinical findings are published the significance of the dietary surveys cannot be finally appraised. Meanwhile we can congratulate the Irish on planning and carrying out a large-scale nutritional survey on a sound statistical basis. Probably no other country now possesses such accurate knowledge of what its people eat. When the final reports are written up it is to be hoped that those responsible for this excellent work will discard the cloak of anonymity which enshrouds the first four parts.

The above article, of great topical interest, appeared in issue of The Lancet of May 6th, 1950, and is reproduced by kind permission of the Editor of that journal. Congratulations are due to Dr. J. D. Hourihane and his colleagues for the very able way this piece of work was planned and executed. It certainly has been the most important of its kind ever carried out in this country as well as the most informative.

In connection with the Course of Study in Tuberculosis Work abroad, sponsored and organised by the Department of Health, Dr. P. F. Fitzpatrick spent the period from October 1948 to February 1949 in Ontario, Canada, studying methods of tuberculosis control. The following report incorporates his observations on this work.

TUBERCULOSIS CONTROL IN ONTARIO.

The population of Canada is approximately 12 million and that of Ontario 4 million. It will thus be seen that one-third of the people of this vast dominion dwell in Ontario. Ontario extends along the shores of Lake Erie and Lake Ontario and beyond for 500 miles. This is the southern border. Northwards it stretches for 1,000 miles to Hudson Bay. Population is concentrated, in the main, in the southern third of the province. Ontario is highly industrialised in the large cities (Toronto, 731,000; Hamilton, 200,000; London, 100,000) and many of the smaller towns Kitchener, Kingstown, Belleville, are growing rapidly. The rapidity of growth of some of these towns is instanced in the case of Hamilton, which forty years ago had a population of only 20,000. The southern part of the province contains the great towns and around these for many miles is rich agricultural country. The province offers features in many respects similar to our own and the methods which have been adopted in that country for the control of tuberculosis are in the main applicable to our people and our resources.

The mass of infection to which a community is subject, or perhaps it would be more correct to say the index of risk, which may with advantage be used for comparative purposes is the incidence of positive reactors to tuberculin. In the industrial centres of Ontario that rate expressed as a percentage is approximately that of the age under test. Thus, if a group of children of eight years of age are tuberculin-tested it will be found that eight per cent. react positively. This is in marked contrast to our own figures where the Red Cross Survey for Cork showed a positive reaction rate of 65 per cent. at that age.

The mortality rate for all ages from tuberculosis in Ontario is 0.25 per 1,000. The figure for Ireland is 1.1. During the last forty years in Ontario the figure has been reduced from 1.1 to 0.25. Last year in Hamilton (population, 200,000) there were only 15 deaths from tuberculosis. Cork (population, 75,000) had 97 deaths.

There is one more set of observations which I think may be studied with advantage and this refers to the stages of the disease in which the patients are found when admitted to sanatorium. It must be understood, that in contrast to the custom prevailing in this country of admitting to sanatorium only those cases with a reasonable prospect of cure, in Ontario all cases of tuberculosis are treated at the sanatoria. In Cork the proportion of early cases for many years has been in the region of 10 per

cent. or under, of moderately advanced, 40 per cent., and of far advanced, 50 per cent. I believe this percentage to be approximately the same for the rest of the country. In Ontario the same classification is adopted with, I think the reservation that there they are more conservative and would put some cases into the " far advanced " group which I had been classifying as " moderately advanced," and this impression was gathered in the reviews of many cases at Case Conferences. The Sanatorium Statistics for Ontario show that minimal cases admitted average about 30 per cent. When we have regard to the symptomless nature of early tuberculosis and its insidious, and so often too, its symptomless progress to advanced disease, this figure represents a very high degree of efficiency in case finding. At this juncture it must be understood that in order that sufferers from tuberculosis may have treatment, in which there is reasonable hope of cure, they must be searched for and found before they are aware that they are infected. Very few people indeed complain and are examined by a doctor while the disease is still in the early stages.

It will thus be seen that the methods invoked for the control of tuberculosis in Ontario may, with great advantage, be studied, and that impression became very convincing as time went on and I was able to observe the high technical skill and earnest endeavour brought to bear on this problem by the Director, his head quarters staff, the clinic Directors and the sanatorium staffs.

Tuberculosis in Ontario is under the care of the Division of Tuberculosis Prevention which is a branch of the Department of Health. It has in charge a Director and Assistant Director and sections of this department, under the charge of doctors, deal with post sanatorium care, the hospital admission programme and mass surveys. The Division is in close touch with the many medical officers of health, the tuberculosis officers, the sanatoria, the clinic directors, the Provincial Tuberculosis Association and all subsidiary aspects of tuberculosis prevention and treatment. It was apparent in Ontario that the fundamental principles underlying tuberculosis infection were clearly understood and the programme of control was built with these principles as its basis.

I found there an acute awareness of the infectious nature of this disease. Their case finding methods are aimed to discover cases of the disease in its earliest stages and a minute search is made by cultural methods to find bacilli. Before patients are discharged from institutional management rigid tests are carried out to ensure that a cure has been effected and that the patient is free from the danger of conveying the disease to others. If there exists an open case of tuberculosis, who is regarded as gravely menacing the health of others and who refuses to have appropriate treatment, a court order is procured for his committal to a sanatorium. There is an Act of Parliament also by which a person suspected of having tuberculosis (contacts included) is required to present himself at a chest clinic at a given time.

An energetic and serious effort is made for the periodical supervision of contacts. This type of investigation, even under the best conditions has often proved cumbersome, unsatisfactory and time consuming. In Ontario I found that this branch of tuberculosis control is taken very

seriously indeed. Tuberculin-testing followed by X-ray examination of positive reactors is routine and their system of follow up and periodic check impressed me with its completeness. I was impressed also with the spirit of co-operation on the part of the public to this aspect of the work and I shall deal more fully with this when I come to speak about the attitude in general of the people to this disease.

Because case finding looms so large in any tuberculosis control programme and also because my position in the scheme brings me so much into contact with these particular problems my interest was heightened in the scope of this work and the methods employed. The tuberculosis clinics are the centres from which these activities radiate and an extensive coverage is provided by these clinics in regard to number and strategic position. In the population centres whole-time clinic service is available and these clinics are staffed by a physician, X-ray technician and clerical staff. Some clinics are equipped with an X-ray unit which can be transported and clinic visits are made from time to time where no X-ray facilities exist. Thus the full-time clinics maintained by the Division for Tuberculosis Control visit upwards of 46 centres at intervals during the year. In addition to the departmental clinics regular chest clinics are held under the auspices of the local Boards of Health in almost every centre where chest X-ray facilities exist. These are under the supervision of the nearest sanatorium staff or departmental physician. In all there are 183 chest clinics in the province.

In order to indicate the extent to which this work is carried I may briefly cite the position in Toronto, a city with a population of 731,000. Here chest clinics are maintained in the six public hospitals and are staffed by chest physicians on the hospital staff. There is in addition the Gage Institute Chest Clinic, a concern of considerable proportions, working full time and maintained by the National Sanatorium Association. The annual report for 1947 for this diagnostic centre shows that 208,871 miniature films were taken during the year. This figure includes the mass community surveys. Chest clinic examinations (by appointment) were carried out on 15,616 persons. This number was made up in the main of patients referred by doctors and those who of themselves applied for a chest examination. This clinic offers chest X-ray to employers for their staffs and it is becoming routine to have this type of examination carried out before employment begins. During 1947, 9,353 miniature X-ray examinations were made on new or prospective employees. The clinic operates mobile miniature chest X-ray units and carries out surveys on communities, business organisations and special groups. During 1948, 370 notifications were sent from the Gage Institute for people resident in Toronto. During the same period the number sent by private practitioners was 129. This is a striking tribute to the value of a clinic with a stature such as the Gage has and indicates to what extent a well organised clinic will be made use of by the people.

A section of the Provincial Department of Health is devoted full-time to the operation of mass survey units. Three doctors are in charge and there are five of these units in operation. I spent several days observing the work of this section and was greatly impressed at the speed and efficiency of the organisation and the excellence for diagnostic purposes of the miniature films taken. We have been accustomed in this country to the 25mm. film. In Ontario for the first time I had the opportunity of

viewing the 70 mm. film, which is the one in general use there, and in one place the 5 x 4 film. I was very favourably impressed by the diagnostic value of these sizes and am of the opinion that they make for a great degree of accuracy.

Again the volume of work carried through in community surveys will indicate to what a high level this branch of tuberculosis control has been promoted. In 1948 318,000 X-rays were taken and revealed 741 cases of tuberculosis—175 of which were active and required sanatorium treatment. When it is understood that almost all those examined were adults some idea will be gained of the amount of organisation necessary to bring this about, and the value of the work realised when one contemplates that 175 cases were in urgent need of treatment and were unaware of the fact. During the past few years practically the whole province has been covered by this service. Thus those in authority are acquainted with those parts where the incidence of the disease falls heaviest and are able to plan accordingly for future case finding programmes. One more approach to case finding must be mentioned and it is an aspect to which considerable importance is attached in Ontario. I refer to what is described as the hospital admission programme. The object of this programme is to furnish a chest film for every case admitted to hospital. It has long been recognised that many cases of tuberculosis find their way into general hospitals and remain under treatment there for some time frequently for a non-tuberculous ailment, before they are discovered to have open tuberculosis. At times owing to the symptomless nature of pulmonary tuberculosis they may leave hospital with the disease undetected. In Ontario there is a branch of the Department of Tuberculosis Control which is occupied with this important work. Facilities are available which enable a hospital of sufficient size (for this purpose one of an annual admission rate of over 1,200) to be equipped with a miniature X-ray unit and early this year 16 hospitals were so equipped and 41 were awaiting delivery of apparatus. Ontario statistics show that over 13 per cent. of the general population are admitted during the year to public hospitals and that the incidence of pulmonary tuberculosis among hospital patients is more than twice that of the general population. In addition to tuberculous disease many significant chest ailments are discovered. When one alone considers the risk that such cases entail to young nurses, who in general hospitals may not be inoculated against primary tuberculosis, this hospital admission programme must be regarded as a valuable contribution, and remembering that this readily accessible group provides such a high incidence of the disease such activity must indicate a potent drain on the reservoir of tuberculous infection.

In Ontario there are 14 sanatoria with a total of 3,938 beds. Some of these sanatoria are very large and it was my privilege to reside in three of them, each with a bed capacity of 700, and one small sanatorium of 150 bed capacity. The sanatoria are under the management of a local committee and those that I had knowledge of were built as a result of voluntary subscription by the people. As time went on and the demand for beds increased these institutions grew and in some cases what was originally a unit of 50 to 100 beds has now enlarged by the addition of new buildings to 650 and 700 beds. All the tuberculous are housed in the sanatoria with special buildings for children. Thus the sanatorium caters for pulmonary

tuberculosis in all stages, non-pulmonary tuberculosis and children. It is scarcely necessary to point out what an advantage this is. The medical personnel are full-time and the directors of departments in most cases have residences in the sanatorium grounds. Consultant physicians and surgeons from the teaching hospitals and universities attend weekly and there is a close liason between sanatoria and the teaching hospitals. There is also a constant interchange of ideas between the sanatoria and clinical meetings are held dealing with tuberculosis and are attended by the sanatoria staffs of institutions within reasonable distance.

The Laennec Society, a body devoted to the study of tuberculosis, meets once a year. This meeting lasts for some days and is attended by representatives from all over the Dominion. At this meeting a great pooling of ideas takes place and as well as contributions of a purely clinical interest the social and public health aspects of the disease are considered by the committees and officers who have to deal with that aspect of the tuberculosis problem. It was my good fortune to be present at the meeting of this society and to be allowed to sit in and listen to their discussions.

A sanatorium feature of considerable interest to me personally was the case conference. These conferences are held at intervals during the week, every day in one institution where I was. There every case in the institution is reviewed periodically by the entire medical staff and the social, as well as the clinical problems which the case presents, come under consideration. I found in these institutions an acute awareness of the fact that tuberculosis very often presents problems which are not medical but which must be smoothened out if the patient is to get well. Every effort is made to deal with these contingencies. The patient is interviewed soon after admission by one specially trained in social welfare. The objects of sanatorium stay are clearly and quietly indicated. Instruction is given in regard to the sanatorium amenities and the patient is, so to speak, habilitated. A sympathetic enquiry is made into the problems which the disease may have created and, when necessary, machinery is put in motion to enlist the aid of the various agencies, voluntary and otherwise, which help in the solution of these problems. When the patient is well enough his time is usefully occupied in education and learning various crafts or perfecting his own under the guidance of specially trained occupational therapists (the university of Toronto conducts a course lasting thee years in this branch). When the patient leaves the sheltered confines of the sanatorium, and the sanatorium stay is seldom less than one year, every effort is made to lessen what can be a shattering impact with the world outside and the thought that he is again on his own. I have seen the records of patients who, barred by reason of their illness from following their previous way of livelihood, were enabled to take up a new life and made good by virtue of this type of training which they received while undergoing sanatorium treatment. The scope of this report does not extend to a consideration of the problem of rehabilitation of the tuberculous but what I saw in Ontario made it clear to me that this vital side of tuberculosis work is receiving considerable attention and thought.

The Department of Veterans' Affairs, which is responsible for the interests of those who served during the war, is doing everything possible to help in the rehabilitation of disabled ex-service men. A new institution,

built on attractive lines and in beautiful countryside, is situated near London for the care and training of soldiers invalided as a result of pulmonary tuberculosis. There is a close association between the staffs of this institution and the sanaoria of London and Hamilton. This is a treatment centre but its paramount significance is in training and rehabilitation. The workshops here are fully equipped for teaching and the general impression conveyed was that here the full implications of rehabilitation were realised. For many years our conception of occupational training was that something was needed to overcome the tedium of a long sanatorium stay and patients amused themselves in doing minor handicrafts which turned out later for many to be a pleasant hobby. It is not such a far cry to those days and those of us whose interests lie in clinical medicine can seldom fully realise the social problems created for the individual by tuberculosis and other crippling diseases. A visit to this institution brings one with startling suddenness to a realisation of how much can be done in the way of training and how the impacts of modern life on one who has been sheltered for many months may be sublimated. Indeed the whole atmosphere of this institution came over one like a breath of fresh air and one knew that here were being forged new and powerful and necessary weapons against tuberculous infection and the problems it creates.

It would be a grave omission if, before leaving this brief reference to the sanatoria that I visited in Ontario, I did not pay a tribute to the doctors and the non-medical personnel of these institutions. I found there technical skill of the highest order amongst the physicians, surgeons and laboratory directors and an earnestness and energy to do what was right that was wholly admirable. I pay the same tribute of skill and honest endeavour to those who were concerned with matters other than the purely medical and I gladly acknowledge my debt to all of them for very much valuable experience and information.

A development of tuberculosis work which I found of much interest is the Ontario Tuberculosis Association. This association was formed in 1945 in response to a need for an increased effort in connection with the control of tuberculosis. The official health agencies were of the opinion that further effort on the part of the public was necessary if more rapid success in the control of the disease was to be achieved and the result was the birth of this Association.

The object of the Association is to assist the official health agencies and the success of the organisers may be judged when one considers that in 1948 upwards of £200,000 had been subscribed. The programme of the Association includes :—

1. Providing free miniature chest films for all people of the Province.
2. Providing free chest X-rays for all attending the regular periodic chest clinics not operated by the Department. The Department clinics were always conducted on a free basis for the public.
3. Establishing new chest clinics in hospitals where X-ray facilities are available.
4. Increasing the number of chest clinics in centres to meet the needs of the community.
5. Education of the public and propaganda.

During three years upwards of 500 mass surveys were organised by this Association covering two million persons and £100,000 was paid to the Provincial Government for its services in this survey programme. One hundred and ninety-nine referred periodic chest clinics were financed.

It will be seen that considerable sums of money are involved in these activities and the amount subscribed is an index of the great generosity of the people. The collection of funds, which is the result of the sale of Christmas seals and contributions by public-spirited individuals, is, however, only one aspect of this great voluntary organisation. There remains the great number of people who give their time and services freely, who are responsible for many details of mass survey organisation, much routine work of chest clinics, and all correspondence entailed in the sale of Christmas seals. The educational propaganda of this organisation is keeping the problem of tuberculosis constantly before the minds of the general public and the success of the Ontario Tuberculosis Control programme must, in no small measure, be placed to the credit of these unpaid workers. The Department and the Tuberculosis Association have the whole-hearted co-operation of the public and Press. I was in Toronto at Christmas and it was refreshing to find the front page of leading newspapers devoted to pictures and items of interest concerning tuberculosis. There were many pictures of patients " taking the cure " and it was freely advertised that those in attendance, doctors and nurses, had been themselves patients at one time. The burden of this type of propaganda is to keep before the minds of the public that tuberculosis is a disease which anyone may contract and that complete restoration of health is to be expected. The success of community surveys can be ensured only if everyone for whom the survey was designed attends. Propaganda of the type that I saw in Ontario must be of inestimable value in achieving this end.

The Government of Ontario is solicitous with regard to the welfare of patients after they have left sanatorium. I have indicated that all that it is humanly possible to do has been done by the specialists at the sanatoria to ensure that the disease has been arrested before discharge. The months following discharge are provocative and in many cases reactivation of disease may be expected if conditions of living are not free from overcrowding and from inability to make ends meet to a reasonable degree. Post sanatorium care is under the charge of a section of the Department of Tuberculosis Control. This type of care provides transport, treatment, board and lodging and the necessaries of life. It is emphasised in Ontario that sanatorium treatment is but the first phase of a patient's management until his return to the community fully restored to health and in a position to again compete as a normal individual. It is emphasised too that adequate post sanatorium care is good economics. Not only may valuable lives be spared, and the subsequent usefulness of a patient very often depends on the sufficiency of this post sanatorium care, but reactivation of disease means not only his loss to the community but a more difficult case to treat and continued expense.

In a country of such expanse as Ontario certain administrative problems arise. One of these is the regular giving of refills to those, not in institutions, who are undergoing that type of treatment. In order to

eliminate what would be for many a prohibitive distance to travel the help of private practitioners is made use of. These men, where necessary, are brought to the sanatoria or departments where this work is going on and trained under expert supervision. In their own centres where the work is carried out an essential part of their equipment is a fluorescent screen. Upwards of 70 of these refill clinics have been established throughout the Province.

The mentally ill who suffer from tuberculosis are catered for in a special institution. This is situated at Woodstock. A regular survey is made of all mental patients in the provincial institutions and those affected are transferred to Woodstock. Here strict sanatorium regime is carried out and the patients are under the care of specialists in mental disease who have become skilled in tuberculosis work. The work done at Woodstock was highly impressive. The hospital buildings are modern and beautifully equipped and to observe these patients (as I had the opportunity of doing) gave a convincing impression that the mentally ill, when intelligently handled, can be led to co-operate with their doctors in bringing about a cure. Many of these patients were having pneumothorax treatment.

In addition to the purely humanitarian side of this institution and the work that is done there its value in preventive work cannot be over emphasised. The mentally sick man or woman who has tuberculosis cannot be expected to observe the routine restrictions which limit the spread of infection and mental hospitals with their density of population are fruitful grounds for the spread of infection. To collect under one roof and institute, what indeed it is virtually, a centre of tuberculosis control for all mental hospitals in the Province must be regarded as preventive work of the highest order and in the best tradition of the control of infectious disease.

This report deals only in a general way with some of the major aspects of tuberculosis control in Ontario as they appeared to me. One cannot help during the observation of such a scheme keeping in mind our own problems and difficulties and our own way of dealing with them. And if the points which I have made mention of in dealing with tuberculosis control in Ontario do not include other facets it is because the material submitted has a special significance in the organisation of our own control programmes. I have avoided as far as possible detailed description. Detail of the many sides of tuberculosis work in Ontario would take up a very great deal of space.

The Director of the Division of Tuberculosis Control and his staff, the medical officers of health, the clinic directors, the professors and staff of the School of Hygiene, the superintendents and staffs of the sanatoria, the members of the staffs of the Toronto hospitals, the Secretary of the Canadian Tuberculosis Association and the Secretary of the Ontario Tuberculosis Association and all with whom I came into contact did everything possible to make my tour not only full of interest and of enormous educational value to me but entertaining and pleasant as well and I am greatly in their debt for many kindnesses and many acts of

hospitality. The Director of the Division of Tuberculosis Prevention, who was responsible for my programme, saw to it that I had first-hand contact with every aspect of the tuberculosis problem from the social to the purely clinical and I left with much literature and reports on the several aspects of this work. I take this opportunity of placing on record my appreciation and deep feeling of indebtedness to each and all of those whom I met in Ontario. I shall always have the happiest memories of that great country.

" Sugar is a most highly refined and concentrated food. Three hundred years ago sugar was unknown as an article of diet. In the days of Marie Antoinette it was an expensive luxury sold at about four or five shillings per pound. At the end of the Napoleonic wars, which had cut Europe off from her source of sugar supplies, France and Germany had established the manufacture of sugar from beet, but English people had insular prejudices concerning beet sugar and were apparently content to pay dearly for cane sugar which was rapidly becoming a necessity. The history of sugar is the history of a habit-forming foodstuff. We are all aware of the naive way in which many persons satisfy their craving for sugar. The manufacturers of sugared sweets need no slogan. Like alcohol, tobacco, morphine and cocaine, sugar has its addicts, and they are not all in the United States and Canada. As sugar consumers we run a very close second to the people of the North American continent. From 1836 to 1936 the consumption of sugar has risen from approximately 10 to 100 lbs. per head per annum. The great increase in the use of sugar has not been without its effects upon our taste for other and better foods. The craving for sugar has led to the use of unbalanced diets, for sugar in excess destroys the appetite for those foods which supply the all-essential proteins, vitamins and mineral salts. It does this because a concentrated sugar solution is hygroscopic, that is, it will take up water. Here, then, is the cause of that irritation of the mucous membranes of the stomach and intestines which follows a too great indulgence in sugar. The greatest danger physiologically lies in the fact that sugar, which is not a body bu lder but a source of energy, so quickly satisfies the appetite that it abolishes the desire for other foods. The importance of this fact to the growing child is at once evident. Body building and energy are the two vital needs of the child. It is not unfortunate that energy requirements can be so readily supplied by those things for which the child craves ; but it is unfortunate that the body-building foods cannot be so easily nor so cheaply supplied. No child should be allowed to come to a meal with an appetite cloyed by a too free indulgence in sweets or candy. Sweets should always be given at the end of a meal and it is for this reason that the best form of dessert are those fruits which contain small amounts of sugar."—PROFESSOR E. W. CRUICKSHANK, " Food and Physical Fitness." (P.41).

. . . if milk production is controlled by those whose interests are wholly agricultural it follows that the nutritional and health aspects tend to be neglected. Clearly the officers of local health authorities are the appropriate agents to supervise milk from cow to consumer, their powers should be increased rather than diminished. The medical officer of health and his staff have long experience of milk sampling and testing: more important still, he is the guardian of community health and the medical representative of the consumer.

BRITISH MEDICAL JOURNAL (Editorial).

10th *December*, 1949, *p.*1339.

Section I.—Vital Statistics.

1.—Population.

Figures in this report (and the computations arising from them are based on the Census of Population (taken on 12th May, 1946) which indicated that the population of this city was 75,595. The corresponding figure in the Census of 1936 was 80,765. The number of females in the population has been estimated to be 41,060 as against 34,535 males, the ratio of females per 1,000 males being 1,188.

The general trend of the population as revealed by the 1946 Census, in relation to the Register of Population 1941, and the previous Census of 1936, has been discussed in the Reports for 1946, 1947 and 1948. Now, for the first time, it is possible to analyse these figures in regard to age and sex groups. This has been done in Table 1, the detailed grouping has been kindly supplied by the Director, the Central Statistics Office. Further interesting information is provided by the figures in the three following tables. It is worth noting that the population of this city declined by 6.4 per cent. while that of all the other county boroughs increased (Dublin by no less than 7 per cent.). This decrease may be partly explained by the transfer of city dwellers to the adjacent suburban areas but the great decline of males relative to females would appear to discount this view to a certain extent. This discrepancy was more marked as between the censal year of 1936 and the registration year of 1941.

Another matter which would appear to call for comment is the relative congestion of people in Cork as compared with the other urban areas. This is shewn in Table 3, in which it is seen that the number of persons to the acre is appreciably greater than in any of the other three cities. This tendency towards overcrowding may have been determined by the geographical features of the city which do not lend themselves to building and, in the past, must have been a limiting factor in the outward spread of the City. It may also have influenced our slightly unfavourable statistical records in former years.

Table 1.—CORK CITY. Population classified by age-groups for each sex as enumerated in the Census of Population, 1941, and in the Census of 1946 :—

AGE GROUPS	MALES			FEMALES			PERSONS		
	1936	1946	Increase or Decrease	1936	1946	Increase or Decrease	1936	1946	Increase or Decrease
Under 1 year	820	903	+ 83	888	786	− 102	1,708	1,689	− 19
1 year ...	809	734	− 75	814	705	− 109	1,623	1,439	− 184
2 years ...	770	730	− 40	768	686	− 82	1,538	1,416	− 122
3 ,, ...	798	666	− 132	811	681	− 130	1,609	1,347	− 262
4 ,, ...	785	700	− 85	794	706	− 88	1,579	1,406	− 173
5–9 ,, ...	3,721	3,499	− 222	3,653	3,443	− 210	7,374	6,942	− 432
10–14 ,, ...	3,872	3,494	− 378	3,574	3,582	+ 8	7,446	7,076	− 370
15–19 ,, ...	3,352	3,208	− 144	3,717	3,516	− 201	7,069	6,724	− 345
20–24 ,, ...	3,434	2,960	− 474	4,159	3,579	− 580	7,593	6,539	− 1054
25–29 ,, ...	3,122	2,296	− 826	3,763	3,314	− 449	6,885	5,610	− 1275
30–34 ,, ...	2,723	2,254	− 469	2,977	2,965	− 12	5,700	5,219	− 481
35–39 ,, ...	2,567	2,217	− 350	2,898	2,821	− 77	5,465	5,038	− 427
40–44 ,, ...	2,138	1,939	− 199	2,360	2,387	+ 27	4,498	4,326	− 172
45–49 ,, ...	1,973	1,888	− 85	2,340	2,483	+ 143	4,313	4,371	+ 58
50–54 ,, ...	1,907	1,504	− 403	2,168	1,886	− 282	4,075	3,390	− 685
55–59 ,, ...	1,725	1,469	− 256	1,852	1,950	+ 98	3,577	3,419	− 158
60–64 ,, ...	1,408	1,271	− 137	1,649	1,668	+ 19	3,057	2,939	− 118
65–69 ,, ...	1,142	1,169	+ 27	1,210	1,480	+ 270	2,352	2,649	+ 297
70–74 ,, ...	688	889	+ 201	1,132	1,220	+ 88	1,820	2,109	+ 289
75–79 ,, ...	372	529	+ 157	615	747	+ 132	987	1,276	+ 289
80–84 ,, ...	113	156	+ 43	237	325	+ 88	350	481	+ 131
85–89 ,, ...	37	50	+ 13	74	106	+ 32	111	156	+ 45
90–94 ,, ...	9	9	—	24	18	− 6	33	27	− 6
95–99 ,, ...	1	1	—	2	6	+ 4	3	7	+ 4
100 and over	—	—	—	—	—	—	—	—	—
TOTAL ...	38,286	34,535	− 3,751	42,479	41,060	− 1,419	80,765	75,595	− 5,170

Four centenarians were recorded in the Register of Population made in 1941.

" Public health is an abstract idea ; it has not the glamour or drama of disease. The newspapers can fill a column with an account of the saving of life by an eminent surgeon or physician called as a last hope by distraught parents to the bedside of their child, or with a description of some novel operation on the heart or brain. In contrast there is little news value in the activities of public health ; what is there to say about an epidemic of typhoid fever that never occurred? Public health is a commercial proposition yet it is only rarely possible to demonstrate a cash return, or even to suggest the existence of one ; we cannot often point to empty fever hospitals, once filled with children suffering from diphtheria, whose annual costs of aintenance and staffing can be computed."—C. Fraser Broekington, " The Difficulties of Public Health, Past, Present and Future." The Lancet, 22/10/49.

Road-safety measures have had to compete for many years with what can only be described as an " anti-safety " campaign carried out by the motoring interests, who have preached the dangerous doctrine that " speed is not a cause of accidents." Whatever grain of truth there may be in this statement when applied to experts driving high-class machines, it is surely, to put it mildly, a little rash to proclaim it to all and sundry on roads that have to carry mixed traffic of all descriptions. As well as opposing tests, for drivers, the motoring interests have streniously resisted restrictions, such as speed limits and pedestrian crossings, and they have cultivated the legend of " police persecution ' whlie fostering resentment of any discipline or control. So many excuses and justifications, apart from bad driving, have been put forward, that accident production may have been actively encouraged.—The Lancet, March 1, 1950.

Table 2.—CORK CITY. Age-groups and Conjugal Conditions (From Census of Population, 1946) :—

AGES	MALES				FEMALES			
	Married	Widowed	Single	Total	Married	Widowed	Single	Total
0–14 ...	—	—	—	10,726	—	—	—	10,589
15–19 ...	11	—	3,197	3,208	55	—	3,461	3,516
20–24 ...	249	3	2,708	2,960	631	4	2,944	3,579
25–29 ...	679	6	1,611	2,296	1,393	17	1,904	3,314
30–34 ...	1,253	12	989	2,254	1,758	49	1,158	2,965
35–39 ...	1,484	33	700	2,217	1,707	90	1,024	2,821
40–44 ...	1,373	46	520	1,939	1,504	136	747	2,387
45–49 ...	1,367	94	427	1,888	1,453	279	751	2,483
50–54 ...	1,094	84	326	1,504	1,078	297	511	1,886
55–59 ...	970	156	343	1,469	937	486	527	1,950
60–64 ...	807	166	298	1,271	701	509	458	1,668
65–69 ...	682	213	274	1,169	500	575	405	1,480
70–74 ...	459	241	189	889	299	593	328	1,220
75–79 ...	224	202	103	529	117	420	210	747
80–84 ...	56	69	31	156	27	203	95	325
85–89 ...	15	25	10	50	4	72	30	106
90–94 ...	2	6	1	9	1	11	6	18
95–99 ...	—	1	—	1	—	6	—	6
100 and over	—	—	—	—	—	—	—	—
0–14 ...	—	—	—	10,726	—	—	—	10,589
15–44 ...	5,049	100	9,725	14,874	7,048	296	11,238	18,582
45 and over	5,676	1,257	2,002	8,935	5,117	3,451	3,321	11,889
Grand Total				34,535				41,060

The fluctuations in the population figure is shewn in the following table which indicates the totals in the various census years and in years in which the Registration of Population was taken (1941 and 1943).

1881	.....	.....	.....	80,124
1891	.....	.....	.....	75,345
1901	.....	.....	.....	76,122
1911	.....	.....	.....	76,673
1926	.....	.....	.....	78,464
1936	.....	.....	.....	80,765
1941	.....	.....	.....	*76,834*
1943	.....	.....	.....	*75,484*
1946	.....	.....	.....	75,595

The figures shewn in the tables which now follow are abstracted from the Census of Population, 1946. They are of some interest as demonstrating the increase of population in Dublin and Limerick *vis-a-vis* the decline in Cork as well as other factors which have a bearing on public health.

Table 3.—Population, Area, Valuation and Density of Population of the four County Boroughs, as shewn at the Census, 1946 (based on Table 9, Census of Population, 1946) :—

County Borough	POPULATION							Persons per 100 Acres	Area (Acres)	Valuation
	1936	1946			Increase or Decrease (per cent.)					
	Persons	Persons	Males	Females	Persons	Males	Females			
					%	%	%			£
Dublin	472,912	506,051	290,923	275,128	+ 7.0	+ 4.0	+ 9.7	2310.1	21,960	2,246,870
Cork	80,765	75,595	34,535	41,060	- 6.4	- 9.8	- 3.3	3010.6	2,511	237,430
Limerick	41,061	42,970	19,845	23,125	+ 4.6	+ 1.4	+ 7.6	2077.9	2,068	104,521
Waterford	27,968	28,269,	12,954	15,315	+ 1.1	- 2.1	+ 3.9	1435.0	1,970	85,493

Table 4.—Annual Average Rates, per 1,000 of Population 1936-1946, of Marriages, Births and Deaths, registered in the four County Boroughs (based on Table 12, Census of Population. 1946) :—

County Borough	Annual Average Rates per 1,000 Population				
	Marriages	Births	Deaths	Natural Increase	Decrease or increase in population
Dublin	7.5	23.1	13.6	9.5	+ 7.0
Cork	9.5	23.4	16.2	7.2	— 6.4
Limerick	9.4	24.6	14.1	10.5	+ 4.6
Waterford	5.7	23.8	15.1	8.7	+ 1.1

Table 5.—Populations in the different Dispensary Districts as enumerated in the Census, 1946 :—

District	General Location	Persons
No. 1	North East	13,120
,, 2	North (part of)	9,721
,, 3	North (part of)	8,955
,, 4	North West	8,193
,, 5	Centre	6,706
,, 6	South West	10,514
,, 7	South East	18,386
	Total	75,595

2.—Births.

According to the Annual Summary of the Registrar General 1,885 births were *registered* in Cork during the past year (this figure is subject to correction). The number of births *notified* to the Local Authority (in accordance with the provisions of the Notification of Births Acts) was 1,637. In addition to the latter figure 33 still-births were notified, bringing the total of *notified* births to 1,670. On the basis of the Registrar General's figure the birth-rate for the year was 25.0. The general trend of the birth-rate is seen in the following table.

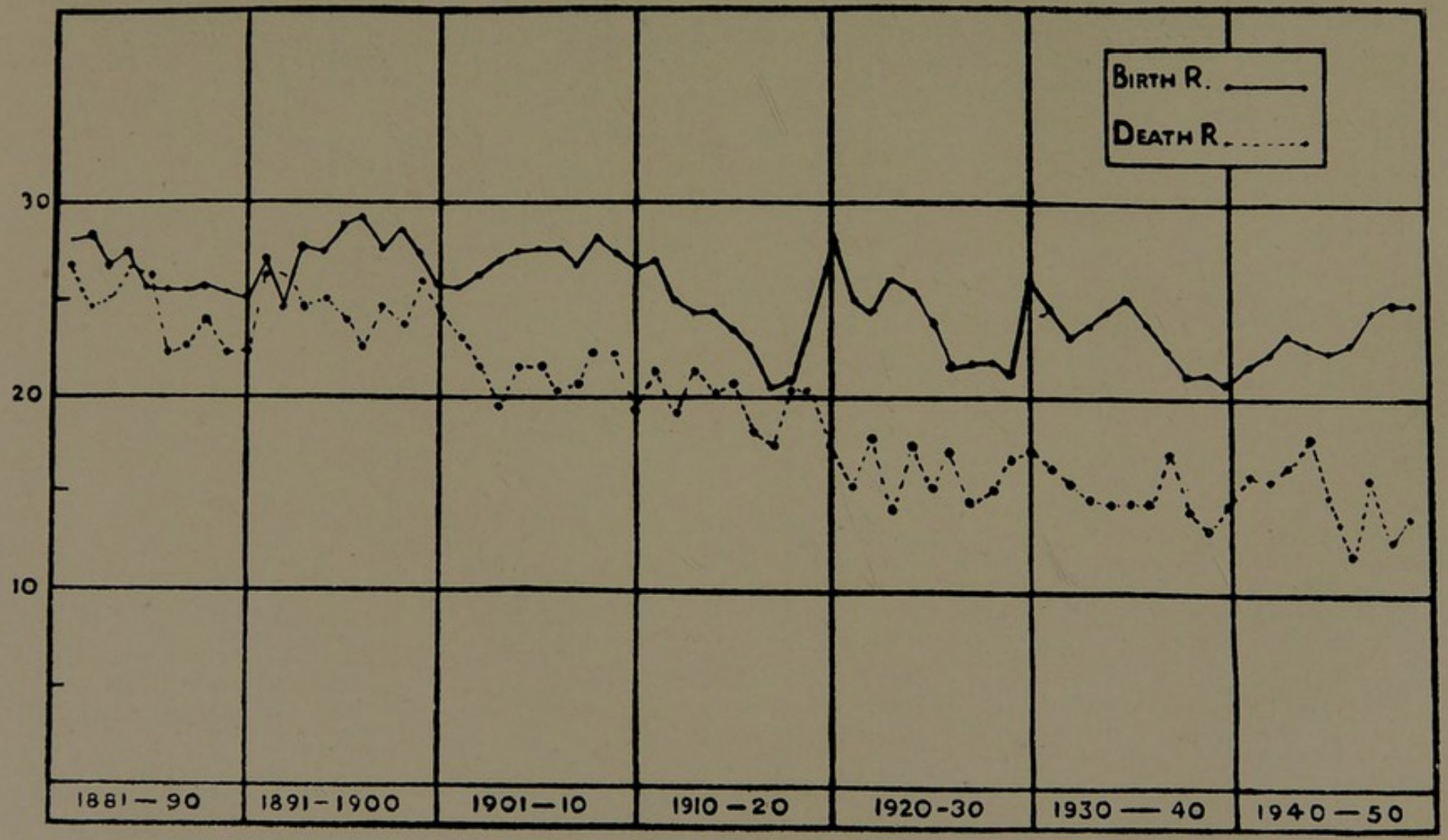
1881–90 ...	26.2	1931–40 ...	22.6	1945 ...	22.4
1891–1900 ...	27.2	1941 ...	21.8	1946 ...	24.0
1901–10 ...	26.0	1942 ...	22.2	1947 ...	23.9
1911–20 ...	24.7	1943 ...	23.2	1948 ...	24.5
1921–30 ...	23.5	1944 ...	24.7	1949 ...	25.0

Table 6.—Birth Rates for Cork City and Éire from 1881.

Year	Cork	Éire	Year	Cork	Éire
1881	27.7	24.0	1915	23.2	22.0
1882	28.2	23.8	1916	22.6	21.1
1883	27.0	23.4	1917	20.2	20.0
1884	27.4	23.5	1918	20.8	19.9
1885	25.6	23.1	1919	23.8	19.9
1886	25.4	22.7	1920	28.3	21.6
1887	25.5	22.5			
1888	25.7	22.1	1921	24.6	19.7
1889	25.2	22.0	1922	24.2	19.5
1890	25.0	21.6	1923	26.2	20.5
			1924	25.5	21.0
1891	26.9	22.3	1925	23.8	20.8
1892	24.6	21.7	1926	21.5	20.6
1893	27.8	22.1	1927	21.7	20.3
1894	27.4	22.1	1928	21.7	20.1
1895	28.9	22.3	1929	20.9	19.8
1896	29.2	22.7	1930	25.4	19.9
1897	27.5	22.5			
1898	28.7	22.3	1931	24.4	19.4
1899	27.3	22.1	1932	23.0	19.0
1900	25.8	21.8	1933	23.7	19.3
			1934	24.4	19.5
1901	25.6	21.8	1935	24.8	19.6
1902	26.2	22.2	1936	23.7	19.6
1903	27.1	22.1	1937	22.3	19.1
1904	27.4	22.7	1938	21.1	19.4
1905	27.6	22.6	1939	21.1	19.1
1906	27.5	22.8	1940	20.7	19.1
1907	25.6	22.4			
1908	27.3	22.7	1941	21.8	18.9
1909	26.3	22.9	1942	22.2	22.0
1910	25.8	22.8	1943	23.2	21.8
			1944	24.7	22.2
1911	26.0	22.8	1945	22.4	22.4
1912	24.8	22.7	1946	24.0	22.6
1913	24.2	22.6	1947	23.9	23.2
1914	24.3	22.3	1948	24.5	21.9*
			1949	25.0	21.4*

* From *Annual Summary* of Register General.

FIG. 1 - BIRTH AND DEATH RATES FROM 1881 TO PRESENT YEAR



Examination of the *notifications* as to place of birth shewed that 936 took place in the mothers' homes the balance having occurred in various institutions and private hospitals.

The number of illegitimate births notified during the year was 15 representing 0.8 per cent. of the total notified births. The corresponding figure for the previous year was 27 being 1.4 per cent. of the total registered births.

3.—Deaths.

1,055 deaths have been assigned to this area in the *Annual Summary* of the Registrar General for 1949. This is equivalent to a crude death rate of 14.0 per 1,000 of the population. The figures for 1948 were 1,001 deaths and the rate 13.3 per 1,000. There is some discrepancy between our figures collected locally (shewn in Table 7) and those of the Registrar General. This discrepancy has persisted in successive years and has been previously alluded to. According to our records the number of deaths was 1,048 (compared with 994 in the previous year). The difference, it is to be assumed, is explained by the occurrence of deaths in other places of persons normally resident in Cork, of which deaths we would be unaware. Actually the difference between ours and those of the Registrar General is not of statistical significance. The information to be obtained from our age-grouping is slightly more detailed than that of the Registrar General.

" . . . Few people, young or old, ask for more than an opportunity to make a living, to express themselves in creative effort, to live in peace. Surely a race which has learned how to crack the atom should be able to achieve these simple objectives. The important thing to remember is that the majority of our difficulties are man-made. They are not the result of penury of nature ; nor are they visited upon us by a vindictive fate. They are the result of human carelessness, human short-sightedness, human greed "—Mr. Joseph Kennedy, speaking to the University Association of the University of Liverpool, on May 18. 1939.

One of the great advances of this second period of public health has been the development of health education, coupled with a greater understanding of the social aspects of disease. Fifty years ago we laid stress on the importance of pure water-supplies ; to-day we consider the unclean cook as dangerous as unclean water. The kitchen worker who infects food from fingers soiled with faeces, or from the nose, can be as much a menace as the shallow well or the contaminated river water-supply. So also we taught fifty years ago, and still quite rightly teach to-day, that bad housing spreads tuberculosis ; back-to-back houses can be shown to have high incidences and death-rates from tuberculosis because of their poor ventilation and high concentration of tuberculosis germs when the household includes an open case of phthsis. But now we think it equally important to emphasise the personal responsibility of the individual sufferer ; for we know that with scrupulous personal hygiene even an open case need not transmit his infection. In Papworth, where families live with the infected father and mother, the infection of children has been shown to be less than in the normal community.

The modern approach to health increasingly stresses personal responsibiity, and to this end health education should include a knowledge of germs and how they are spread, of physiology and how to apply it, and of biology in its importance to the welfare of man.—C. Frazer Brockinton—" The Difficulties of Public Health," The Lancet, Oct. 22, 1949.

Table 7.—Analysis of **Causes of Death** at different age-periods during the year 194

Causes of Death	TOTAL	Sex		Un. 1 yr.	1 to 5	5 to 15	15 to 25	25 to 35	35 to 45	45 to 55	55 to 65	65 to 75	75 to 85	8 and u
		M.	F.											
Measles	4	3	1	2	2	–	–	–	–	–	–	–	–	
Whooping Cough	4	–	4	2	2	–	–	–	–	–	–	–	–	
Influenza	6	3	3	–	–	–	–	–	–	–	3	3	–	
Encephalitis	2	–	2	1	1	–	–	–	–	–	–	–	–	
Pulmonary Tuberculosis	69	31	38	1	2	3	11	13	9	19	9	2	–	
Other Tuberculosis :														
(a) Meningitis	11	2	9	4	3	4	–	–	–	–	–	–	–	
(b) Bone and Joint	2	–	2	–	–	–	–	1	–	–	1	–	–	
(c) Peritonitis	1	1	–	–	–	1	–	–	–	–	–	–	–	
Cancer	117	56	61	–	–	–	–	3	10	14	31	41	17	
Diabetes	2	2	–	–	–	–	–	–	1	–	–	1	–	
Hemiplegia :														
(1) Haemorrhage	44	21	23	–	–	–	–	–	7	5	7	18	13	
(2) Thrombosis	29	9	20	–	–	–	–	–	–	1	6	13	6	
Heart Disease	346	151	195	–	1	5	2	5	9	27	61	111	107	1
Arterio-Sclerosis	18	10	8	–	–	–	–	–	–	–	1	8	8	
Bronchitis	54	33	21	2	–	–	–	–	–	4	14	23	10	
Broncho-Pneumonia	16	9	7	8	3	–	1	1	–	–	1	–	1	
Lobar Pneumonia	14	4	10	3	–	–	–	–	1	1	3	3	3	
Other Respiratory Diseases	20	12	8	1	–	–	1	–	3	6	4	3	2	
Peptic Ulcer	5	3	2	–	–	–	–	1	1	–	1	1	1	
Gastro-Enteritis	43	30	13	40	3	–	–	–	–	–	–	–	–	
Nephritis	21	16	5	–	1	1	–	1	–	1	5	6	5	
Puerperal Causes	1	–	1	–	–	–	–	1	–	–	–	–	–	
Prematurity, etc.	49	25	24	49	–	–	–	–	–	–	–	–	–	
Suicide	2	1	1	–	–	–	–	1	–	–	1	–	–	
Other Violence	18	12	6	–	–	2	1	2	1	–	3	5	4	
Other Causes :														
(1) Senile Decay	38	14	24	–	–	–	–	–	–	–	–	5	23	1
(2) Genito-Urinary	10	10	–	–	1	–	–	–	–	–	–	4	4	
(3) Blood Diseases	7	3	4	–	–	1	–	–	–	–	4	2	–	
(4) Rheumatism	10	3	7	–	–	–	–	–	–	1	3	4	2	
(5) Central Nervous System	12	7	5	–	–	–	–	1	2	2	2	3	2	
(6) Marasmus	6	2	4	5	1	–	–	–	–	–	1	1	1	
(7) Gastro-Enteritis	3	2	1	–	–	–	–	–	–	–	1	1	1	
(8) Hypertension	10	3	7	–	–	–	–	–	1	–	3	5	1	
(9) Convulsions	7	3	4	5	2	–	–	–	–	–	–	–	–	
(10) Gangrene	6	3	3	–	–	–	–	–	–	–	–	–	6	
(11) Meningitis	5	1	4	3	1	1	–	–	–	–	–	–	–	
(12) Liver	5	–	5	–	–	–	–	–	–	1	–	1	2	
(13) Cerebral Abscess	2	2	–	–	1	–	1	–	–	–	–	–	–	
(14) Miscellaneous	29	15	14	5	2	2	1	–	2	3	11	2	1	
TOTALS	1048	502	546	131	26	20	18	30	41	85	175	265	219	3

The figures in this table are computed from returns of weekly deaths by the District Registrars, they have not been corrected for *inward transfers* and accordingly do not correspond with the returns of the Registrar General.

Table 8, which is based on Abstract V. of the Registrar-General's Annual Report, is an analysis of the causes of death during the year. It differs from Abstract V. in this respect that the age-groups are more extended and that the causes of death have been sub-divided in some instances. For example, under the headings " other forms of tuberculosis " and " other defined diseases " the various causes of death are more fully set out. This table is compiled from the weekly returns collected by us from the local Registrars and the totals do not correspond with those of the Registrar-General in his *Summary*, which are not fully corrected. The number of deaths in this table amounts to 1,048 (as compared with 1,055 in the *Summary*) so that the error is but slight and probably due to deaths in other places which have been allocated by the Registrar-General to this area. Once again I have to acknowledge the assistance received from the Registrar-General in the compilation of these figures.

Table 8 sets out the death rates per 1,000 persons living in Cork City, Éire and in England and Wales, during the period 1881 to the present These figures do not necessarily represent the relative healthiness of the the communities concerned since they are based on crude death rates

Table 7.—Crude Death Rates per 1,000 living for Cork City, Eire and England and Wales, from 1881.

Year	Cork	Éire	E. & W.	Year	Cork	Éire	E. & W.
1881	26.8	17.1	18.9	1915	20.7	17.5	15.7
1882	24.7	16.9	19.6	1916	18.2	16.5	14.3
1883	24.9	18.6	19·6	1917	17.4	16.9	14.2
1884	26.7	17.4	19.7	1918	20.4	17.5	17.3
1885	26.2	18.0	19.2	1919	20.2	17.9	14.0
1886	22.1	17.4	19.5	1920	17.5	14.7	12.4
1887	22.4	17.9	19.1	1921	15.4	14.3	12.1
1888	24.1	17.4	18.1				
1889	22.3	16.9	18.2	1922	18.0	14.7	12.8
1890	22.2	17.6	19.5	1923	14.0	14.0	11.6
				1924	17.8	15.0	12.2
1891	26.9	17.6	20.2	1925	15.5	14.7	12.2
1892	26.4	18.7	19.0	1926	17.3	14.0	11.6
1893	24.5	17.3	19.2	1927	14.7	14.8	12.3
1894	24.9	17.7	16.6	1928	15.2	14.2	11.7
1895	23.9	17.7	18.7	1929	16.9	14.6	13.4
1896	22.6	15.9	17.1	1930	17.3	14.1	11.4
1897	24.7	17.8	17.4	1931	16.4	14.5	12.3
1898	23.7	17.7	17.5				
1899	26.3	17.0	18.2	1932	15.7	14.4	12.0
1900	24.2	19.1	18.2	1933	14.9	13.6	12.3
				1934	14.7	12.9	11.8
1901	23.0	17.1	16.9	1935	14.8	13.9	11.7
1902	21.5	17.0	16.3	1936	14.7	14.3	12.1
1903	19.4	17.0	15.5	1937	17.4	15.3	12.4
1904	21.6	17.6	16.3	1938	14.1	13.6	11.6
1905	21.7	16.4	15.3	1939	13.1	14.2	12.1
1906	20.2	16.2	15.5	1940	14.6	14.1	14.0
1907	20.6	17.0	15.1				
1908	22.2	17.1	14.8	1941	16.1	14.6	12.9
1909	22.1	16.8	14.6	1942	15.9	14.0	11.6
1910	19.3	16.6	13.5	1943	16.5	14.7	12.1
				1944	18.1	15.4	12.7
1911	21.2	16.3	14.6	1945	14.9	14.4	11.4
1912	19.1	16.2	13.4	1946	13.7	13.9	11.5
1913	21.5	16.8	13.8	1947	16.9	14.9	12.3
1914	20.2	16.1	14.0	1948	13.2	12.2	11.0
				1949	14.0	12.7	

The principal causes of death (in order of importance) were as follows :—

1.	Heart Disease	346	(311)
2.	Cancer	117	(130)
3.	Cerebral Haemorrhage ...	73	(58)
4.	Pulmonary Tuberculosis ...	69	(81)
5.	Bronchitis	54	(51)
6.	Premature Birth, etc. ...	49	(37)
7.	Diarrhoea and Enteritis ...	43	(19)
8.	Senile Decay	38	(42)
9.	Nephritis	21	(22)
10.	Violence	18	(23)
11.	Broncho-pneumonia	16	(20)
12.	Lobar Pneumonia	14	(15)

The figures in brackets denote the corresponding numbers last year.

Cardiac Disease. As usual this condition accounts for the great bulk of the deaths. Stress has been laid on deaths from heart disease and allusion made to the fact that the majority of them are found to be recorded in the later age-groups which gives rise to the supposition that they represent a degenerative condition rather than an infective one. This feature has been reproduced this year as shewn in the following table.

Table 9.—Analysis of deaths from heart disease from 1931.

Year	Under 5 years	5/15 years	15/25 years	25/35 years	35/45 years	45/55 years	55/65 years	65/75 years	75 yrs and up	Total
1931	—	6	3	5	18	31	66	87	34	250
1932	—	6	2	9	17	39	50	99	36	258
1933	—	2	4	5	15	31	58	83	42	240
1934	1	3	4	5	20	17	66	103	39	258
1935	2	3	1	7	11	29	63	93	36	245
1936	4	3	3	7	6	32	64	98	48	265
1937	—	5	6	9	16	24	72	112	64	308
1938	1	2	2	2	12	35	67	106	76	304
1939	—	1	4	2	12	27	63	108	61	278
1940	2	—	5	4	12	21	66	109	74	293
1941	—	3	2	6	12	22	82	108	71	306
1942	1	1	1	5	11	25	74	131	60	317
1943	—	1	7	4	16	28	81	133	79	349
1944	1	1	3	5	13	35	63	155	114	390
1945	—	3	6	4	12	24	62	123	83	317
1946	1	1	7	8	14	18	65	115	81	330
1947	—	1	3	5	13	31	71	146	92	362
1948	—	2	2	2	6	27	74	111	87	311
1949	1	5	2	5	9	27	61	111	125	346

The general trend of deaths from heart disease is shewn in the following table in which a comparison is made with deaths from cancer and pulmonary tuberculosis.

FIG. VI.—INFANT MORTALITY FROM 1880 TO PRESENT YEAR

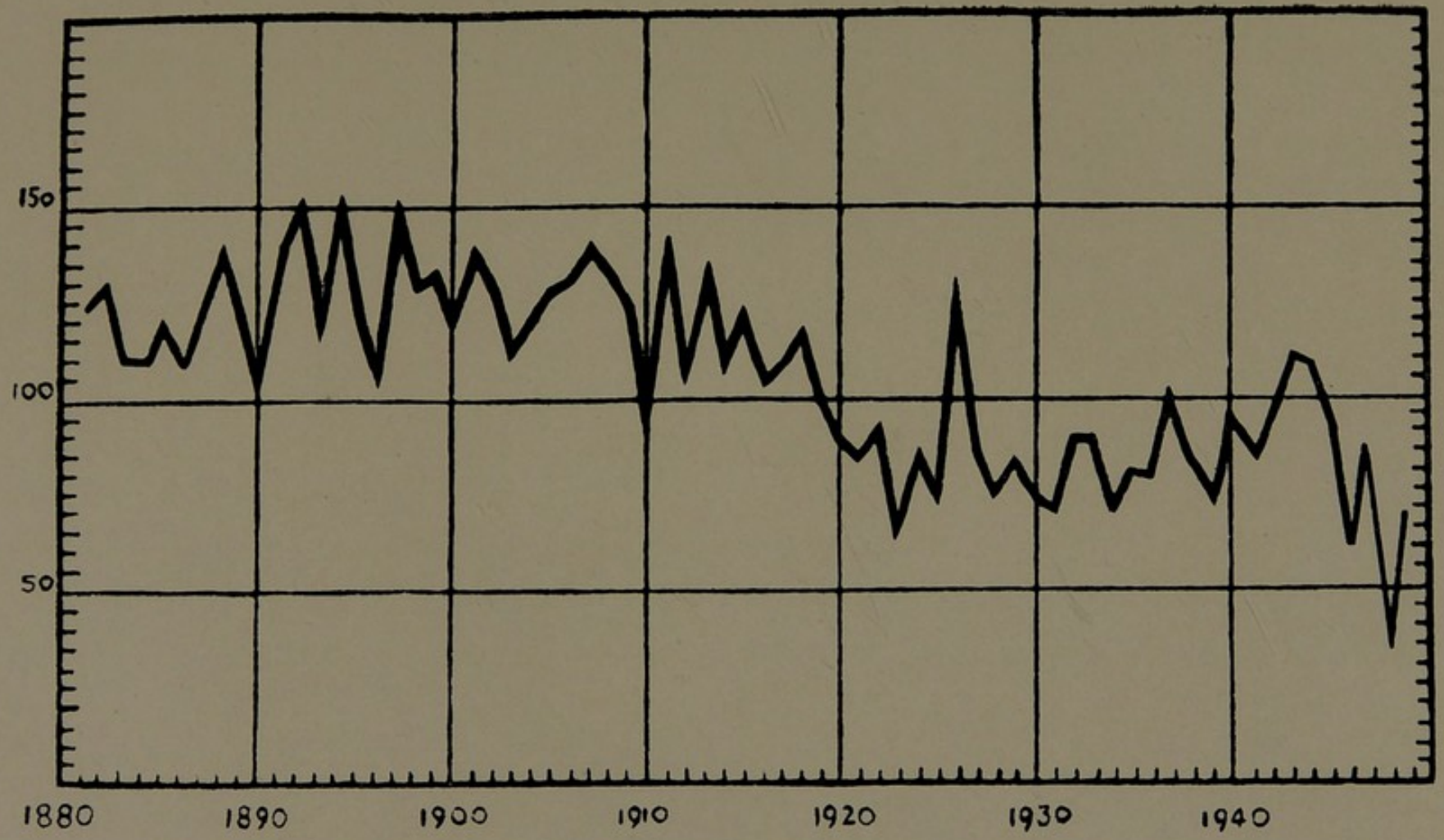


Table 10.—Trend of mortality from the three principal causes of death in Cork City from 1931.

	Condition		
Year	Heart Disease	Cancer	Pulmonary Tuberculosis
1931	250	124	103
1932	258	98	111
1933	240	114	106
1934	258	111	107
1935	245	133	115
1936	265	121	85
1937	308	117	96
1938	304	106	99
1939	278	143	86
1940	293	114	96
1941	306	125	88
1942	317	149	106
1943	349	120	107
1944	390	123	118
1945	317	116	86
1946	330	92	79
1947	362	120	126
1948	311	130	81
1949	346	117	69

Cancer. The number of deaths attributed to this disease recorded by us was 117 as compared with 130 in the previous year. The corresponding figures of the Registrar-General are 104 (uncorrected) and 123. The discrepancy observable here, no doubt, is due to a difference in classification, all forms of malignant disease being classed by us under this heading. For comparative purposes the Registrar-General's are the more correct figures. On the basis of 117 deaths the rate was 1.5 per 1,000 of the population.

Phthisis Death Rate. The deaths from pulmonary tuberculosis numbered 69 equivalent to a rate of 0.9 per 1,000 of the population. The corresponding figures for last year were 81 and 1.07 per 1,000 respectively.

Infant Mortality. The number of deaths of children under one year of age was 131 which is equivalent to a rate of 68 per 1,000 live births. In the previous year the number of deaths was 87 and the rate 47 per 1,000. The contributory factors are discussed in Section IV.

Maternal Mortality. There was 1 death from causes under this heading during the year. The maternal mortality rate was 0.5.

Infectious Disease Death Rate. The number of deaths from the principal infectious diseases was 59 equivalent to 0.7 per 1,000 of the population. Of the deaths so recorded 43 were due to gastro-enteritis, 6 to influenza, 4 to measles, 4 to whooping cough and 2 to encephalitis.

Table 11.—Showing the number of deaths from the principal epidemic diseases during the past twelve years.

Year	Typhus Fever	Typhoid Fever	Scarlatina	Puerperal Fever	Diphtheria	Measles	Diarrhoea	Whooping Cough
1938	—	1*	3	—	7	—	33	3
1939	—	—	1	1	3	—	39	6
1940	—	—	1	—	5	21	52	—
1941	—	—	—	—	5	6	36	—
1942	—	—	—	—	21	—	52	2
1943	—	—	—	1	17	—	52	4
1944	—	—	—	2	5	6	65	28
1945	—	—	—	—	3	—	50	—
1946	—	—	—	—	2	4	18	—
1947	—	—	—	—	—	—	32	5
1948	—	—	1	—	—	—	19	5
1949	—	—	—	—	—	4	43	4

* Infection in this case was incurred outside the City area.

Uncertified Deaths. No uncertified death was recorded during the year.

Deaths from Violence. In the 20 recorded instances the cause of death was as follows :—

Falls	8
Motor Vehicles	1
Drowning	2
Burns	2
Suicide	2
Miscellaneous	5

The number of deaths attributed to motor car accidents in previous years is as follows :—

1934	4	1942	4
1935	7	1943	3
1936	6	1944	1
1937	6	1945	0
1938	2	1946	6
1939	2	1947	6
1940	3	1948	4
1941	3	1949	0

Table 12a.

Summary of Births and Deaths Registered during the Years 1878 to 1949, inclusive, in the Cork Urban Sanitary District with the number of Deaths from some of the principal causes.

YEAR	POPULATION	Rate per 1,000 persons represented by			NUMBER REGISTERED																					
			DEATHS from			DEATHS.																				
		BIRTHS	All Causes	Principal Zymotic Diseases	BIRTHS	Total Number	Under 1 year of age	At 65 years & upwards	Number caused by															Inquest Cases	No. in Public Institutions	Number of Uncertified
									Smallpox	Measles	Scarlet Fever	Typhus	Whooping Cough	Diphtheria	Enteric Fever	Diarrhœa	Influenza	Pneumonia	Tuberculous Disease: Pulmonary	Tuberculous Disease: Other forms	Cancer	Violence			
1878...		31.7	27.0	—	2,546	2,464	350	681	...	61	1	...	59	1	...	75	...	...	...	...	...	23	87	863	...
1879...		33.5	29.0	3.8	2,707	2,689	319	711	...	49	65	...	19	2	...	48	...	...	...	...	...	30	113	977	...
1880...		28.5	30.8	5.9	2,620	2,837	376	624	...	73	204	...	47	13	...	86	...	...	289	...	...	23	99	1026	...
1881...		27.7	26.8	4.1	2,167	2.101	271	611	...	36	30	88	61	4	4	87	...	...	237	...	...	14	82	673	...
1882...		28.2	24.7	2.3	2,212	1,935	282	490	...	20	8	54	25	5	4	55	...	...	274	...	...	11	77	574	...
1883...		27.0	24.9	2.0	2,161	1,993	236	572	...	35	8	46	5	10	11	38	...	...	271	...	...	9	50	646	...
1884...		27.4	26.7	2.8	2,199	2,139	253	553	...	41	27	37	45	6	13	51	...	...	292	...	...	12	50	671	...
1885...		25.6	26.2	3.3	2,054	2,098	247	614	...	6	48	21	55	5	9	35	...	...	287	...	...	7	36	587	...
1886...	80,124	25.4	22.1	2.1	2,037	1,769	225	430	...	12	30	17	5	8	42	50	...	...	263	...	...	11	40	525	...
1887...		25.5	22.4	1.8	2,042	1,792	252	490	...	34	1	12	6	2	20	67	...	...	236	...	...	15	43	490	...
1888...		25.7	24.1	3.5	2,058	1,934	288	501	...	146	6	21	49	18	9	30	...	...	231	...	...	7	32	499	...
1889...		25.2	22.3	1.9	2,023	1,786	253	497	...	1	10	5	88	7	9	32	...	...	278	...	...	8	34	433	...
1890...		25.0	22.2	1.0	2,005	1,778	214	571	...	1	5	7	14	8	12	29	...	...	295	...	...	20	43	479	...
1891...		26.9	26.9	1.4	2,024	2,025	281	630	...	—	4	5	29	11	17	34	...	...	295	...	...	15	35	557	...
1892...		24.6	26.4	1.9	1,978	1,988	297	560	...	40	...	23	42	3	17	17	...	...	203	...	...	17	65	682	...
1893...		27.8	24.5	1.3	2,092	1,844	268	517	...	6	2	7	14	3	14	51	...	...	314	...	...	15	58	596	...
1894...		27.4	24.9	1.8	2,062	1,874	310	517	...	51	15	2	16	4	13	32	...	...	296	...	...	31	63	609	...
1895...		28.9	23.9	1.6	2,179	1,798	287	494	...	1	3	8	65	2	16	28	...	...	261	...	...	24	68	657	...
1896...	75,345	29.2	22.8	1.2	2,144	1,706	229	477	...	2	2	7	16	1	24	40	...	...	299	...	...	14	66	619	...
1897...		27.5	24.7	2.7	2,073	1,858	316	452	...	75	1	3	59	10	9	47	...	...	260	...	...	22	64	680	...
1898...		28.7	23.7	1.9	2,160	1,787	285	493	...	3	1	11	25	4	13	86	...	...	283	...	...	14	75	640	...
1899...		27.3	26.3	2.8	2,060	1,980	276	525	...	34	1	6	33	5	8	121	...	...	320	...	...	9	79	749	...
1900...		25.8	24.2	1.4	1,944	1,821	235	496	...	9	22	4	1	2	5	59	...	...	281	...	...	7	51	597	...
1901...		25.6	23.0	1.9	1,942	1,745	272	440	...	3	17	2	36	11	5	73	...	...	289	...		13	54	558	...
1902...		26.2	21.5	1.3	2,031	1,667	258	430	...	21	3	...	30	4	5	34	...	...	287	...	...	25	65	564	...
1903...		27.1	19.4	1.3	2,066	1,476	232	336	...	2	4	...	44	4	5	37	...	...	279	...	...	19	46	518	...
1904...		27.4	21.6	1.0	2,089	1,642	249	408	...	8	1	1	27	6	8	27	...	...	352	...	...	39	75	563	...
1905...		27.6	21.7	1.0	2,099	1,650	276	468	...	14	...	2	...	7	8	47	...	103	294	...	...	18	50	605	...
1906...	76,122	27.5	20.2	1.7	2,094	1,535	279	406	...	...	...	4	14	11	5	92	...	65	261	81	62	20	54	593	...
1907...		25.6	20.6	1.5	1,946	1,570	254	427	...	...	2	6	52	5	4	48	...	77	278	84	77	14	53	609	84
1908...		27.3	22.3	1.9	2,084	1,700	281	472	...	13	6	6	13	9	16	79	...	62	245	93	59	12	53	651	83
1909...		26.3	22.1	2.3	2,000	1,680	251	457	...	3	15	5	72	11	15	54	...	106	264	78	62	13	75	673	91
1910...		25.8	19.3	0.9	1,965	1,469	189	489	...	...	2	3	7	11	13	34	...	71	233	75	73	25	50	630	77
1911...		26.0	21.2	1.9	1,992	1,622	277	377	...	17	2	...	28	10	5	78	...	91	252	73	64	28	61	627	81
1912...		24.8	19.1	0.7	1,903	1,464	204	412	...	6	5	...	11	6	6	18	...	69	231	71	66	16	56	560	58
1913...		24.2	21.5	1.9	1,853	1,645	253	424	...	16	4	2	...	3	6	114	...	110	202	79	95	14	57	643	60
1914...		24.3	19.9	2.1	1,897	1,551	226	367	...	9	9	1	64	13	4	67	...	85	231	79	74	15	48	581	60
1915...		23.1	20.7	1.5	1,778	1,584	235	418	...	14	12	...	22	14	5	49	...	152	211	72	66	13	50	590	79
1916...		22.6	18.2	1.0	1,732	1,394	182	387	...	6	6	1	11	9	6	35	...	97	189	69	66	14	31	564	51
1917...		20.2	17.5	0.8	1,552	1,340	169	395	...	...	1	1	14	3	3	34	...	74	202	78	62	24	40	51	60
1918...	76,673	20.8	20.5	2.2	1,599	1,570	189	326	...	88	1	1	27	6	8	40	...	247	187	75	61	20	29	596	43
1919...		23.8	20.2	1.1	1,825	1,551	183	414	...	1	2	3	7	32	1	40	...	248	156	58	69	19	26	564	50
1920...		28.3	17.5	1.9	2,169	1,341	173	355	...	2	5	...	40	60	13	22	...	69	159	46	86	30	32	574	59
1921...		24.6	15.4	1.4	1,887	1,181	144	313	...	...	...	1	1	56	4	1	...	40	125	34	75	71	82	482	59
1922...		24.2	18.0	1.06	1,853	1,383	173	392	...	38	...	...	...	42	2	...	37	128	176	39	70	39	28	571	67
1923...		26.2	14.0	0.7	2,007	1,071	133	332	...	...	...	1	...	23	1	24	4	55	130	32	84	28	38	446	42
1924...		25.5	17.8	1.4	1,990	1,386	175	396	...	...	...	...	81	12	2	10	25	146	164	32	94	18	29	568	40
1925...		23.8	15.5	0.8	1,827	1,185	136	397	...	...	2	...	2	6	5	45	8	60	134	31	92	25	38	457	32
1926...		21.5	17.3	2.4	1,687	1,359	220	361	...	75	6	1	32	18	2	53	13	116	126	46	82	25	27	501	37
1927...		21.7	14.7	0.5	1,101	1,152	148	343	...	1	6	...	...	9	2	24	17	63	129	35	78	28	27	449	52
1928...		21.7	15.0	0.8	1,767	1,179	135	398	...	...	4	...	8	22	2	28	17	80	109	29	101	27	34	459	34
1929...		20.9	16.7	1.4	1,816	1,308	156	404	...	15	3	1	30	33	1	25	12	81	141	17	92	26	44	552	42
1930...		25.4	16.1	1.8	1,998	1,264	155	399	...	22	8	...	5	64	...	37	5	88	117	25	96	22	36	584	25
1931...	78,490	24.4	16.2	0.5	1,921	1,275	138	388	...	...	...	...	5	24	1	34	34	96	124	46	107	26	24	515	33
1932...		23.0	15.8	0.7	1,819	1,239	163	400	...	1	1	...	18	17	1	46	11	82	111	45	98	27	40	607	18
1933...		23.7	14.9	0.8	1,852	1,168	165	367	...	1	1	...	3	14	†2	45	20	60	106	19	104	22	43	557	22
1934...		24.4	14.7	1.0	1,922	1,151	139	403	...	3	2	...	16	25	...	36	6	61	107	21	111	21	43	542	13
1935...		24.8	14.8	0.9	1,945	1,158	162	386	...	11	...	...	1	7	...	56	5	29	115	29	133	24	29	552	19
1936...		23.8	14.7	0.9	1,921	1,188	154	404	...	7	7	...	5	8		41	6	35	85	20	121	32	49	628	10
1937...		22.5	17.4	1.2	1,818	1,403	187	493	...	10	10	...	12	17	...	52	55	36	96	24	117	44	47	706	19
1938...	80,765	21.1	14.1	0.6	1,708	1,140	129	430	...	...	3	...	3	7	*1	33	6	33	99	16	106	28	47	590	18
1939...		21.1	13.1	0.5	1,711	1,060	125	418	...	...	1	...	6	3	...	39	2	24	86	14	143	22	40	558	19
1940...		20.7	14.5	1.0	1,670	1,172	153	433	...	21	1	...	...	5	...	52	8	17	96	29	114	21	35	508	8
1941...	76,834	21.9	16.1	0.5	1,680	1,239	142	502	...	6	...	...	...	5	...	36	32	17	88	19	125	29	41	658	18
1942...		22.2	15.9	1.0	1,706	1,221	171	489	...	...	...	...	2	21	...	52	...	27	106	16	149	25	42	692	10
1943...		23.2	16.5	0.8	1,781	1,270	202	496	...	...	...	...	4	17	...	52	7	23	107	23	120	23	38	725	8
1944...	75,484	22.2	18.1	0.6	1,867	1,372	202	597	...	6	...	...	28	5	...	65	4	23	118	27	123	29	38	736	11
1945...		22.4	14.9	0.1	1,690	1,128	156	498	...	...	...	...	...	3	...	50	...	16	86	28	116	16	36	589	6
1946...	75,595	23.2	13.7	0.3	1,756	1,035	109	478	...	4	...	...	...	2	...	19	11	17	79	22	92	26	41	682	8
1947..		23.9	16.9	0.1	1,824	1,277	160	609	..	..	..	..	5	..	..	32	2	20	126	21	120	31	39	682	2
1948...	..	24.5	13.2	0.1	1,848	1,001	87	480	...	...	1	...	5	...	...	19	3	20	81	16	130	23	37	478	...
1949....		25.0	14.0	0.7	1,885	1,055	131	522	....	4	....	....	4	....	....	43	6	14	69	14	117	20	31	550	....

*Infection incurred outside City area.

† Both were resident in Mental Hospital (outside City area) for several years

Table 12.—INFANT DEATH RATE.

Year	Births	Deaths under 1 year	Deaths per 1000 Births	Year	Births	Deaths under 1 year	Deaths per 1000 Births
1881	2167	271	124	1916	1732	182	105
1882	2212	283	127	1917	1552	169	108
1883	2161	236	109	1918	1559	189	118
1884	2199	253	110	1919	1825	183	100
1885	2054	247	120	1920	2169	173	79
1886	2037	225	110	1921	1887	144	76
1887	2042	252	123	1922	1853	173	93
1888	2058	288	139	1923	2007	133	66
1889	2023	253	125	1924	1990	175	87
1890	2005	214	106	1925	1827	136	74
1891	2024	281	138	1926	1687	220	130
1892	1978	297	150	1927	1701	148	87
1893	2092	268	132	1928	1764	135	76
1894	2063	310	150	1929	1816	156	85
1895	2179	287	131	1930	1998	155	77
1896	2144	229	106	1931	1921	138	71
1897	2073	316	152	1932	1819	168	89
1898	2160	285	131	1933	1852	165	89
1899	2060	276	133	1934	1922	139	72
1900	1944	235	120	1935	1945	162	83
1901	1942	272	139	1936	1921	154	80
1902	2031	258	127	1937	1818	187	103
1903	2066	232	112	1938	1708	129	76
1904	2089	249	118	1939	1711	125	73
1905	2099	276	131	1940	1670	153	92
1906	2094	279	133	1941	1680	142	85
1907	1946	254	139	1942	1706	171	100
1908	2084	281	134	1943	1781	197	113
1909	2000	251	125	1944	1721	188	108
1910	1965	189	96	1945	1690	156	89
1911	1992	277	139	1946	1756	109	62
1912	1903	204	106	1947	1824	160	87
1913	1853	253	136	1948	1848	87	47
1914	1897	226	119	1949	1885	131	68
1915	1778	235	132				

Section. II.—Infectious Diseases

The various enactments, referred to in previous reports, covering the notification of infectious disease have been repealed by the Public Health Act 1947 and have been replaced by the Infectious Diseases Regulations, 1948, the second schedule of which specifies the following diseases to be infectious diseases :

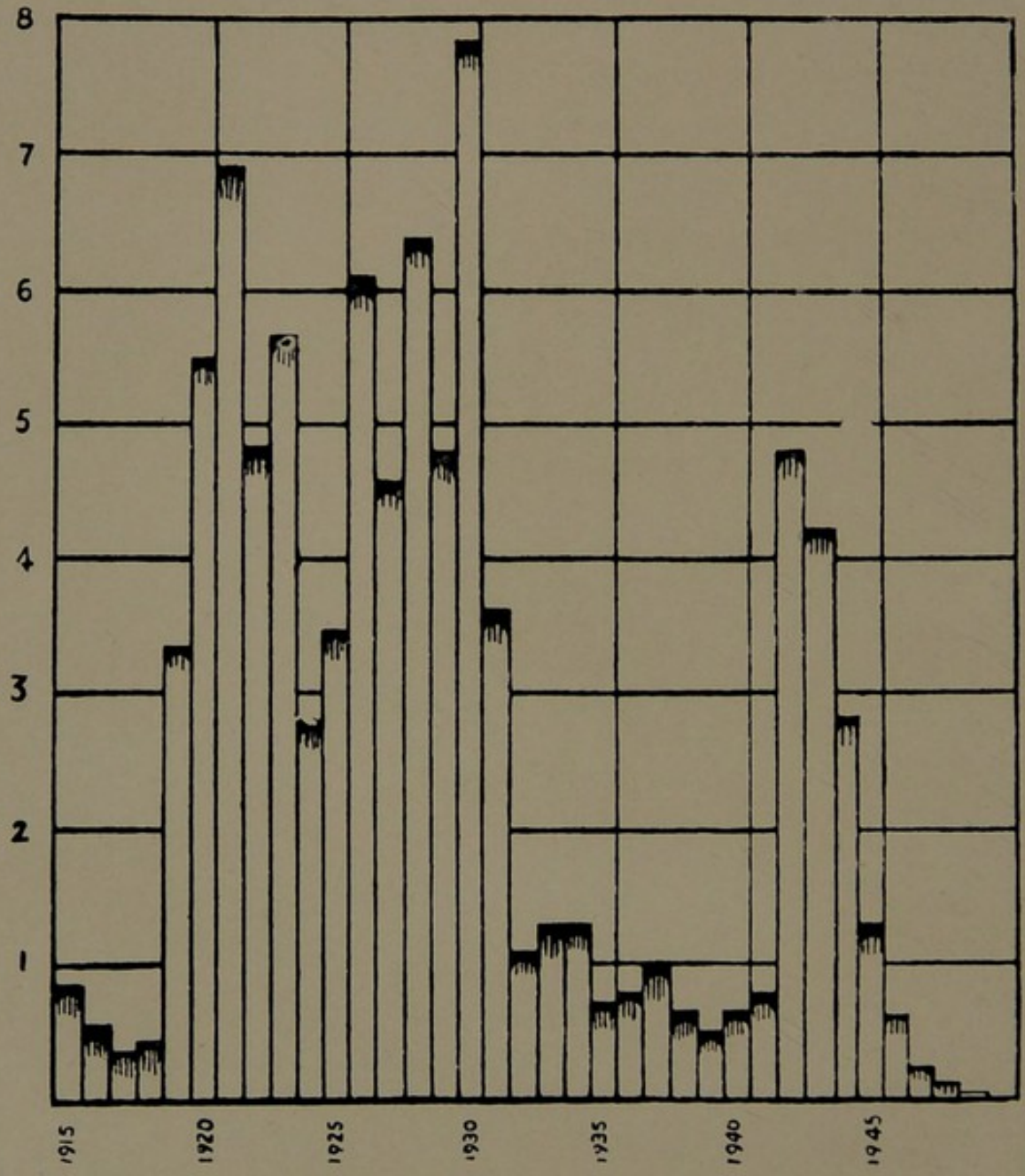
Acute Anterior Poliomyelitis
Anthrax
Brucellosis (undulant fever)
Cerebro-Spinal Fever
Cholera
Diphtheria
Dysentry
Encephalitis Lethargica
Epidemic Diarrhoea and Enteritis
Erysipelas
Gonorrhoea
Haemorrhagic Jaundice
(Weil's Disease)
Impetigo Contagiosa
Infective Hepatitis
Infective Mononucleosis
Influenza
Influenzal Pneumonia
Malaria
Measles
Ophthalmia Neonatorum
Paratyphoid A.
Paratyphoid B.
Pemphigus Neonatorum
Plague
Primary Pneumonia
Psittacosis
Puerperal Pyrexia
Puerperal Sepsis
Rubella
Scabies
Scarlet Fever
Smallpox
Soft Chancre
Streptococcal Sore Throat
Syphilis
Tinea Capitis
Tuberculosis
Trachoma
Typhoid
Typhus
Whooping Cough
Yellow Fever

General.

Notifications of infectious disease received during the year amounted to 729 (the corresponding figure for the previous year being 440).

The increased incidence was due almost entirely to an increase in measles the notifications of which increased from 25 in 1948 to 340 in 1949. Four deaths from this disease were recorded. There was also a substantial increase in the number of cases of gastro-enteritis (from 64 to 147, with 43 deaths). Tables dealing with typhus and typhoid fevers are included in this section. They are now largely of historic interest but play a part in reminding us of the debt owed to sanitary science in the prevention of pestilential diseases.

FIG. III.—DIPTHERIA INCIDENCE (PER 1000 POPULATION) FROM 1915



DIPHTHERIA.

This is the third successive year in which there has been no death from diphtheria. Reference to Table 13 (which covers a period of exactly 60 years) shews that never before 1947 was such a happy state of affairs achieved. There was not a single year before this period in which there was not one or more deaths from diphtheria recorded. The worst period appears to have been from 1919 to 1934. At this time the disease took on a greatly increased severity. 60 deaths occurred in 1920, 56 in 1921 and 42 in 1922. There were 59 in 1930 after which the disease appeared to gradually decline in intensity until 1942 and 1943 when there was a very sharp increase, but after these years the incidence diminished very rapidly. The number of cases in 1949 (seven) was the lowest of the period for which we have reliable records. It will be noted that there were analogous figures in 1895 and 1896 and again in 1902 ; but I have had occasion to point out in previous reports that figures for these earlier years are far from accurate. It was the period before notification was reliable and when true diphtheria was frequently termed croup and the two diseases were very liable to be confused. This table is indeed a valuable tabular record of the history of this disease so far as Cork City is concerned.

In a large proportion of cases the reports received transpired not to be diphtheria. The age distribution of these was as follows :—

0–2 years	...	...	16 cases
2–4 ,,	...	...	15 ,,
4–6 ,,	...	...	7 ,,
6–8 ,,	...	...	01 ,,
8–10 ,,	...	...	4 ,,
10–15 ,,	...	...	14 ,,
15–20 ,,	...	...	11 ,,
Over 20 ,,	...	...	27 ,,
	Total	...	104

In the campaign against diphtheria, our aim should be to eliminate clinical infection completely. This may be achieved by immunising 75% or more of the child population, which will reduce the total incidence of clinical infection and consequently the carrier-rate, and by maintaining the antitoxic immunity at as high a level as possible to protect the community against the more invasive strains. It is perhaps no coincidence that many of the severe outbreaks of diphtheria in the past twenty or thirty years have started in our ports—Bristol, Cork, Hull, Tyneside and Dundee—and it may be that virulent variants of " C diphtheriae " are introduced from time to time from abroad, for the prevalent strain in the Dundee and Tyneside outbreaks differed in some respects from the recognised indigenous gravis strains. The present diphtheria prophylactics, such as A.P.T. and P.T.A.P., give a Schick conversion-rate approaching 100%, but we need more information on how to maintain a high level of antitoxic immunity over a long period. Meanwhile it seems wise to recommend primary immunisation in the first year of life, with further stimulating doses when the child enters and leaves school.—THE LANCET, July 22, 1950 (140).

Table 13.—Incidence and Case Fatality of Diphtheria from 1890.

Year	Cases	Rate per 1000 Population	Deaths	Fatality Rate
1890	20	0.26	8	40.0
1891	37	0.49	11	30.0
1892	11	0.14	3	27.3
1893	18	0.23	3	16.6
1894	14	0.18	4	28.6
1895	6	0.07	2	33.3
1896	7	0.09	1	14.3
1897	21	0.27	10	47.6
1898	18	0.23	4	22.2
1899	18	0.23	5	27.8
1900	23	0.30	2	0.8
1901	26	0.34	11	42.3
1902	8	0.10	4	50.0
1903	17	0.22	4	17.5
1904	29	0.38	6	20.6
1905	18	0.23	6	33.3
1906	37	0.48	11	29.7
1907	37	0.48	5	13.5
1908	40	0.56	9	22.5
1909	66	0.86	11	16.6
1910	51	0.65	11	19.3
1911	70	0.91	10	14.3
1912	52	0.67	6	11.5
1913	24	0.31	3	12.5
1914	54	0.70	13	24.1
1915	68	0.88	14	20.6
1916	43	0.55	9	20.9
1917	26	0.33	3	11.5
1918	34	0.43	6	17.6
1919	262	3.37	32	12.2
1920	428	5.50	60	14.0
1921	541	6.93	56	10.4
1922	379	4.86	42	11.1
1923	440	5.68	23	5.2
1924	217	2.85	12	5.4
1925	265	3.50	6	2.2
1926	469	6.10	18	3.7
1927	344	4.55	9	2.5
1928	385	6.37	19	4.7
1929	369	4.81	32	8.4
1930	627	7.86	59	10.0
1931	288	3.66	24	8.6
1932	85	1.08	17	20.0
1933	109	1.32	14	12.8
1934	109	1.32	25	22.1
1935	56	0.71	7	12.5
1936	25	0.31	8	32.0
1937	80	0.99	17	21.2
1938	54	0.66	7	12.8
1939	41	0.50	3	7.4
1940	52	0.67	5	9.6
1941	62	0.80	5	8.1
1942	372	4.84	21	5.6
1943	326	4.25	17	5.2
1944	172	2.27	5	2.9
1945	95	1.24	3	3.1
1946	46	0.61	2	4.3
1947	18	0.25	—	—
1948	10	0.10	—	—
1949	7	0.09	—	—

Note :—The Infectious Disease (Notification) Act, 1889, was adopted on 7th February, 1890.

DIPHTHERIA IMMUNISATION.

The total number of children who completed the full course of treatment during the year was 960, of whom 51 were children who were negative to the primary Schick test.

Table 14.—Attendance of new cases at Diphtheria Prevention Clinic.

Year	Primary Schick Negative	Completed Full Course	Total	Not Completed Course
1929	—	1,802	1,802	—
1930	154	2,857	3,011	505*
1931	324	1,777	2,101	436
1932	91	422	513	208
1933	159	592	751	61
1934	826	1,716	2,542	432
1935	173	1,118	1,291	8
1936	458	1,741	2,199	22
1937	165	960	1,125	212
1938	106	708	814	205
1939	87	355	442	69
1940	87	552	639	90
1941	109	576	685	60
1942	367	3,795	4,162	891
1943	306	1,081	1,387	321
1944	80	654	734	99
1945	106	622	728	145
1946	67	454	521	103
1947	154	633	787	103
1948	198	724	922	178
1949	51	909	960	212
Totals	4,068	24,048	28,116	4,360

* Includes figures for *both* 1929 *and* 1930.

The figures for primary Schick tests in this table do not represent the *total* number of such tests performed but merely the number that proved *negative*. They are stated here for the purpose of estimating the number of children who have passed through our hands and who may be regarded as presumably immune. The total number of primary tests performed during the year is set out in the following table.

Table 15.—Primary Schick Tests performed during the year.

Age Group	Number of Cases	Positive	Negative	Proportion Positive
0–5 years	3	1	2	33.3 %
5–10 ,,	24	11	13	45.8 %
10 and over	41	5	36	12.2 %
Totals ...	68	17	51	25.0 %

Table 16.—Primary Schick Tests. Analysis showing proportion positive in each year.

Year	Number Tested	Positive	Negative	Proportion Positive
1929–30	1170	916	254	78.2 per cent.
1931	598	274	324	45.8 ,,
1932	301	210	91	69.7 ,,
1933	435	276	159	63.4 ,,
1934	1474	648	826	44.0 ,,
1935	309	136	173	44.0 ,,
1936	626	168	458	26.8 ,,
1937	266	101	165	38.0 ,,
1938	152	46	106	30.2 ,,
1939	110	23	87	20.9 ,,
1940	131	34	87	25.9 ,,
1941	146	37	109	25.3 ,,
1942	686	319	367	46.5 ,,
1943	306	107	199	34.9 ,,
1944	108	28	80	25.9 ,,
1945	181	75	106	41.4 ,,
1946	86	19	67	22.1 ,,
1947	659	505	154	76.8 ,,
1948	673	475	198	70.5 ,,
1949	68	17	51	25.0 ,,

Apart from record purposes this table is of little value as, obviously, the proportion of *positive* reactions will depend almost entirely on the age constitution of the groups of children tested and as this factor will fluctuate widely from year to year, so also will the results vary from one year to another. In this respect the next table is more informative as the results in the different years have been analysed in accordance with the age groups of the children.

Table 17.—Primary Schick Tests. Proportion positive in the age-groups :—

Period	Proportion POSITIVE (expressed as percentages)			
	0-5 years	5-10 years	10 and over	Whole Group
1929/30	—	—	—	78.2
1931	—	—	—	45.8
1932	88.4	60.1	37.7	69.6
1933	79.7	63.3	28.9	63.4
1934	65.8	44.2	27.5	44.0
1935	66.6	49.5	30.3	44.0
1936	66.6	41.5	15.5	25.2
1937	—	43.8	33.0	37.9
1938	—	25.0	35.7	30.2
1939	50.0	28.6	18.4	20.9
1940	25.0	20.4	32.9	25.9
1941	—	30.9	22.2	25.3
1942	25.0	45.2	47.6	46.5
1943	83.0	28.0	34.8	34.9
1944	—	12.0	29.2	25.9
1945	55.5	30.7	42.4	41.4
1946	50.0	28.5	19.0	22.1
1947	91.9	28.5	5.4	76.8
1948	90.0	29.7	3.6	70.5
1949	33.3	45.8	12.2	25.0

The *total number of cases* dealt with, (according to age-groups) is shewn in the following figures.

(1) Treatment Incomplete—		
0 - 1	31	
1 - 2	66	
2 - 3	30	
3 - 4	27	
4 - 5	18	
5 - 10	39	
10 and over	1	
	——	212
(2) Treatment Complete—		
0 - 1	184	
1 - 2	320	
2 - 3	133	
3 - 4	78	
4 - 5	66	
5–10 years	118	
10 and over	10	
	——	909
		——
Total New Cases Treated		1,121
No. of Primary Schick Negatives ...		51
Old cases tested and treated		299
		——
	Total	1,471

Table 18.—Secondary Schick Tests.

Year	Total	Negative	Positive	Proportion Negative
1930	805	752	53	94.6 per cent.
1931	1166	991	175	85.2 ,,
1932	913	858	55	92.8 ,,
1933	893	801	92	89.0 ,,
1934	1105	1058	47	95.7 ,,
1935	1405	1388	17	98.8 ,,
1936	1272	1259	13	98.9 ,,
1937	732	722	10	98.6 ,,
1938	581	498	83	85.7 ,,
1939	215	205	10	95.3 ,,
1940	353	350	3	99.1 ,,
1941	488	464	24	95.0 ,,
1942	2,409	2,248	161	93.3 ,,
1943	1,232	1,178	54	97.2 ,,
1944	398	378	20	94.9 ,,
1945	484	479	5	98.9 ,,
1946	295	292	3	98.9 ,,
1947	364	360	4	98.9 ,,
1948	647	644	3	99.5 ,,
1949	627	627	—	100
Totals ...	16,384	15,552	832	94.9 per cent.

In addition to alum-precipitated toxoid (A.P.T.) and toxoid antitoxin floccules (T.A.F.), aluminium phosphate toxoid (P.T.A.P.) was used. This was found to be a satisfactory antigen.

SWAB EXAMINATIONS.

The following figures indicate the number of swabs examined in connection with the control of diphtheria since 1928.

Year	No. Examined	Year	No. Examined
1928	980	1939	714
1929	1,353	1940	747
1930	2,872	1941	711
1931	1,936	1942	3,509
1932	1,022	1943	3,237
1933	878	1944	1,546
1934	1,203	1945	1,363
1935	924	1946	856
1936	633	1947	520
1937	1,092	1948	499
1938	1,124	1949	406

EPIDEMIC DIARRHOEA

147 notifications were recorded during the year. This figure is a increase of 83 over that for the previous year. It represents a morbidity rate of 1.94 per 1,000. The deaths numbered 43 yielding a fatality rate of 29.2 per cent. of cases notified and a mortality rate of 0.58 per 1,000 population. The main factors in the causation of this disease, one of the most serious in childhood, have been referred to repeatedly in these reports and need not be laboured again. The principal exciting cause is, of course, the substitution of bottle-feeding for breast-feeding and the subsidiary causes (arising from this) are unhygienic milk production and distribution, unsuitable methods of feeding, ignorance or carelessness in the preparation of feeds, insanitary surroundings and over-crowding. The dangers arising from these secondary causes can be entirely eliminated by the adoption of breast feeding. Seasonal variation was rather more pronounced than is usual in this area. The bulk of the cases occurred in the third and fourth quarters, August, September and October supplying the greatest number of cases with an unusual interregnum in September. The results obtained by distributing the figures into months and quarters (according to date of occurrence) is shewn in the sub-joined tables :—

Month	Cases	Deaths	Month	Cases	Deaths
Jan.	3	1	July	12	1
Feb.	10	2	Aug.	20	5
March	10	5	Sept.	40	8
April	4	1	Oct.	24	7
May	11	1	Nov.	4	8
June	3	0	Dec.	6	4

The distribution according to *quarters* was as follows

	Cases	Deaths
1st Quarter	23	8
2nd ,,	18	2
3rd ,,	72	14
4th ,,	34	19

Many cases of gastro-enteritis are indeed not true cases of epidemic disease but arise from dietetic indiscretions on the part of those responsible for the feeding of the infant. Cow's milk, once more, has been associated in marked degree with the incidence of the disease.

It has already been stated that 147 notifications were received but of these we failed to trace 44 in the investigations which followed. This has been a constant feature, as alluded to in previous reports, and is due to the mother tendering wrong particulars to the notifying doctor. This is the method adopted by such mothers to secure the attention of the doctor of their choice. Subtracting this number we were left with a residue of 103 cases traced and investigated. Of this 103 none was breast-fed. These figures speak for themselves. In conjunction with the corresponding figures for each year since 1935 they are analysed in the next table.

Year	Number of Cases according to Manner of Feeding			Cases Untraced	Total
	Breast	Cow's Milk	Dried Milk		
1935	18	128	6	26	178
1936	7	198	5	16	261
1937	18	204	8	51	246
1938	14	108	5	15	142
1939	9	148	13	27	197
1940	13	202	9	62	286
1941	4	173	6	35	218
1942	11	168	24	24	227
1943	10	90	18	30	148
1944	5	128	17	29	179
1945	4	84	11	13	112
1946	2	56	4	7	69
1947	4	73	17	16	110
1948	2	45	7	10	64
1949	—	87	16	44	147
Totals ...	121	1892	166	405	2584

During the fifteen years covered by this table 2,179 cases have been investigated and in 94 per cent. *artificial feeding* was the method employed. It is to be noted that these figures do not pretend to complete accuracy and since we do not know the actual number of children at risk in each year we cannot postulate the relative danger of each method of feeding but taken together, the evidence is clear enough that any child subjected to artificial feeding is greatly imperilled thereby and further it can be stated that when artificial feeding is adopted the danger is very much greater when cow's milk is employed. This, no doubt, is due to faulty methods in preparing feeds and unhygienic conditions generally in the homes. There seems to be much greater risk from cow's milk than from dried milk. Considering the better nutritive value of the former this is unfortunate, but taking facts as we find them we are forced to the conclusion that, in the hands of the average mother, ordinary cow's milk is a highly dangerous article.

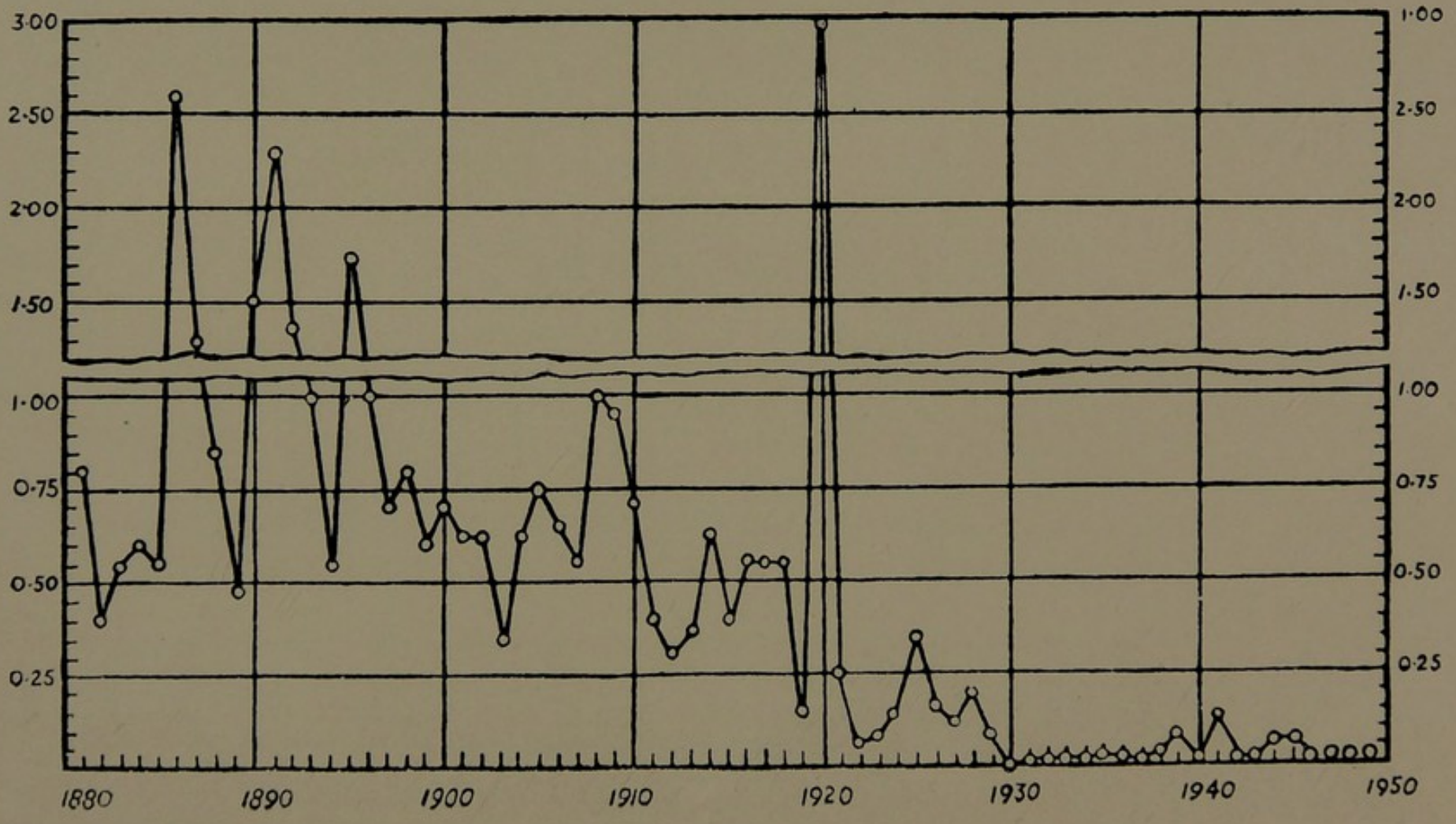
In Table 19 are shewn the numbers of cases and deaths from diarrhoea which have occurred in the City since 1907, the year in which the disease was first made notifiable here The *morbidity* rate is based on the number of cases notified in proportion to the population, the *mortality* rate on the number of deaths per 1,000 of the population while the case *fatality* rate represents the deaths registered per 100 cases notified.

Table 19.—Epidemic Diarrhoea. Return of Cases notified and Deaths registered, together with the Mortality, Morbidity and Case-fatality Rates arising therefrom.

Year	No. of Cases	Rate per 1000 Population (Morbidity)	DEATHS		
			Number Recorded	Mortality Rate	Case Fatality Rate*
1907	413	5.42	48	0.63	11.1
1908	524	6.85	79	1.03	15.0
1909	514	6.72	54	0.71	10.3
1910	159	2.07	34	0.44	21.3
1911	352	4.56	78	1.01	22.1
1912	71	0.92	18	0.23	25.3
1913	320	4.13	114	1.48	35.6
1914	188	2.43	67	0.86	35.6
1915	177	2.29	49	0.63	27.6
1916	139	1.79	35	0.45	25.1
1917	83	1.07	34	0.43	40.9
1918	121	1.55	40	0.51	33.0
1919	85	1.09	40	0.51	47.0
1920	54	0.69	22	0.28	40.7
1921	105	1.35	1	0.01	0.94
1922	19	0.24	—	—	—
1923	35	0.44	24	0.30	68.5
1924	30	0.38	10	0.12	33.3
1925	142	1.81	45	0.58	31.6
1926	108	1.37	53	0.67	49.1
1927	76	0.96	24	0.30	31.5
1928	79	1.00	28	0.35	35.4
1929	78	0.98	25	0.31	32.0
1930	59	0.74	37	0.46	62.7
1931	85	1.06	34	0.42	40.0
1932	178	2.22	46	0.57	27.8
1933	189	2.35	45	0.56	23.8
1934	80	0.99	36	0.44	45.0
1935	178	2.21	56	0.69	31.4
1936	261	3.23	41	0.50	15.7
1937	246	3.04	52	0.64	21.1
1938	142	1.76	33	0.41	23.2
1939	197	2.44	39	0.48	19.8
1940	286	3.54	52	0.64	18.4
1941	218	2.85	36	0.46	16.5
1942	227	2.95	52	0.68	22.9
1943	148	2.00	52	0.68	35.1
1944	179	2.37	65	0.61	36.3
1945	114	1.45	50	0.50	43.8
1946	71	0.94	19	0.25	26.7
1947	111	1.45	32	0.42	28.6
1948	64	0.85	19	0.25	28.1
1949	147	1.94	43	0.56	22.5

* The *fatality rates* in this table must be read with extreme caution. The fluctuation from year to year is so extreme that it is apparent that notification must have been very defective in the years with abnormally high rates. It is obvious, nevertheless, that this is a most fatal disease of early childhood and the figures lend point to the remarks which have been made above in regard to the prime contributory cause.

FIG. IV.—ENTERIC FEVER. INCIDENCE (PER 1000 POPULATION) FROM 1880



TYPHOID FEVER.

For the fourth successive year no case of this disease was recorded. This is the seventh occasion on which the City has been free from typhoid for a whole year or more. The previous years were 1930, 1942, 1943, 1946, 1947, and 1948.

The general picture of the disease as it has affected the City is seen in Table 20.

Table 20.—Incidence and Case Fatality of Enteric Fever in Cork City from 1881.

Period	*Cases* (annual averages 1881-1910)	*Incidence* (annual averages 1881-1910)	*Deaths* (annual averages 1881-1910)	*Fatality Rates* (annual averages 1881-1910)
1881-1890	73.5	0.97	13.3	18.1
1891-1900	82.6	1.08	12.6	17.9
1901-1910	54.3	0.69	8.4	15.0
1911	32	0.41	5	15.6
1912	26	0.33	6	23.0
1913	29	0.38	6	20.7
1914	50	0.64	4	8.0
1915	32	0.41	5	15.6
1916	42	0.54	6	14.3
1917	43	0.55	3	6.9
1918	42	0.54	8	19.0
1919	12	0.15	1	8.3
1920	244	3.13	13	5.3
1921	21	0.26	4	19.0
1922	6	0.07	2	33.3
1923	7	0.09	1	14.2
1924	11	0.14	2	18.1
1925	27	0.34	5	18.5
1926	11	0.14	2	18.2
1927	10	0.12	2	20.0
1928	17	0.21	2	11.7
1929	6	0.08	1	16.6
1930	—	—	—	—
1931	1 (a)	0.01	1	100.0
1932	1 (a)	0.01	1	100.0
1933	2 (a)	0.02	—	(b)
1934	1	0.01	—	—
1935	3	0.03	—	—
1936	2	0.02	—	—
1937	1	0.01	—	—
1938	3 (a)	0.03	1	33.3
1939	7	0.08	—	—
1940	2	0.02	—	—
1941	12	0.15	—	—
1942	—	—	—	—
1943	—	—	—	—
1944	3	0.03	—	—
1945	3	0.03	—	—
1946	—	—	—	—
1947	—	—	—	—
1948	—	—	—	—
1949	—	—	—	—

(a) Infection in all these cases was incurred outside the City.
(b) Two deaths were recorded in Cork Mental Hospital (Co. Area) of Inmates who formerly resided in the City

Details for each individual year from 1881 to 1910 appear in Reports for 1948 and previous years.

PARATYPHOID B. FEVER.

Four cases of this disease were reported during the year. This disease is caused by an organism closely related to the organism of typhoid (or enteric) fever and there is a corresponding similarity of symptoms though, in general, the illness caused by paratyphoid is less severe. While typhoid, in the main, is associated with infected water, milk, shell fish, ice cream, etc., paratyphoid is nearly always associated with food (such as meat) and is included in the group known as food poisoning. In this instance the cause ran true to type and cooked ham is believed to have been the vehicle of infection.

The first case was notified on 8th August, the second on the 10th, the third on the 12th and the fourth on the 17th. The first three cases all occurred in one neighbourhood and the only common factor was cooked ham. In the fourth case this commodity was also a factor although bought in a different establishment. Both shops obtained their cooked hams from a number of bacon factories, several of which were common to both establishments.

The patients were all removed to hospital and made satisfactory progress. No further case occurred. A number of similar cases were reported from various parts of the country during the period and the organism recovered from the dejecta in those cases was the same as that recovered in local cases, which suggests a common source of infection.

This outbreak, although limited in extent and mild in character, nevertheless serves to drive home a lesson. In my Annual Report for 1944 I adverted to the greatly increased trade in the sale of cooked meats over the counter and the growing danger to be associated with this custom. Unless very high standards of personal hygiene are rigidly enforced from the factory to the shop it is, of course, merely a question of time as to the occurrence of outbreaks of this kind. The habit of assistants in manipulating the cut meat with their bare hands should not be permitted. There seems to me to be no reason why the cut slices should not be received direct on to the paper in which they are wrapped, without any direct handling at all.

It has been stated that modern controls have rendered water and milk innocuous so far as the spread of enteric disease is concerned. This is true. It would seem that the persistence of such disease will depend on the infection of food (as in the present instance) and of such commodities as ice cream and so on. The sporadic character of the outbreaks confirms this suspicion. Control will accordingly become more and more difficult involving, as it does, not only supervision over sources of supply but over all the individuals who may have the handling of the foodstuffs until they are consumed. The moral, of course, is that it is far safer to buy only raw meat and cook it at home. This is not only economically more sound, but it is the safest from the hygienic standpoint.

SCARLET FEVER.

45 cases were reported. There was no death.

TYPHUS.

For the twentieth successive year there has been no case. As a matter of interest the table relative to this disease, first published in 1935, is reproduced in this report.

Table 21.—Incidence and Case Fatality of Typhus Fever in Cork City from 1881.

Year	Cases	Incidence per 1,000	Deaths	Fatality Rate
1881	1406	17.42	88	6.2
1882	683	8.57	54	7.9
1883	844	10.66	46	5.4
1884	456	5.65	37	8.1
1885	159	2.03	21	3.2
1886	83	1.06	17	18.0
1887	67	0.86	12	17.9
1888	72	0.93	21	27.7
1889	48	0.63	5	10.4
1890	54	0.71	7	12.9
1891	24	0.30	5	20.8
1892	162	2.28	23	14.1
1893	92	1.20	7	7.6
1894	25	0.33	2	8.0
1895	29	0.33	8	31.0
1896	22	0.29	7	31.8
1897	30	0.39	3	10.0
1898	61	0.80	11	18.0
1899	9	0.10	6	66.6
1900	28	0.36	4	14.3
1901	13	0.17	2	15.38
1902	6	0.07	—	—
1903	7	0.09	—	—
1904	11	0.14	1	9.1
1905	9	0.11	2	22.2
1906	6	0.07	4	66.6
1907	10	0.13	6	60.0
1908	23	0.30	6	26.1
1909	18	0.24	5	27.7
1910	8	0.10	3	37.5
1911	10	0.13	—	—
1912	1	0.01	—	—
1913	5	0.06	2	40.0
1914	1	0.01	1	100.0
1915	—	—	—	—
1916	1	0.01	1	100.0
1917	3	0.04	1	33.3
1918	1	0.01	1	100.0
1919	15	0.19	3	20.0
1920	2	0.03	—	—
1921	1	0.01	1	100.0
1922	—	—	—	—
1923	1	0.01	1	100.0
1924	1	0.01	—	—
1925	—	—	—	—
1926	3	0.04	1	33.3
1927	4	0.05	—	—
1928	1	0.01	—	—
1929	1	0.01	1	100.0

There has been no case since 1929.

Table 22.—Yearly Summary of Infectious Diseases.

(The figures from 1881 to 1920 represent decinnial averages).

Year	Small Pox	Typhus	Enteric Fever	Simple Contd. Fever	Scarlatina	Puerperal Fever	Membraneous Croup	Diphtheria	Erysipelas	Measles	Diarrhoea	Chicken Pox	Cerebro-Spinal Meningitis	Poliomyelitis	Pneumonia: Acute Primary	Pneumonia: Acute Influenza
1881–1890	0.1	387	74	130	91	0.5	0.3	5	18	109	—	—	—	—	—	—
1891–1890	0.2	48	83	30	108	4	4	17	46	13	—	—	—	—	—	—
1901–1910	0.5	11	54	34	87	5	5	31	37	471	161	—	—	—	—	—
1911–1920	—	4	55	10	105	5	11	106	28	194	159	—	—	—	—	—
1921	—	—	21	1	14	4	8	541	17	2	105	28	—	—	—	—
1922	—	—	6	—	29	1	5	379	14	324	19	29	—	—	—	—
1923	—	1	7	1	44	1	4	440	45	10	35	30	—	—	—	—
1924	—	1	12	—	41	3	3	217	30	5	30	54	—	—	—	—
1925	—	—	27	—	81	4	9	265	35	94	142	117	—	—	—	5
1926	—	4	11	2	278	4	11	469	34	534	108	59	—	—	—	—
1927	—	4	10	1	205	14	11	344	25	7	76	76	1	1	—	—
1928	—	1	17	—	208	7	15	385	24	6	79	64	1	—	—	12
1929	—	1	6	—	216	6	4	369	24	226	78	80	—	—	—	7
1930	—	—	—	1	238	6	5	588	38	241	59	72	—	—	—	3
1931	—	—	1	—	98	1	1	288	19	3	85	71	1	—	49	41
1932	—	—	1	—	80	9	1	85	13	242	178	99	—	—	28	7
1933	—	—	2	—	181	9	—	109	24	49	189	79	—	—	3	2
1934	—	—	1	—	118	10	—	109	28	126	80	158	—	—	2	1
1935	—	—	3	—	52	11	1	56	24	300	178	53	—	—	5	2
1936	—	—	2	—	437	12	1	24	18	233	261	69	3	—	14	14
1937	—	—	1	—	454	6	—	79	26	88	246	218	5	1	21	45
1938	—	—	3	—	228	1	—	54	18	12	142	83	14	—	19	3
1939	—	—	7	—	158	4	—	41	31	3	197	28	1	—	14	1
1940	—	—	2	—	143	1	—	52	23	1613	286	52	2	1	27	1
1941	—	—	12	—	42	1	—	62	29	94	218	254	2	—	21	1
1942	—	—	—	—	50	—	—	372	38	1	227	65	2	—	32	2
1943	—	—	—	—	76	2	—	326	45	6	148	47	3	—	35	2
1944	—	—	3	—	85	—	—	172	57	370	179	*	5	3	37	—
1945	—	—	3	—	33	—	—	95	20	7	114		7	1	8	—
1946	—	—	—	—	41	2	—	46	26	396	71		1	6	34	—
1947	—	—	—	—	63	1	—	18	19	41	111		—	1	64	—
1948	—	—	—	—	86	—	—	10	27	25	64		—	1	40	—
1949	—	—	—	—	45	—	—	7	15	340	147		2	1	24	—

* No longer notifiable.

Detailed figures for each year from 1881 to 1920 appear in Reports for 1948 and the previous years.

OTHER INFECTIOUS DISEASES.

Notifications in regard to other infectious diseases during the year were as follows :—

Scabies	24	(69)
Whooping Cough	80	(109)
Influenza	19	(0)
Cerebro-Spinal Fever	2	(0)

Figures in brackets indicate corresponding notifications in the previous year.

Table 23.—Particulars of Articles Disinfected during the year.

	Bed Ticks	Mattresses	Articles of Bedding	Articles of Wearing Apparel	Miscellaneous Articles	Total No. of Articles
January ...	3	10	104	7	1	125
February ...	2	16	91	11	2	122
March ...	1	13	105	5	1	125
April ...	—	13	95	5	—	113
May ...	2	8	65	5	8	88
June ...	1	11	65	8	6	91
July ...	2	18	99	6	3	128
August ...	—	21	150	78	6	255
September ...	2	17	206	40	88	353
October ...	—	17	273	29	66	385
November ...	—	3	76	30	30	139
December	—	3	181	26	52	262
	13	150	1,510	250	263	2,186

The number of rooms disinfected during the year was 134. This service is now almost entirely confined to the control of tuberculosis. Rooms occupied by infectious cases are submitted to fumigation with formalin and thorough cleansing on removal of patients to institutions or on death. In cases of smallpox, of course, stringent precautions would have to be taken, as would also be the case in typhus but, fortunately these diseases have now became of extreme rarity here.

VACCINATION.

Table 24.—The figures appended herewith, which are taken from the Annual Summaries of the Registrar General, relate to the number of persons vaccinated in each locality concerned.

Year	CORK			DUBLIN			LIMERICK			WATERFORD		
	Births	Vaccinations	Proportion	Births	Vaccinations	Proportion	Births	Vaccinations	Proportion	Births	Vaccinations	Proportion
1936	1,921	1,833	95%	11,582	3,903	34%	975	622	64%	661	54	8%
1937	1,706	1,898	110%	11,652	3,199	27%	1,006	672	67%	696	71	10%
1938	1,761	1,532	87%	11,534	4,076	35%	1,030	579	55%	626	27	4%
1939	1,632	1,591	97%	11,384	3,051	27%	1,073	596	55%	614	16	3%
1940	1,670	1,050	63%	11,064	2,700	24%	984	601	61%	677	43	6%
1941	1,753	1,138	65%	11,305	3,412	30%	1,007	558	55%	613	30	5%
1942	1,706	1,065	62%	12,528	3,517	28%	1,115	763	68%	807	47	6%
1943	1,781	1,233	69%	12,673	2,005	15%	1,075	748	69%	737	58	7%
1944	1,712	1,272	74%	12,074	1,525	12%	1,002	856	85%	644	34	5%
1945	1,690	1,238	73%	12,508	1,170	9%	1,051	893	85%	676	25	4%
1946	1,756	343	19%	13,159	350	2%	1,055	487	37%	718	5	0.7%
1947	1,824	188	10%	13,643	241	1%	1,208	625	50%	673	—	—

Information as to vaccination is not available in the *Annual Summary* for 1948. Since the repeal of the Vaccination Acts by the Health Act, 1947 vaccination has fallen to negligible proportions. The actual figures for the past two years are as follows : 1948—53 ; 1949—72.

Section III.—Tuberculosis

The tuberculosis death-rate for the year was 1.10 per 1,000 which is the lowest figure so far achieved. The number of deaths represented by this figure is 83 (in comparison with 97 in the previous year). The tables which follow give us a statistical picture of the disease. The principal ones are three in number (25 to 27). The first of them (table 25) deals with deaths from the *pulmonary* form of the disease only and it is necessary to stress that the figures in the third column (rates per 1,000) do not represent the tuberculosis death rate. They represent the *phthisis* death rate. (The tuberculosis death-rate is set out in table 26). It may well be asked what is the point in recording figures which do not constitute a recognised statistical rate. The principal justification is that these figures represent a definite *trend* in this area and since they go very much further back than those in table 25 they are of value.

Table 25.—Deaths and Death Rates *Pulmonary* Tuberculosis.

Year	No. of Deaths	Rate per 1,000 pop.	Year	No. of Deaths	Rate per 1,000 pop.
1891	295	3.93	1920	159	2.07
1892	303	4.04	1921	125	1.64
1893	314	4.18	1922	176	2.30
1894	296	3.94	1923	130	1.64
1895	261	3.48	1924	164	2.09
1896	299	3.98	1925	134	1.71
1897	260	3.46	1926	126	1.60
1898	283	3.77	1927	129	1.60
1899	320	4.26	1928	109	1.39
1900	281	3.74	1929	141	1.79
1901	289	3.80	1930	114	1.45
1902	287	3.79	1931	124	1.56
1903	279	3.67	1932	111	1.40
1904	352	4.63	1933	106	1.35
1905	294	3.86	1934	104	1.34
1906	261	3.43	1935	115	1.46
1907	278	3.65	1936	85	1.06
1908	245	3.22	1937	96	1.20
1909	264	3.47	1938	99	1.21
1910	233	3.06	1939	86	1.06
1911	252	3.29	1940	96	1.17
1912	231	3.01	1941	86	1.12
1913	202	2.62	1942	106	1.38
1914	231	3.01	1943	107	1.38
1915	211	2.88	1944	118	1.56
1916	189	2.46	1945	86	1.13
1917	202	2.63	1946	79	1.04
1918	187	2.43	1947	126	1.67
1919	156	2.04	1948	81	1.07
			1949	69	0.90

In table 26 the combined figures for pulmonary and non-pulmonary deaths are set out. The combined rate represents the figure generally utilised for comparative purposes.

FIG. V.—PULMONARY TUBERCULOSIS. DEATH RATES FROM 1891 TO PRESENT YEAR

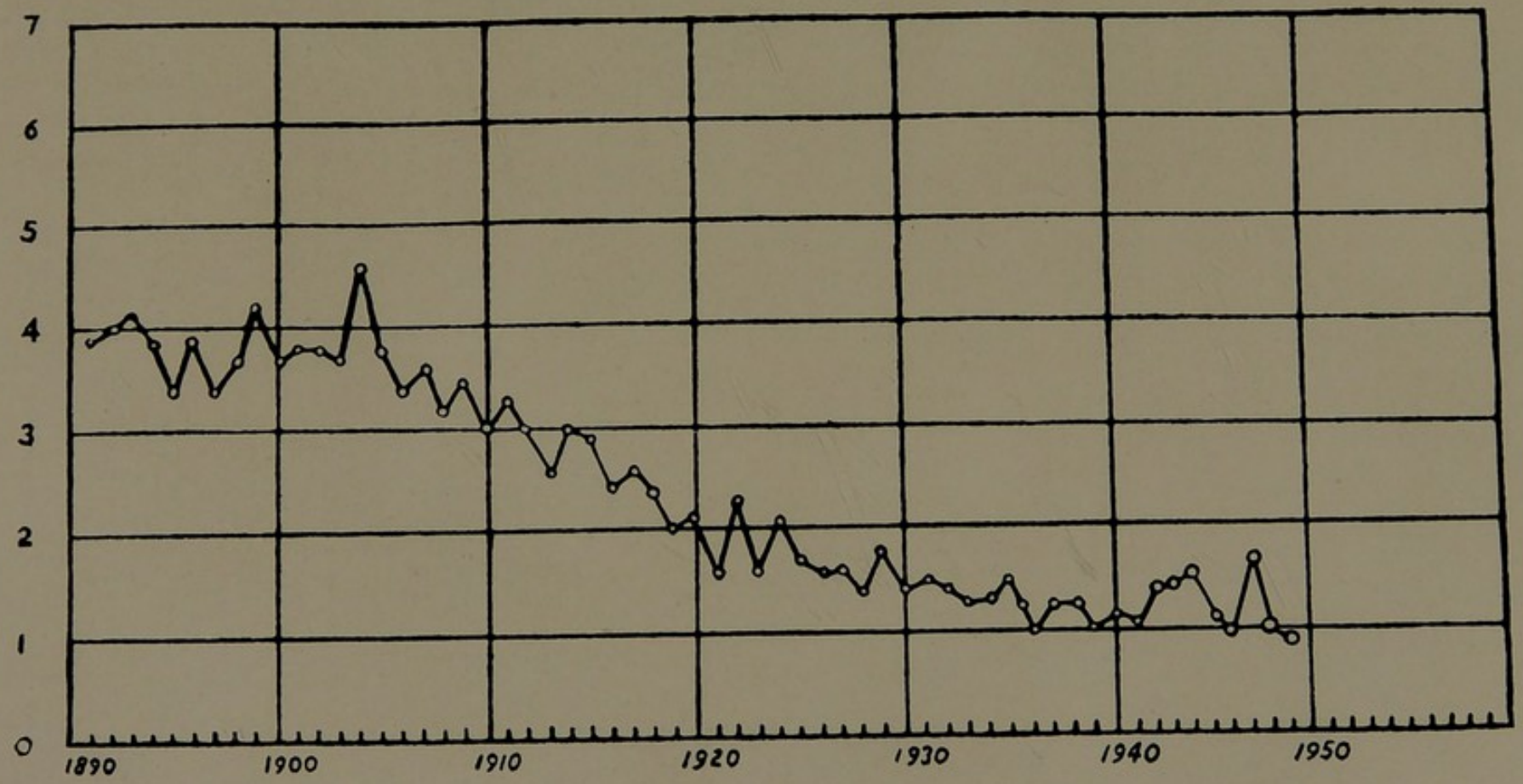


Table 26.—Combined Deaths and Death rates from Pulmonary and Non-pulmonary Tuberculosis.

Year	Pulmonary Deaths	Non-pulmonary Deaths	Total	Rate per 1,000 pop.
1906	261	81	342	4.49
1907	278	84	362	4.74
1908	245	93	338	4.42
1909	264	78	342	4.47
1910	233	75	308	4.01
1911	252	73	325	4.23
1912	231	71	302	3.92
1913	202	79	381	3.64
1914	231	79	310	4.02
1915	211	72	383	3.66
1916	189	69	258	3.33
1917	202	78	280	3.61
1918	187	75	262	3.37
1919	156	58	214	2.75
1920	159	46	205	2.64
1921	125	34	159	2.03
1922	176	39	215	2.75
1923	130	32	162	2.05
1924	164	32	196	2.50
1925	134	31	165	2.10
1926	126	46	172	2.18
1927	129	35	164	2.08
1928	108	29	138	1.74
1929	141	17	158	2.00
1930	117	25	142	1.78
1931	124	46	170	2.13
1932	111	45	156	1.95
1933	106	19	125	1.56
1934	107	21	128	1.59
1935	115	29	144	1.78
1936	85	20	105	1.29
1937	96	24	120	1.48
1938	99	13	112	1.38
1939	86	14	100	1.23
1940	96	29	125	1.54
1941	86	20	106	1.38
1942	106	18	124	1.57
1943	107	23	130	1.69
1944	118	27	145	1.92
1945	86	29	115	1.52
1946	79	22	101	1.34
1947	126	21	147	1.95
1948	81	16	97	1.15
1949	69	14	83	1.10

The tuberculosis death-rate of 1.10 per 1,000 compares with corresponding rates for other urban areas (according to *Annual Summary* of the Registrar-General) as follows : Dublin, 1.0 ; Limerick, 1.5 ; Waterford, 0.8 (vide also table 36).

The figures for *non-pulmonary* tuberculosis are set out in table 27. It will be noted that they do not extend farther back than 1906, which is the earliest year for which figures for this form of the disease are available. On the other hand figures for *pulmonary* tuberculosis go back to 1891.

Table 27.—Deaths and Death Rates from *non-pulmonary* Tuberculosis.

Year	No. of Deaths	Rate per 1,000 pop.	Year	No. of Deaths	Rate per 1,000 pop.
1906	81	1.06	1928	29	0.36
1907	84	1.10	1929	17	0.21
1908	93	1.08	1930	25	0.31
1909	78	1.02	1931	46	0.57
1910	75	0.97	1932	35	0.44
1911	73	0.95	1933	20	0.24
1912	71	0.92	1934	21	0.25
1913	79	1.02	1935	29	0.36
1914	79	1.02	1936	20	0.25
1915	72	0.93	1937	24	0.29
1916	69	0.89	1938	13	0.16
1917	78	1.00	1939	14	0.17
1918	75	0.96	1940	29	0.35
1918	58	0.74	1941	20	0.26
1920	46	0.59	1942	18	0.24
1921	34	0.43	1943	23	0.30
1922	39	0.50	1944	27	0.35
1923	32	0.40	1945	29	0.38
1924	32	0.40	1946	22	0.29
1925	31	0.39	1947	21	0.29
1926	46	0.58	1948	16	0.21
1927	35	0.44	1949	14	0.17

The selective effect of age on mortality from pulmonary tuberculosis has been as marked as in previous years. An attempt has been made to present this feature in the tables which follow. In table 28 we note that the figures for a period of twenty four years yield a total of 2,498 deaths which have been sub-divided into age and sex-groups and which exhibit a slight excess of males over females (1,308 as compared with 1,190). There is a very steep rise in mortality after the 15 year group has been passed, with a further increase in 25/35 group, a slight decline in the 35/45 group, and then a sharp decline. This is a fairly typical picture and we note too that at all ages from 15 to 35 years there is a definite excess of female deaths. Thereafter there is a substantial excess in the number of male deaths. It is necessary to repeat the remarks made in previous reports that, in regard to this table, it has to be observed that there are certain discrepancies as compared with other tables in the report, particularly tables 25 to 27 inclusive, which may need explanation.

In table 28 the figures from 1926 to 1936 inclusive are taken from the Annual Reports of the Registrar-General for the appropriate years. Prior to 1929 the figures in tables 25 and 27 are taken from the records of this Department over a great number of years (see table 12a). From 1937 onwards the figures are taken from the records of deaths compiled in the Department itself from the District Registrar's weekly returns. With the exception of one or two years the discrepancies are not very great and since the main object of such tables is to display the *trend* of deaths the conclusions which may be drawn from them are not vitiated to any material extent. Similar observations apply to table 29 in which deaths from non-pulmonary tuberculosis are arranged into age and sex

Table 28.—Deaths from *Pulmonary* Tuberculosis distributed according to sex and age groups.

Year	Sex	All Ages	Under 1 year	1–5	5–15	15–25	25–35	35–45	45–55	55–65	65 and over
1926–30	M	299	2	6	7	61	71	80	47	17	8
	F	325	—	6	16	75	96	67	38	18	9
1931–35	M	283	1	2	3	43	77	76	57	20	4
	F	272	1	2	10	72	80	54	36	15	3
1932	M	58	—	—	1	7	22	15	8	4	1
	F	54	—	1	3	14	21	5	7	3	—
1933	M	52	—	—	—	8	17	14	11	1	1
	F	53	—	—	—	18	12	10	9	3	1
1934	M	53	—	—	2	6	13	16	12	3	1
	F	50	—	—	1	14	12	16	3	3	1
1935	M	58	1	1	—	10	9	20	13	4	—
	F	54	—	—	2	11	18	9	11	3	—
1936	M	48	—	—	2	7	11	15	8	5	—
	F	34	—	1	—	6	8	7	5	6	1
1937	M	56	—	—	—	9	10	14	13	8	2
	F	40	—	—	2	10	9	10	4	5	—
1938	M	61	—	—	—	12	12	13	17	4	3
	F	38	—	—	—	4	15	10	7	2	—
1939	M	53	—	—	1	10	6	13	16	6	1
	F	33	—	—	2	11	4	6	6	4	—
1940	M	48	—	—	—	12	9	10	9	8	—
	F	48	1	—	—	12	13	14	4	2	2
1941	M	46	—	—	—	8	11	12	9	6	—
	F	42	—	—	—	5	10	14	9	4	—
1942	M	61	—	—	1	9	13	12	16	5	5
	F	45	—	—	1	17	10	7	6	4	—
1943	M	61	—	1	—	4	15	14	14	9	4
	F	46	—	—	2	15	10	8	3	6	2
1944	M	61	—	1	—	12	9	16	11	7	5
	F	57	1	—	1	13	20	8	4	8	2
1945	M	45	—	1	1	7	9	8	8	7	4
	F	41	—	—	2	6	15	7	6	1	4
1946	M	44	—	—	2	1	4	12	15	6	4
	F	35	—	—	3	10	7	9	3	2	1
1947	M	60	1	2	1	7	7	13	15	10	4
	F	66	—	—	2	16	16	16	8	4	4
1948	M	51	—	—	—	5	14	10	15	5	2
	F	30	—	1	—	7	8	8	3	1	2
1949	M	31	1	—	—	4	4	5	11	4	2
	F	38	—	2	3	7	9	4	8	5	—
Totals	M	1308	5	13	18	211	282	323	281	127	48
	F	1190	2	12	44	286	330	249	150	87	30
Persons		2498	7	25	62	497	612	572	431	214	78

groups except that in this case all are compiled from the District Registrar's returns and accordingly may be said to represent the facts with a reasonable degree of accuracy. In the case of *non-pulmonary* tuberculosis, however, it is necessary to advert to the fact that there is reason to doubt the accuracy of some of the returns. The principal factor in non-pulmonary deaths is meningitis and it has been the practice to classify deaths under this heading as due to tuberculosis only when the certifying physician specifies " tuberculosis meningitis."

The causes of the increased deaths noted in previous years were again examined. So far as the figures for the current year are concerned little can be added to the remarks made in the appropriate reports. Once again the great bulk of deaths occur in the age group between 15 and 45 years. This tendency has prevailed for many years as will be seen in table 28. The actual figures for the last twelve years, are as follows. These figures refer to *pulmonary* deaths only.

	15/25	25/35	35/45	45/55	55/65
1937	19	19	24	17	13
1938	16	27	23	24	6
1939	21	10	19	22	10
1940	24	22	24	13	10
1941	13	21	26	18	10
1942	26	23	19	22	9
1943	19	25	22	17	15
1944	25	29	24	15	15
1945	13	24	15	14	8
1946	11	11	21	18	8
1947	23	23	29	23	14
1948	12	22	18	18	6
1949	11	13	9	19	9

In the following table these age-groups have been sub-divided into the sexes :-

Year	15/25		25/35		35/45		45/55		55/65	
	M	F	M	F	M	F	M	F	M	F
1939	10	11	6	4	13	6	16	6	6	4
1940	12	12	9	13	10	14	9	4	8	2
1941	8	5	11	10	12	14	9	9	6	4
1942	9	17	13	10	12	7	16	6	5	4
1943	4	15	15	10	14	8	14	3	9	6
1944	12	13	9	20	16	8	11	4	7	8
1945	7	6	9	15	8	7	8	6	7	1
1946	1	10	4	7	12	9	15	3	6	2
1947	7	16	7	16	13	16	15	8	10	4
1948	5	7	14	8	10	8	15	3	5	1
Average	7.5	11.2	9.7	11.3	12.0	9.7	12.8	5.2	6.9	3.6
1949	4	7	4	9	5	4	11	8	4	5

14 deaths from non-pulmonary tuberculosis were recorded during the year. This is two less than the figure for the previous year (16). The distribution of these deaths in regard to age and sex groups is shewn in Table 29.

Table 29.—Deaths from non-pulmonary Tuberculosis arranged into sex and age groups.

Year	Sex	All Ages	Under 1 year	1–5	5–15	15–25	25–35	35–45	45–55	55–65	65 and over
1932	M	22	5	5	2	5	1	2	2	—	—
	F	13	—	1	1	2	4	1	2	2	—
1933	M	11	1	4	1	2	1	1	—	1	—
	F	9	3	1	4	—	—	—	1	—	—
1934	M	8	—	4	—	1	—	2	1	—	—
	F	13	2	4	1	2	2	1	1	—	—
1935	M	14	1	4	2	2	1	3	1	—	—
	F	15	—	4	4	—	2	4	—	1	—
1936	M	13	1	4	2	—	2	2	—	2	—
	F	7	3	1	—	2	—	1	—	—	—
1937	M	13	2	3	1	2	1	1	—	2	1
	F	11	—	3	2	1	2	1	—	—	2
1938	M	5	—	1	 1	1	1	—	1	—	—
	F	8	—	2	2	—	—	2	—	—	2
1939	M	9	—	5	—	1	1	—	2	—	—
	F	5	—	4	—	1	—	—	—	—	—
1940	M	14	—	6	3	1	2	—	2	—	—
	F	15	3	2	3	1	1	1	2	1	1
1941	M	11	1	1	3	2	3	1	—	—	—
	F	9	1	2	1	2	—	1	—	—	2
1942	M	8	1	3	1	—	1	—	1	—	1
	F	11	2	3	1	2	—	—	1	1	1
1943	M	13	3	4	1	4	1	—	—	—	—
	F	10	—	5	2	1	—	1	—	—	1
1944	M	10	2	6	1	—	—	—	—	—	1
	F	17	2	4	4	1	—	1	2	2	1
1945	M	19	2	5	6	3	1	—	—	1	1
	F	10	1	2	3	3	—	—	—	—	1
1946	M	12	2	3	3	—	—	1	—	3	—
	F	10	—	2	1	2	2	—	2	1	1
1947	M	12	1	2	4	1	1	1	—	—	2
	F	9	—	1	—	2	2	—	—	2	2
1948	F	9	—	5	1	2	—	—	1	—	—
	M	7	1	3	—	2	—	1	—	—	—
1949	M	3	1	1	1	—	—	—	—	—	—
F		11	3	2	4	—	1	—	—	—	1
Totals	M	206	23	66	33	27	17	14	11	9	6
	F	190	21	46	33	24	16	15	11	9	15
Persons		396	44	112	66	51	33	29	22	18	21

An examination of the causes of the 14 deaths attributed to non-pulmonary tuberculosis yields the following figures.

Tuberculous meningitis	...	...	11
Bones and joints	...	...	2
Abdominal disease	...	...	1

The preponderant role of meningitis is very obvious. A further examination of the figures brings out this feature in a very marked degree as is seen in the next table.

Table 30.—Classification of Deaths from non-pulmonary Tuberculosis.

Cause of Death	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	Totals
Meningitis...	9	10	10	12	10	12	8	6	15	9	10	16	11	15	7	12	12	11	195
Peritonitis	4	4	—	3	3	2	—	3	7	2	2	2	1	4	6	1	—	1	45
Bones and Joints	4	3	2	4	4	4	2	1	2	5	1	1	7	4	7	6	1	2	60
Genito-urinary ...	3	1	1	1	—	—	—	1	2	2	2	—	—	2	1	1	—	—	17
Abdominal ...	4	—	—	3	2	2	—	1	—	1	1	1	2	2	—	1	3	—	23
Generalised Tuberculosis ...	6	1	5	3	—	1	2	1	—	1	1	—	2	1	—	—	—	—	24
Glands	—	1	2	—	1	1	—	—	1	—	—	1	—	1	—	—	—	—	8
Addison's Disease ...	—	—	1	2	—	2	—	1	1	—	2	—	2	—	—	—	—	—	11
Skin	2	—	—	—	—	—	1	—	1	—	—	1	—	—	—	—	—	—	5
Miscellaneous ...	3	—	—	1	—	—	—	—	—	—	—	1	2	—	1	—	—	—	8
Totals ...	35	20	21	29	20	24	13	14	29	20	19	23	27	29	22	21	16	14	396

Tuberculous meningitis is almost invariably of human origin. With the exception of glandular disease and, possibly, abdomina tuberculosis most of the conditions listed in table 30 may be said to be of haematogenous origin and due, in the first instance, to pulmonary infection of human origin, it would seem clear therefore that the control of the human carrier or case must be the prime consideration in the attack on tuberculosis.

Table 31.—Non-pulmonary tuberculosis. Analysis of certified deaths, shewing same distributed into sex and age-groups, from 1932 to 1949 (inclusive).

Cause of Death	Sex	All Ages	Under 1 Yr.	1–5	5–15	15–25	25–35	35–45	45–55	55–65	65 and over
Meningitis ...	M	98	13	46	18	15	3	2	1	—	—
	F	99	15	36	26	11	6	3	1	—	1
Peritonitis ...	M	26	4	10	5	2	1	3	—	1	—
	F	18	2	5	2	1	1	4	1	—	2
Bone and Joint ...	M	27	—	2	5	4	4	4	1	5	2
	F	33	—	1	6	6	5	2	2	4	7
Genito-urinary ...	M	13	—	—	—	1	4	3	3	1	1
	F	4	—	—	—	—	1	1	2	—	—
Abdominal ...	M	10	—	3	1	1	2	—	2	1	—
	F	12	3	3	—	1	1	1	—	2	1
Generalised Tuber-culosis ...	M	16	2	4	2	3	2	2	—	—	1
	F	8	1	1	—	1	2	1	1	1	—
Supra-renal Gland	M	6	—	—	—	1	1	—	2	1	1
	F	6	—	—	—	—	—	1	2	1	2
Miscellaneous ...	M	8	3	1	1	—	—	—	2	—	1
	F	12	—	3	—	2	—	2	2	1	2
TOTALS	M	204	22	66	32	27	17	14	11	9	6
	F	192	21	49	34	22	16	15	11	9	15
PERSONS		396	43	115	66	49	33	29	22	18	21

The preponderant role of meningitis in deaths from non-pulmonary tuberculosis is again apparent in this aggregate table accounting for nearly half the deaths in the period of fourteen years covered. It will be noted that the earlier years are those most affected. The other forms of non-pulmonary tuberculosis are more evenly distributed.

Table 32.—Proportion of Deaths from Tuberculosis (*all forms*) to Deaths from all causes in 1949.

Age Group	No. of Deaths (all causes)	Deaths from Tuberculosis	Proportion
0/1	131	5	3.8 per cent.
1/5	26	5	19.2 ,, ,,
5/15	20	8	40.0 ,, ,,
15/25	18	11	61.1 ,, ,,
25/35	30	14	46.6 ,, ,,
35/45	41	9	21.9 ,, ,,
45/55	85	19	22.3 ,, ,,
55/65	175	10	5.7 ,, ,,
65 and over	522	13	2.3 ,, ,,
Totals....	1048	83	7.9 ,, ,,

This table was computed for the first time for the year 1945. The periods covered are too short to institute any useful comparison. Some points do emerge. In the first place it would appear that the proportions are subject to considerable fluctuation from year to year in the various age-groups and secondly that the proportion of deaths from tuberculosis to all deaths has been tending, for many years, to fall. In the quinquennium 1906-1910 the ratio was over 20 per cent. It has fallen steadily from that time. The ratio for the past five years is shewn in the following table :—

Age Groups	Ratio of Deaths from Tuberculosis to all Deaths (expressed as percentages).				
	1945	1946	1947	1948	1949
0 /1	1.9	1.8	1.2	1.1	3.8
1 /5	34.7	20.8	22.7	34.7	19.2
5 /15	46.1	52.9	41.1	15.3	40.0
15 /25	54.3	44.8	74.2	59.2	61.1
25 /35	62.5	36.1	60.4	64.7	46.6
35 /45	30.0	32.8	40.5	30.5	21.9
45 /55	14.1	21.2	20.5	19.2	22.3
55 /65	4.9	6.6	17.7	11.2	5.7
65 and over	2.4	2.4	19	1.5	2.3
Totals	10.4	9.7	11.5	9.7	7.9

In 1893 the number of recorded deaths from *pulmonary* tuberculosis was 17 per cent. of the total deaths and excepting the year 1904 when the ratio rose to 21.4 per cent., it fell more or less steadily to minima of 6.8 per cent. in 1937 and 6.9 per cent. in 1941. Apart from the year 1893, there were three occasions on which the ratio either reached or slightly exceeded 17 per cent. These were the years 1905-07 inclusive. During 1938-40 the ratio was slightly over 8 per cent. and again in the war years from 1942 to 1944. When computing this ratio in the case of deaths from *all forms* of tuberculosis a picture was produced which differs only in detail from that of the *pulmonary* form of the disease. As mentioned above combined figures are available only from 1906 and in that year the highest ratio (25.3 per cent. was recorded) the lowest ratio (8.55 per cent.) was attained in 1937 and 1941. When one considers the fact that in the first decade of this century no less than a quarter of all the deaths were due to tuberculosis and that they now represent some 10 per cent. one is impressed by the important part played in the reduction of the general death-rate by reduced deaths from tuberculosis.

The findings presented in these two tables represent the proportion of all deaths occurring which are due to tuberculosis, but they do not tell us the exact risk to which each age-group is exposed. Much, of course, depends on the number of persons in each group and it remains but to work out the actual death-rate in the individual groups by comparing the number of deaths with the number of persons in each group. This was first done in the 1945 report, the various rates being computed in the population in the different age-groups as set out in the Register of Population,

1941. The figures for the 1946 Census were not available before the current year and so could not be utilized for comparative purposes before this. The following table was compiled from the age and sex grouping set out in the Census Report for 1946 and shows the death-rate from tuberculosis in the various groups.

Table 33.—Deaths from Tuberculosis (all forms) divided into age and sex groups with the rates per 1,000 in each group, for the year 1949 :—

	MALES			FEMALES			PERSONS		
Age Group	Number in Group	Deaths	Rate per 1,000	Number in Group	Deaths	Rate per 1,000	Number in Group	Deaths	Rate per 1,000
0/1	903	2	2.21	786	3	3.82	1689	5	2.96
1/5	2830	1	0.35	2778	4	1.44	5608	5	0.88
5/15	6993	1	0.14	7025	7	1.00	14.081	8	0.57
15/25	6168	4	0.65	7095	7	1.00	13.263	11	0.83
25/35	4550	4	0.88	6279	10	1.59	10.829	14	1.29
35/45	3156	5	1.58	5208	4	0.77	9364	9	1.96
45/55	3397	11	3.24	4972	8	1.61	7761	19	2.45
55/65	2740	4	1.46	3618	5	1.38	6358	9	1.41
65 and over	2803	2	0.70	4902	1	0.20	6709	3	0.45
Totals	34,535	34	0.98	41,060	49	1.12	75.595	83	1.09

In table 34 the death-rates (exclusive of sex) are set out for each age group for each year from 1943 to 1949 inclusive.

Table 34.—Deaths from tuberculosis (all forms)expressed as rates per 1,000 in each of the age-groups represented. From 1943 to 1945 (inclusive) the figures are based on the Register of Population 1941, and from 1946 to 1949, on the Census of Population, 1946.

Age Group	1943	1944	1945	1946	1947	1948	1949	Average Figure
0–1	1.92	3.25	1.95	1.18	1.18	0.59	2.95	1.86
1–5	1.67	1.84	1.34	0.89	0.89	1.60	0.89	1.30
5–15	0.35	0.42	0.84	0.64	0.50	0.07	0.56	0.48
15–25	1.76	1.83	1.39	0.98	1.96	1.96	0.83	1.53
25–35	2.26	2.61	2.17	1.20	2.40	2.03	1.29	1.99
35–45	2.42	2.62	1.57	2.39	3.11	2.18	0.93	2.17
45–55	2.23	2.23	1.84	2.58	2.96	2.45	2.45	2.39
55–65	2.26	2.57	1.36	1.89	2.52	0.94	1.41	1.85
65–over	1.03	1.32	1.59	0.89	1.49	0.60	1.78	1.24
All ages	1.69	1.88	1.50	1.34	1.95	1.15	1.10	1.52

These figures were computed by taking the number of deaths in each group and comparing them with the total number of persons in that group and calculating at rates per 1,000.

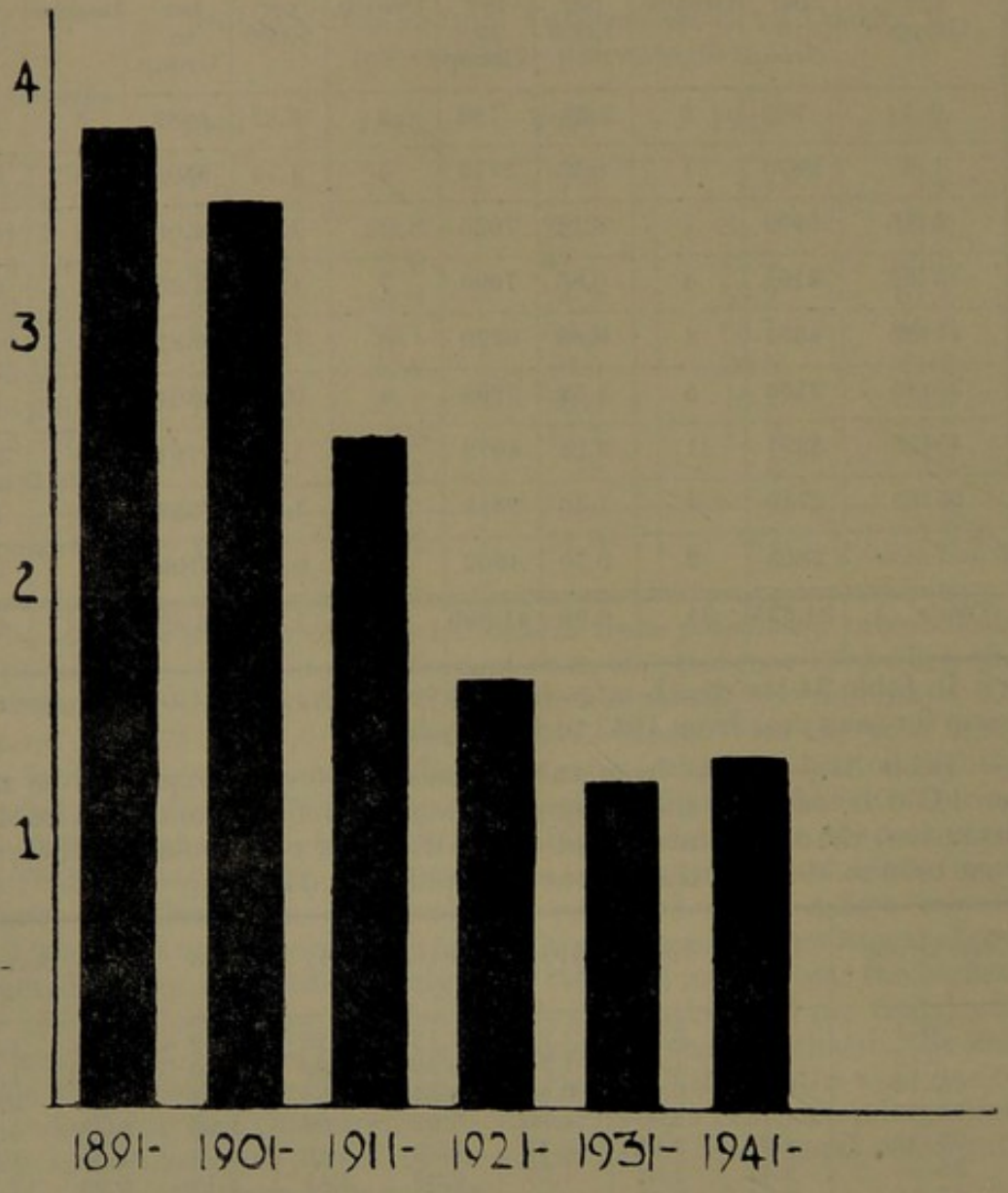


FIG. VI—PULMONARY TUBERCULOSIS. DEATH RATES EXPRESSED AS DECENNIAL AVERAGES.

TUBERCULIN SURVEY.

The Cork Branch of the Irish Red Cross Society undertook a survey of the City Schools in order to ascertain the status of the children in regard to the tuberculin test. The findings of this enquiry were duly reported in the *Irish Journal of Medical Science*, April, 1947, in which appeared a full account of the method employed and the results obtained. A resume of the article was published in this Report for last year. The following table is preserved for record purposes. The figures are of some considerable interest.

Table 35.—Cork City. Results of Tuberculin Test—1944-46.

Age Group	Number Tested	Positive	Negative	Proportion Positive
0 - 4 years	35	11	24	31.4 per cent
4 - 5 ,, ...	201	77	124	38.3 ,,
5 - 6 ,, ...	481	213	268	44.3 ,,
6 - 7 ,, ...	737	398	339	54.0 ,,
7 - 8 ,, ...	819	507	312	61.9 ,,
8 - 9 ,, ...	918	601	317	65.5 ,,
9 - 10 ,, ...	823	549	274	66.7 ,,
10 - 11 ,, ...	863	609	254	70.6 ,,
11 - 12 ,, ...	822	627	195	76.3 ,,
12 - 13 ,, ...	743	575	168	77.4 ,,
13 - 14 ,, ...	625	507	118	81.1 ,,
14 - 15 ,, ...	201	164	37	81.6 ,,
15 - 16 ,, ...	44	38	6	86.4 ,,
16 - 17 ,, ...	8	7	1	87.5 ,,
Totals	7,320	4,883	2,437	66.7 ,,

By themselves the figures are not so valuable, they indicate the proportion of our children who have been exposed to infection. It remains to be seen whether this proportion is unduly high in comparison with other areas because, if so, it would clearly shew that the incidence of the disease itself was also unduly high. In the following table such a comparison is made.

Year	City	Number Tested	Proportion Positive
1944-46	Cork	7320	66.7 per cent.
1926	Philadelphia	2678	61.0 ,,
1930-31	London	1003	40.8 ,,
1930-32	New York	8045	19.2 ,,
1925-26	S. Francisco	3500	24.6 ,,
1930-31	Chicago	1000	14.4 ,,

Figures, other than those for Cork, are from *Pulmonary Tuberculosis* (Kayne, Pagel and O'Shaughnessy, 1939, p.530).

The figures cited indicate a definitely high proportion of positive reactors in this area, from which we must infer a correspondingly high proportion of open cases of tuberculosis. It may also be inferred that practically all, if not actually all, of these actively infecting cases are suffering from the pulmonary form of the disease. We have no comparable figures to indicate our position in relation to other urban areas in this country. Such information would be valuable. It would show, for example whether Cork presents certain features in regard to tuberculosis different from the remainder of the country and whether special efforts should be made here to deal with them.

Table 36.—Tuberculosis (all forms). Comparative Statement of annual death rates.

Year	Éire	Cork	Dublin	Limerick	Waterford
1936	1.17	1.29	1.59	1.40	1.57
1937	1.23	1.48	1.59	1.49	1.57
1938	1.09	1.38	1.47	1.10	1.32
1939	1.13	1.23	1.48	1.27	1.25
1940	1.25	1.54	1.63	2.05	1.43
1941	1.24	1.38	1.56	1.58	1.40
1942	1.47	1.57	1.90	2.12	1.65
1943	1.46	1.69	1.84	1.95	1.86
1944	1.34	1.92	1.60	2.10	1.40
1945	1.20	1.52	1.60	1.80	1.80
1946	1.10	1.34	1.50	2.00	1.80
1947	1.20	1.95	1.60	1.80	1.80
1948	1.0*	1.15	1.30*	1.10*	1.60*
1949	0.9*	1.10	1.00*	1.50*	0.80*

*These figures are taken from the Annual *Summary* of the Registrar General and are subject to correction.

NOTIFICATIONS.

The number of notifications received during the year was 163. Prior to 1930 such notifications were for the period from the 1st April to 31st March following. Notifications for previous years were as follows :

1925–26	110	1937	166
1926–27	108	1938	147
1927–28	73	1939	128
1928–29	116	1940	114
1929–30	179	1941	173
1930 (April–Dec.) ...	133	1942	159
1931	196	1943	173
1932	136	1944	161
1933	164	1945	169
1934	112	1946	183
1935	154	1947	183
1936	154	1948	174
		1949	163

In the following table notifications, from the year 1930, have been analysed as to age and sex distribution.

Table 37.—Notifications of Tuberculosis distributed according to Sex and Age.

Year	Total	Sex	All Ages	Under 5 yrs	5–15	15–45	45–60	60 and up
1930	133	M	77	4	11	50	11	1
		F	56	5	11	37	2	1
1931	196	M	114	9	24	64	15	2
		F	82	7	19	53	3	—
1932	136	M	71	5	11	42	11	2
		F	65	1	6	48	7	3
1933	159	M	89	5	10	59	14	1
		F	70	5	8	48	8	1
1934	112	M	43	1	6	26	9	1
		F	69	4	10	41	9	5
1935	154	M	83	7	14	43	14	5
		F	71	5	15	40	7	4
1936	154	M	76	9	10	33	16	8
		F	78	3	12	55	6	2
1937	166	M	91	5	10	47	25	4
		F	75	2	10	52	5	6
1938	147	M	78	4	6	52	15	1
		F	69	4	10	49	5	1
1939	128	M	60	5	9	33	10	3
		F	68	3	3	54	6	2
1940	114	M	56	1	6	35	14	—
		F	58	5	4	41	6	2
1941	173	M	90	8	13	48	19	2
		F	83	8	14	51	7	3
1942	159	M	80	8	13	43	16	—
		F	79	3	18	48	6	4
1943	173	M	83	1	14	45	14	9
		F	90	1	10	66	10	3
1944	161	M	76	2	10	83	16	10
		F	85	6	18	50	3	8
1945	169	M	78	6	15	38	16	3
		F	91	7	14	56	6	8
1946	183	M	89	3	18	46	13	9
		F	94	5	11	71	6	1
1947	183	M	87	8	16	39	18	6
		F	96	7	13	60	13	3
1948	174	M	86	2	13	54	14	3
		F	88	9	14	57	4	4
1949		M	98	9	18	57	7	7
	163	F	65	4	16	37	6	2

SPUTUM EXAMINATIONS.

Examination of specimens of sputum is carried out in the laboratory attached to the Tuberculosis Clinic. 380 such specimens were examined during the past year, of which 114 were found to contain tubercle bacilli

while 266 were negative. Of the 380 specimens examined 59 were submitted by medical practitioners. The following table shows the number of specimens examined, and the results obtained since 1931.

Year	Total	Positive	Negative
1931	375	90	285
1932	440	94	346
1933	502	118	384
1934	519	121	398
1935	512	94	418
1936	467	93	374
1937	511	73	438
1938	336	49	287
1939	228	51	177
1940	336	88	248
1941	276	68	208
1942	295	81	214
1943	277	61	216
1944	325	67	258
1945	321	87	234
1946	325	116	209
1947	435	121	314
1948	392	106	286
1949	380	114	266
Totals ...	7252	1722	5560

Where tubercle bacilli exist in very small numbers the usual direct examination of specimens may not be sufficient to demonstrate their presence and a more elaborate technique becomes necessary. This technique consists of digestion of the specimen (with caustic soda) in an incubator at body temperature, centrifugalisation, neutralisation of the deposit and culture on a selective growth medium. The medium we are using at present is Lowenstein's. A typical culture appears in three to four weeks. Cultural methods, with other lines of investigation, are demanded when we wish to find out that arrest of disease has taken place and this method along with animal inoculation must be regarded as the supreme test of active tuberculous infection. All the examinations recorded in the above table were examined by the ordinary routine Ziehl-Nielson staining method. The newer method of examining for tubercle bacilli was used by us for the first time in 1945. 94 *specimens were dealt with during the past year of which* 16 *were positive.*

Table 38.—Numbers and Results of *Cultural Examinations* of Sputum.

Year	Number	Positive	Negative
1945	30	3	27
1946	53	14	39
1947	32	2	30
1948	30	4	26
1949	94	16	78

CLASSIFICATION OF NEW CASES.

As in former years the new cases dealt with at the Tuberculosis Dispensary who presented signs of advanced disease was disproportionately high. 40 per cent. of such were found to be in Stage III. and 46 per cent. in Stage II. ; in other words, no less than 86 per cent. of the new cases were suffering from definitely established disease recognisable by ordinary clinical methods. These figures are similar to those of former years and must be regarded with considerable dissatisfaction, as little or nothing can be done in regard to the treatment of such advanced cases apart from palliative methods. The main factor in the production of this state of affairs appears to be the failure of patients to seek treatment sufficiently early.

At a conference of Tuberculosis officers held in Dublin in November 1944, a new method of classification was adopted according to which cases were graded, in the first instance, into those in which tubercle bacilli could not be detected in the sputum and those who had positive sputum. The latter are further subdivided into grades corresponding to those previously recognised. According to the new classification the stages found on the examination of new cases were as follows :—

	1949	1948	1947	1946	1945	1944	
Sputum Negative ...	7	8	7	10	13	20	%
Sputum Positive—Stage I.	7	15	12	3	4	4	,,
,, ,, Stage II.	46	74	40	40	34	12	,,
,, ,, Stage III.	40	30	41	47	49	64	,,

The fact that 7% of the new cases were classified as sputum negative does not necessarily mean that all these were good cases for treatment or that the disease was of little extent. While specimens from some were examined and found negative others had no sputum for investigation. Treatment is not withheld from patients who come under this category for the diagnosis can usually be clearly established by other methods of approach. The examination of the sputum remains, however, the most valuable aid we possess in the diagnosis of the disease, the estimation of risks to which contacts are exposed and the assessment of progress of the patient.

The cases reported as sputum negative were made up of :—

(a) Cases of tuberculous pleural effusion.

(b) Cases who came on transfer under our scheme after treatment elsewhere.

(c) Cases who had X-Ray evidence of infiltration in which there was doubt whether complete arrest had taken place, and

(d) Cases of advanced disease of a miliary type.

In all these categories but the last the probable behaviour of the disease is regarded at the outset as favourable. (a) Tuberculous pleural effusion needs the rigorous care that all cases of pulmonary tuberculosis require. (b) Cases who come under treatment to us with a negative sputum and a history of treatment elsewhere are regarded as quiescent and if treatment is persevered in there is every prospect of final arrest of the disease. These cases have shewn a favourable response to treatment and immunity to the disease is becoming established. (c) The

third category requires careful review. They represent the type of case that may be uncovered by the mass radiological survey of healthy groups and it is the business of the tuberculosis officer to decide whether these cases are active or not. (d) The miliary group represents a condition of widespread disease in the body. The lungs are involved with other organs in a blood borne dissemination which arises as a result of an escape of a lethal dose of bacilli into the blood stream. These cases may die of intense toxaemia before the lung lesions break down to excrete the organisms.

The following table, which is introduced for comparative purposes, gives the corresponding proportions for previous years.

Table 39.—Showing the proportion of early, moderately advanced and advanced cases attending the Tuberculosis Clinic for the first time (1930 to 1943).

TYPE	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943
Stage I. (Early)	15%	8%	9%	6%	14%	13%	6%	9%	5%	8%	6%	3%	4%	9%
Stage II. (Moderately Advanced	36%	50%	38%	39%	28%	30%	43%	38%	33%	32%	44%	46%	34%	44%
Stage III. (Advanced)	49%	42%	53%	55%	58%	57%	51%	53%	62%	60%	50%	51%	62%	47%

COLLAPSE THERAPY.

Seven new cases received Artificial Pneumothorax. These cases had their inductions carried out at Heatherside Sanatorium by the Resident Medical Officer.

Eleven cases are having refills and management at the Tuberculosis Clinic.

The number of cases treated during the year was 14. 260 refills were given.

X-RAY EXAMINATION

All the cases that come for chest examination are screened. 168 films for cases attending the dispensary were obtained on the recommendation of the tuberculosis officer.

Screen examinations of the lungs are made :—

(1) To define the extent of lung involvement by disease.

(2) To observe the progress of cases undergoing artificial pneumothorax treatment.

(3) To help in the examination of those who have been in contact with tuberculosis patients.

The number of screen examinations made during the year was 956.

Year	X-ray Examinations	Screen Examinations
1943	88	253
1944	71	643
1945	92	952
1946	98	881
1947	74	931
1948	89	888
1949	268	956

The average number of X-ray examinations carried-out each year from 1930 to 1942 was 98.

ADMINISTRATION.

The routine administrative work of the Tuberculosis Dispensary is summarised in the following paragraphs.

The number of new patients examined at the Tuberculosis Dispensary during the year amounted to 478, of whom 257 were adults and 221 children. 116 of the adults and 69 of the children were found to be suffering from tuberculosis in one form or another and appropriate treatment was afforded.

INSTITUTIONAL TREATMENT.

In the tables which follow statistical details are given of the various institutions which have been utilised for the treatment of our cases during the past year. Early and moderately early cases of pulmonary disease have, almost all, been referred to the Cork Sanatorium at Heatherside.

The Risk of Over-confidence in B.C.G.

It is my experience that little difficulty is being encountered in persuading tuberculosis parents to avail themselves of vaccination for their children, rather is the difficulty going to be to cope with the demand. I do, however, foresee one great danger, namely that a state of over-confidence in the efficacy of B.C.G. may arise, with a corresponding slackening in the carrying out of precautionary measures. It is likely that the immunity acquired as a result of natural infection is at least as good as that acquired by vaccination, and we all know that the immunity resulting from natural infection does not guarantee against the subsequent development of tuberculosis disease. Let us beware, therefore, lest our patients should come to think that B.C.G. vaccination for their children is for them an easy alternative to the unremitting discipline of precautionary measures, and that a positive skin reaction is a passport to a tuberculosis-free life.—R. L. MIDGLEY, M.D., M.R.C.P., "Public Health," May, 1950.

Table 40.—Particulars of Institutional Treatment afforded during the Year.

	Under treatment 1st Jan., 1949	New Cases Admitted during 1949	Discharged during 1948	Under treatment 31st Dec., 1949	Number of cases treated during year
SANATORIUM					
Males	21	49	29	41	70
Females	26	40	24	42	66
TOTAL	47	89	53	83	136
ST. PATRICK'S HOSPITAL					
Males	12	11	10	13	23
Females	13	6	8	8	16
Children	2	2	2	2	4
TOTAL	27	19	20	23	43
ST. JOSEPH'S HOSPT.					
Males	11	11	8	14	22
Females	8	5	4	9	13
Children	1	—	1	—	1
TOTAL	20	16	13	23	36
DISTRICT HOSPITAL					
Males	13	7	10	10	20
Females	4	3	2	5	7
Children	2	—	2	—	2
TOTAL	19	10	14	15	29
NORTH INFIRMARY					
Males	1	—	—	—	—
Females	—	—	—	—	—
Children	—	1	—	1	1
TOTAL	1	1	—	1	1
SOUTH INFIRMARY					
Males	1	10	11	—	11
Females	—	3	2	1	3
Children	3	21	22	2	24
TOTAL	4	34	35	3	38
MERCY HOSPITAL					
Children	—	1	1	—	1
VICTORIA HOSPT.					
Children	3	15	13	5	18
ST. MARY'S, CAPPAGH					
Children	4	2	2	4	6
ST. JOSEPH'S, COOLE					
Children	5	—	3	2	5
ST. RAPHAEL'S PREVENTORIUM					
Children	01	8	9	9	18

Table 41.—Return of number of patients treated under the Tuberculosis Scheme, during the year ended 31st December, 1949.

	Pulmonary Tuberculosis			Non-Pulmonary Tuberculosis			Total
	Children under 15 years	Other Persons		Childern under 15 years	Other Persons		
		Males	Females		Males	Females	
(i) No remaining under treatment (a) On 1st Jan., 1949 ...	14*	107	106	21	8	11	267
(b) on 31st Dec., 1949 ...	12†	92	86	19	4	10	223
(ii) No. of new patients treated during year ...	32‡	83	54	32	6	8	218
(iii) No of cases under observation at close of year 1949 ...	—	3	7	—	—	—	10

*Including 9 cases of primary tuberculosis.

†Including 10 cases of primary tuberculosis.

‡Including 31 cases of primary tuberculosis.

PROVISION OF EXTRA NOURISHMENT, CLOTHING, Etc.

In a Departmental letter (P.H. circular 53/43) dated 31st March, 1943, the principal provisions of which are outlined below, the Minister approved for recoupment from the National Tuberculosis Grant of :—

(a) Free allowance of extra nourishment in the form of eggs, butter and milk to patients while they are awaiting admission to institutions or following discharge after an approved term of institutional treatment. Allowance per patient not to exceed : 3½ pints of milk, ½-lb. of butter, 7 eggs per week.

(b) A separate bed and, where necessary, bedding for infective patients receiving domicilary or dispensary treatment. Expenditure by the L.A. should not exceed £4 in any one case (this amount was subsequently raised to £15).

(c) In the case of necessitous patients undergoing treatment in institutions, suitable clothing if such be necessary to derive the full benefit of treatment.

In table 42 are set out the number of persons who have benefitted under this scheme and the amount of money which has been expended in connection with it.

Table 42.—Provision of Extra Nourishment, Clothing, etc., in connection with the national tuberculosis grant. Particulars of persons benefitting and amount of money expended in connection with same.

Year	EXTRA NOURISHMENT		CLOTHING		BEDS AND BEDDING		TOTAL	
	Persons	Cost	Persons	Cost	Persons	Cost	Persons	Cost
		£ s. d.		£ s. d.		£ s. d.		£ s. d.
1944	67	367 17 0	73	282 13 8	6	65 12 6	146	716 3 2
1945	150	577 7 4	104	481 7 11	18	75 19 6	272	1134 14 9
1946	102	560 6 5	140	441 19 9	17	206 19 10	259	1209 6 0
1947	111	597 11 1	127	421 12 7	17	148 12 7	255	1167 16 3
1948	129	747 5 2	120	594 0 1	13	45 7 9	262	1386 13 0
1949	160	873 10 0	153	1011 9 3	14	31 6 9	327	1916 6 0
Tls.	719	3723 17 0	717	3233 3 3	85	573 18 11	1521	7530 19 2

INFECTIOUS DISEASES (MAINTENANCE) REGULATIONS, 1948.

This enactment came into force on 1st March, 1948 and from that date to 31st December following the number of beneficiaries was 174 and the amount granted was £5,456 0s. 0d. During 1949 the number of such beneficiaries was 190 and grants paid over to them amounted to the sum of £10,155 6s. 3d.

. . as knowledge increases, concepts of disease become more complex rather than simpiler. Every diagnostic test and every therapeutic measure exhibits both in its technica lcomplexity and in its field of application the property not of expansion merely but of expansion with perpetual acceleration towards infinity. It is abundantly clear that we are rapidly approaching the time when humanitarian demands can be satisfied only by inroads upon our resources in money and man-power prejudicial to our standard of living, when the claims of physical health will conflict with the claims of economic health, when 'cost of living' will acquire a new and ominous meaning."—Dr. Ffrang con Roberts, " The Spectator," March 10 p.298. From The Lancet, 1/4/'50.

Section IV.

Maternity and Child Welfare.

(A) INFANT MORTALITY.

The number of deaths of children under one year of age amounted to 131. This is equivalent to an infant mortality rate of 68 per 1,000. The figures for last year were 87 and 47 per 1,000 respectively. The corresponding figure for the whole country (Registrar-General's Annual *Summary*—subject to correction) was 51. The principal contributory factors were as follows :—

Premature birth and congenital debility	49
Diarrhoea and Enteritis	40
Broncho-pneumonia	8
Convulsions	5
Marasmus	5
Meningitis (Tuberculosis)	4
Whooping Cough	2
Measles	2

In tables 12 and 43 we have a chronological record of infant mortality as it has affected this locality and we note the remarkable change which has taken place in the period of 69 years covered by these tables. The rate fell from 87 in 1947 to 47 in 1948. As was anticipated in last year's report, this drop was too great to lead one to expect that it could be maintained and so we note the rebound to 68 for the current year. Apart from prematurity and congenital weakness of the newborn (which increased from 37 to 49) the principal increase in infant deaths came under the heading of diarrhoea and enteritis. Here the deaths jumped from 19 to 40. *All these deaths occurred among infants who were artificially fed* so that we are once again faced with the fact that this is the principal causitive factor in infant mortality. Of the 247 deaths recorded from gastro-enteritis since 1943 in only three instances were the affected infants breast-fed.

Table 43.—Infant Mortality, Cork City, Éire, and England and Wales from 1891.

Year	Cork	Éire	E.& W.	Year	Cork	Eire	E. & W.É
1881	124	89.4		1915	132	85.2	110
1882	127	94.9	139	1916	105	81.3	91
1883	109	95.0		1917	108	84.0	96
1884	110	91.9		1918	118	80.2	97
1885	120	91.3		1919	100	84.4	89
1886	110	93.9	145	1920	79	77.5	80
1887	123	93.6		1921	76	72.6	83
1888	139	96.0	136				
1889	125	92.0	144	1922	93	68.9	77
1890	106	91.6	151	1923	66	66.4	69
				1924	87	71.6	75
1891	138	91.4	149	1925	74	67.9	75
1892	150	99.9	148	1926	130	74.4	70
1893	132	99.8	159	1927	87	70.8	70
1894	150	97.4	137	1928	76	67.9	65
1895	131	98.0	161	1929	81	70.4	74
1896	106	91.0	148	1930	77	68	60
1897	152	104.0	156	1931	71	69	66
1898	131	105.2	160				
1899	133	103.2	163	1932	89	71	65
1900	120	105.3	154	1933	89	65	64
				1934	72	63	59
1901	139	95.5	151	1935	84	67	57
1902	127	95.2	133	1936	80	74	59
1903	112	92.2	132	1937	103	73	58
1904	118	95.8	145	1938	75	66	53
1905	131	90.2	128	1939	73	65	50
1906	133	88.0	132	1940	92	66	56
1907	139	88.5	118	1941	85	73	59
1908	134	91.2	120				
1909	125	87.3	109	1942	100	68	49
1910	96	89.1	105	1943	113	83	49
				1944	108	79	46
1911	139	91.3	130	1945	89	71	46
1912	107	82.1	95	1946	62	63	43
1913	136	93.1	108	1947	87	68	41
1914	119	81.0	105	1948	47	49	33.9
				1949	68	51	

Table 44.—Infant mortality in Cork and other Irish Cities from 1920.

Year	Cork	Dublin*	Belfast†	Limerick*	Waterford*
1920	79	152	132	109	96
1921	76	143	115	113	102
1922	93	120	94	108	94
1923	66	117	101	128	78
1924	87	119	107	90	93
1925	74	117	104	91	106
1926	130	127	112	146	114
1927	87	123	101	102	83
1928	76	102	103	117	105
1929	81	106	112	118	110
1930	77	97	78	114	91
1931	71	94	90	120	92
1932	89	100	111	91	132
1933	89	83	102	126	103
1934	72	80	80	76	92
1935	84	94	112	106	126
1936	80	114	102	95	90
1937	102	102	94	68	97
1938	75	96	96	70	99
1939	73	90	86	59	73
1940	95	91	122	70	111
1941	85	118	91	95	88
1942	100	98	90	77	91
1943	113	126	111	76	100
1944	108	125	89	136	84
1945	89	111	84	88	74
1946	62	96	61	75	67
1947	87	85	60	90	77
1948	47	48	45	80	66
1949	68	95	55	75	60

* Figures for current year obtained from *Annual Summary* of Registrar-General. Those for previous years have been corrected from figures in the *Annual Reports* of the Registrar-General for the appropriate years.

† Figures obtained from Superintendent Medical Officer of Health.

Neo-natal Mortality. The role of neo-natal mortality (i.e., deaths of infants under one month old) in the production of infant mortality is shewn in the following table.

Table 45.—Deaths of infants *under one month* in Cork City and the ratio of same to the total number of infant deaths (i.e., under one year), together with the comparative figures for the whole country.

Year	Cork City		Éire. Relation of deaths under one month to all infant deaths
	Deaths under one month	Proportion to all infant deaths	
1931	41	30.1 per cent	38.4 per cent.
1932	47	29.6 ,, ,,	35.9 ,, ,,
1933	56	33.3 ,, ,,	39.7 ,, ,,
1934	43	29.9 ,, ,,	38.7 ,, ,,
1935	39	26.2 ,, ,,	39.9 ,, ,,
1936	56	36.8 ,, ,,	40.5 ,, ,,
1937	58	31.4 ,, ,,	41.7 ,, ,,
1938	34	27.2 ,, ,,	42.4 ,, ,,
1939	47	39.8 ,, ,,	44.1 ,, ,,
1940	45	29.4 ,, ,,	42.0 ,, ,,
1941	52	30.9 ,, ,,	41.2 ,, ,,
1942	52	32.9 ,, ,,	39.5 ,, ,,
1943	91	46.4 ,, ,,	40.2 ,, ,,
1944	58	31.0 ,, ,,	41.9 ,, ,,
1945	61	39.3 ,, ,,	44.5 ,, ,,
1946	59	54.1 ,, ,,	45.5 ,, ,,
1947	68	42.5 ,, ,,	43.2 ,, ,,
1948	35	40.2 ,, ,,	46.1 ,, ,,
1949	55	42.0 ,, ,,	

Table 46.—Cork City—Deaths of Infants under one year from conditions which constitute the principal causes of Infant Mortality.

Year	Number of Births Registered	DEATHS OF INFANTS UNDER ONE YEAR FROM															
		Congenital Debility	Rate per 1000 Births	Prematurity	Rate per 1000 Births	Congenital Malformations	Rate per 1000 Births	Diarrhoea and Enteritis	Rate per 1000 Births	Pneumonia*	Rate per 1000 Births	Convulsions	Rate per 1000 Births	Bronchitis	Rate per 1000 Births	Whooping Cough	Rate per 1000 Births
1931	1,963	18	9.1	20	10.2	9	4.5	28	14.2	8	4.1	16	8.1	5	2.5	3	1.5
1932	1,820	28	15.4	13	7.1	6	3.3	39	21.4	13	7.1	19	10.4	8	4.4	8	4.4
1933	1,884	19	10.1	27	14.3	7	3.7	38	20.1	17	9.0	13	6.9	13	6.9	2	1.0
1934	1,846	17	9.2	24	13.0	6	3.2	32	17.3	12	6.5	9	4.8	8	4.3	8	4.3
1935	1,915	18	9.4	19	9.9	5	2.6	50	26.1	23	12.0	6	3.1	5	2.6	—	—
1936	1,913	12	6.2	28	14.6	5	2.6	36	18.8	27	14.1	10	5.2	6	3.1	—	—
1937	1,799	18	10.0	13	16.7	7	3.9	45	25.0	27	15.0	18	10.0	4	2.2	5	2.8
1938	1,761	13	7.4	19	10.8	7	3.9	31	17.6	21	11.9	9	5.1	3	1.7	3	1.7
1939	1,632	24	14.1	16	9.8	8	4.9	34	20.8	9	5.5	10	6.1	3	1.8	2	1.2
1940	1,670	17	10.2	25	14.9	4	2.4	45	26.9	15	8.9	8	4.8	5	2.9	—	—
1941	1,680	15	8.9	25	14.9	10	5.9	33	19.6	16	9.5	11	6.5	6	3.5	1	0.6
1942	1,842	14	7.6	18	9.7	17	9.2	49	26.6	16	8.7	10	5.4	5	3.2	1	0.5
1943	1,781	12	6.2	46	25.8	11	6.1	52	29.2	25	14.0	8	4.5	4	2.2	2	1.1
1944	1,721	5	2.9	29	16.8	9	5.2	63	36.0	28	16.2	7	4.0	3	1.7	13	7.5
1945	1,690	6	3.5	32	18.9	10	5.9	50	29.5	16	9.4	6	3.5	3	1.7	—	—
1946	1,756	8	4.5	37	21.0	4	2.4	17	9.6	8	4.5	6	3.4	3	1.7	—	—
1947	1,824	16	8.8	37	20.3	8	4.4	31	17.0	9	4.9	8	4.4	2	1.1	5	2.7
1948	1,785	8	4.4	18	10.0	10	5.6	19	10.6	11	6.1	4	2.3	—	—	3	1.6
1949	1,885	11	5.9	27	14.5	11	5.9	40	21.0	11	5.9	5	2.6	2	1.0	2	1.0

* Including broncho pneumonia.

Note :—Figures in this table are based on returns of the Registrar-General. They do not correspond to the figures in table 47 which have been readjusted by transfers as explained in text.

Table 47.—Deaths of infants under 1 year, shewn as neo-natal and other deaths.

Cause of Death	Neo-Natal	Others	Total
Prematurity ...	27	—	27
Congenital Debility ...	11	—	11
Congenital Malformations†	5	6	11
Diarrhoea and Enteritis ...	7	33	40
Broncho-pneumonia* ...	2	11	13
Marasmus	—	5	5
Tuberculosis ...	—	5	5
Convulsions	1	4	5
Whooping Cough ...	—	2	2
Measles ...	—	2	2
Meningitis ...	—	3	3
Miscellaneous ...	2	5	7
Totals	55	76	131

† Including congenital cardiac disease.

* Including pneumonia and bronchitis.

(Note—The figures in this table do not necessarily agree with the corresponding figures in table 12. This is due to the fact that, on investigation, transfers from one disease to another have been found to be necessary. Figures in table 12 are based entirely in District Registrar's returns of registered causes of death).

In previous reports I adverted to the findings of the Medical Research Council into the relationship between gastro-enteritis and artificial feeding and to the findings of one Dublin hospital which lead to the conclusion that *breast milk contains some active principle which prevents neo-natal infection.* This conclusion has been amply confirmed in connection with the outbreaks of neo-natal diarrhoea which occurred in institutions. These outbreaks were almost entirely confined to bottle-fed babies. It will be remarked from the above table that the protection afforded by breast-feeding is not confined to gastro-enteritis alone. It is markedly present in the case of broncho-pneumonia also. It will be noted that of 101 babies who died from this condition in no less than 85 instances the victims were bottle-fed. The problem resolves itself into the question why mothers cannot or will not nurse their babies. We see, the efore, the importance of an educational campaign to foster the adoption of natural methods of feeding on a much wider scale. Such a campaign should by no means be confined to the mothers themselves. There is only too good reason to conclude that many medical practitioners and nurses do not realise the fundamental importance of this question.

Table 48.—**Éire.** Principal causes of Infant Deaths (ratio per 1,000 Births). The corresponding figures for Cork City are shewn in Table 46.

Year	Congenital Debility	Prematurity	Diarrhoea and enteritis	Pneumonia	Convulsions	Congenital Malformations	Bronchitis	Whooping Cough
1931	16.00	8.58	8.27	7.72	6.78	3.38	3.17	1.16
1932	16.46	8.53	9.33	8.44	6.54	3.40	3.96	2.60
1933	14.38	9.59	8.92	6.99	5.61	3.59	2.79	2.54
1934	13.78	8.05	7.50	6.72	5.41	3.54	3.26	2.97
1935	14.19	9.76	10.65	8.08	4.50	3.90	3.40	1.05
1936	14.44	11.31	10.38	8.96	5.32	4.44	2.96	2.20
1937	13.65	12.16	9.95	8.34	4.99	4.39	2.92	2.46
1938	12.79	10.96	9.12	8.43	4.43	4.38	2.71	1.74
1939	12.68	11.02	9.33	7.67	4.48	4.82	2.35	1.37
1940	13.25	10.67	9.67	7.70	3.55	4.59	2.62	1.77
1941	14.14	11.57	14.18	7.93	4.23	5.57	2.34	1.46
1942	13.66	9.24	14.32	7.11	4.05	5.13	2.51	1.18
1943	15.20	11.58	18.26	8.91	3.99	5.85	2.93	2.87
1944	14.55	11.72	15.82	8.60	4.40	5.30	2.16	2.19
1945	10.89	11.32	15.58	8.44	3.53	5.31	1.62	1.36
1946	9.57	11.80	13.11	7.54	2.61	5.20	1.19	0.96
1947	11.38	11.83	10.34	8.61	2.93	5.38	1.52	2.97

(B) NOTIFICATIONS OF BIRTHS.

The Acts bearing on this subject are the Notification of Birth Acts, 1907, which was adopted by the Corporation in September, 1922, and the Notification of Births (Extension) Act, 1915. These Acts place an obligation on certain individuals to notify to the Medical Officer of Health within thirty-six hours, births which have occurred in the area. The object of the Acts is to enable the Local Authority to afford advice and assistance to parents on the care and upbringing of children.

The general procedure in connection with the notification of births was outlined in my Report for the year 1942. The total number of such notifications received during the year amounted to 1,670. The number of *live* births *registered* during the same period, according to the Annual Summary of the Registrar-General was 1,885.

(C) MATERNAL MORTALITY.

There was 1 death under this heading during the year.

Table 49.—The number of deaths of women directly attributable to or associated with pregnancy or childbirth, together with the rate per 1,000births during each of these years, for the City of Cork. (Corrected for Births and Deaths in public institutions).

Year	Deaths from Puerperal Septic Diseases		Deaths from accidents of Pregnancy or Childbirth		Total Deaths from Puerperal Septic Diseases and accidents of Pregnancy or Childbirth		Deaths from causes associated with Pregnancy or Childbirth (not included in foregoing)		Total Deaths caused by, or associated with Pregnancy or Childbirth	
	No.	Rate per 1000 Births	No.	Rate per 1000 Births	No.	Rate per 1000 Births	No.	Rate per 1000 Births	No.	Rate per 1000 Births
1924	5	2.55	6	3.05	11	5.60	1	0.51	12	6.11
1925	5	2.54	5	2.54	10	5.08	1	0.51	11	5.59
1926	3	1.66	8	4.42	11	6.08	—	—	11	6.08
1927	5	2.74	6	3.28	11	6.02	—	—	11	6.02
1928	3	1.64	9	4.92	12	6.56	1	0.55	13	7.11
1929	—	—	4	2.24	4	2.24	—	—	4	2.24
1930	1	0.46	3	1.37	4	1.83	—	—	4	1.83
1931	1	0.52	7	3.63	8	4.10	—	—	8	4.10
1932	1	0.55	8	4.28	9	4.95	—	—	9	4.95
1933	1	0.54	8	4.32	9	4.85	1	0.54	10	5.40
1934	5	2.60	2	0.52	7	3.60	—	—	7	3.60
1935	1	0.51	5	2.56	6	3.08	—	—	6	3.08
1936	1	0.52	4	2.08	5	2.60	—	—	5	2.60
1937	—	—	—	—	—	—	—	—	—	—
1938	—	—	6	3.51	6	3.51	—	—	6	3.51
1939	1	0.58	3	1.75	4	2.3	—	—	4	2.30
1940	—	—	8	4.6	8	4.6	—	—	8	4.60
1941	—	—	5	2.9	5	2.9	—	—	5	2.91
1942	—	—	3	1.7	3	1.7	—	—	3	1.70
1943	1	0.56	2	1.12	3	1.6	—	—	3	1.61
1944	2	1.14	6	3.42	8	4.56	—	—	8	4.56
1945	—	—	4	2.36	4	2.36	—	—	4	2.36
1946	—	—	2	1.10	2	1.10	—	—	2	1.10
1947	—	—	1	0.50	—	—	—	—	1	0.50
1948	—	—	—	—	—	—	1	—	1	0.50
1949	—	—	—	—	—	—	1	—	1	0.50

Table 50.—Maternal Mortality in different areas.

Year	Whole Country		Cork City		City of Dublin		Belfast		Limerick County Borough		Waterford County Borough	
	No. of deaths	Rate per 1000 births	No. of deaths	Rate per 1000 births	No. of deaths	Rate per 1000 births	No. of deaths	Rate per 1000 births	No. of deaths	Rate per 1000 births	No. of deaths	Rate per 1000 births
1920	326	4.8	13	5.8	55	6.0	95	7.7	3	2.9	2	2.7
1921	336	5.5	8	4.0	53	6.5	53	4.7	1	1.0	3	5.1
1922	370	6.3	7	3.6	61	7.1	55	5.1	12	11.8	—	—
1923	328	5.3	4	1.9	46	5.5	58	5.3	16	5.6	3	4.9
1924	330	5.2	12	6.1	46	5.0	46	4.4	1	0.9	4	5.9
1925	312	5.0	11	5.6	42	4.9	29	2.8	3	2.8	4	6.4
1926	329	5.4	11	6.1	31	3.5	57	5.5	5	4.8	—	—
1927	291	4.8	11	6.0	23	2.8	36	3.7	5	4.8	3	4.7
1928	318	5.4	13	7.1	31	3.5	43	4.6	5	4.5	2	3.0
1929	283	4.9	4	2.2	30	3.4	43	4.8	7	6.2	1	1.6
1930	294	5.0	4	1.8	43	4.1	44	4.6	4	3.7	3	4.6
1931	272	4.7	8	4.1	29	2.1	54	5.7	4	3.5	3	4.5
1932	235	4.9	9	4.9	33	3.1	49	5.5	8	4.0	6	8.6
1933	255	4.4	10	5.4	22	2.1	42	5.2	7	7.1	2	2.8
1934	304	5.2	7	3.6	41	3.7	57	6.3	2	1.9	—	—
1935	272	4.6	6	3.0	38	3.3	54	6.0	6	5.5	4	4.0
1936	273	4.7	5	2.6	42	3.5	57	6.2	2	2.0	3	4.5
1937	204	3.3	—	—	33	2.8	56	6.1	3	2.9	4	5.8
1938	204	3.6	6	3.5	29	2.5	48	5.2	4	4.0	3	4.8
1939	150	2.7	4	2.3	23	2.0	—	4.4	1	1.0	1	1.6
1940	227	4.0	8	4.6	21	1.9	37	4.2	3	3.0	7	10.3
1941	209	3.7	5	2.9	21	1.8	31	3.6	3	3.0	1	1.6
1942	163	2.4	3	1.7	20	1.6	31	3.2	1	0.9	2	2.5
1943	162	2.5	3	1.6	15	1.2	32	2.9	1	0.9	—	—
1944	176	2.7	7	3.8	18	1.4	24	2.3	1	0.9	2	2.8
1945	159	2.4	4	2.4	17	1.3	18	1.8	4	3.5	1	1.4
1946	132	2.0	2	1.1	14	1.1	23	2.2	2	1.6	—	—
1947	130	1.8	1	0.5	12	0.9	13	1.2	7	5.4	—	—
1948	93	1.4	1	0.5	8	0.6	13	1.3	3	2.7	1	1.5
1949	106	1.6	1	0.5	14	1.1	8	0.8	1	1.0	—	—

The above figures were obtained from the *Annual Reports* of the Registrar-General with the exception of those for the year 1948 (which were taken from the *Annual Summary* for that year) and those for Belfast, from 1922 onwards, which were kindly supplied by the Superintendent Medical Officer of Health. All figures include deaths from sepsis arising from abortion and miscarriage.

(D) SUPERVISION OF MIDWIVES.

1. Number of Midwives in Practice :—	
Certificate of C.M.B.	60
Other recognised certificates	19
Total	79
2. Number of Midwives according to type of practice :—	
Attached to public institutions	9
Conducting only private maternity or nursing homes	10
Dealing with less than five cases per year ...	6
Monthly nurses	26
Others	28
Total	79
3. Number of visits of inspection of midwives	371
4. Disinfection of appliances	—
5. Reasons for summoning Medical help :—	
Abnormal presentation	4
Obstructed and delayed Labour	4
Post partum haemorrhage	1
Ante partum haemorrhage	—
Rise of Temperature	—
Ruptured perineum	—
Thrombosis	1
Retained (&c.) Placenta	1
Miscellaneous	5
6. Notifications of still births	33
7. Notifications of artificial feeding	111
8. Notifications of having laid-out dead bodies ...	—
9. Suspensions for twenty-four hours on account of contact with cases of infectious disease	—
10. Notifications of liability to be a source of infection ...	—
11. Notifications of deaths	86
12. Puerperal Pyrexia	—

It was unnecessary to undertake any legal proceedings against midwives during the year.

ARTIFICIAL FEEDING.

Cracked or inverted nipples	39
Health would not permit	26
Insufficient	13
Refusals (no cause assigned)	33
Illegitimate births	—
	111

The above figures refer to all notifications received during the year and include County cases treated in City Nursing Homes.

(E) WORK OF THE MATERNITY AND CHILD WELFARE SCHEME.

The following is a summary of the work carried out during the year by the staff of the Centre.

Attendances of children under one year :—	
(a) New Cases	2846
(b) Old Cases	4000
Attendances of Mothers with Children ...	8846
Cases seen by the Medical Officer :—	
(A) Under one year	
(1) New Cases	914
(2) Old Cases	880
(B) One to two years	
(1) New Cases	365
(2) Old Cases	549
(C) Two to five years	
(1) New Cases	216
(2) Old Cases	435
(D) Expectant Mothers	
(1) New Cases	582
(2) Old Cases	312
Ante-natal work—	
Number of cases dealt with ...	582
Number of attendances	894
Return of Health Visitors' work—	
(A) Under one year	
(1) Primary visits ...	1621
(2) Secondary visits ...	4157
(B) One to two years	
(1) Primary visits ...	1396
(2) Secondary visits ...	1526
(C) Two to five years	
(1) Primary visits ...	876
(2) Secondary visits ...	3120
(D) Expectant Mothers	
(1) Primary visits ...	912
(2) Secondary visits ...	679

The following cases were dealt with at the artificial sunlight clinic during the year :—

Debility	27
Rickets	19
Avitaminosis	7
Coeliac Disease	7
Slow Development	7
Anaemia	5
Malnutrition	3
Bronchitis	3
Tuberculous Adenitis	1
Number of cases treated	79
Number of Exposures	985

Section V.

School Medical Service.

The medical inspection of the following groups was carried out during the year :—

Entrants—Pupils born in 1943 and pupils born in 1941 and 1942 if not previously examined.

Second Age Group—Pupils born in 1940 and pupils born in 1937, 1938 or 1939 who had been absent for periodic examination or had not been examined previously.

Third Age Group—Pupils born in 1936 and pupils born in 1934 or 1935 who had been absent for periodic examination or had not been examined previously.

Other Inspections—Those pupils who, at the last periodic inspection, had been marked down for further observation or treatment, also those pupils examined at the request of Head Teachers, School Nurses, Parents, etc.

Number of Children Inspected.

I.	Periodic Inspections	.....	4510,
	Entrants	1,510	
	Second Age Group	1,790	
	Third Age Group	1210	
II.	Other Inspections	.....	3,392

Table 51—Return of Defects found by Medical Inspection for the Year ended 31st December, 1949.

Disease or Defect	Periodic Inspections	Other Inspections
	Number of Defects	Number of Defects
SKIN :		
Ringworm—Scalp	4	1
Ringworm—Body	4	2
Scabies	15	—
Impetigo	47	16
Other Diseases (Non-Tuberculous)	38	5
EYE :		
Defective Vision	316	484
Strabismus	187	197
Blepharitis	61	52
Conjunctivitis	68	79
Styes	21	23
Corneal Opacities	2	3
Other Conditions	42	40
EAR :		
Defective Hearing	36	11
Otorrhoea	59	63
Other Conditions	37	40
NOSE AND THROAT :		
Enlarged Tonsils and Adenoids	450	365
Other Conditions	17	58
HEART AND CIRCULATION :		
Heart—Organic	37	17
Heart—Functional	20	8
Anaemia	30	24
LUNGS :		
Bronchitis	65	32
Other Diseases (Non-Tuberculous)	10	8
NERVOUS SYSTEM :		
Chorea	1	3
Epilepsy	3	—
Other Conditions	—	—
TUBERCULOSIS :		
Pulmonary	—	—
Healed Primary Complex	1	—
Glands	7	3
Bones and Joints	—	—
DEFORMITIES :		
Surgical Tuberculosis	8	1
Congenital	17	6
Other Forms	35	20
HERNIA	12	5
OTHER DISEASES AND DEFECTS :	82	33
MISCELLANEOUS :		
Minor Injuries, etc.	20	4

Defective Nutrition.

Percentage of mal-nourished children 2.9

Uncleanliness.

Percentage of verminous children	.....	Boys and Girls	7.8
,, ,, ,, ,,	.....	Girls	12.9
,, ,, ,, ,,	.....	Boys	3.4

Table giving Percentage of Conditions of Uncleanliness

	Head Nits Present	Head Pediculi Present	Body Pediculi Present
Girls	11.6	1.4	0.7
Boys	1.2	1.0	1.5

Unsatisfactory Clothing and Footgear.

Boys and Girls	....	4.4%
Boys	....	4.1%
Girls	....	4.8%

Table 52—Proportion of principal Diseases and Defects found by periodic Medical Inspection

Disease or Defect		Percentage
Defective Nutrition		2.9
Verminous Conditions		3.4
Skin (Non-Tuberculous Disease)		2.4
Eye	Defective Vision requiring Refraction	16.4
	Other Diseases and Defects	4.3
Ear		2.9
Nose and Throat	Enlarged Tonsils and Adenoids	10.0
	Other Conditions	0.4
Heart and Circulation		1.9
Lungs (Non-Tuberculous Disease)		1.7
Tuberculosis		0.2
Nervous System		0.1
Deformities		1.3
Other Diseases and Defects		2.5

Table 53—Average Height and Weight of Children inspected and Comparison with the Average Standard. (**Baldwin and Woods Tables**)

BOYS

Age last B'day Years	No. of Chlidren examined	Average Height in ins.	Average Weight in lbs.	Average Standard Weights for for Height	Percentage over or under Weight according to Standard
5	233	42	42	39	7.7% over
6	350	42	43	39	10.3% over
7	49	45	49	45	8.9% over
8	372	49	55	55	——
9	471	50	59	58	1.7% over
12	206	55	76	74	2.7% over
13	295	57	82	82	——

GIRLS

Age last B'day Years	No. of Children examined	Average Height in ins.	Average Weight in lbs.	Average Standard Weight for Height	Percentage over or under Weight According to Standard
5	147	42	40	39	2.5% over
6	455	44	44	42	4.8% over
7	69	45	47	45	4.4% over
8	188	48	53	52	1.9% over
9	451	50	57	59	3.4% under
12	172	56	77	78	1.3% over
13	337	57	84	84	——

Table 54—Rheumatic Children found during medical inspection*

I. Periodic Inspections.

GIRLS

Age Group	Number examined	Number Rheumatic	Percentage Rheumatic	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7
Entrants	767	5	0.7	—	2	—	—	1	—	2
Second Age Group	790	16	2.0	—	3	3	1	5	3	1
Third Age Group	576	25	4.3	2	5	1	—	4	8	5
Total	2,133	46	2.2	2	10	4	1	10	11	8

BOYS

Age Group	Number examined	Number Rheumatic	Percentage Rheumatic	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7
Entrants	743	1	0.1	—	—	—	—	—	—	1
Second Age Group	1,000	5	0.5	—	2	—	—	1	—	2
Third Age Group	634	12	1.9	2	3	1	—	1	1	4
Total	2,377	18	0.8	2	5	1	—	2	1	7

BOYS AND GIRLS

Number examined	Number Rheumatic	Percentage Rheumatic	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7
4,510	64	1.4	4	15	5	1	12	12	15

* The classification used in the above tables is as follows :

Group 1.—Children without a history of acute rheumatism or chorea who present physical signs of a definite heart lesion (obvious valvular disease) which cannot be attributed to any cause other than rheumatism.

Group 2. Children with a history of acute rheumatism and with one or all of the following signs and symptoms :—

(a) Physical signs indicating carditis
(b) Suspicious nervous signs and symptoms
(c) Suspicious constitutional signs and symptoms
(d) A history of growing pains and sore throats.

Group 3. Children without a history of acute rheumatism, but with physical signs indicating carditis, especially if associated with " (b) ", " (c) " or " (d) ".

Group 4. Children with a history of chorea and with any of the above physical signs and symptoms.

Group 5. Children without a history of acute rheumatism or chorea, but with suspicious heart signs associated with " (b) ", " (c) " or " (d) ".

Group 6. Children as above, but without suspicious heart signs.

Group 7. Children with a history of acute rheumatism or chorea who do not present any suspicious signs and symptoms.

II. Special Inspections.

	Number examined	Number Rheumatic	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7
Boys and Girls	2731	89	3	28	2	7	25	12	12

The following signs were detected in children found to be suffering from rheumatism.

	Periodic Inspections		Other Inspections		Total	Per-centage
	Girls	Boys	Girls	Boys		
Endocarditis	8	5	12	5	30	19.6
Suspicious Heart Signs	9	3	21	5	38	24.8
Suspicious Nervous Signs and Symptoms	6	—	17	1	24	15.7
Growing Pains and Sore Throats	7	—	12	1	20	13.1
Growing Pains	19	4	16	6	45	29.4
Recurrent Sore Throats	1	1	6	2	10	6.5
Unhealthy and Enlarged Tonsils	5	2	7	2	16	10.5
Tonsils Removed	12	5	10	10	37	24.3
History of Acute Rheumatism	12	9	17	11	49	32.0
History of Chorea	1	1	5	2	9	5.9

TREATMENT OF DEFECTS.

The following figures do not include treatment of children who attend City Schools but who reside in the County and are therefore referred to the County School Medical Service for treatment.

Enlarged Tonsils and Adenoids

Operative Treatment

Under the School Medical Service Scheme	By Private Practitioners	Total
247	5	252

Other Defects and Diseases of Nose and Throat

Treated at :—

Intern Dept. of Hospitals associated with S.M.S. Scheme	12
Extern Dept. of Hospitals associated with S.M.S. Scheme	9
Intern and Extern Depts. of Hospitals associated with S.M.S. Scheme	—
Total Number Treated	24

Defective Vision

Submitted to Refraction		Glasses Prescribed			Change of Glasses Not necessary	Glasses not Prescribed
Under the School Medical Service Scheme	By Private Practitioners	Under the School Medical Service Scheme	By Private Practitioners	Total		
458	31	414	31	445	40	4

Other Defects and Diseases of Eye

Treated at :—

Intern Dept. of Hospitals associated with S.M.S. Scheme	14
Extern Dept. of Hospitals associated with S.M.S. Scheme	218
Intern and Extern Depts. of Hospitals associated with S.M.S. Scheme	30
Total Number Treated	262

Ear Diseases and Defects

Treated at :—

Intern Dept. of Hospitals associated with S.M.S. Scheme	13
Extern Dept. of Hospitals associated with S.M.S. Scheme	133
Intern and Extern Depts. of Hospitals associated with S.M.S. Scheme	19
Total Number Treated	165

REVIEW OF DEFECTS TREATED UNDER THE SCHOOL MEDICAL SERVICE SCHEME

Skin.

561 cases were treated at the School Clinic. They consisted of Scabies 367, Impetigo 107, Ringworm Scalp 14, Ringworm Body 19 and others 54. The number of cases of scabies shows a considerable decrease from the number last year, which was 856. The number of cases of other skin diseases also shows a decrease.

Eye.

(*a*) *DEFECTIVE VISION.*

458 cases were refracted at the hospitals associated with the Scheme. Lenses (and frames when obtainable) were supplied by Messrs. James Mangan, Ltd., and were given free of charge to 365 children. The number of children who do not wear their glasses regularly and who fail to have them repaired is still high.

Of the 503 cases of defective vision and strabismus among the children examined at Periodic Medical Inspection 204 or 40.6 per cent. did not wear their glasses regularly or at all. The 204 defaulters were

composed of 141 boys and 63 girls. I would again appeal to parents and teachers for their co-operation in the regular wearing of glasses by children who have been supplied with them and in carrying out repairs promptly when necessary.

(b) EXTERNAL EYE.

262 cases were treated at the hospitals associated with the Scheme and 154 at the School Clinic. The former included surgical treatment of 14 cases of strabismus, other cases included corneal ulcer 20, keratitis 11, meibomiam cyst 6, eyes enucleated 3 (glaucoma, buphthalmos, injury), 9 cases had orthoptic treatment for squint.

Ear.

165 cases were treated at the hospitals associated with the Scheme. They included 4 cases of mastoiditis, 1 aural polypus.

Nose and Throat.

TONSILS AND ADENOIDS.

247 cases had operative treatment at the hospitals associated with the Scheme, of these 7 had antra lavage also.

Of the 4,510 children examined at Periodic Medical Inspection 694 or 15.4 per cent. had their tonsils and adenoids removed.

OTHER DISEASES AND DEFECTS.

24 cases were treated at the hospitals associated with the Scheme. They included 16 cases of sinusitis, 1 case of deviated septum and hypertrophied turbinals, 1 fractured nasal bones and 1 nasal polypus.

Cleanliness.

Nits were present in 11.6 per cent. of girls' heads and 1.2 per cent. of boys' heads. These percentages show a decrease on the figures for 1948 which were 13.1 per cent. and 1.5 per cent. respectively. 164 cases attended at the School Clinic.

Parents were instructed in the treatment and prevention of this condition and were supplied with D.D.T. Emulsion.

Minor Injuries, Septic Sores, etc.

186 cases were treated at the School Clinic.

Children referred to Tuberculosis Clinics

	County Borough Clinic	
	Suspects	*Contacts*
Referred	29	5
Healed Primary Complex	1	—
Tuberculous Adenitis	10	—
Did not attend	1	—

"Following up" of Children Inspected

(a) In connection with those found to be suffering from physical defects :

Number of Children visited	2,507
Number of visits paid	2,946

(b) In connection with those who did not attend for treatment :

Number of Children visited	37
Number of Attendances at the School Clinic	7,739

The number who attended for treatment of minor ailments was 2,261, of those 797 were for scabies.

Children residing in the County and attending Schools within the Borough.

Referred to the County School Medical Service for treatment :

For Nose and Throat Defects		92
For Eye Defects		97
For Ear Defects		2
For Dental Defects	Group A	503
	Group B	314

Dental Section.

Up to recently dental inspection was carried out entirely by the School Medical Officer during the course of routine medical inspection in the schools. Any children found to require treatment were referred to the school dentist. With the appointment of a second dentist an attempt has been made to institute a systematic dental inspection of the children in the schools commencing with the entrants and following up each child examined during the course of his school life. This programme could only be followed to a limited extent (due to factors beyond our control). While these inspections were being carried out by the *school dentist* ordinary routine dental examination was carried out by the *school medical officer* so that two categories are referred to in the ensuing tables, group A represents children examined by the school doctor and group B children inspected by the school dentist. It is hoped eventually to transfer the entire responsibility for dental hygiene to the dental department.

Group A		Number Inspected	Number with Carious Teeth
(a)	**Routine Inspections.** Made during the course of periodic medical inspection with the exception of the age groups coming under routine dental inspection by School Dentist	3,678	2,825 or 76.8%
(b)	**Special Inspections,** i.e. inspection of cases not included under (a) considered to be especially in need of dental treatment or for whom parents applied for treatment.	321	321
	Total Group A	3,999	3,146

Group B.

Children inspected by School Dentist.

FIRST INSPECTIONS :		
Children from 5 to 9 years old inspected for the first time	1,371	1,097 or 80%
SECOND INSPECTIONS :		
Children from 6 to 9 years old inspected for the second time	840	668 or 79.5%
THIRD INSPECTIONS		
Children from 7 to 9 years old inspected for the third time	414	325 or 78.5%
FOURTH INSPECTIONS :		
Children from 8 to 9 years old inspected for the fourth time	39	32 or 82.1%
Total Group B	2,664	2,122 or 79.7%

Treatment of Dental Defects.

Table 55.—Dental Caries. Particulars of Treatment Carried out.

No. of Children treated	No. who completed treatment	Extractions			Fillings			Scalings Dressings, Silver Nitrate and Chromic Acid Treatments
		Temp. Teeth	Perm. Teeth	Total	Temp. Teeth	Perm. Teeth	Total	
3,039	1,706	4,659	1,205	5,864	603	601	1,204	1,887

General anaesthetics were given to 700 children.

Number of visits to defaulters, 442.

Number who obtained treatment as a result of such visits, 215.

Table 56.—Shewing the proportion of children (in Group B) found on inspection to require treatment, the proportion treated and the proportion of the latter who completed treatment.

	Percentage requiring treatment	Percentage treated	Percentage who completed treatment
First Inspections	82.1%	68.9%	87.4%
Second Inspections	78.2%	72.5%	78.7%
Third Inspections	79.5%	74.1%	85.1%
Fourth Inspections	81.6%	58.1%	77.8%

School Meals.

The Grant for the Meals was £4,000 and the number of children catered for 4,395. The meals were given in twenty-four schools and were as follows :—

A. Milk—North Presentation Convent Senior Girls, North Presentation Convent Infants' Mixed, Central District, St. Mary's of the Rock.

B. Milk with buns, bread or bread and jam—The Cathedral, St. Francis' Boys, St. Francis' Girls, Presentation Brothers' Monastery, Greenmount, St. Marie's of the Isle, SS. Peter and Paul's Senior Girls, SS. Peter and Paul's Infant Girls, SS. Peter and Paul's Infant Boys, and for part of the year South Presentation Monastery and St. Joseph's Monastery.

C. Milk and buns during the warmer months, cocoa and buns during the colder—Christian Brothers', Blarney Street, South Presentation Convent Girls, South Presentation Convent Boys, Clochar Chriost an Ri.

D. Milk and bread and jam to Infants, bread and jam only to Senior children—St. Nicholas Girls and St. Nicholas Boys, Blackpool.

E. Milk and buns to one-third of the children, buns only to two-thirds—St. Mary's, Eason's Hill.

F. Buns—Strawberry Hill Boys, Strawberry Hill Girls, St. Vincent's Convent.

The milk ration is still inadequate in the majority of schools. As the Grant for School Meals will not cover the cost of an adequate milk ration plus bread or buns, I would again recommend that the money be spent on milk only. Thus the children who need milk most would receive a fairly adequate ration in school.

Hygiene of Schools

A high standard of cleanliness is maintained in most schools. In some, however, cleanliness of walls, floors, corridors and lavatory basins should receive more attention.

Heating is inadequate in some of the large schools which have no central heating plants.

With few exceptions lighting and ventilation are adequate in the schools.

Cloakroom facilities are inadequate and unsuitable in many schools. In some schools which have cloakrooms, the number of hangers is insufficient and their spacing unsuitable. Some schools have no cloakrooms and garments are hung on classroom walls. In other schools built-in presses are used as cloak-rooms, these are entirely unsuitable and should not be used.

Drinking and washing facilities are unsatisfactory in most schools. Some have individual wash-hand basins but in the majority of schools these are either absent, inadequate or in a state of disrepair.

Table 57.—Floor and Cubic Space per Pupil in Average Attendance

NATIONAL SCHOOL	Average Attendance	Square ft. per pupil in average attendance	Cubic ft. per pupil in average attendance
Clochar Chriost and Ri	492.5	9.0	110.6
North Monastery	782.2	9.1	149.1
Angel Guardian, Mayfield	217.4	9.2	122.4
St. Nicholas Girls, Blackpool	338.1	10.0	143.8
St. Patrick's Infants	275.2	10.0	180.8
The Cathedral	388.9	10.3	122.4
North Presentation Convent Senior Girls	948.6	10.5	126.0
Mainistir Chriost an Ri	478.5	10.9	130.2
Strawberry Hill Girls	156.7	10.9	130.3
North Presentation Convent Infants	630.1	11.0	181.7
Scoil Neasain Naomhtha	455.0	11.1	146.4
Strawberry Hill Boys	144.7	11.2	134.2
Christian Brothers, Blarney Street	471.7	11.2	198.9
St. Nicholas' Boys, Blackpool	466.4	11.6	144.8
St. Mary's of the Rock	271.0	11.6	196.5
South Presentation Convent Boys	187.0	12.0	132.7
St. Marie's of the Isle	1,104.8	12.2	167.9
St. Vincent's Convent	1,322.0	12.5	182.9
SS. Peter and Paul's Senior Girls	138.7	12.8	185.9
St. Francis' Boys	157.2	13.0	149.0
St. Mary's, Eason's Hill	220.2	13.1	156.9
SS. Peter and Paul's Infant Girls	121.2	14.3	214.0
St. Patrick's Senior Girls	216.2	14.9	251.9
Presentation Brothers, Greenmount	459.3	15.7	319.4
St. Patrick's Senior Boys	214.2	16.1	208.9
South Presentation Convent Girls	1,131.5	16.2	178.4
St. Joseph's Monastery, Mardyke	299.3	16.3	228.1
SS. Peter and Paul's Infant Boys	102.1	17.5	263.1
South Presentation Monastery	296.5	21.2	307.7
Ard Scoil Gobnatan	109.3	24.7	741.1
Bun Scoil Gobnatan	116.9	25.3	758.7
St. Francis Girls	83.3	26.4	314.5
Scoil Barra	100.6	42.6	1,278.1
St. Finbar's, Dean Street	24.3	64.2	770.4
St. Luke's	33.1	65.7	1,227.3
Central District	35.5	88.5	1,415.7
Summerhill	20.4	105.9	2,117.8
St. Mary, Shandon	10.0	134.2	2,147.2
St. Nicholas, Cove Street	26.5	144.1	1,901.3

Section—VI. Control of Food Supplies

The following report has been compiled by Mr. S. R. J. Cussen, Chief Veterinary Officer :—

(A) SUPERVISION OF MILK.

783 samples of milk were examined in our laboratory during the year. These samples may be roughly divided into two groups :

1. Detailed bacteriological examination ...	308	samples
2. Dirt test only	276	,,
3. Samples collected and submitted to authorised Bacteriologist	40	
4. Samples examined on behalf of Dept. of Agriculture	159	
Total	783	

1. The first group *i. e.*, those submitted to full examination comprised samples collected as follows (according to designation) with the addition of 13 samples of pasteurised milk.

Highest Grade	12	
Standard	12	
New Milk	284	
Total ...	308	

The following tests were applied :—

(a) Sedimentation (or Dirt) Test.

This test was applied to samples in Groups 1 and 2.

The procedure was identical with that outlined in previous reports and the results obtained in the various grades were :—

	Highest Grade	Standard	New Milk
Very Clean	11	9	33
Clean	1	3	169
Fairly Clean	—	—	209
Dirty	—	—	123
Very Dirty	—	—	26
TOTAL ...	12	12	560

The Sediment (or Dirt) test is a simple and reasonably reliable one. It does not pretend to absolute scientific accuracy, but as a rough and ready index of general trends in the direction of cleanliness it maintains its position in the armamentarium of the dairy bacteriologist. Since its chief value is that of an indicator of general tendencies the results obtained over a number of years are set out below.

Table 58.—Result of Dirt Test.

Year	No. of Samples	Very Clean	Clean	Fairly Clean	Dirty	Very Dirty
1930	412	8	72	118	156	58
1931	408	23	61	82	139	103
1932	630	4	27	108	265	226
1933	485	3	27	105	221	129
1934	339	—	19	51	148	121
1935	223	—	7	21	103	92
1936	227	3	21	43	106	54
1937	206	5	31	80	70	20
1938	174	3	36	83	49	3
1939	714	61	184	224	193	52
1940	736	163	251	176	115	31
1941	440	120	162	82	59	17
1942	516	119	223	88	67	19
1943	534	138	248	87	53	8
1944	540	159	235	80	54	12
1945	839	45	292	331	143	28
1946	860	50	416	245	135	14
1947	518	27	199	177	96	19
1948	585	43	224	143	132	43
1949	584	53	173	209	123	26
Totals	9970	1027	2908	2533	2427	1074

In order to test the general tendency in regard to cleanliness the last two columns of this table have been taken together and further analysed. The results are shown in the next table.

Table 59.—Proportion of Samples classified as "Dirty,"

Year	No. of Samples	Dirty	Proportion
1930	412	214	51.9 per cent.
1931	408	242	59.3 ,,
1932	630	491	77.9 ,,
1933	485	350	72.2 ,,
1934	339	269	79.3 ,,
1935	223	195	87.4 ,,
1936	227	160	70.9 ,,
1937	206	90	43·6 ,,
1938	174	52	29.8 ,,
1939	714	245	33.9 ,,
1940	736	146	19.8 ,,
1941	440	76	17.2 ,,
1942	516	86	16.6 ,,
1943	534	61	11.3 ,,
1944	540	66	12.2 ,,
1945	839	171	20.3 ,,
1946	860	149	17.3 ,,
1947	518	115	22.2 ,,
1948	585	175	29.9 ,,
1949	584	149	25.5 ,,

(b) Microscopic Test.

30 samples were submitted to routine microscopic examination. Acid-fasts organisms were detected in 4 of these samples. Streptococci were present in 7 Pus Cells in 11 and Blood in 7. In 279 instances the samples were free from suspicious organisms.

(c) Bacteria of Faecal Origin.

Included in this Group is the Bacillus Coli the presence of which may be regarded as growing carelessness in the production and handling of milk. The test for B. Coli was carried out on Highest Grade and Standard Milks. A full account of the test has been given in previous reports.

The findings for the year was as follows :—

Designation	No. of Samples Examined	B. Coli Present	Proportion Free from B. Coli
Highest Grade	12	1	91.6%
Standard ...	12	3	75.0%

(d) Pathogenic Bacteria.

Under this heading our principal concern is the presence of the *tubercle bacillus* in milk. Other organisms (*e.g.*, streptococci) are also concerned in a minor role and have been alluded to under the heading of microscopic examination. The biological test (involving the use of guinea pigs) is the only reliable test for tubercle bacillus and the results obtained over a number of years are set out in columnar form as follows :—

Table 60.—Tubercle Bacilli in Milk—Results of Biological Tests.

Year	No. of Tests	Positive	Proportion Positive
1931	2	—	—
1932	14	1	7.1 per cent.
1933	63	—	—
1934	10	—	—
1935	25	4	16.0 ,,
1936	201	13	6.4 ,,
1937	23	—	—
1938	90	7	7.7 ,,
1939	71	5	7.0 ,,
1940	94	4	4.2 ,,
1941	96	4	4.1 ,,
1942	105	2	1.9 ,,
1943	75	6	8.0 ,,
1944	68	4	5.8 ,,
1945	99	4	4.0 ,,
1946	101	4	3.9 ,,
1947	77	4	5.2 ,,
1948	74	—	—
1949	100	2	2.0 ,,
Total	1386	64	4.6 ,,

The figures for individual years are, on the whole, on the small side so far as reliable information is concerned. The sum total, however, of some 1386 tests yielding an approximate proportion of 4.6 per cent. positive may be regarded as a fairly accurate index of the amount of tubercle infection in the local milk supply. This is one aspect of the milk problem which recent legislation has done nothing to solve.

(e) **The Reductase Test.**

The modified method of Wilson has been used. As in the case of other tests mentioned, this method has been fully described in previous reports. Briefly, by means of a colour index which takes into account the rate of decolourisation of a standard solution of methylene blue added to given quantities of milk maintained at a standard temperature, the bacterial content (in numbers) can be estimated. The results obtained are set out below and in order to assist in the interpretation of these results it seems desirable to specify the values attached to the various grades :

Grade I	...	Less than 500,000 bacteria per c.c.
Grade II	...	500,000 to 4 million bacteria per c.c.
Grade III	...	4 million tc 20 million bacteria per c.c.
Grade IV	...	Over 20 million per c.c.

Particulars of the various samples and the results obtained are set out below : (308 Samples)

Highest Grade Milk—		
Grade I	.....	10
Grade II	.....	2
Grade III	.....	–
Grade IV	.....	–
		12
Standard Milk—		
Grade I	...	8
Grade II	...	3
Grade III	...	–
Grade IV	...	1
		12
New Milk—		
Grade I	...	232
Grade II	...	34
Grade III	...	12
Grade IV	...	6
		284

BACTERIOLOGICAL EXAMINATIONS

In addition to the above samples, 40 samples were collected and submitted to the Authorized Bacteriological Examiner, to be examined to determine the number of bacteria in one cubic centimetre of the milk in accordance with the provisions of Section 52 of the Milk and Dairies Act, 1935.

The following is the results of the examination in each case :—

Sample No.	Bacteriological Count	Sample No.	Bacteriological Count
1	Sour	21	400,000 per c.c.
2	98,000 per c.c.	22	430,000 ,,
3	84,000 ,,	23	600,000 ,,
4	48,000 ,,	24	10,000 ,,
5	47,000 ,,	25	650,000 ,,
6	46,000 ,,	26	1,200,000 ,,
7	680,000 ,,	27	320,000 ,,
8	450,000 ,,	38	1,000,000 ,,
9	475,000 ,,	39	1,500,000 ,,
10	800,000 ,,	30	1,100,000 ,,
11	28,000 ,,	31	1,200,000 ,,
12	700,000 ,,	32	940,000 ,,
13	25,000 ,,	33	2,000,000 ,,
14	72,000 ,,	34	40,000 ,,
15	800,000 ,,	35	24,000 ,,
16	30,000 ,,	36	13,000 ,,
17	80,000 ,,	37	300,000 ,,
18	27,000 ,,	48	860,000 ,,
19	100,000 ,,	49	65,000 ,,
20	2,240,000 ,,	40	240,000 ,,

Fifteen samples did not comply with the provisions of Article 3 of the Milk and Dairies (Bacteriological Examinations Regulations, 1936.

159 samples of Milk were examined on behalf of the Dept. of Agriculture in our Laboratory. 55 of these Samples were collected by our own staff and they consisted of 19 samples of Pasteurised Milk, 12 samples of Pre-pasteurised Milk as well as 12 samples of Highest Grade and 12 samples of Standard Milk.

For *pasteurised* milk and *pre-pasteurised** milk plating on nutrient media with direct colony counts was substituted for the Reductase test and by this method the following results were obtained :

Pasteurised		Pre-pasteurised*	
Sample Number	Bacteria per c.c.	Sample Number	Bacteria per c.c.
1	20,000	1	125,000
2	75,000	2	2,528,000
3	15,000	3	124,000
4	32,000	4	2,784,000
5	22,000	5	1,682,000
6	33,000	6	4,352,000
7	11,000	7	640,000
8	40,000	8	600,000
9	416,500	9	1,366,000
10	21,000	10	1,200,000
11	116,000	11	800,000
12	10,000	12	180,000
13	70,000		
14	640,000		
15	170,000		
16	1,200,000		
17	80,000		
18	13,000		
19	14,000		

The remaining 104 Samples were collected per Creameries and submitted as follows :—

By	Cork Co. M.O.H.	94
,,	Kerry Co. M.O.H.	4
,,	Waterford Co. M.O.H.	6

PROSECUTIONS.

(A) MILK AND DAIRIES ACT, 1935.

31 persons were prosecuted for non-observance of the above act.

31 convictions were obtained and fines amounting to £10 11s. 0d. imposed.

With reference to the successful prosecutions.—

3	summonses	were	brought	under	Section 24
10	,,	,,	,,	,,	59
15	,,	,,	,,	,,	59 (3)
3	,,	,,	,,	,,	60

Section	Number Prosecuted	Number Convicted	Fines Imposed
24	3	6	18/6 with Costs
59	10	10	£5 15 o with costs
59(3)	15	15	£3 3 6 ,, ,,
60	3	3	14 0 ,, ,,
Totals	31	31	£10 11 0 with costs

Maximum fine imposed was 20/- and costs.

Minimum ,, ,, ,, 6d. ,,

Section 24 : Relates to the prohibition of the sale of milk by unregistered dairymen.

,, 59 : Relates to the prohibition of the sale of dirty milk.

,, 59 (3) : Relates to the sale of milk which has an offensive taste or smell, or which on being tested in any prescribed manner, is found to contain visible offensive matter, or bacteria to a number per unit volume greater than the prescribed number.

,, 60 : Relates to the sale of milk in public places and prescribes for the conspicuous inscription of the dairyman's name and address on the vehicle, car or receptacle and the words " Bainne ar díol, Uachtar ar díol or Blathach ar díol."

(B)—THE MILK AND DAIRIES REGULATIONS, 1936 :

Seventeen persons were prosecuted for non-observance of the above Regulations.

Twelve convictions were obtained and fines amounting to £3 7s. 6d. and costs imposed.

Two cases were marked " Proved " with payment of costs.

Three cases were dismissed.

With reference to the successful prosecutions, particulars are appended herewith of the enactments concerned with the summonses which were undertaken :—

(a) The Milk and Dairies Regulations, 1936 :

1	under	Article 8(2)	4	under	Article 40(a)
1	,,	21	1	,,	41(4)
3	,,	22(3)	1	,,	42(2)
3	,,	28		,,	

PROSECUTIONS UNDER MILK AND DAIRIES REGULATIONS, 1936 :

Article	Number Prosecuted	Number Convicted	Fines Imposed	Marked Proved
8(2)	1	1	10/- and costs	—
21	1	1	10/- ,,	—
22(3)	3	3	12/6 ,,	—
28	3	3	15/- ,,	—
40(a)	4	3	17/6 ,,	1
41(4)	1	1	2/6 ,,	—
42(2)	1	—	—	1
Totals	14	12	£3 7 6 ,,	2

Maximum fine imposed was 17/-6 and costs.
Minimum ,, ,, 2/6 ,,

Article 8 (2) : Relates to milk vendors or producers permitting employees having access to milk, or taking part in the handling of milk whilst their clothing is not in a cleanly condition.

Article 21 : Relates to the cleansing of Milk Stores and Milk Shops.

,, 22 (3) : Relates to the cleansing of Milk Vessels and Appliances.

,, 28 : Relates to the cleanliness of persons having access to Milk.

,, 40 (a) : Relates to the cleanliness of the interiors of Vehicles used for the conveyance of Milk.

,, 41 (4) : Relates to sale containers being composed of new absorbent material and the cleanliness of such sale containers before being filled with Milk.

,, 42 (2) : Relates to the taking of Milk sale receptacle from a otherwise than by means of a tap in such receptacle.

The price of milk increased during the war years, not a great deal considering the cost of production and handling. The following was the average price per gallon for loose milk from Producer to Wholesaler :—

	s.	d.	
1939	0	$11\frac{1}{6}$	per gallon
1940	0	$11\frac{1}{6}$	,, ,,
1941	1	$1\frac{1}{3}$	,, ,,
1942	1	$1\frac{1}{3}$	,, ,,
1943	1	3	,, ,,
1944	1	$5\frac{1}{6}$	,, ,,
1945	1	6.83	,, ,,
1946	1	6.85	,, ,,
1947	1	$10\frac{1}{2}$	,, ,,
1948	1	$11\frac{1}{2}$	,, ,,
1949	1	$11\frac{3}{4}$	,, ,,

The Retail price of milk was fixed in September 1940. The price varied according to supplies available, being higher during the scarce period which occurred between the months of November and March.

The range of prices from 1940 to 1947 is as follows :—

	d.		d.	
1940	$2\frac{1}{2}$	to	3	per pint loose
1941	$2\frac{1}{4}$	,,	3	,, ,, ,,
1942	$2\frac{1}{2}$	,,	$3\frac{1}{4}$	,, ,, ,,
1943	$2\frac{1}{2}$	,,	$3\frac{1}{2}$	,, ,, ,,
1944	$2\frac{3}{4}$	,,	$3\frac{1}{2}$	,, ,, ,,
1945	$2\frac{3}{4}$	,,	$3\frac{1}{2}$	,, ,, ,,
1946	$2\frac{3}{4}$	,,	$3\frac{3}{4}$	,, ,, ,,
1947	$3\frac{1}{4}$	,,	$4\frac{1}{4}$	,, ,, ,,
1948	$3\frac{1}{4}$	,,	4	,, ,, ,,
1949	$3\frac{1}{2}$	,,	$4\frac{1}{4}$	,, ,, ,,

Table 61.—The consumption of milk increased during the period under review. The average daily consumption in gallons from 1939 to 1948 was as follows :—

Month	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949
January	8,400	8,184	7,731	8,416	8,547	8,714	8,799	9,082	9,133	9,099	9,304
February	8,604	8,443	8,130	8,615	8,796	8,917	9,074	9,296	9,158	8,282	9,417
March	8,661	8,260	8,090	8,696	8,929	8,936	9,143	9,360	9,088	9,351	9,584
April	8,602	8,916	8,442	8,582	9,037	8,986	9,279	9,457	9,272	9,597	9,754
May	8,933	8,642	8,309	9,004	9,342	9,266	9,623	9,806	9,786	10,025	10,199
June	9,119	8,836	8,938	9,232	9,633	9,422	9,879	9,866	10,178	10,236	10,507
July	8,616	8,381	8,485	9,042	9,473	8,975	9,555	9,704	9,560	10,307	10,125
August	8,437	8,367	8,660	9,678	8,903	8,881	9,194	9,443	9,856	9,464	9,634
September	8,586	8,371	8,926	9,079	9,232	9,178	9,649	9,717	9,960	9,993	9,907
October	8,456	8,673	8,900	9,054	8,949	9,113	9,639	9,640	9,778	9,833	9,881
November	8,407	8,015	8,552	8,728	8,912	9,074	9,418	9,340	9,368	9,534	9,645
December	8,180	8,178	8,793	8,563	8,691	8,869	9,021	9,015	9,149	9,438	9,410
Average	8,582	8,444	8,497	8,808	9,037	9,028	9,356	9,477	9,524	9,684	9,781

These figures apply to the Cork Milk Board Area. There are no figures regarding the amount of milk consumed available for Cork County Borough. I am indebted to the Secretary of the Cork Milk Board for the information.

(B) MEAT INSPECTION.

Meat Inspection Depot :—,3072 bovine carcases were examined. Of this number 304(19.6%) were found to be affected with varying degrees of tuberculosis. It was found necessary that 6 such carcases (0.19%) should be totally destroyed as unfit for consumption while 598 (19.4)% were partially condemned. In addition to the 3,072 bovine carcases above referred to 2,261 sheep carcases were also examined and of this number 3 carcases (0.13%) were totally condemned for diseases other than tuberculosis.

640 veal carcases were examined and of this number 2 carcases were totally condemned and 1 partially condemned as being affected with tuberculosis. 665 pork carcases were also examined and of this number 1 carcase (0.15%) was totally condemned and 13 (1.9%) partially condemned as being affected with tuberculosis.

Table 62.—The amount (by weight) of meat examined and condemned at the Depot was as follows :—

Variety		Tuberculosis		Other Diseases	
	Quantity Examined	Quantity Condemned	Proportion	Quantity Condemned	Proportion
	lbs.	lbs.		lbs.	
Beef ...	1,536,000	5,177	0.34%	—	—
Mutton ...	113,000	—	—	92	0.08%
Veal ...	25,600	72	0.28%	—	—
Pork ...	133,000	285	0.21%	110	0.08%

The amount of offals condemned at the Depot for Tuberculosis and other conditions was as follows :—

Part	Tuberculosis	Other Diseases	Total
Lungs	1,050	—	1,050
Heart	496	—	496
Livers	143	252	395
Kidneys	2	—	2
Head and Tongues ...	261	—	261
Total	1,952	252	2,204

Meat seized in shops and voluntarily surrendered during the year :—

	Seized	Surrendered
Beef	123 lbs.	31,168 lbs.
Pork	16	53,524 „
Bacon	—	— „
Veal	—	635 „
Fish	—	3,878 „
Fruit	—	1,573 „
Poultry	—	16,501 „

Slaughterhouses and Bacon Factories.

Table 63.—**Tuberculosis.** Particulars of animals killed in local slaughterhouses and the incidence of tuberculosis therein :—

Species	Number	Affected	Totally Condemned	Partially Condemned
Cattle	1,851	419 (22.6%)	6 (0.3%)	413 (22.3%)
Sheep	10,198	—	—	—
Calves	204	5 (2.45%)	3 (1.47%)	2 (0.98%)

6,485 lbs. of Beef (representing 0.7%) of the quantity examined were condemned on account of tuberculosis.

Bacon Factories :—Particulars of pigs slaughtered in bacon factories and reserved for local consumption in the form of pork and sausages were supplied to us by the Veterinary Inspectors of the Department of Agriculture. The number of pigs was 2,391 of which 695 (29.1%) were found to be affected with tuberculosis. 14 of these (0.6%) were totally condemned and 681 (28.5%) partially condemned.

19,718 lbs. (3.0%) of pork were condemned on account of tuberculosis.

Table 64.—**Diseases other than Tuberculosis.**— Particulars of incidence found in slaughterhouse killings :—

Species	Number	Affected	Totally Condemned	Partially Condemned
Cattle	1,851	3 (0.15%)	—	3 (0.15%)
Sheep	10,198	7 (0.07%)	—	7 (0.07%)
Calves	204	1 (0.48%)	1 (0.48%)	—

150 lbs. of beef (representing 0.01%) of the quantity examined) were condemned on account of diseases other than tuberculosis.

Bacon Factories :—0.22% of pork was condemned on account of diseases other than tuberculosis.

Table 65.—Inspections carried out in *slaughterhouses* by our Veterinary Staff were as follows :—

Species	Carcases Examined	Condemned		
		Wholly	Partially	Meat & Offals
Cattle	1,851	6	416	15,481 lbs.
Sheep	10,198	—	7	196 ,,
Calves	204	4	2	532 ,,

THE SLAUGHTER OF ANIMALS ACT, 1935.

The provisions of this Act were outlined in the 1937 Annual Report, it is not proposed to make further reference to them here.

The provisions of the Act were diligently observed by occupiers of slaughterhouses and slaughtermen, consequently there were no prosecutions under the Act during the period under review.

PREPARATION OF MEAT AND MEAT PRODUCTS

The number of premises within the Cork Urban Sanitary District where meat and meat products are prepared for human consumption is as follows :—

Slaughter Houses—

Licenced (under the Public Health Act, 1878)	13
Registered (being in use before the 1878 Act)	2
Registered (under the Fresh Meat Act)	4

Bacon Factories—

Where Pigs are slaughtered for Production of Bacon	4
Where Pigs are slaughtered for Bacon and Pork	4
Where Cattle are slaughtered in addition to Pigs	4

Sausage Factories	15
Triperies	6

Number of inspections made of premises where meat is prepared and sold :—

Slaughter Houses	2,317
Sausage Factories	1,135
Triperies	429
Meat Markets	1,174
Butcher Shops	3,766
Pork Shops	689

In addition to the above the following inspections were made :—

Provision Shops	1,573
Fish Shops	544
Fruit Shops	24
Hawkers' Stands	1,362

Prosecutions :

For the sale or exposure for sale of Tuberculous meat one person was prosecuted and a fine amounting to 20/- and costs imposed.

For the unseemly conveyance of meat 3 persons were prosecuted under the Bye-laws and fines amounting to £1 3s. 6d. and costs imposed.

For offences under the slaughterhouse Bye-laws 2 persons were prosecuted and fines amounting to £1 15/- and costs imposed.

The number of Notices served to abate nuisances and remedy defects in Slaughterhouses and Triperies, 18.

Meat Inspection.

For a number of years a system of voluntary meat inspection has been carried out at the Inspection Depot. There are a number of butchers who still do not bring their meat for inspection. The following are now availing of the service :—

Barrett, John V., 59/60, Grand Parade Market.
Barrett, Michael, 64/65, Grand Parade Market.
Barry, Joseph, 38 Dublin Street.
Butler, John, St. Peter's Market.
Carroll, Michael J., 85 Oliver Plunkett Street.
Coughlan, John, 3 Thomas Davis Street.
Coughlan, Ted, Grand Parade Market.
Delicacies Ltd., 55 Oliver Plunkett Street.
Desmond, Denis, 1/2 Grand Parade Market.
Desmond, William, 347, Blarney Street.
Dillon, Edward, 14A, Castle Street.
Dineen, William, 74B, Oliver Plunkett Street.
Economy Shop, Anglesea Street.
Economy Shop, 33, Patrick Street.
Fitzgerald, Michael, 2, Parliament Street.
Griffin, Leo, 55, Grand Parade Market.
Harris, Mrs. Mary, 101, North Main Street.
Long, Peter P., 11, Douglas Street.
Mackey, John, 86, Oliver Plunkett Street.
Millard, Cornelius, 4, Coburg Street.
Murphy, John, 19, North Main Street.
Murphy, John, 22, South Main Street.
Murphy, Bros., Metropole Buildings.
Murphy, Patrick, 90, Oliver Plunkett Street.
McNamara, Mrs. Nora, 73, Grand Parade Market.
Nagle, John, 3, Market Lane.
Nagle, Michael, 18/19, Grand Parade Market.
Nagle, Mrs. Helena, 38, Oliver Plunkett Street.
Nolan, Frank, 22/23 Shandon Street.
O'Callaghan, Daniel, 16, McCurtain Street.
O'Flynn & Sons, 61, Oliver Plunkett Street.
O'Hare, Edmund, Coburg Street.
O'Leary, Richard, Barrack Street.
Ryan, Joseph, 36, Washington Street.
Sheehan, John, 100, Douglas Street.
Tracey, John, 7, Castle Street.
Walsh, Bros., Gurranabraher Road.

(C) SALE OF FOOD AND DRUGS ACTS.

MILK.

Appended herewith is the Report of the City Analyst (Mr. D. J. O'Sullivan, M.Sc., F.I.C.).

Table 66.—Showing the number of samples of Milk submitted for Analysis during the year and the results thereof.

Quarter ended	No. of Samples	Genuine	Adulterated
March 31st, 1949 ...	102	100	2
June 30th, 1949 ...	120	118	2
Sept. 30th, 1949 ...	110	108	2
Dec. 31st, 1949 ...	114	111	3
Totals ...	446	437	9

BUTTER.

Table 67.—Showing number of Samples of Butter submitted for analysis during the year and the results thereof.

Quarter ended	No. of Samples	Genuine	Adulterated
March 31st, 1949 ...	5	5	—
June 30th, 1949 ...	11	11	—
Sept. 30th, 1949 ...	13	11	2
Dec. 31st 1949 ...	5	5	—
Totals ...	34	32	2

SPIRITS.

Table 68.—Showing the number of samples of Spirits submitted for analysis during the year and the results thereof.

Quarter ended	No. of Samples	Genuine	Adulterated
March 31st, 1949 ...	1	1	—
June 30th, 1949 ...	2	2	—
Sept. 30th, 1949 ...	—	—	—
Dec. 31st, 1949 ...	10	9	1
Totals ...	13	12	1

Table 69.—Showing the number of miscellaneous samples submitted for analysis during the year and the results thereof.

Quarter ended	No. of Samples	Genuine	Adulterated
March 31st, 1949	127	125	2
June 30th, 1949 ...	120	117	3
Sept. 30th, 1949 ...	103	103	—
Dec., 31st 1949 ...	119	118	1
Totals ...	469	463	6

Table 70.—Showing details in regard to miscellaneous samples examined during the year.

Articles	No. of Samples	Articles	No. of Samples
Wine	2	Patent Food ...	1
Margarine ...	46	Rice	27
Confectionery ...	19	Bisto	2
Custard Powder ...	10	Tea	1
Pearl Barley ...	15	Currants	7
Sausages	13	Raisins	1
Drugs	9	Sultanas	2
Cheese	22	Sago	1
Cocoa	23	Lard	5
Beer	56	Cider	1
Flour	23	Cocoanut	2
Cornflour ...	29	Bourn-vita ...	1
Coffee	2	Sweets	3
Vinegar	17	Marsh Mallow ...	1
Oatmeal	25	Dessert	1
Cream	3	Ice Cream ...	5
Pudding	6	Salt	7
Peas	4	Ovaltine	1
Mineral Waters ...	12	Salad-dressing ...	1
Jam	14	Farola	1
Jelly	5	Beans	1
Tapioca	3	TOTAL ...	469
Dripping	1		
Cereal	1		
Bread	7		
Semolina	9		
Suet	2		
Sauce	7		
Erinox	1		
Sugar	8		
Chewing Gum	2		
Skimmed-milk	1		

Table 71. Return of Offences detected by the Food and Drugs Inspectors during the year.

Particulars of Offence	Results of Proceedings
Milk deficient in fat 5%	Fines — Cautioned—
,, ,, ,, ... 6%	,, 3/6 Costs 11/4
,, ,, ,, ... 6%	,, 5/- ,, 17/4
,, ,, ,, ... 10%	,, 5/- ,, 17/4
,, ,, ,, ... 10%	,, 5/- ,, 18/3
,, ,, ,, ... 15%	,, 5/- ,, 17/4
,, ,, ,, ... 23%	,, 5/- ,, 17/4
In solids not fat 20%	,, 40/- ,, 17/4
,, ,, ... 21%	,, 40/- ,, 17/4
Whiskey .... 7.2% added water	,, 40/- ,, 25/6
Vinegar .... 12% deficient in acetic	,, 5/- ,, 18/-
Vinegar .... 12% deficient in acetic acid.	,, 5/- ,, 18/-
Butter .... 1.1% added water.	,, 5/- ,, 19/6
9.7% ,,	,, 20/- ,, 19/4
Skimmed milk deficient in solids—27%.	,, 2/6 ,, 17/1
Margarine .... 4.4% added water.	,, 10/- ,, 18/8
6.1% ,,	,, 7/6 ,, 18/8
Semolina (1) infested with cereal mites.	7/6 ,, 17/9

Section VII.—Water Supply.

BACTERIOLOGICAL EXAMINATIONS.

In the report for 1931 I outlined the procedure adopted in connection with the examination of the supply at the bacteriological laboratories of University College, Cork, by Prof. W. J. O'Donovan. In the year 1928 Dr. O'Donovan undertook a detailed and systematic examination in which a very large number of samples were studied. Our subsequent procedure has been based on his findings of that year and his recommendations have resulted in a supply of a consistently high degree of purity. In 1949, as in former years, samples were collected and examined on five days during each week. The procedure included an estimate of the number of bacteria growing at 37° C. in 48 hours. The total number of samples examined amounted to 254. The average number of bacteria in 1 c.c. was 4.2 and the number of samples sterile in 1 c.c. was 11.

The routine procedure in connection with these examinations is that samples are collected by the staff of the Public Health Department in special sterilised bottles. These samples are transmitted to the Laboratory for examination. A report is sent to the City Medical Officer who, in turn, sends a copy to the Water Engineer. In the event of an unsatisfactory sample coming to light in the laboratory the subsequent cycle of events is speeded up by telephonic communications between the various departments pending receipt of a subsequent formal report. In this manner there is exercised a triple check in the purification and distribution of the supply.

In the following tables are summarised the results of the various examinations carried out during the year (and previous years) at the Bacteriological Laboratories, U.C.C., by Prof. O'Donovan and his staff.

Table 72.—Summary of results of routine examinations of water

Total Routine Samples of Tap Water	Bacillus Coli Test					Average daily No. of Bacteria per c.c.	No. of Samples sterile in 1 c.c.
	100 c.c's —ive	100 c.c's +ive	50 c.c's +ive	10 c.c's +ive	1 c.c's +ive		
254	246	2	4	2	—	4.2	11

As stated above, the examinations carried out during the year included an estimation of the numbers of bacteria growing at 37° C. in 48 hours. The findings are set out in the following table and compared with those of the previous seventeen years.

Table 73.—Average number of bacteria per cubic centimetre growing at 37° C. from daily sample for each month.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1932	14.0	0.8	1.6	4.6	4.5	5.4	44.1	20.3	2.2	4.6	4.7	2.2
1933	1.8	1.0	1.1	1.5	1.8	4.1	19.2	14.6	2.7	2.1	1.3	3.9
1934	1.1	1.6	1.3	1.4	3.4	21.2	18.4	7.4	1.7	4.0	4.2	4.0
1935	2.9	2.7	1.6	1.0	2.7	2.1	2.9	5.2	8.9	7.9	4.4	1.2
1936	1.2	1.2	0.9	1.6	1.9	1.9	5.0	1.8	3.4	1.4	2.7	3.9
1937	4.1	2.8	1.4	1.2	0.7	0.2	3.7	1.0	2.8	6.4	2.8	5.4
1938	1.8	2.2	1.9	1.5	0.9	1.4	2.0	1.4	2.2	2.0	2.6	2.2
1939	1.7	1.4	2.9	2.6	1.7	21.5	6.6	6.7	3.0	30.8	9.4	3.5
1940	1.8	5.3	1.8	1.0	1.3	4.4	11.8	4.2	4.5	4.5	4.5	2.8
1941	2.2	0.7	2.8	1.6	10.1	7.3	4.6	4.1	1.4	1.6	7.2	1.4
1942	3.4	2.7	7.0	2.6	2.5	3.9	5.8	4.9	6.4	2.1	4.8	3.0
1943	2.3	1.2	1.3	1.7	2.4	6.0	5.1	1.2	4.7	2.3	1.9	2.5
1944	2.6	2.0	2.2	2.2	1.3	1.4	2.5	4.3	3.1	1.9	1.8	2.9
1945	2.2	2.3	2.4	2.3	1.8	2.1	3.7	3.7	2.7	3.2	2.4	2.1
1946	2.6	3.1	1.6	2.3	2.1	2.9	2.1	1.2	1.2	5.3	2.9	1.7
1947	2.7	1.8	2.2	2.2	3.5	1.1	1.7	2.3	2.4	2.0	2.6	2.4
1948	3.3	2.5	3.4	2.0	2.2	4.1	3.8	2.8	2.5	3.3	2.9	1.8
1949	3.5	5.0	3.9	3.4	3.4	3.8	4.3	4.0	5.2	6.1	4·5	3.5

Table 74.—Showing average consumption of Water per Head, per Day (in gallons).

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1934	39.6	40.0	39.1	39.9	39.2	42.1	42.8	40.6	41.4	38.6	39.0	40.2
1935	38.5	40.2	40.1	41.2	41.2	43.6	46.8	48.1	46.5	43.5	43.4	35.2
1936	47.6	44.1	44.0	44.4	46.5	47.1	47.1	46.4	44.5	44.8	44.1	43.8
1937	42.7	43.1	41.8	41.6	45.1	45.9	45.9	46.3	45.7	45.0	43.1	42.7
1938	41.5	40.3	39.5	41.4	40.5	40.5	40.9	39.8	41.3	40.6	39.7	41.8
1939	45.6	40.9	39.9	40.1	40.0	44.2	42.8	41.6	41.8	39.5	37.5	37.2
1940	44.7	43.1	39.8	39.3	40.2	44.0	44.9	42.6	41.9	38.6	36.7	39.3
1941	38.5	39.1	39.2	37.9	38.9	40.8	43.1	42.6	42.0	40.4	38.8	37.5
1942	36.7	36.5	36.3	37.4	37.7	38.5	41.1	39.6	39.7	37.7	37.6	36.4
1943	35.5	35.6	36.4	38.0	37.7	39.3	43.3	40.4	42.1	40.2	35.7	37.8
1944	35.2	36.8	38.1	37.6	38.8	38.5	35.0	36.3	40.8	36.7	35.9	36.8
1945	38.8	50.0	40.3	41.0	41.2	43.2	44.2	42.6	44.0	41.3	39.0	40.0
1946	38.8	38.9	39.8	40.3	40.5	40.7	42.4	41.2	42.3	42.6	40.9	40.5
1947	42.9	45.3	44.5	42.0	43.5	46.4	46.0	47.8	46.9	44.8	43.9	46.8
1948	44.5	43.4	45.3	45.1	45.4	47.1	48.0	46.8	47.0	47.3	44.8	45.2
1949	42.8	43.2	43.1	44.8	45.6	49.0	51.2	46.0	49.7	47.1	46.7	47.3

Table 75.—Comparative results of examinations of tap water made during each of the years from 1928 to 1949.

Year	Total number of samples examined	BACILLUS COLI TEST				
		100 c.c.'s – ive	100 c.c.'s + ive	50 c.c.'s + ive	10 c.c.'s + ive	1 c.c. + ive
1928	245	187 (76.3%)	10 (4.0%)	32 (13.1%)	14 (5.7%)	2 (0.8%)
1929	251	153 (60.9%)	44 (17.5%)	40 (15.9%)	9 (3 .6%)	5 (2.0%)
1930	268	216 (80.6%)	15 (5.6%)	14 (5.6%)	13 (4.5%)	10 (3.7%)
1931	260	242 (93.0%)	9 (3.5%)	9 (3.5%)	— —	— —
1932	260	245 (94.2%)	3 (1.2%)	12 (4.6%)	— —	— —
1933	253	244 (96.4%)	4 (1.6%)	4 (1.6%)	1 (0.4%)	— —
1934	261	249 (95.4%)	4 (1.5%)	6 (2.3%)	2 (0.8%)	— —
1935	252	235 (93.2%)	3 (1.2%)	7 (2.8%)	5 (2%)	2 (0.8%)
1936	252	244 (96.8%)	2 (0.8%)	5 (2%)	1 (0.4%)	— —
1937	253	235 (92.9%)	11 (4.3%)	6 (2.4%)	0 —	1 (0.4%)
1938	254	251 (98.8%)	1 (0.4%)	0 —	1 (0.4%)	1 (0.4%)
1939	259	254 (98.0%)	1 (0.4%)	3 (1.2%)	1 (0.4%)	— —
1940	261	244 (92.7%)	2 (0.8%)	10 (3.8%)	5 (1.9%)	2 (0.8%)
1941	266	255 (92.1%)	10 (3.7%)	8 (3%)	1 (0.4%)	2 (0.8%)
1942	254	244 (96.1%)	3 (1.2%)	2 (0.8%)	5 (1.9%)	— —
1943	255	253 (99.2%)	—	—	2 (0.8%)	—
1944	255	239 (93.7%)	—	6 (2.4%)	7 (2.7%)	3 (1.2%)
1945	255	246 (96.5%)	—	3 (1.2%)	4 (1.5%)	2 (0.8%)
1946	254	252 (99.0%)	—	1 (0.4%)	1 (0.4%)	—
1947	257	249 (96.9%)	1 (0.4%)	1 (0.4%)	6 (2.3%)	—
1948	253	246 (97.2%)	0 —	3 (1.2%)	1 (0.4%)	3 (1.2%)
1949	254	246 (96.8%)	2 (0.8%)	4 (1.6%)	2 (0.8%)	—

The bacteriological results indicate that a high degree of purity was maintained during the year, indicating a corresponding degree of efficiency in the purification plant.

Section VIII.—Sanitary Department.

Table 76—Return of work performed by Sanitary Inspectors.

District	INSPECTION OF											SERVED	
	Houses and Yards	Tenement Houses	Tenement Rooms	Infected Dwellings	Common Lodging Houses	Milk Shops	Bakeries	Work Shops	Slaughter Houses	Factories	Out-workers	Justices Orders	Notices to abate nuisance
No 1 ...	6336	287	1914	10	5	86	5	140	—	—	—	6	501
No. 2 ...	3787	1765	6257	11	27	5	6	27	3	—	—	12	310
No. 4 ...	5813	642	1848	72	—	101	21	216	34	—	—	10	152
No. 5 ...	4690	444	4470	139	122	12	76	3	—	—	—	5	97
No. 6 ...	1934	1647	2567	30	65	6	—	19	—	—	—	12	356
No. 7 ...	6904	1869	3951	45	1	—	1	19	7	—	—	13	386
Female Inspector	—	—	—	—	—	—	284	2278	—	1393	137	—	—
Totals ...	29,464	6,654	21,007	307	220	210	393	2702	44	1393	137	58	1802

District No. 3 is divided for purposes of supervision between Districts No. 2 and 4.

The number of inspections carried out by the Corporation Drain Tester was 3,474

Table 77.—Summary of Inspections, etc.

	No. of Inspections
Houses, yards, etc.	28,964
Tenement Houses	6,654
Tenement Rooms	21,007
Infected Dwellings	307
Common Lodging Houses	220
Bakeries	393
Workshops	2,702
Outworkers	137
Factories	1,393
Milk Shops	240
Slaughter Houses	44
Drains and W.C.'s Tested	3,474
Number of Notices to abate nuisances	1,802
Number of Justices' Orders	58
Amount of fines imposed in respect of same	£10 1 6

Table 78.—Return of Inspections made by **Veterinary Staff** during the year :—

Slaughter Houses	2,317
Butcher Shops	3,766
Tripe Houses	429
Meat Markets	1,174
Milk Shops	1,547
Milk Vans	1,705
Cowsheds	35
Sausage Factories	1,135
Hawkers' Stands	1,362
Provision Shops	1,573
Pork Shops	689
Fish Shops	545
Fruit Shops	24
Cold Stores	2
No of Prosecutions Amount of Fines imposed }	See Section V., Prosecutions

SHOPS (CONDITIONS OF EMPLOYMENT) ACT, 1938.

In the following table are set out particulars of the work done by the Shops Inspectors during the year.

Number of Inspections, 2,109

Particulars of Defects Found :

Insufficient Ventilation	3
Insufficient Heating	9
No Heating Provided	3
No Seating Accommodation	17
Insufficient Sanitary Accommodation	1
No Sanitary Accommodation	—
No Washing Accommodation	—
Total	33

Exemption Orders served (*re* Sanitary Accommodation)	—
Works Notices served	1
Verbal Notices	33

As in former years recommendations of the inspectors have been generally complied with and, in fact, it was not found necessary in any instance during the year to initiate court proceedings.

Section IX.—Housing

Houses erected and let	2934
Houses erected and bought out	184
Houses erected and still repaying mortgage	138
Houses under construction	212

Assistance to private persons and Public Utility Societies :—

(a) Under Section 6 of the Housing Acts, 1925–28... £4,685 0 0
(b) Under the Housing Acts £10,405 0 0

Assistance under Small Dwellings Acquisition Acts :—

(a) To houses built by Public Utility Societies ... £103,125 0 0
(b) To houses built by Private Individuals ... £58,347 10 0

Amount expended by Corporation on Working Class Dwellings £1,332,371 0s. 0d.

Table 79.—The number and rents of the various houses built by the Corporation to date.

Location	No. of Houses	Year Built	Weekly Rents (Including Rates)
Madden's Buildings	76	1886	4/10 to 7/-
Ryan's Buildings	16	1886	2/7 to 5/11
Horgan's Buildings	126	1891	3/1 to 6/2
Roche's Buildings	128	1892	3/2 to 6/7
Corporation Buildings	33	1900	5/6
Sutton's Buildings	46	1905	6/2 to 7/-
Kelleher's Buildings	50	1906	6/2 to 7/1
Barrett's Buildings	89	1906	4/8 to 6/2
MacCurtain's Villas	76	1922	12/4d. to 13/-
McSwiney Villas	40	1923	12/-
Frenche's Villas	30	1923	10/- to 11/8
Capwell	148	1928	8/6 to 10/6 and 14/-
Turner's Cross	152	1930	8/-, 10/- and 13/-
Turner's Cross Extension	168	1932	12/5 and 13/6
Gurranebraher 1	252	1934	3/5 to 17/-
,, 2	108	1935	3/5 to 17/-
,, 3	78	1936	3/5 to 17/-
,, 4	82	1936	4/6 to 19/2
Common's Road 1	170	1936	4/5 to 19/6
,, 2	106	1937	4/5 to 19/2
Bandon Road	86	1936	3/10 to 18/10
Baker's Lane 1	266	1938	4/5 to 19/2
,, 2	242	1940/1	4/5 to 19/1
Farranferris 1	206	1939	4/5 to 19/6
Assumption Road	70	1941	17/3, 17/4
Greenmount	210	1941/2	4/6 to 19/- & 1 24/-
Cathedral Road	90	1946	21/- to 24/11
School Place	10	1947	21/-
St. Anne's Park	23	1948	21/-
Fuller's Road	23	1948	21/- and 25/-
Mount Eden Terrace	14	1948	21/-, 21/7 21/8
Barrett's Terrace	42	1949	21/
Ballyphehane	89	1950	15/-, 20/-, 25/-
Friar's Walk	17	1950	25/-, 30/-
Total ...	3362		

Section X.—Port Health.

The Public Health Department is now undertaking the functions of the dissolved Port Sanitary Authority and in addition is executing the Infectious Diseases (Shipping) Regulations, 1948, in the functional area of the County Council.

Limits of Jurisdiction.

These are definedin The Cork Port(Enforcement of Health Regulations) Order, 1948, as follows :—" The expression " the Port " means the whole of that part of the customs port of Cork which lies between Power Head and Cork Head in the County of Cork, together with the waters of the said port of Cork within such limits and all docks, basins, harbours, creeks, rivers, channels, bays and streams within the aforesaid limits and the places for the time being appointed as the customs boarding station or stations for such part of the said port and the places for the time being appointed under the Health Regulations for the morring or anchoring of a ship.

Deratization and Deratization Exemption Certificates.

Authority to issue the above is given by articles 19 and 20 of the Infectious Diseases (Shipping)Regulations 1948.

These certificates are almost identical in every way to the International form of deratization and deratization exemption certificate drawn up by the office International d'Hygiene Publique under article 28 of the 1926 Convention and reprinted in the supplement to the Weekly Epidemiological Record, R.E.H. 174, dated 26th April, 1950. During the year 9 exemption certificates were issed.

Issue of Deratization and Deratization-exemption Certificates.

The Quarantine Commission of the United Nations Health Organization Interim Commission at their session during October, 1946, discussed the very many difficulties that arose in the estimation of the rat population on board vessels with a view to the issue of deratization and deratization exemption certificates, and surveyed the possibility of laying down an " index " which would be a basis for this purpose. At the request of the Commission, Dr. M. T. Morgan, Medical Officer of Health, Port of London, undertook to investigate this complex problem. The work was published under the auspices of the U.N.H.O. on the 22nd September, 1947, in the form of a note. This indicates quite clearly the conditions under which exemption certificates might be granted together with conditions calling for fumigation. As it appears to be very desirable to obtain uniformity on these matters, certificates have been issued in this port during the past 2 years on the basis of the published " index ".

Craft carrying Displaced Persons.

Two vessels the S.S. " Sarabande " and M.V. " Victory " both converted ex naval craft, carrying 252 and 384 displaced persons respectively from the Baltic ,put into the port during the year. All on board each vessel were inspected immediately on arrival. With the exception of three cases of suspected food poisoning and one case of tuberculosis on the former vessel the general health of these peoples was good. After refueling and revictualling, the " Sarabande " departed for Canada after a stay of a week. During its period in the port, the Corporation shower

baths were made available to all. Ample supplies of medical requisites were supplied to the Master for use on the voyage by the generosity of the Irish Red Cross Society, the Cork Pharmaceutical Guild and many local sympathisers. The M.V. " Victory " required under-water repairs on arrival and in order to carry out these, it was found necessary to arrange for the temporary transfer of the majority on board to the disused military camp at Rockgrove. Subsequently this craft was refused permission to proceed on its voyage and, with the exception of a maintenance crew, those who had remained on board were removed to the camp.

There was serious overcrowding on both vessels, particularly on the " Victory " where the superficial area per passenger was almost negligible. Sanitary accommodation on both cases was insufficient. On the " Victory" two permanent and two temporary closets were provided for over three hundred adults the latter being manually flushed with sea water by means of a bucket. Medical supplies carried by this vessel were limited in the extreme and it is doubtful whether sufficient material would be available for the treatment of even minor accident cases.

Cuskinny Intercepting Hospital.

The intercepting hospital is situated about two miles east of the town of Cobh and about half-a-mile from Cuskinny Strand on the northern shore of the harbour. The hospital was built in the year 1880 by the old Cork Board of Guardians and was acquired by the Port Sanitary Authority in the year 1902 from the Commissioners of Public Works (Ireland) and since has been kept in good repair and condition. This property has now been vested in the Cork Corporation. The function of the hospital is to deal with the more serious types of infectious disease (e.g.,) small pox, plague, cholera, typhus, etc.) should any such cases arrive in the port necessitating hospital treatment or isolation. Infected vessels would moor at the quarantine anchorage, the patient being removed by motor launch and landed at Cuskinny Strand or some suitable slipway and transferred to ambulance for transport to the hospital.

Infectious Diseases (Shipping) Regulations, 1948.

These Regulations became operative from 1st July, 1949 and are designed to prevent the importation of the conventional diseases, smallpox, plague etc., together with diseases listed in the first schedule of the Regulations. It is now necessary for the Master of every vessel entering the district from a foreign port to complete and sign a declaration of health form which must be handed to the boarding officer of the customs and excise, the City Medical Officer or other officer of the health authority, whoever should board the vessel first. Free pratique will not be granted if the answers to any of the questions set out on the face of this form are in the affirmative.

Unauthorised Boarding.

A few reports have been received from the Customs Authorities in connection with unauthorised boarding of vessels from foreign ports before they are free from control. Subsequent investigations on this matter shewed that quay labourers, against whom complaints had been made, were not conversant with the new Regulations and have given verbal undertakings to co-operate in every way with this department. A letter

to stevedores, trade union representatives and others, with business on board vessels, was circulated ,and it is felt that there will be no recurrence of these incidents. The object of these restrictions is to guard against the introduction of infectious disease. It is the duty of the officer of customs and excise to enquire specifically into the health of the crew and passengers arriving from foreign ports and until he is satisfied on this score, no one, except certain named categories can board or leave these vessels.

Disinfection of Second-hand Clothing, etc.

A little confusion appears to have arisen among importers of cleaning rags and secondhand clothing in regard to the requirements of article 20 of the Infectious Diseases Regulations, 1948, which govern such matters. This specifically states that such article shall be accompanied by a certificate issued by a Medical Officer of Health that it has been effectually disinfected by steam or in the case of an article liable to be damaged by steam, by other recognised means which shall be specified in the certificate. Several certificates indicating chemical disinfection of imported goods obviously of a type and substance suitable to steam disinfection, had to be rejected. As a general rule all second hand clothing is subjected to steam disinfection with the sole exception of flimsy and delicate silks, fur coats, boots, shoes, etc., which would be damaged under this process. These are placed in a specially constructed timber cabinet and exposed to a strong concentration of formaldehyde gas for a period of not less than twenty-four hours. Cleaning rags in all cases undergo steam disinfection at a pressure recommended for the destruction of sporing organisms.

A total of 12 tons, 9 cwts, 2 qrs. of imported secondhand clothing and cleaning rags were disinfected during the year.

Cases of Infectious Diseases.

Two cases of measles, 3 cases of suspected food poisoning and 1 case of tuberculosis were landed in the port and isolated.

Measures against Rodents.

All vessels from foreign ports are boarded after arrival by the Port Health Officer who, after satisfying himself as to the health conditions and to the validity of the deratization certificate proceeds to the examination of the vessel in regard to rat infestation, particular attention being paid to cargo surfaces as soon as the holds have been opened up. The various cargo compartments are searched for sick or dead rats, which, if found, are submitted at once for bacteriological examination. During the period under review it is significant to report the complete absence of rat life on board a larger number of foreign going vessels which discharged in the port then hitherto. Compared with the number found infested during the immediate pre-war years, there are now positive indications of the immense strides that have been made in the past decade in the control of the ship rat. Shipowners have no doubt contributed in no small degree to this satisfactory position by the part elmination of conditions conducive to the nesting of rats on board their vessels. The gradual change over from solid fuel to oil fuel for steaming purposes has also helped by the elimination of semi-permanent harbourages in the various bunker spaces. Whilst excellent progress has generally been made in the proofing of hold spaces it would appear from inspections carried out here that the same

attention has not been given to potential harbourages and runs under the deck heads of upper cargo spaces. These consist of electric cable junction boxes and sheet metal casings protecting electric wires. Although it has been the practice here to advice shipowners on the protection of small spaces vulnerable to rat nesting, this cannot be considered satisfactory as it is indicative of the employment of neophytes on this work in the shipyards. A case might therefore be made for investigation into this matter by W.H.O. with a view to having rat proofing on board vessels approved by riparian authorities before they are put into commission.

The following measures would be adopted in this port in the event of a vessel being found effected with human or rodent plague to prevent egress from ship to shore :—

(1) Vessel would be breasted off at least six feet from the quayside by placing wood floats between it and the quay wall.

(2) Besides the adjusting of rat guards, moorings would be parcelled with old canvas on shore side of rat guards and same smeared with Stockholm tar.

(3) Gangway would be required to be lifted from sunset to sunrise.

(4) Intensive trapping and examination of rodents caught in the immediate neighbourhood of the ship's berth.

Of all diseases liable to be introduced by shipping, *plague* is without doubt the most to be feared, hence the necessity for the stringent precautions in regard to its prevention. Several of the ports from which shipping arrives in Cork are situated in countries in which plague is endemic, even though the ports themselves may not actually be infected at the time of departure. There is, however, the ever present danger of the importation of *plague infected rats* from such ports and it is in consequence of this danger that so much importance is attached to the systematic trapping and examination of rats taken on vessels coming into this port. As there is always a certain amount of migration of rats from ships to the shore while vessels are tied up at their moorings it is also necessary to maintain a constant sampling and examination of the shore rats taken in warehouses adjacent to the quays. It will be noted from the appropriate tables that of 44 rats taken during the past year, 29 were submitted to post-mortem examination and that all gave negative results. In the previous year 51 were trapped, of which 34 were examined, also with negative results. The rats are examined in the first instance by the Inspector, under the supervision of the Chief Veterinary Officer. In the event of a suspicious finding, the carcase would be referred to the Bacteriological Department of University College for a further examination.

The fact that so many rats have been examined and found negative is not by any means an indication for relaxation in the measures which have been adopted in connection with their reduction and the prevention of plague. One infected rat coming ashore might be the cause of an outbreak among the shore population and from time to time we are reminded of this ever present danger by the discovery of plague infected rats in other ports. Plague is rarely transferred from one human being to the other, such transfer requires an intermediary and the agent is almost always the rat flea. It is only when an epizootic breaks out among the rats and large numbers die that the infecting flea seeks a new

host and may transfer his attention to human beings. In countries where the disease is endemic, outbreaks among human beings are always heralded by excessive mortality among rats. Excessive rat mortality on board ship is a very suspicious sign of plague infection and masters are bound to notify any such happening at the port of arrival. Plague is such a deadly disease that no relaxation in preventive measures can be tolerated and for this reason it is necessary to keep up a constant watch over vessels arriving from foreign parts and for systematic examination and extermination of rats.

Water Supply.

Drinking and boiler water is obtained directly from the public supply. There are upwards of 80 such hydrants available in this port. As mentioned in the section dealing specifically with the supply to the City, the water is subjected to systematic sampling and bacteriological examination throughout the year. 263 samples were examined during the year and the results indicated that the water was of first-class quality.

Table 80.—Return of Shipping—other than vessels not shipping or unshipping cargo—entering the Port since 1932.

Year	Number of Arrivals			Tonnage		
	Foreign	Coastwise	Totals	Foreign	Coastwise	Totals
1932	315	1,375	1,690	352,459	602,509	954,968
1933	399	893	1,292	371,757	462,047	833,804
1934	404	817	1,221	407,188	463,169	870,357
1935	285	1,015	1,300	323,631	525,062	848,693
1936	249	1,053	1,302	277,779	583,922	861,701
1937	250	1,098	1,348	300,730	594,396	895,126
1938	239	1,084	1,323	280,403	598,114	878,517
1939	202	1,074	1,276	274,660	521,801	796,461
1940	116	1,053	1,169	174,087	373,841	547,928
1941	—	522	522	Nil	203,976	203,976
1942	Figures not available.					
1943	do.			do.		
1944	do.			do.		
1945	do.			do.		
1946	83	653	736	92,416	307,694	400,110
1947	148	535	683	276,194	283,626	559,820
1948	149	787	936	245,967	510,986	756,953
1949	215	779	994	262,479	558,251	820,730

Summary of Inspections, Defects and Nuisances.

Description	Number of Arrivals	Tonnage of Arrivals	Number Inspected	Number Defective & Nuisances Found	No. of Defects & Nuisances Remedied
Foreign Steamers Direct & Indirect	215	262,479	135	29	24
Coastwise Motor & Steam	779	558,251	585	120	110
Total	994	820,730	720	150	134

Table 81.—Return of Vessels entering the Port which were dealt with by the Department each month during 1949.

Month	Foreign Direct & Indirect	Coastwise	Total
January ...	3	50	53
February ...	16	45	61
March ...	14	53	67
April ...	14	50	64
May ...	16	51	67
June ...	10	46	56
July ...	7	54	61
August ...	9	17	26
September ...	12	65	77
October ...	8	47	55
November ...	13	57	70
December ...	13	50	63
Totals ...	135	585	720

Table 82.—Return of Imports and Exports from 1932.

Year	Imports (tons)	Exports (tons)
1932	890,377	104,884
1933	710,149	89,319
1934	784,174	66,606
1935	743,939	63,219
1936	788,545	73,673
1937	829,704	78,530
1938	802,238	65,147
1939	900,644	105,659
1940	734,888	74,517
1941	262,222	37,448
1942	Figures not available	
1943	do.	do.
1944	do.	do.
1945	do.	do.
1946	375,494	36,159
1947	557,566	35,293
1948	651,848	48,884
1949	700,929	49,442

Sanitary defects and nuisances dealt with during 1949.

Dirty Focsles	77
Dirty Store Rooms, Wash Places and Lockers	8
Dirty Mess Rooms and Cabins	12
Dirty Ice Box	1
Damp Quarters	14
Leaky Deckheads	20
Defective Port Frames Discs and Prisms	35
Defective W.C. Fittings	12
Defective Bogie Stoves	3
Defective Flooring Boards	1
Defective Lockers	2
Defective Shell Plating	6
Defective Steam Heaters	5
Verminous Quarters	8
Foul Water Closets	19
Ships' Gear in Accommodation	1
Defective Hawse Pipes	1
Choked Soil Pipes	1
Total ...	226

Verbal Notices Given	91
Written Notices Left on Board	56
Letter to Owners	1
Total ...	148

A total of 1299 inspections of vessels were carried out during the year.

TABLE 83—RATS TRAPPED ASHORE.

Month	No.	Mus Decumans	Mus Alexandrinus	Mus Rattus	Species Unknown	No. of P.M. Exam.*
Jan. ...	1	—	1	—	—	1
Feb.	3	2	1	—	—	2
March ...	6	1	4	1	—	5
April ...	6	—	3	3	—	3
May ...	2	—	1	1	—	1
June ...	1	—	1	—	—	1
July ...	5	1	3	1	—	3
August	1	—	1	—	—	—
Sept. ...	3	—	1	2	—	2
Oct. ...	5	2	1	2	—	3
Nov. ...	4	1	1	2	—	1
Dec. ...	1	—	—	1	—	1
Total ...	38	7	18	13	—	23

* All P.M. Examinations proved Negative.

TABLE 84—RATS TRAPPED ON VESSELS

Month	No.	Mus Decumans	Mus Alexandrinus	Mus Rattus	Species Unknown	No. of P.M. Exam*
January	—	—	—	—	—	—
Feb. ...	1	—	—	1	—	1
March	—	—	—	—	—	—
April	—	—	—	—	—	—
May ...	—	—	—	—	—	—
June ...	—	—	—	—	—	—
July ...	—	—	—	—	—	—
August	—	—	—	—	—	—
Sept. ...	—	—	—	—	—	—
October	2	—	2	—	—	2
Nov. ...	2	—	—	2	—	2
Dec. ...	1	—	—	1	—	1
Totals	6	—	2	4	—	6

* All P.M. Examinations proved negative.

Section XI—Meteorology.

I am indebted to Prof. H. N. Walsh, University College, for the following particulars concerning the weather conditions during the year, and more especially for the trouble which he has gone to to bring up to date the Tables which follow.

Table 85.—Rainfall in inches for each quarter and for each year from 1901 to present year.

Year	I.	II.	III.	IV.	Total
1901	10.07	7.62	10.75	10.12	38.56
1902	9.29	7.80	7.31	12.88	37.28
1903	16.89	8.80	14.95	12.13	52.77
1904	13.63	5.71	10.41	7.47	37.22
1905	11.70	6.59	9.82	9.14	37.25
1906	9.46	5.76	5.58	9.03	29.83
1907	4.06	10.10	7.40	16.02	37.58
1908	7.67	5.28	10.16	9.53	32.64
1909	7.61	9.94	2.62	9.74	29.91
1910	10.70	7.24	8.64	11.98	38.56
1911	5.94	6.89	7.87	18.47	39.17
1912	13.46	7.07	9.30	7.05	36.88
1913	13.92	10.32	7.73	12.49	44.46
1914	13.72	3.60	9.85	15.20	42.42
1915	11.62	6.27	9.26	15.68	42.83
1916	8.68	9.19	7.37	21.11	46.35
1917	8.75	6.93	9.40	7.25	32.33
1918	14.75	5.59	13.37	13.73	47.44
1919	10.78	7.11	6.77	6.97	31.63
1920	11.75	14.12	8.90	13.24	48.01
1921	8.04	2.22	8.71	9.90	28.87
1922	13.08	5.45	10.57	8.15	37.25
1923	14.41	5.38	10.71	10.54	41.04
1924	12.32	9.76	11.82	17.66	51.56
1925	10.31	10.49	8.43	11.92	41.15
1926	15.42	8.19	4.68	9.55	37.84
1927	12.20	6.16	11.45	16.06	45.87
1928	16.14	13.86	8.31	17.35	55.66
1929	11.28	6.72	7.27	20.91	46.18
1930	14.98	5.91	12.67	14.35	47.91
1931	12.30	10.35	8.34	13.27	44.26
1932	8.54	8.11	7.31	13.62	37.58
1933	8.61	8.74	5.22	6.47	29.04
1934	9.66	7.13	11.49	13.75	42.03
1935	5.33	9.33	9.98	10.97	35.61
1936	16.77	4.51	9.13	9.88	40.29
1937	19.67	6.12	7.90	8.52	42.21
1938	9.22	7.38	7.99	15.14	39.73
1939	13.01	4.94	7.43	16.53	41.91
1940	14.74	6.64	3.80	17.96	43.14
1941	12.82	5.47	5.73	14.40	38.42
1942	11.39	8.43	8.21	8.17	36.20
1943	11.59	7.47	8.80	10.99	38.85
1944	4.79	5.16	11.43	16.34	37.72
1945	8.90	6.23	10.30	12.25	37.68
1946	9.50	7.84	12.52	15.82	45.68
1947	21.07	12.36	6.38	11.29	51.10
1948	13.06	6.02	7.53	23.80	50.41
1949	4.73	7.64	8.05	11.81	33.23

The mean temperature for 1949 was : 52.3°F. The warmest day was 24th June with a maximum shade temperature of 84°F. The warmest night was 20th August, with a minimum shade temperature of 64°F. The coldest night was March 3rd with a minimum shade temperature of 26°F.

Table 87—Temperature at Cork (in the Shade) from 1884 to Present Year.

YEAR	January			February			March			April			May			June			July			August			September			October			November			December			Mean Temperature of Year
	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	
	Degrees			Degrees			Degrees			Degrees			Degrees			Degrees			Degrees			Degrees			Degrees			Degrees			Degrees			Degrees			
1884	55-31-45.5			54-31-46.5			54-30-45.5			57-34-48.5			68-37-55.5			73-40-59.0			72-45-61.5			74-44-62.2			71-45-58.5			60-34-52.2			60-28-45.2			55-28-41.3			51.8
1885	54-27-41.7			50-27-43.5			54-30-43.5			62-30-48.2			61-34-52.0			73-42-59.2			80-43-62.0			74-46-60.5			65-36-55.2			57-35-46.7			58-31-46.7			54-25-39.5			49.9
1886	52-23-38.0			52-28-41.5			57-25-41.5			65-32-46.7			65-33-50.5			76-45-57.7			79-44-59.5			76-45-60.5			65-39-56.5			64-37-51.5			58-29-45.0			50-22-39.0			49.0
1887	54-30-43.0			54-27-43.5			58-25-42.0			62-26-44.5			70-35-52.5			81-47-62.5			80-47-64.2			76-42-60.7			69-39-55.0			61-28-48.2			54-24-42.0			55-25-39.7			50.0
1888	54-26-43.0			52-26-38.2			56-26-40.7			59-28-46.5			68-39-53.2			73-39-57.0			70-40-57.5			74-42-60.0			66-37-55.5			63-31-50.5			58-27-48.0			56-28-44.7			49.6
1889	58-26-43.0			57-27-42.2			59-29-44.7			58-32-46.7			68-40-48.0			77-46-58.0			77-45-60.0			72-43-58.7			70-38-57.2			59-32-48.2			60-29-48.2			56-29-44.2			49.9
1890	55-29-44.0			54-29-42.5			58-28-45.2			61-29-48.0			70-39-53.0			73-45-58.0			72-43-58.4			72-40-58.4			75-42-50.2			66-34-53.0			60-24-44.6			52-25-39.0			50.3
1891	53-23-40.3			56-31-45.7			61-22-42.1			60-31-46.9			73-34-50.0			78-40-58.6			75-44-59.0			73-40-58.0			71-39-56.5			61-29-48.5			53-28-42.6			55-26-44.0			49.4
1892	55-20-39.2			55-25-42.3			57-24-40.0			62-27-47.2			66-37-53.1			73-39-56.2			73-44-59.0			70-44-60.0			68-37-55.0			56-28-45.0			56-31-47.2			53-27-42.7			49.7
1893	53-21-40.5			53-24-42.5			60-34-47.5			67-31-51.5			69-43-56.5			80-46-59.8			74-46-61.2			77-45-61.7			71-33-55.2			63-31-49.0			59-30-43.0			53-26-42.5			50.9
1894	53-11-39.5			56-28-44.6			57-33-44.8			62-37-49.0			67-34-50.0			71-38-57.0			72-45-69.0			71-44-57.5			66-36-53.5			66-33-49.5			59-28-46.0			54-29-44.5			49.6
1895	47-23-36.5			48-22-34.5			63-27-44.0			61-31-48.2			70-33-53.0			74-40-58.7			70-44-58.7			70-43-59.0			71-46-58.9			62-28-46.0			56-30-45.0			54-26-42.5			48.7
1896	53-26-43.0			55-32-45.2			56-31-46.5			65-34-50.0			74-33-56.2			82-47-60.5			75-42-60.0			73-41-57.5			68-41-55.0			65-30-43.2			53-29-42.0			53-23-40.0			49.9
1897	50-22-37.5			56-32-46.0			55-31-44.0			58-29-46.0			70-35-51.0			75-41-59.0			77-43-61.0			80-45-59.5			67-38-53.2			61-37-52.2			58-32-47.2			53-29-44.0			50.1
1898	55-32-45.8			54-26-41.5			58-28-41.0			60-31-47.7			67-34-51.0			74-39-56.8			78-44-59.5			73-46-69.5			72-40-58.7			64-34-51.3			59-30-44.0			55-27-45.4			50.3
1899	53-26-40.1			52-29-43.0			64-22-43.0			63-29-46.6			65-34-50.6			78-41-59.5			76-45-60.0			76-46-62.3			71-31-54.1			60-29-47.9			55-39-47.2			51-24-40.0			49.5
1900	54-27-39.5			52-14-35.4			51-25-38.6			65-33-47.8			68-36-50.7			75-42-56.8			75-45-60.1			71-42-57.0			67-38-55.1			63-32-48.1			57-29-41.7			52-26-42.3			47.9
1901	49-24-37.8			49-22-35.8			51-34-38.9			59-39-45.0			68-34-51.9			72-37-54.2			76-46-60.2			75-41-57.5			67-39-54.0			61-31-47.6			54-19-41.2			51-26-37.5			46.8
1902	50-25-40.6			52-19-36.6			57-30-44.0			57-29-44.0			67-31-47.3			74-38-53.1			74-40-56.0			68-40-56.2			68-36-53.6			62-34-57.4			55-30-43.5			52-25-39.0			46.8
1903	50-22-39.5			52-29-42.7			52-29-41.1			57-27-43.7			69-36-50.4			70-35-54.0			74-43-56.6			68-40-54.3			64-36-52.4			60-28-46.2			55-24-41.0			48-22-37.0			46.4
1904	49-27-38.5			49-24-37.2			52-25-39.1			60-32-44.4			65-32-48.6			69-49-54.2			73-40-57.3			69-41-56.4			63-38-52.5			63-35-50.2			57-25-43.5			52-28-43.0			47.4
1905	51-29-42.0			55-23-41.6			53-30-42.6			58-33-46.4			68-36-52.6			75-42-58.0			76-45-60.0			70-42-55.5			68-39-53.6			62-26-45.0			52-23-39.0			50-30-43.3			48.3
1906	50-28-41.1			47-25-38.0			58-30-42.6			59-29-44.3			64-33-49.7			75-42-57.8			74-44-59.0			73-44-59.8			71-40-55.0			63-29-49.0			55-29-44.0			53-20-39.0			48.4
1907	49-18-39.6			52-25-38.4			57-32-45.8			64-30-45.4			65-35-48.7			69-49-53.5			78-41-58.6			68-43-57.0			68-38-57.0			60-28-45.9			52-29-49.8			49-27-39.5			47.5
1908	52-23-38.5			53-31-43.0			52-29-40.4			56-26-43.4			68-37-52.0			71-40-55.7			80-46-59.5			74-44-58.2			67-38-53.5			64-33-53.0			56-28-45.7			51-30-41.1			49.0
1909	51-28-40.3			52-22-39.6			56-23-40.6			61-31-46.8			66-33-51.0			69-41-54.0			71-45-58.6			79-43-59.7			65-37-52.3			64-26-49.0			55-20-38.2			50-24-38.3			47.4
1910	50-25-38.5			53-27-39.0			55-30-41.0			60-29-43.9			68-34-51.4			66-44-55.5			70-45-57.5			69-46-57.0			68-37-54.5			62-34-49.0			53-24-39.0			50-28-41.5			47.3
1911	50-27-39.2			53-22-39.7			56-29-40.3			59-27-40.9			70-37-52.2			72-45-56.7			79-44-61.0			73-45-60.2			73-39-54.3			57-31-48.0			53-26-39.9			49-27-39.3			48.0
1912	50-27-40.8			50-32-40.0			57-32-41.8			61-32-47.0			63-36-51.2			66-32-52.9			74-44-55.7			61-36-51.3			68-36-53.5			61-31-50.1			59-33-49.2			54-30-44.3			48.1
1913	52-27-40.6			54-32-43.6			55-34-45.0			59-29-44.7			64-36-49.5			75-38-54.0			74-47-55.9			74-40-58.8			72-44-57.6			61-32-51.5			60-34-48.9			56-33-45.6			49.6
1914	54-43-48.5			55-50-53.0			55-50-52.4			60-53-56.9			62-55-58.2			70-59-64.4			69-53-64.8			67-63-64.6			66-60-62.6			62-55-58.4			58-50-53.4			53-46-50.0			47.2
1915	50-37-43.5			45-25-35.0			58-35-46.5			50-35-42.5			62-40-51.0			64-40-52.0			62-42 52.0			65-43-54.0			62-40-51.0			55-37-46.0			48-28-38.0			40-28-34.0			44.9
1916	50-36-43.3			47-30-39.1			45-30-37.8			49-36-42.6			60-34-47.4			55-40-47.8			66-40-53.4			65-49-57.7			60-40-50.0			56-36-46.4			47-32-40.4			40-24-32.5			44.8
1917	52-22-36.0			50-24-35.0			52-23-39.25			59-30-41.5			70-32-50.25			66-40-52.25			68-40-55.4			70-46-56.12			66-26-51.25			56-36-40.8			58-30-44.5			56-26-38.4			45.7
1918	50-22-36.0			54-32-43.0			56-26-41.0			64-32-48.0			67-33-50.0			76-36-56.0			76-40-58.0			74-40-57.0			64-36-50.0			62-30-46.0			54-26-40.0			54-26-40.0			47.0
1919	54-24-36.0			50-26-39.0			50-24-37.8			56-30-43.2			72-34-51.2			68-36-51.0			74-40-56.0			80-40-57.5			64-34-49.7			62-36-44.6			56-14-34.5			54-28-41.0			46.0
1920	52-30-40.0			50-30-39.8			50-30-41.3			56-36-46.3			66-28-46.3			68-34-53.7			66-42-53.5			66-40-53.2			68-32-51.2			60-36-48.5			56-24-41.6			50-20-36.0			45.9
1921	60-25-44.7			50-24-36.2			50-24-37.5			58-26-41.5			70-34-48.4			76-32-55.0			80-40-60.0			74-38-54.2			64-32-48.2			62-28-47.4			46-20-39.7			50-28-41.2			46.2
1922	56-20-49.1			48-24-37.2			46-24-34.5			48-22-34.8			80-30-61.0			74-40-54.0			72-38-67.2			72-36-54.0			66-36-52.3			60-20-56.0			66-30-44.0			54-26-39.2			48.6
1923	54-27-43.4			55-29-43.6			56-30-45.1			58-31-46.2			65-33-49.3			65-33-49.3			79-48-62.2			78-42-59.6			69-37-53.4			61-30-49.5			58-20-38.8			53-25-43.0			49.2
1924	53-29-43.8			51-26-41.4			56-25-42.5			62-27-46.0			65-35-51.5			70-41-56.7			68-42-57.9			70-40-57.8			71-40-54.4			64-57-50.8			59-29-46.0			56-33-46.0			49.6
1925	55-31-44.4			55-28-41.8			60-29-43.8			57-30-45.6			62-34-50.3			81-44-59.5			75-45-60.2			74-43-60.2			68-35-53.3			69-32-52.5			59-24-41.2			56-21-39.8			49.4
1926	53-28-43.1			57-32-46.5			61-31-45.7			63-31-49.8			75-33-51.1			72-39-55.5			83-45-63.3			75-46-61.8			72-37-58.2			74-25-48.3			57-27-42.3			55-21-41.5			50.6
1927	60-28-42.3			57-26-44.1			57-27-45.9			65-29-48.4			72-36-53.5			70-38-54.5			74-50-61.1			76-46-59.9			70-36-54.5			65-35-52.2			61-23-43.5			52-26-40.8			50.1
1928	55-30-44.1			57-33-45.6			57-27-44.4			64-30-46.2			75-37-54.0			69-40-55.8			78-43-60.6			72-41-58.8			70-34-54.7			65-32-50.8			58-27-46.5			55-28-41.9			50.3
1929	54-23-39.8			56-28-43.5			69-26-46.3			65-33-47.9			75-31-52.4			71-41-56.7			75-42-59.8			72-44-59.6			74-39-58.9			63-31-49.5			59-24-44.8			56-27-42.7			50.2
1930	53-26-41.3			52-24-37.7			57-26-43.2			66-30-47.4			68-36-53.0			76-40-58.3			78-45-59.3			69-42-57.5			70-40-56.5			61-35-51.6			60-27-44.6			54-29-43.3			49.5
1931	53-27-41.2			55-30-42.2			56-25-43.5			64-34-48.3			65-35-52.7			72-43-58.4			71-43-59.5			76-37-59.4			65-23-49.8			61-29-45.8			58-27-44.5			58-27-44.5			50.1
1932	56-27-45.6			51-29-41.0			57-25-43.1			58-33-45.5			67-33-51.5			76-39-59.4			75-47-60.5			78-44-63.1			72-34-55.4			66-30-48.3			58-30-46.5			53-31-44.4			50.4
1933	56-23-39.1			58-24-41.7			60-33-46.3			61-30-49.2			68-41-54.4			72-47-60			82-47-63.7			81-45-62.6			78-35-60.1			67-34-51.0			58-25-43.4			51-26-40.4			51.0
1934	56-27-42.5			53-26-39.5			58-30-44.0			63-30-41.5			70-33-51.5			76-38-57.0			82-50 6.0			71-38-54.5			72-38-55.0			63-33-48.0			55-29-42.0			55-33-44.0			48.3
1935	55-26-40.5			57-24-40.5			59-27-43.0			67-34-50.5			70-30-50.0			75-48-61.5			76-44-60.0			76-41-58.5			70-40-55.0			65-55-50.5			55-24-39.5			52-19-35.5			48.7
1936	54-29-41.5			53-30-41.5			58-30-44.0			60-30-45.0			73-35-54.0			75-39-57.0			70-44-57.0			80-44-62.0			72-34-53.0			65-34-49.5			57-27-42.0			55-27-41.0			48.9
1937	58-26-42.0			57-30-43.5			54-25-39.5			66-37-51.5			72-30-51.0			71-43-57.0			77-45-61.0			77-45-61.0			70-40-55.0			65-29-47.0			56-25-40.5			54-24-39.0			49.0
1938	49-4-37-43.3			49-38-43.7			55-43-49.0			58-37-47.8			59-45-52.0			64-50-57.1			65-51-58.2			67-53-60.1			64-49-57.0			58-45-51.4			54-42-48.4			48-32-40.0			50.6
1939	46-36-41.4			55-40-47.9			51-37-44.5			56-41-48.5			63-46-54.7			68-48-58.6			65-52-59.3			69-54-62.0			64-51-58.1			56-39-48.1			54-43-48.8			64-35-40.8			51.0
1940	54-22-38.0			57-24-40.5			59-27-43.0			63-30-48.5			70-37-53.5			80-42-61.0			74-45-59.5			78-42-55.0			79-36-57.5			62-27-44.5			60-27-48.5			55-25-40.0			49.1
1941	51-23-37.0			58-25-42.5			59-28-43.5			62-31-46.5			66-30-48			79-45-62			73-42-57.5			78-44-61			75-42-58.5			66-32-49.0			56-28-42.0			55-35-45			49.3
1942	48-35-41.2			46-34-40.0			52-41-46.6			57-43-49.7			61-45-52.9			66-49-57.7			67-53-60.0			68-55-62.6			55-30-56 4			57-42-49.8			48-35-41.0			51-40-45.8			50.2
1943	54-28-43.4			57-32-45.3			63-27-46.2			67-34-51.5			68-31-52.1			79-43-57.8			77-44-56.1			72-43-59.4			69-35-55.6			62-30-51-0			59-28-45.8			53-29-42.3			50.5
1944	56-27-46.5			58-24-42.0			63-25-44.7			72-30-51.4			79-32-52.9			73-41-57.4			73-49-61.0			77-42-61.4			69-34-53.8			63-34-48.6			58-26-45.3			58-27-42.2			50.5
1945	54-15-35.5			57-32-44.5			61-32-46.5			69-29-49.0			73-31-52.0			71-41-56.0			75-47-61.0			77-45-61.0			72-44-58.0			67-40-53.5			59-31-45.0			57-32-44.5			50.6
1946	53-28-40.5			56-24-40			64-25-41.5			69-32-50.5			73-35-54			77-39-58			74-45-59.5			72-43-57.5			66-43-54.5			63-35-49			60-32-46			53-24-38.5			49.3
1947	45-34-40.1			38-30.34.5			48-36-42.8			55-41-48.6			59-45-52.3			63-51-57.0			65-53-54.3			74-55-64.8			65-51-58.0			59-46-52.7			52-45-48.6			48-37-42.5			49.7
1948	48-35-41.8			47-38-43.3			56-42-49.2			56-40-48.3			62-44-53.1			62-49-55.6			67-52-60.1			66-52-59.6			63-49-56.7			57-45-51.5			55-45-50.5			50-39-44.9			51.2
1949	57-30-43.5			58-31-44.5			59-26-42-5			69-30-49.5			73-34-53.5			84-37-60.5			81-50-65.5			78-45-61.5			73-42-57.5			70-30-50.0			57-27-42.0			56-28-42.0			51.0

Table 60.—Showing Monthly Rainfall in Cork from 1878 to Present Year.

Months	1878	1879	1880	1881	1882	1883	1884	1885	1886	1887	1888	1889	1890	1891	1892	1893	1894	1895
	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.
Jan. ...	2.26	6.32	1.70	1.29	3.93	6.63	6.19	4.01	3.09	4.80	3.45	2.82	6.09	2.30	3.35	5.98	6.15	5.73
Feb. ...	2.80	4.77	4.76	3.46	4.86	3.88	7.33	6.88	3.76	1.45	0.41	2.62	3.16	0.33	4.14	3.06	2.23	2.16
March ...	0.95	1.23	1.26	1.20	2.00	1.78	3.62	2.73	1.91	2.16	3.36	1.53	4.15	1.51	1.24	0.26	1.44	3.19
April ...	4.53	3.70	2.84	1.84	5.05	2.66	1.84	4.30	3.65	1.13	1.78	4.15	1.17	2.61	4.88	1.84	6.13	2.95
May ...	4.84	1.83	0.80	1.70	2.31	1.35	1.60	3.55	2.80	1.04	3.66	4.20	3.45	2.65	2.74	2.00	0.88	0.77
June ...	6.74	4.27	1.93	4.79	2.36	2.30	0.75	1.42	1.32	5.58	4.23	1.14	2.46	3.45	2.76	1.08	2.10	3.33
July ...	1.23	4.24	1.68	1.83	4.80	3.68	2.71	1.52	5.00	1.43	3.36	4.82	2.78	1.35	3.14	1.79	1.90	2.84
August...	5.06	2.84	1.67	4.95	3.20	4.12	0.88	4.37	2.76	2.9	3.34	1.31	2.18	3.99	7.75	3.42	2.62	4.93
Sept. ...	2.42	3.23	1.80	2.38	2.03	3.02	2.49	0.42	3.93	2.48	3.96	3.87	2.49	2.12	2.84	1.38	2.40	1.30
Oct. ...	2.97	0.38	2.48	3.89	4.90	3.60	1.73	3.14	6.10	2.75	2.94	3.67	1.48	4.78	3.27	2.55	6.29	2.97
Nov. ...	1.88	0.62	5.26	6.35	4.67	4.02	3.33	2.21	2.42	2.53	7.33	7.10	4.94	4.26	8.18	2.11	2.30	7.88
Dec. ...	2.24	1.76	3.13	3.30	4.87	1.06	3.84	2.34	4.77	3.12	7.60	3.13	3.02	4.27	3.84	5.29	3.36	11.35
Total ...	37.98	41.43	30.74	45.96	45.99	42.58	37.83	40.41	46.28	31.43	40.73	34.16	39.58	39.10	44.64	33.93	40.33	45.68
No. of Raindays	190	212	178	233	215	222	205	182	212	150	195	179	205	198	193	173	198	194

Months	1896	1897	1898	1899	1900	1901	1902	1903	1904	1905	1906	1907	1908	1909	1910	1911	1912	1913
	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.
Jan. ...	2.16	3.27	2.52	4.53	3.55	5.88	1.88	6.35	5.41	3.88	6.83	1.27	2.83	1.80	2.07	0.85	5.01	7.60
Feb. ...	1.95	2.87	1.93	6.28	4.16	1.72	6.32	3.45	0.98	2.60	3.30	1.96	2.31	2.15	3.61	1.82	4.75	2.30
March ...	2.99	6.29	0.63	1.82	0.76	3.02	1.77	6.34	2.56	2.45	1.23	3.93	3.38	2.77	2.80	3.29	3.63	4.00
April ...	0.43	5.38	3.70	3.06	1.68	4.42	3.22	2.41	2.82	2.44	1.40	2.70	1.67	4.75	1.88	1.77	0.54	2.39
May ...	0.16	1.68	2.34	2.34	2.65	1.88	2.03	2.69	2.25	0.46	3.24	3.88	2.81	1.53	1.84	1.46	1.36	4.57
June ...	2.16	3.06	2.92	1.37	4.26	2.08	3.13	3.60	2.14	2.52	1.84	3.39	1.20	2.79	3.66	2.86	3.37	2.09
July ...	4.73	0.56	1.29	1.85	1.84	0.61	2.71	5.82	4.23	2.96	3.02	3.44	3.71	3.51	2.16	2.02	5.18	0.23
August...	1.45	4.52	4.28	2.71	3.04	2.31	3.43	4.67	2.99	6.37	1.48	2.24	2.43	0.63	4.72	2.99	3.01	2.27
Sept. ...	3.45	2.43	3.04	1.55	1.81	6.32	1.56	4.22	4.02	2.41	0.43	1.18	4.34	0.48	1.37	2.54	1.03	5.27
Oct. ...	3.20	3.05	7.53	1.7	0.88	2.59	1.32	8.14	2.48	3.05	4.31	5.25	2.48	6.58	4.32	3.98	2.23	6.41
Nov. ...	1.61	3.26	3.55	3.15	5.03	1.79	9.28	1.74	1.55	4.81	3.04	4.86	2.90	0.87	4.81	4.19	1.27	4.45
Dec. ...	6.96	4.35	3.44	15.11	6.32	1.54	3.25	4.90	5.01	6.34	1.90	5.76	3.48	4.25	4.31	8.86	3.28	1.47
Total ...	32.72	44.85	33.64	45.31	40.3	37.12	37.02	53.32	39.63	45.40	31.95	35.86	31.54	28.26	41.30	34.33	36.86	44.16
No. of Raindays	179	221	192	182	224	181	197	250	224	192	186	194	207	184	240	209	246	221

Months	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931
	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.
Jan. ...	1.93	3.46	2.04	2.97	4.94	6.04	5.04	2.37	6.44	1.92	4.04	5.64	0.18	4.79	3.38	2.33	7.07	1.47
Feb. ...	6.46	7.44	4.30	1.45	6.12	3.88	1.67	2.58	4.42	4.53	2.95	6.43	4.76	2.66	3.42	4.16	1.03	2.42
March ...	6.33	0.72	2.24	3.328	3.49	2.46	4.16	2.91	2.27	3.96	1.33	0.22	1.90	4.79	7.33	0.89	6.88	8.11
April ...	1.57	1.59	3.25	1.12	1.73	1.30	3.54	0.34	2.98	4.28	2.46	0.31	3.04	2.21	3.66	1.46	2.09	2.72
May ...	1.60	2.53	2.93	4.068	2.75	5.18	3.36	1.88	1.47	0.96	3.62	4.35	2.87	2.38	2.03	6.03	1.67	4.36
June ...	0.86	2.16	3.03	1.77	1.13	0.63	3.22	0.02	0.90	0.14	3.70	0.63	2.28	2.57	3.60	1.21	2.15	3.27
July ...	3.00	3.22	2.49	1.57	4.43	2.49	3.96	3.77	3.21	2.37	3.82	2.75	1.67	4.25	1.81	4.29	2.79	2.73
August...	3.78	2.27	2.76	6.84	2.43	3.13	2.98	3.33	3.31	1.28	2.15	3.55	2.50	3.68	3.04	2.16	5.26	4.76
Sept. ...	3.07	1.82	1.11	1.29	6.41	2.15	2.08	1.33	3.45	2.98	3.88	2.63	0.11	3.42	2.20	0.82	4.52	0.47
Oct. ...	1.01	2.84	9.13	2.57	3.38	0.51	3.96	2.33	1.96	4.81	4.22	6.31	3.97	3.48	6.41	3.23	3.12	1.17
Nov. ...	2.98	3.48	9.04	1.08	3.22	2.30	4.18	5.15	3.85	3.48	3.86	2.48	6.20	4.15	2.33	4.93	3.26	9.80
Dec. ...	10.73	6.55	2.96	2.08	7.12	6.56	3.18	1.86	4.34	2.27	7.48	4.16	3.48	8.43	5.41	11.74	3.07	2.23
Total ...	42.42	42.85	46.30	32.33	47.46	35.83	44.13	28.47	37.25	41.64	41.90	41.12	37.64	45.97	55.66	51.16	47.30	44.26
No. of Raindays	223	198	213	182	209	189	217	178	201	224	225	197	209	230	231	198	194	205

Months	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949
	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.
Jan. ...	2.19	3.58	4.07	5.84	7.31	9.04	4.09	5.70	4.08	4.41	4.72	5.62	3.68	2.44	4.71	7.06	7.97	2.32
Feb. ...	0.17	2.35	0.32	2.50	6.00	4.64	3.11	4.36	7.88	4.02	1.47	1.66	0.60	6.17	1.88	5.09	2.30	2.51
March ...	2.18	2.78	4.67	1.54	3.21	5.99	1.52	2.93	2.73	3.99	5.89	0.89	1.48	1.23	2.31	6.99	2.65	0.81
April ...	2.48	2.38	3.62	3.23	1.08	3.00	0.10	2.06	3.45	1.62	2.28	1.68	1.26	1.36	0.78	4.94	2.13	3.89
May ...	4.24	4.57	1.99	0.77	1.38	1.94	4.68	1.08	2.19	2.34	5.34	6.00	0.45	2.38	3.58	4.56	1.26	2.70
June ...	1.39	1.59	1.63	3.20	1.18	0.48	2.80	1.78	0.34	1.71	0.41	1.79	1.33	2.31	3.64	3.76	2.69	1.22
July ...	2.67	2.00	2.26	0.24	5.47	3.21	3.97	4.20	2.39	2.33	2.35	1.94	5.99	4.26	2.31	2.82	2.53	5.96
August...	2.28	1.84	3.31	2.04	0.18	1.68	1.65	1.58	6.22	2.08	4.10	3.02	1.71	2.46	3.36	1.17	3.18	2.61
Sept. ...	2.38	1.58	3.98	0.85	2.48	2.01	2.17	1.65	3.18	1.36	1.96	3.84	4.72	3.22	4.71	2.10	1.82	2.34
Oct. ...	3.73	2.09	3.20	2.10	1.13	2.68	4.64	4.53	7.18	2.42	0.92	6.97	2.56	4.41	4.33	2.11	2.69	6.11
Nov. ...	1.46	2.72	3.33	4.59	3.46	2.37	3.85	9.00	6.22	9.46	0.48	3.60	4.75	2.1	6.22	4.86	4.43	3.33
Dec. ...	8.17	1.66	6.92	4.20	4.89	2.67	4.35	3.00	4.24	1.98	6.30	2.22	4.15	3.63	3.37	3.74	11.36	2.32
Total ...	37.38	28.64	42.03	33.61	46.29	42.21	39.72	41.90	45.14	38.42	38.20	38.45	37.72	37.64	45.44	51.19	50.41	32.23
No. of Raindays	203	172	223	196	196	187	207	200	194	188	213	208	136	207	217	209	215	176

Greatest Month's rainfall 13.72 inches in December, 1898. Least month's rainfall 0.02 in June 1921.

Greatest number of consecutive days with rain was 81 ending February 18th, 1918. Greatest number of days without rain (absolute drought) was 38, ending July 3rd, 1887.

SUNSHINE.

Total *bright sunshine* for **1949** was 1,479.9 hours.

	Hours		Hours
1930	... 1,478.1	1939	... 1,393.1
1931	... 1,313.8	1940	... 1,493.9
1932	... 1,282.5	1941	... 1,246.5
1933	... 1,465.8	1942	... 1,482.5
1934	... 1,480.1	1943	... 1,093.8
1935	... 1,442.0	1944	... 1,209.1
1936	... 1,357.5	1945	... 1,263.8
1937	... 1,259.4	1946	... 1,274.4
1938	... 1,350.9	1947	... 1,252.9
		1948	... 1.333.5

Table 86.—*Mean Temperature* (°F.) for each quarter and for each year from 1901 to present year.

Year	I.	II.	III.	IV.	For whole year
	°	°	°	°	°
1901	37.5	50.4	57.2	41.9	46.8
1902	40.4	48.1	55.3	43.3	46.5
1903	41.1	49.4	54.4	41.4	46.6
1904	38.3	49.1	55.4	45.6	47.1
1905	42.1	52.4	56.9	42.4	48.4
1906	40.6	50.6	57.9	44.0	48.3
1907	41.3	49.1	57.5	42.1	47.5
1908	40.6	50.4	57.0	46.6	48.6
1909	40.2	50.6	56.9	41.8	47.5
1910	39.5	50.3	56.3	43.2	47.4
1911	39.7	51.3	58.5	42.4	47.5
1912	40.9	50.4	53.5	47.9	48.2
1913	43.0	49.4	57.4	48.7	49.6
1914	40.3	51.4	56.7	43.5	48.1
1915	38.3	49.2	52.7	39.2	44.9
1916	40.0	45.9	53.7	39.7	44.8
1917	36.7	48.1	54.2	43.9	45.7
1918	40.0	51.3	55.0	42.0	47.0
1919	37.6	48.5	54.4	40.0	45.5
1920	40.3	48.9	52.6	42.0	45.9
1921	39.6	48.3	54.3	42 7	46.2
1922	40.2	49.9	57.	46.4	48.6
1923	44.0	50.7	58.4	43.8	49.2
1924	42.6	51.4	56.7	47.6	49.6
1925	43.3	51.8	57.9	44.5	49.4
1926	45.1	52.1	61.1	44.0	50.6
1927	44.1	52.2	58.5	45.5	50.1
1928	44.7	52.0	58.0	46.4	50.3
1929	43.2	52.3	59.4	45.7	50.1
1930	40.7	52.9	57.8	46.5	49.5
1931	42.3	53.1	58.2	46.7	50.1
1932	43.2	52.1	59.7	46.4	50.4
1933	42.3	54.5	62.1	44.9	51.0
1934	42.4	52.8	59.8	47.6	50.6
1935	44.1	52.7	59.4	44.2	50.1
1936	42.8	52.6	59.9	47.1	50.5
1937	42.6	53.8	59.2	44.9	50.1
1938	45.3	52.3	58.4	46.6	50.6
1939	44.6	53.9	59.8	45.9	51.0
1940	43.2	55.6	58.9	45.4	50.8
1941	40.4	51.8	60.0	47.5	49.9
1942	42.6	53.4	59.6	45.5	50.2
1943	44.9	53.8	57.0	46.3	50.5
1944	44.4	53.9	58.7	45.3	50.5
1945	43.9	52.5	60.3	49.3	51.5
1946	44.3	52.5	57.4	46.7	50.2
1947	39.1	52.6	59.0	47.9	49.6
1948	44.7	52.3	58.8	4.89	51.2
1949	45.7	53.9	61.9	47.7	52.3

BAROMETER.

The mean reading for 1949 was : 30.04 ins. The highest reading was 30.88 ins., on the 30th January. The lowest reading was 28.24 ins. on the 1st January.

SUMMARY OF WEATHER OBSERVATIONS AT CHARLESTON, BALLINACURRA

January :

BAROMETER :	Highest	30.82 on the 31st.
	Lowest	29.44 ,, 1st.
	Mean for the month	30.26.
THERMOMETER :	Highest	57°F. on the 15th.
	Lowest	30°F. ,, 3rd & 24th
	Mean for the month	45.05°.
RAIN :	1.36″ which is 2.59″ below average.	
SUNSHINE :	64.9 hrs. which is 17.9 hours above average.	
WINDS :	Were strong in the first and third weeks of the month reaching gale force on the 1st ; they were mainly from the South and West.	

REMARKS : Heavy rain squalls, a Sou-Westerly gale and low temperatures opened the New Year badly, but an anti-cyclone set in on the 4th and the remainder of the month was remarkably fine, mild and sunny. Work on the land has been general everywhere and early cultivations and the preparation of seed beds were carried out under excellent conditions ; the spring-like weather has given great stimulus to grass, bulbs and buds.

The Barometer registered extraordinarily low figures at the beginning of the month, but rose to the other extreme at its close.

February :

BAROMETER :	Highest	30.77 on the 2nd.
	Lowest	29.88 ,, 9th.
	Mean for the month	30.35.
THERMOMETER :	Highest	56°F. on the 13th and 19th.
	Lowest	31°F. on the 1st & 10th
	Mean for the month	46.05°.
RAIN :	1.81″ which is 1.27″ below average.	
SUNSHINE :	70 hrs. which is 3 hours above average.	
WINDS :	South-Easterly and light for the first week, rising to a South South Easterly gale on the 7th after which winds veered South-West and were moderate, reducing in strength towards the end of the month.	

REMARKS : This has been one of the best Februarys for years. It opened with a spell of dry, Easterly weather, which broke on the 5th and developed into a story of wind and rain on the 7th and very heavy rain on the 8th ; for the remainder of the month weather was remarkably good, with high temperatures and bright sunshine.

February has provided splendid conditions for Spring cultivations and the preparation of Seed beds ; work in farm and garden has been pushed well ahead, and bright sunshine with the absence of frost has stimulated remarkably early development of plants and grass. A wonderfully good crop of daffodils abounds.

March :

BAROMETER :	Highest	30.90 on the 2nd.
	Lowest	29.75 ,, 8th.
	Mean for the month	30.31.
THERMOMETER :	Highest	59° on the 22nd.
	Lowest	25°F. ,, 3rd.
	Mean for the month	45.45°.
RAIN :	1.33″ which is 1.77″ below average.	
SUNSHINE :	107.2 hours which is 8.8 hours below average.	
WINDS :	Light to moderate ; variable at first, North-westerly in the middle of the month and then fixing in the East.	

REMARKS : March was an exceptionally good month. After February's anti-cyclone, weather broke on the 4th for a week, but from the 12 to the end of the month there was practically no rain at all. The sun, in its welcome appearance, brought delightfully summer-like days, but towards the end of the month wind hardened in the East, so that temperatures dropped and there was a harsh sting which dried the surface of the land and checked growth which had been vigorous. Gardeners and Farmers have rarely had such ideal conditions for the preparation of soil and planting of seeds ; there has been a great spring in grass and buds are much ahead of the normal opening time.

April :

BAROMETER :	Highest	30.52 on the 30th.
	Lowest	29.57 ,, 4th.
	Mean for the month	30.12.
THERMOMETER :	Highest	70°F. on the 27th.
	Lowest	28°F. ,, 9th.
	Mean for the month	49.55°F.
RAINFALL :	2.99″ which is .61″ above average.	

SUNSHINE : 131 hours which is 26 hours below average.

WINDS : After a week of varying winds, they settled between South and West and were mainly moderate, becoming lighter towards the end of the month.

REMARKS : The first week of April was warm and rainy : between the 1st and the 7th 2.16 inches of rain fell, but on the 8th an anti-cyclone began which, with the exception of heavy rain on the 24th, continued throughout the month. In spite of this we had the lowest April sunshine for 8 years.

This was a splendid month for work on the farm and in the garden, which has rarely suffered so few interruptions and as a result of the excellent conditions in February, March and April, spring operations are unusually forward, while plant development is equally advanced.

May :

BAROMETER :	Highest	30.75 on the 1st.
	Lowest	29.63 ,, 16th.
	Mean for the month	30.15.
THERMOMETER :	Highest	71°F. on the 12th.
	Lowest	35°F. ,, 8th.
	Mean for the month	51.4°F.

RAIN : 2.28" which is .32" below average.

SUNSHINE : 222.2 hours which is 36.2 hours above average.

WINDS : Were light and mainly from the North and East in the first 10 days of May, then veered North-West, and West remaining light till the 20th after which they strengthened considerably and became squally and boisterous.

REMARKS : The anti-cyclone which began in April continued until the 21st May. With the exception of a fall of one-third inchs. on the 24th April, there was no rain of any consequence since the 6th April, so that the ground was very hard and dry, and drought conditions prevailed, putting a severe check on corn fields, root crops and meadows and on the development of all young plants and fruit ; this was intensified by the harshness of May's winds.

There were long hours of brilliant and warm sunshine during the first fortnight of the month and between the 7th and 13th sunshine was almost continuous, amounting to 87 hours during these 7 days, but the maximum temperature dropped 14°F. on the 14th and weather remained cold and inclement subsequently.

June :

BAROMETER :	Highest	30.52 on the 14th.
	Lowest	29.56 ,, 3rd.
	Mean for the month	30.21 ,,
THERMOMETER :	Highest	82°F. on the 24th.
	Lowest	56°F. ,, 1st.
	Mean for the month	57.85°F.
RAIN :	1.44" which is .66" below average.	
SUNSHINE :	248 hours which is 64 hours above average.	
WINDS :	Mainly from the West and South West at first and strong reaching gale force on the first two days. Veered East and South East in the middle of the month, reverting to West and South West towards the end of the month.	

REMARKS : Despite the increase in temperatures, the first week of June was very unsettled. Harsh winds had an unkind sting which the thermometer does not indicate ; rain was recorded on each of its first seven days and the thunder rain on the 7th was like a short-lived deluge, coming so fast that normal outlets could not carry the rain water away and shores and drain overflowed. After this heavy rain, weather gradually became warmer and more settled. Maximum temperatures began to soar and reached a climax on the 24th when we had a temperature of 82°F. This has only been exceeded in Ballinacurra in 1911 when the temperature for the 15th July was 86°F. and has only been equalled on two occasions since that year, viz., 6th June, 1939 and 18th August, 1947. Readers will be interested to learn that the total Sunshine figure of 248 hours has only been exceeded (for June) on three occasions since weather observations started here in 1905, i.e., 1921, 1926, 1946.

This delightful month with its brilliant sunshine and day warmth was of great benefit to the whole community and particularly to holiday makers. The rise in temperature gave a great stimulus to all growing things. Grass has lengthened out considerably. Early cut hay is a much better crop than was at first anticipated and farmers generally are working feverishly in an effort to save it while weather is favourable. All cereals have taken a big stride forward and early sown Spratt-Archer Barleys are already coming into ear throughout the area. There is every indication of an early harvest. In spite of the absence of rain, root crops are looking remarkably well and, so far, there has apparently been ample moisture in the subsoil for them.

July :

BAROMETER :	Highest	30.64 on the 1st.
	Lowest	29.84 ,, 15th.
	Mean for the month	30.29

THERMOMETER :	Highest	78°F. on the 11th.
	Lowest	47°F on the 2nd & 5th.
	Mean for the month	61.8°F.
RAIN :	2.61" which is 2.6" below average.	
SUNSHINE :	167.4 hours which is 2.6 hours below average.	
WINDS :	Light and mainly easterly in the first half of the month, but then veered to South and West, and became stronger.	

REMARKS : The anti-cyclone which began in the second week of June lasted until mid July—for the first fortnight of the month there were high temperatures and brilliant sunshine. On the 14th weather broke with very heavy rain, amounting to 1½ inches in twelve hours and temperatures dropped, but after three unsettled days another, though lesser, anti-cyclone set in and the thermometer rose to touch the 70's again, though skies remained mainly overcast and there were several unfulfilled promises of rain, while the atmosphere was heavy.

With the exception of the few wet days in the middle of the month, July, like June, provided extraordinarily good weather for holiday-makers and enabled the hay harvest to be saved under ideal conditions, but the long period of dry weather has had all the serious repercussions due to a severe drought. Rivers, streams and reservoirs are below the safety level, and electricity users are painfully aware of the restrictions the E.S.B. have had to impose. Farms and gardens are parched, there has been no growth of grass, and many flowers and seedlings have failed. Corn has ripened rapidly and remarkably early and cutting has already begun throughout the district.

August :

BAROMETER :	Highest	30.65 on the 12th.
	Lowest	29.44 ,, 2nd.
	Mean for the month	30.21.
THERMOMETER :	Highest	76°F. on the 18th & 21st.
	Lowest	43°F. on the 9th.
	Mean for the month	61.25°F.
RAIN :	2.82" which is .33" below average.	
SUNSHINE :	184.5 hours which is 26.5 hours above average.	
WINDS :	Mainly Westerly and moderate to strong in the first 10 days of August ; on the 5th and 7th winds developed gale force, but subsequently were very light.	

REMARKS : August's first week was windy and very broken and between the 5th and 7th conditions were wild and stormy, twice wind reached gale force and rainfall amounted to 1.61 inches in 48 hours. After this violent treatment another anti-cyclone cut in and continued to the end of the month.

The last three weeks of August provided ideal conditions for holiday makers and for harvesters. Cereals ripened and matured extraordinarily early and weather was so good that from the time a large proportion of corn in this area was cut, until it was drawn to the threshing machine there was no rain. This has enabled much work to be done which would not normally begin until September.

September :

BAROMETER :	Highest	30.42 on the 27th.
	Lowest	29.64 ,, 2nd.
	Mean for the month	30.13.
THERMOMETER :	Highest	72°F. ,, 11th
	Lowest	42°F. ,, 1st
	Mean for the month	60°F.
RAIN :	3.43", which is 0.28" above average.	
SUNSHINE :	154.6 hours, which is 3.4 hours below average.	
WINDS :	Were light throughout the month. For the first 10 days they were Westerly, veering East for the remainder of the period.	

REMARKS : This has been the warmest, though by no means the sunniest September since records were begun here in 1905. During the whole month maximum day temperatures never dropped below 61 deg. F., and night temperatures were also remarkably high. The lowest minimum was recorded on the first night of the month (42 deg. F.), while, contrary to what might be expected, the highest minimum was as late as the night of the 29th September. This delightful prolongation of warm weather seemed all the more remarkable since it followed an exceptionally good summer ; it left such a marked impression that many readers will be surprised to learn that in this pleasant month the rainfall was above average. The month's rain was concentrated into the first five days and into the third week of September ; the intervening and later periods were fine, though fog was prevalent near coastal areas.

Rarely have conditions been so good for the drawing in and threshing of corn. 1949, having yielded bumber crops of wheat, barley and apples, crowned this beneficence with wonderful opportunities for gathering the harvest in excellent condition.

October :

BAROMETER :	Highest	30.54 on the 31st.
	Lowest	29.95 ,, 25th.
	Mean for the month	29.99.
THERMOMETER :	Highest	67°F. on the 3rd, 8th and 9th.
	Lowest	28°F. on the 27th.
	Mean for the month	53.4°F.
RAIN :	4.36" which is .56" above average.	
SUNSHINE :	103 hours which is 8 hours above average.	
WINDS :	Were light and Easterly for the first ten days of the month, then swinging South West, rose gradually from the 14th to reach gale force on the 17th, dropping to a lull on the third week of October ; on the 25th wind spun North-West and developed into a fierce gale that night, after which winds again steadied to light strength.	

REMARKS : October was remarkable for its many variations in weather. With the exception of 1945 this has been the mildest October since 1920 and during its first sixteen days maximum temperatures were all in the 60's, yet the sunshine in this period was only 44.3 hours, while as temperatures declined, sunshine increased to 58.7 hours in the second half of the month. From the 21st minimum temperatures dropped sharply, bringing hard ground frosts on the 27th, 28th and 29th.

October did its best to raise the low level of lakes and rivers. In the first fortnight there were only three rainless days and frequent showers totalled 1¼ inches. A change of wind on the 17th brought a tempestuous night, with wind reaching gale force and over 1 inch of rain and after this weather remained broken and unsettled ; there was torrential rain on the 24th and 25th, backed by a North Westerly gale. Lakes and rivers rose rapidly, in many cases overflowing, and in conjunction with exceptionally high spring tides there was flooding in low lying and coastal areas.

This wild weather was preceded by the Aurora Borealis, which gave a magnificent display on the night of the 14th.

November :

BAROMETER :	Highest	30.52 on the 2nd.
	Lowest	29.18 ,, 21st.
	Mean for the month	29.89.
THERMOMETER :	Highest	57°F. on the 8th, 9th, 11th.
	Lowest	28°F. ,, 19th and 20th.
	Mean for the month	45.95°F.

RAIN : 3.11" which is .8" below average.

SUNSHINE : 85 hours which is 23 hours above average.

WINDS : Were mainly westerly in the first half of the month and moderate. In the third week winds turned more Southerly, increasing in strength to reach gale force in violent squalls on the 17th, after which winds went through west to North and became light.

REMARKS : November was a kind month. In its first two weeks temperatures remained relatively high and weather was unsettled with frequent showers but good sunshine between them. The thermometer dropped suddenly on the night of the 18th and after heavy rain on the 20th, an anti-cyclone set in, with a series of ground frosts at night. The total sunshine of 85 hours was the highest for any November since 1927 and was 50 hours more than that of last year.

December :

BAROMETER :	Highest	30.67 on the 11th.
	Lowest	29.57 ,, 9th.
	Mean for the month	30.04.
THERMOMETER :	Highest	55°F. on the 2nd, 3rd, 6th and 26th.
	Lowest	28°F. on the 11th, 12th and 21st.
	Mean for the month	44.2°F.

RAIN : 1.76" which is 2.47" below average.

SUNSHINE : 42.7 hours which is 0.7 hours above average.

WINDS : Winds were mainly Westerly, erratic in strength and squally and reached gale force on the 7th.

REMARKS : 1949 finished up with a kind December, bringing very much less rain than usual—in 1948 the December rainfall was 8.67 inches against 1.76 this year. Though the sunshine was above average, the mean temperature was higher than normal.

A South-Westerly gale on the 7th ushered in a cold spell, and until the 22nd nights were very cold, with a series of ground frosts between the 8th and 15th, but on the 23rd night temperatures jumped 15 degrees and remained high until the end of the year, while day temperatures in the same period remained in the 50's. This pleasant weather, though remote from the traditional " White Christmas " enabled holiday makers to enjoy outside activities and was generally welcomed.

Appendix I.

OPERATION OF THE SCHEME FOR THE TREATMENT OF VENEREAL DISEASES.

Table 89.—Record of Work Done in the V.D. Treatment Centre.

	Cork City		Cork County		Other Districts		Total		Total Male and Female Cases
	M.	F.	M.	F.	M.	F.	M.	F.	
New Cases (1st time) ...									
Syphilis	7	10	3	6	–	–	10	16	26
Soft Chancre ...	–	–	–	–	–	–	–	–	–
Gonorrhoea ...	8	5	2	–	2	–	12	5	17
Not V.D.	29	19	18	2	–	–	47	21	68
Total ...	44	34	23	8	2	–	69	42	111
Total Attendances :—									
Syphilis	341	1372	112	657	–	–	453	2029	2482
Soft Chancre ...	–	–	–	–	–	–	–	–	–
Gonorrhoea ...	31	21	8	–	4	–	43	21	64
Not V.D. ...	43	39	22	6	–	–	65	45	110
Total ...	415	1432	142	663	4	–	561	2095	2656
Cured :—									
Syphilis	4	3	2	–	–	–	6	3	9
Soft Chancre ...	–	–	–	–	–	–	–	–	–
Gonorrhoea ...	8	4	2	–	2	1	12	5	17
Not V.D. ...	–	–	–	–	–	–	–	–	–
Total ...	12	7	4	–	2	1	18	8	26
Pathological Exams. :—									
Wassermann ...	210	82	28	18	2	–	240	100	340
Gonococci ...	30	15	6	1	3	–	39	16	55
Exam. for T.P. ...	1	–	–	–	1	–	2	–	2
Kahn	40	47	9	11	–	–	49	58	107
Total ...	281	144	43	30	6	–	330	174	504
Theraphy :—									
Arsenicals ...	176	770	64	360	–	–	240	1130	1370
Bismuth Preparations	170	355	55	245	–	–	225	600	825
Irrigations ...	–	–	–	–	–	–	–	–	–
Douches	–	–	–	–	–	–	–	–	–
Sulphonamides	–	7	–	–	–	–	–	7	7
Penicillin... ...	31	70	9	33	3	–	43	103	146
Total ...	377	1202	128	638			508	1840	2348

Table 90.—Record of *new cases* treated annualy at Centre.

Period	Syphilis	Soft Chancre	Gonorrhoea	Not V.D.	Total
1937	29	2	34	30	95
1938	29	—	42	34	105
1939	37	1	27	42	107
1940	34	8	30	46	118
1941	25	6	42	68	141
1942	54	4	63	67	188
1943	113	4	79	101	297
1944	81	1	49	116	247
1945	59	—	63	107	229
1946	73	—	48	130	251
1947	46	—	39	91	176
1948	50	—	39	99	188
1949	26	—	17	68	111

Table 91.—Record of new cases treated during 1949 (non V.D. Cases not included).

Period	Males	Females	Total
Jan.	2	1	3
Feb.	—	1	1
Mar.	—	3	3
Apr.	1	—	1
May	1	5	6
June	5	—	5
July	3	2	5
Aug.	4	1	5
Sept.	3	3	6
Oct.	2	—	2
Nov.	—	3	3
Dec.	1	2	3
Totals	22	21	43

Table 92.—Monthly attendances at V.D. Centre, 1949.

Period	Males	Females	Total
Jan.	89	205	294
Feb.	77	166	243
Mar.	43	171	214
Apr.	25	153	178
May	25	195	220
June	33	159	192
July	45	173	218
Aug.	45	168	213
Sept.	41	198	239
Oct.	44	187	231
Nov.	42	180	222
Dec.	52	140	192
Totals	561	2095	2656

The total number of new cases (Male and Female) of Gonorrhoea and Syphilis treated during the year was 43. This represents a considerable decrease on last year's figure which was 89. It is in fact the lowest number of new cases treated at the Centre since 1937.

Appendix II.

OPERATION OF THE COUNTY BOROUGH SCHEME FOR THE WELFARE OF THE BLIND

The following are the terms of the Scheme drafted for this purpose and now in operation within the Borough :—

In this scheme the term " Blind Person " shall mean any inhabitant of the County Borough who is so blind as to be either unable to perform any work for which eyesight is essential, or unable to continue his or her ordinary occupation ; the term " The Corporation " shall mean the Lord Mayor, Aldermen and Burgesses of the County Borough of Cork, acting by the City Manager ; the term " The Minister " shall mean the Minister for Local Government and Public Health.

2. The Corporation will establish and maintain a Register in which shall be entered the name and address, age, sex, religion and other necessary particulars of every blind person who shall produce a certificate from a recognised Ophthalmic Surgeon that the acuity of vision of such person (refractive error being corrected) is below 1/20th normal (3/60th Snellen), or that such person is so blind as to be unable to continue his or her ordinary occupation. Any person between the ages of 30 and 70 may, however, be registered without producing such certificate on furnishing evidence of being in receipt of a pension in pursuance of Section 6 of the Old Age Pensions Act, 1932. The Register shall be kept written up-to-date, and shall be revised annually in the month of January. The Corporation shall be empowered to pay reasonable fees to Ophthalmic Surgeons for certifying in cases of necessitous persons.

3. Arrangements will be made by the Corporation with the Authorities of one or more of the Institutions for the Blind mentioned in the Schedule hereto on such terms as may be approved by the Minister for the following purposes :—

(a) the education or industrial training of suitable blind persons between the ages of five years and thirty years ;

(b) the employment in workshops for the Blind of blind persons suitable for such employment, their maintenance in a Hostel, and the augmentation of their wages ;

(c) the maintenance in Homes of blind persons who, owing to age or infirmity, are incapable of work.

4. The Corporation may in cases of unemployed and necessitous blind persons ineligible for education or industrial training under Article 3 (a) of this Scheme and living in their own homes or in lodgings, grant assistance to such persons in accordance with the following scale :—

Classification of Blind Persons	Amount of weekly allowance
(a) Blind person over 15 years and under 21 years of age	20s. 0d.
(b) Blind person 21 years of age and upwards	15s. 0d. (with pension)
(c) Married man 21 years of age and upwards with wife dependent on him	20s. 0d. (with pension)
(d) Additional allowance for each child	3s. 6d.

In considering the grant of allowances on this scale to the classes of blind persons at (a) and (c) above, the Corporation will not take into account casual earnings of any such person where they are satisfied that such earnings do not exceed six shillings per week.

5. Nothing in this Scheme is to be construed as giving blind persons irrespective of their means or conduct, a right absolute to assistance. The Corporation will not grant an allowance under Article 4 above to any blind person under 21 years of age who is capable of instruction and who declines without a satisfactory reason to take advantage of the facilities for education, training or employment under the Scheme, or who is by conduct or otherwise deemed unsuitable for assistance. No habitual mendicant shall be granted an allowance under the Scheme unless the practice of mendicancy is discontinued. No person shall be eligible to receive assistance under this Scheme who shall not have been resident within the County Borough for two years previous to date of application for assistance.

6. The Corporation may incur such expenditure in the execution of this Scheme as the Minister may from time to time approve.

7. This Scheme shall come into operation on the 1st October, 1932, and shall continue for a period of three years, but may during the period with the consent of the Minister be modified, extended or revoked by the Corporation, and with the like consent may be continued for such further time as may be deemed necessary. Any question, dispute or difference arising in connection with the interpretation of this Scheme shall be determined by the Minister whose decision shall be final.

SCHEDULE

Institutions for the Blind Approved by the Minister	Class of Blind Persons Received
1. St. Mary's Institution for Female Blind, Merrion, County Dublin	Females, also boys up to 7 years of age
2. St. Joseph's Asylum for Male Blind, Drumcondra, Dublin	Males
3. Richmond National Institution for Industrious Blind, 41, Upper O'Connell Street, Dublin	Males
4. Cork County and City Asylum for the Blind, Infirmary Road, Cork	Males and Females

The number of persons receiving weekly allowances in their own homes from the Corporation during the year was 226, and the disbursements under the heading amounted to £7,744 12s. 4d. 25 applications were received for allowances. Other disbursements amounted to £166 9s. 6d. (examinations, grant to National Council and other expenses). In addition to the above-mentioned, 23 cases were maintained in Institutions by direct grants from the Corporation, viz. :—Cork Blind Asylum (9 males and 8 females); St. Mary's, Merrion (6 females). The total cost of the maintenance amounting to £870 2s. 3d.

The following note is contributed by the Hon. Secretary of the local branch of the National Council for the Blind of Ireland.

Home Teaching for the Blind.

Under the National Council for the Blind, this very essential service has been inaugurated in Cork City, to which the Corporation has granted a small annual contribution towards the expenses incurred by employing trained and qualified Home Visitors and Teachers.

The work of the Home Visitor is varied and broad, embracing social as well as mental instruction. She must help the blind to become active members in their homes, teach them to read embossed type, various handicrafts, such as knitting and rugmaking, and to bring an interest and hope into their otherwise hopeless lives.

The Home Visitor can help to prevent blindness in children, who often, through parental ignorance and negligence, or want of interest, lose their sight, which under proper care and supervision can be cured by seeing that they are provided with glasses where necessary and sent for treatment. She also gives her assistance and advice over pension applications, appeals and better accommodation.

Wireless sets are distributed on loan where most required, entertainments organised and free seats at musical shows secured.

Voluntary visitors also give their services to read and spend some time talking to the lonely blind, who greatly appreciate these visits.

Classes are held weekly for instruction in basket making, chair-caning and other forms of handicraft. The finished articles are presented for sale only if up to standard—no inferior goods labelled " Made by the Blind " are passed for sale. Efficiency is the definite aim.

The Home Teacher becomes a real friend of the Blind, who turn to her in all their difficulties, knowing that they will obtain help and encouragement to become as useful and important as their sighted brothers and sisters.

Suitable cases are urged to enter institutions for the blind and arrangements made for this purpose.

The Home Teacher has office hours daily where any blind or defective sighted person can get in touch with her and make enquiries. Over the Home Visitor is an Executive Council who meet monthly, receive the reports of the Home Visitor, deal with various cases, arrange the financial side of the work and follow closely and with interest the progress which is being made.

The following is a resume of the work done by the Home Visitors of the National Council for the Blind.

Number of Cases on Register on 31st December	475
Visits paid to Blind	2,393
Visits paid on behalf of the Blind	313
Interviewed at office, City Hall	651
Number of Braille readers	22
Number of Moon readers	6
Number attending Men's Handicraft Class	5
Number attending Women's Handicraft Class	9
Number of Home Workers whose work is of saleable standard	34
Number helped with Artificial Eyes and Spectacles	13
Number given Fuel and Christmas Gifts	135
Number given help to buy Dentures	7
Number given Nourishment and Relief	91
Helped to purchase Furniture and Bedding	10
Individuals issued with Penny Dinner Tickets	—
Sent to Institutions for the Blind	4

Appendix III.

Physical Features of the Area

The City of Cork is situated on the river Lee, fifteen miles from its mouth in Cork Harbour. On the north bank of the river there is steep rising ground almost prohibiting building development, save in the form of hillside roads and open building of large houses, with the exception of the marked break of the Blackpool valley, very full use of which has been made. Next comes the flat island comprising the centre of the City. This island is almost entirely artificial, and consists of six feet of filled-in material, with ten feet of slob below that and then gravel overlying old red sandstone. Southwards is a gently undulating tract of land about one and a half miles wide enclosed by a range of hills. There is a considerable amount of land liable to flood in the Lee Valley, west of the city, towards Carrigrohane, and the flatness of the islands on which the city is built and the height to which unusual tides ascend being nearly to the crown of the arches of the old bridges, render certain portions of the city itself also liable to flooding.

The geological formation of the city region is simple and clearly marked in its effect on the landscape. There are only two systems visible, both paleozoic rocks, the carboniferous limestone and the older underlying Devonian, representing the old red sandstone. Each of these formations is in two series ; the carboniferous in a crystalline limestone and in a dark shale (with some 10 feet slate); The Devonian in the upper old red sandstone (yellowish and reddish) and in the lower, old red sandstone (red and purple). The characteristic aspect of the countryside has been caused by the crinkling of these strata into regular parallel folds. Further the limestone which should have formed the ridge of the anticlines has been denuded or dissolved away, so that the highest ground consists of old red sandstone, and even the lower series of this ; the hollow folds, floored by limestone, have been subsequently protected from further denudation by a covering of boulder clay. In this immediate region there are thus three old red sandstone ridges and two limestone valleys, in the northern of which the city stands under the brow of the northern sandstone ridge. If this sandstone ridge had possessed its original limestone capping, it would probably have been at least 2,000 feet high.