[Report of the Medical Officer of Health for London County Council].

London County Council.

ANNUAL REPORT OF THE COUNCIL, 1922.

Vol. III.

PUBLIC HEALTH.

(Including the Report for the year 1922 of the County Medical Officer of Health and School Medical Officer, Main Drainage and Housing.)

875.—(12655)—30.6.23—10161

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CHAPTER XXIII.

REPORT OF THE COUNTY MEDICAL OFFICER OF HEALTH (SIR WILLIAM HAMER) FOR THE YEAR 1922.

PART I.—GENERAL.

Introductory Note.

The mortality statistics of 1922 are by no means so unfavourable as, prior to the autumn of that year, it seemed likely that they might be. Following upon the influenza, measles, whooping cough, scarlet fever and diphtheria prevalences of the earlier months of 1922 there came a wet cool summer, and epidemic diarrhœa was held in check (partly by natural conditions and partly too by the art exercised by the infant welfare centres and other agencies) to an extent quite unprecedented. The rate of mortality from diarrhœa among infants under 1 year of age was only 6·26 per 1,000 births, as compared with 18·63 in the preceding hot and dry year, and with 24·28 on the average of the four years 1911–14. There was, however, a threat of smallpox prevalence in the late summer and autumn, but this did not very seriously materialise in 1922; on the whole the death-rate from all causes was 13·5 was compared with 12·5 in 1921; only 1 per 1,000 in excess of the record rate of the previous year.

The behaviour of typhoid fever continues to be of very special interest. The notifications, 264, were smaller in number than ever before, and for the eleventh year in succession there was an almost complete absence of excess of prevalence in the autumn. The occasion seems an appropriate one for a review of the whole question of typhoid prevalence.

It has, again and again, been observed that both typhoid fever and cholera, as manifested in this country, and the phenomenon has been especially conspicuous in London, tend to occur in *groups* of cases; this grouping may be displayed in circumscribed areas, which (it may be) are attacked year after year, or it may be displayed in institutions, and in some instances these too have been attacked time and again. When the groups are well marked the occurrence of multiple cases in houses is usually noted, and when the group is outside an institution a special age incidence in the sufferers is wont to be observed. In the case of cholera, the writers on the outbreaks of the forties, fifties and sixties insisted again and again on this grouping, and on the fact that very poor people especially suffered. In the Annual Report for 1911 (vol. III., p. 87) attention was called to similar behaviour in the case of typhoid fever, and it was pointed out that in London this disease is as a rule met with mainly in houses occupied by Chas. Booth's classes C and D, living in streets coloured light blue or purple on the maps originally prepared by him, *i.e.*, the prevalences affected families living in conditions of poverty. The facts thus elicited have been explained by differing schools of thought in two very different ways. On the one hand appeal has been made to direct case to case infection, and during the last 15 years to "healthy carriers of bacilli." The alternative hypothesis is that water and food have been at fault. Murchison pointed out 40 years ago or more that "all supposed contact cases are as readily explicable on the supposition that the disease has had a common origin, as upon that of infection"; and Bulstrode in his report on Typhoid at Whitehaven in 1903, urged that, before accepting direct case to case infection as an explanation, it was necessary to eliminate the possibility of "continued operation of the cause which may have given rise to the first case in the house

where many cases arose." There can be no doubt that in London, at any rate, the improvement brought about in the last 30 years as regards food supply (fish and shellfish) has been mainly concerned in securing decline during that period in typhoid prevalence. There is, however, some ground for apprehension that with altering conditions arising out of the termination of the Great War, there may come a risk of reversion to the use of food supplies which in former years were undoubtedly a source of danger. The present opportunity is, therefore, taken of setting out the facts as far as they can be ascertained. (See pp. 18–32).

There has been some increase in London in the death rate from phthisis at young adult ages. There is reason for inferring that this phenomenon is not due to any notable increase in the number of deaths at these ages, but to changes, which have resulted in the deaths being credited to London, whereas in days gone by the sufferers would either have died abroad, or their deaths, if they had occurred in this country, would, in many instances, have been registered as belonging to some health resort in the country and not to London. The question is considered in some detail on pp. 11–14.

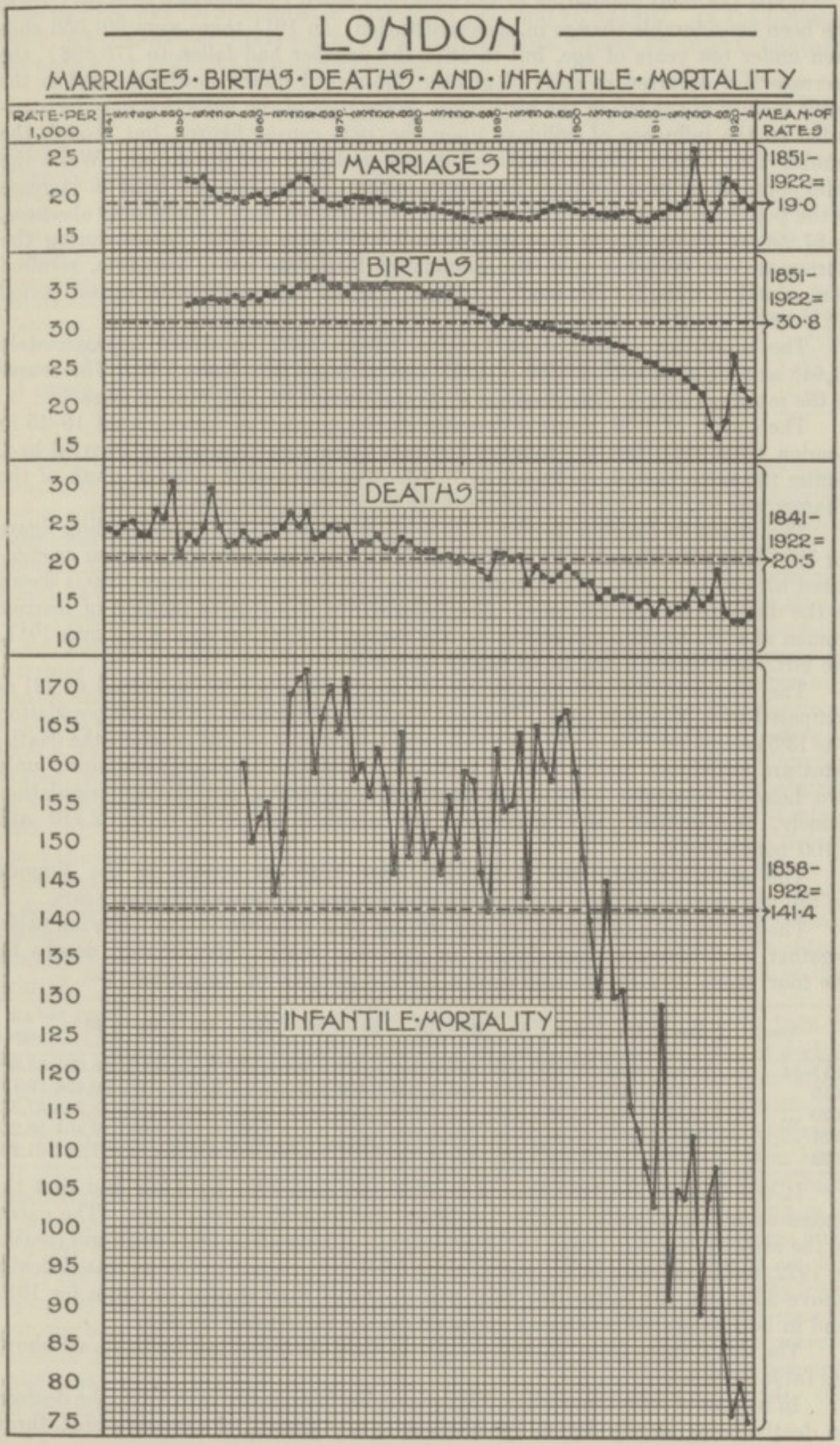
Movement of population is nowadays more than ever recognised as possessing great importance not only in connection with a chronic disease, such as phthisis, but in acute epidemic diseases also. The freedom of this country from imported infectious diseases during the war was in the main due to restriction of movement of immigrants owing to war conditions. This restriction has to a considerable extent been continued, owing to the decision of the United States Government to limit the extent of immigration into that country; for prior to the war, and following upon its cessation, many of the emigrants from Europe to the United States came through this country up to the time when the new law came into force last summer.

As regards administrative procedure considerable further advance was made during 1922 in carrying out the schemes approved by the Council for the treatment of tuberculosis and venereal diseases. (See pp. 41 and 35.) The annual enumeration of homeless persons was made in February and showed, as has been the case in recent years, great reduction in the number of these persons as compared with pre-war years. Common lodging house inmates also show a reduction; and the "furnished rooms," which before the war were commonly found in streets in which there were common lodging houses, or in neighbouring streets, and which provided accommodation for many thousands of persons, who in a large proportion of instances occupied them for the night or for the week only, are now showing a marked tendency to decline in numbers. The figures returned in the official census of 1921 show slight improvement as regards "overcrowding," using this term in the sense of occupation of a room by more than two persons. This "overcrowding" is, of course, not to be confused with statutory or by-law overcrowding, but it would appear that there has been some small improvement, in London, during the last 10 years in this respect also.

A.—Vital Statistics.

The population of London County at the census of 20th June, 1921, was 4,484,523. This figure includes members of the armed forces in London but excludes Londoners on active service elsewhere.

The census has, as a rule, been taken about the beginning of April, but in 1921, owing to industrial unrest, it was delayed until June. The weather happened at the time to be exceptionally fine and a number of persons were away temporarily either for the week-end or on holidays. In order to arrive at a figure comparable with earlier censuses, the Registrar-General redistributed the census population of England and Wales to allow for the holiday movement, the result so far as London is concerned being the addition of 39,477 to the census figure, giving a total population of 4,524,000, which compares with 4,521,685 at the census of 3rd April, 1911.


LONDON
MARRIAGES · BIRTHS · DEATHS · AND · INFANTILE · MORTALITY
RATE PER 1,000
MEAN OF RATES
MARRIAGES
1851–1922 = 19·0
BIRTHS
1851–1922 = 30·8
DEATHS
1841–1922 = 20·5
INFANTILE MORTALITY
1858–1922 = 141·4

While the total population of the county is much the same now as in 1911, there has been considerable change in age-constitution. In 1911 there were 901,056 children under ten years of age, but in 1921 the number had fallen to 775,898: the decrease had occurred in spite of greatly diminished infant mortality, and is the result mainly of the fall in the birth-rate. Some part of the reduction may be attributed to the influence of holidays upon the 1921 census figures, but though the number thus absent cannot be stated it was probably not significant. While the child population under ten years has decreased by 125,158 there has been an increase in the population over ten years amounting, without allowance for holiday absences, to 87,996, of whom 82,906 were females and 5,090 were males. Losses during the European War together with the diminished birth-rate have, therefore, resulted in a reduction of the London stock by about 200,000 during the inter-censal period 1911–1921.

Marriages. The marriages registered in London during 1922 numbered approximately 41,648 as compared with 43,885 in 1921, the marriage rate being 18·4. The course of the marriage rate in London since 1850 is shown in the diagram on page 3.

The census of 1921 shows a decrease in the number of women aged 15–45 in London since 1911, but the number between these ages returned as married had, during the same period, increased by 8,954. The increase in London south of the Thames was 10,733, while north of the river there was a decrease of 1,779.

Births. The births in London during 1922 numbered 94,792 the corresponding figure for 1921 being 99,839. The birth-rate was 20·9 per thousand of population as compared with 22·1 in 1921. The movement of the London birth-rate since 1850 is shown in the diagram on the last page. Notwithstanding the greater number of married women of child-bearing age shown by the census in 1921, as compared with 1911, the birth-rate shows a decline of nearly 11 per cent.

Deaths. The deaths in the civil population of London, during 1922 numbered 61,221 as compared with 56,259 in 1921. The death-rate per thousand of the civil population was 13·5 as against 12·5 in 1921. In this report, following official practice, the death-rates are calculated upon the civil population and deaths among civilians: only two London boroughs, however, maintain a considerable non-civilian population, namely, Westminster and Woolwich, the numbers in 1922 being 2,410 and 4,100 respectively.

The annual death-rates in London since 1840 are shown in the diagram on the last page in relation to the mean of the rates for the seventy-two years.

The distribution of deaths by ages during 1922 is shown in the following table, together with corresponding figures for post-war years. The average deaths for the four years 1911-14 are also shown for the purpose of comparison:—

Year.	0—	1—	2—	5—	10—	15—	20—	25—	35—	45—	55—	65+	All ages.
1911–14 ...	11,968	3,546	2,716	1,421	846	1,088	1,299	3,525	5,292	7,142	8,328	18,221	65,392
1919	7,039	1,430	1,846	1,472	909	1,255	1,440	3,763	4,501	6,640	8,393	20,426	59,114
1920	9,141	1,894	1,904	1,467	845	1,159	1,291	3,058	4,223	6,216	7,786	18,248	57,232
1921	8,077	1,963	1,360	1,324	808	1,160	1,218	2,732	3,984	6,146	8,083	19,404	56,259
1922	7,089	3,235	2,568	1,240	851	1,126	1,322	2,860	4,242	6,656	8,799	21,233	61,221

It will be seen that the deaths in 1922 exceeded 1921 by 4,962 and that the excess occurs principally at ages 1-5 years and over 35 years of age. The excess in the earlier age-group is due to the prevalence of both whooping cough and measles in 1922, neither disease being prevalent in 1921; in regard to the increased deaths above 35 years, the figures for 1922 will be found very similar to those for 1919, and in both years influenza was epidemic during the winter months.

Infant mortality. The death-rates from various causes in each metropolitan borough are shown in Table I., p. 53.

In respect of infant mortality, 1922 compares favourably with 1921, the decrease in deaths being largely due to the absence of any periods of excessive heat during

the summer. The death-rate among infants under one year of age per thousand born in 1922 was 75, as compared with 81 in 1921 and 76 in 1920. In the following table the deaths per 1,000 births from the principal causes of infant mortality are shown for 1922 and preceding periods :—

Cause of Death.	1911. to 1914.	1915.	1916.	1917.	1918.	1919.	1920.	1921.	1922.
Measles	3·40	4·81	1·74	4·92	3·89	0·67	2·02	0·57	3·30
Whooping-cough ...	3·63	4·72	3·54	2·51	7·02	0.87	2·89	2·34	3·92
Influenza	0·27	0·31	0·16	0·27	3·65	1·38	0·46	0·26	1·12
Tuberculosis—									
*Pulmonary ...	0·57	0·56	0·38	0·81	0·51	0·34	0·35	0·26	0·33
Other	2·83	2·92	2·43	3·07	2·14	1·32	1·17	1·19	1·10
Bronchitis	6·41	7·60	5·29	6·96	7·02	5·10	5·65	2·89	4·05
Pneumonia... ...	12·28	16·10	11·69	15·28	16·78	10·25	12·62	11·54	16·00
Diarrhœa	24·28	20·82	13·89	16·03	13·67	14·75	8·98	18·63	6·26
Premature birth ...	18·16	17·60	16·40	17·22	18·47	20·42	15·32	16·17	16·10
Congenital defects	14·69	15·18	13·86	15·22	14·39	12·70	11·53	11·53	9·30
All causes... ...	**108**	**112**	**89**	**104**	**108**	**85**	**76**	**81**	**75**

* Including acute miliary tuberculosis.

The chief cause contributing to the low infant mortality of the last four years, compared with the four years 1911-1914, is the reduced mortality from diarrhœa and enteritis, but apart from this considerable decrease is shown in the deaths from congenital defects, premature birth, bronchitis and measles. The period 1919-1922 includes two epidemics of influenza, otherwise no doubt the decrease in bronchitis would have been larger, and pneumonia would also have declined. The deaths from premature birth and congenital defects show a remarkable fall in mortality in the past three years ; such deaths are not in any large measure governed by extremes of summer or winter temperature, as are diarrhœal and respiratory deaths, and their reduction points to some other factors. The gradual replacement of the unqualified midwife by nurses with special training, the grant of maternity benefit, and the increasing amount of concern shown for the expectant and nursing mother, especially in more recent times, in maternity and child welfare centres, both municipal and private : these all play a part in the general reduction of infant mortality, but more especially in the mortality attributed to congenital defects and premature birth. There must certainly be added to them the decrease in drunkenness, and the increased extent to which mothers are availing themselves of institutions for confinement. In considering, however, the notable decline which has taken place since the beginning of the present century the effect of the Elementary Education Act of 1870, as has been pointed out in these reports, must not be lost sight of.

On comparing the infant mortality rates for the period 1911-14 with 1919-22 in the metropolitan boroughs it is found that generally speaking the greatest decline has taken place in the boroughs which in the earlier period had the highest mortality, and these are also the boroughs in which the birth-rate in recent years has fallen most.

The boroughs in which improvement, relatively to London as a whole, is greatest are Greenwich, Battersea and Poplar ; while St. Pancras and Kensington have lost place. With regard to the latter borough, the infant mortality is very high considering the favourable position in respect of social condition prevailing in a large portion of the borough. In 1921 the infant mortality of Kensington was only exceeded by one London borough, namely, Shoreditch, and Dr. Fenton, in his report for that year, gives an analysis of the incidence of the infant mortality from respiratory and diarrhœal diseases showing that the high death-rate falls mainly upon the occupants of dwellings in mews throughout the borough and of tenement houses in North Kensington. The proportion of illegitimate births in the borough is high, and, as the illegitimate mortality is more than double the legitimate, the borough rate is further weighted by this circumstance.

Infectious Diseases.

Smallpox.

Smallpox in 1922 presents a record of remarkable interest in several noteworthy particulars, among which are the following. London was entirely free from smallpox for six consecutive months, namely, from January to June inclusive. During the second six months, July to December, there were sixty-five cases, including two which were not notified and one which was notified in Southend, where the patient was temporarily residing at the onset of illness; this is the highest number but one occurring in any one year since 1904; of these sixty-five cases no fewer than twenty were fatal, the mortality thus being 30·8 per cent.; the majority of these cases and deaths, and possibly all of them, were primarily due to the real nature of the illness having been overlooked. Two other points also are remarkable: one, that most of the cases occurred in a public institution, in which vaccination had fallen into abeyance; the other, that whereas London, as noted, was attacked by a severe form of smallpox, which probably was derived from the continent, it was not invaded by the mild smallpox which has been prevalent in the North and Midlands for about two years. It should be noted that this outbreak is still progressing there, and that during the early weeks of June, 1923, the disease was found to be rather extensively prevalent in Gloucester. London continually stands, therefore, under the risk of being invaded by this mild form of smallpox (which, nevertheless, is apt to be very costly to business and commerce), as well as by the more severe type from abroad.

The occurrences of smallpox in London during the last six months of 1922 consisted in the main of two distinct outbreaks, one in Stepney during July and August, and the other in Poplar during October and November, with a few "off-shoots" in other boroughs.

The outbreak in Stepney may be briefly described as follows. On Tuesday, 26th July, 1922, the medical officer of health of St. Pancras caused to be removed to hospital a case of smallpox which had commenced on 22nd July and at first was taken for scarlet fever. Southampton was thought at first to have been the origin of infection, but the real source was only disclosed subsequently by the evidence adduced at certain out-County consultations. On Saturday, 29th July, Dr. Wanklyn was called into consultation at West Ham, and there pronounced a suspected case to be smallpox. On Sunday, 30th July, he was called into consultation at Southend and diagnosed a suspected case there to be suffering from smallpox. Though the respective homes of these three patients were wide apart and apparently had no connection whatever, as a matter of fact they did form one group. A careful note of all their circumstances was made and juxtaposed for comparison and deduction. When this was done it seemed possible that a certain ladies' apparel warehouse in the City was the infecting centre. Further enquiry and analysis, however, aided by the evidence disclosed on the supervention of the fourth case in West Ham on 30th July, revealed the fact that, beside their dates, these four cases had one feature only in common, namely, the junction of their respective daily business journeys. The first patient was a hawker, the second a seamstress, the third a tailor's apprentice, and the fourth a blacksmith; their stories showed that, unknown to each other, they had daily met about one point in London, namely, Aldgate East, and the only possible hypothesis appeared to be that about this point a person hitherto undiscovered had unknowingly infected them. The most likely locality to be inhabited by this person was circulated to the officers concerned; further inquiries were pressed locally, and the alertness of the Stepney medical officer of health led to the discovery of the original focus of the mischief in the area which had been specified. There were thus brought to light two other cases, the fifth and sixth in chronological discovery, but the first and second in actual occurrence. The first, it was then found, had fallen ill on 1st July, and on 4th July had sought medical advice; being told he had chickenpox, he had gone about much as usual, pursuing his occupation as a shop assistant in a

small teashop. He almost certainly had infected the five cases mentioned as they went to and fro in their daily business. It was probable, of course, that he had also infected other cases which had still remained undisclosed, and this in fact turned out to be the case. During the course of the following week four more sufferers came under notice in a different part of Stepney, viz., Mile End and the Stepney Green area ; one of these, a female hawker, had been attacked a fortnight previously and had remained undiscovered until medical opinion was sought when her own child, whom she infected, fell ill with smallpox. She infected two other persons and there seems little doubt that she derived her infection from the original source in Aldgate.

How the first case was infected, viz.. the patient who fell ill on 1st July, 1922, remains undiscovered. It is, however, likely that infection came from the Continent ; whether by a transmigrant, or by an immigrant, or by the return of a London resident, or by the receipt of infected articles, it is impossible to say.

Thus between 26th July and 11th August there occurred ten cases, including two resident in West Ham and another temporarily resident in Southend, which were due to a single unrecognised focus of infection. With the later occurrence of one secondary case in West Ham the outbreak ceased. The fact that no more serious developments resulted may be ascribed to the painstaking investigations and prompt action of the public health services, both local and central. Of the eleven persons comprising this outbreak two died.

During the period August to October three additional cases of smallpox occurred, one, the source of whose infection remains undiscovered, on 12th September in Bethnal Green, a male aged 17 years, who died from a severe confluent attack ; and two in Fulham, these last cases appearing in the persons of a female, aged 38 years, and her daughter, aged 12 years, who had been on a visit to Dartford, where cases of smallpox were occurring. The mother died and the child recovered.

In October another formidable outbreak occurred, this time in Poplar, viz., in the Infirmary, where a case of genuine smallpox was detected upon the occurrence of a group of secondary cases. This outbreak comprised, when first discovered and investigated during the week-end, Saturday 27th October to Monday 29th, no less than 25 cases either within or in the neighbourhood of the Poplar Institution. Vigorous measures were taken and about 1,000 vaccinations effected within the first 36 hours. In consequence the outbreak in the institution suddenly abated as soon as the vaccinations had matured (the last case being noted about 10 days later), and was limited to 42 cases, with 14 deaths. The unremitting vigilance and strenuous efforts of the medical officer of health of Poplar and his staff, and those of the local Board of Guardians, were largely responsible for keeping this outbreak in check.

As a result of this development of infection at the Poplar Institution, 12 further cases of smallpox occurred in different parts of London, 7 at private addresses in Poplar, including 2 fatal cases, 3 in Southwark, 1 in Lambeth (fatal), and 1 in Bermondsey. To sum up there were altogether 65 cases in London during 1922, including 20 which proved fatal (30·8 per cent.), distributed as follows :—

26th July—11th August	(*Stepney*).—8 cases, including 1 temporarily staying in Southend and 1 not notified. Of these 1 died. (In addition and included in this outbreak were 3 cases in West Ham, 1 fatal ; the patient had probably taken infection in Stepney where he worked ; the other 2 recovered).
12th September	(*Bethnal Green*).—1 fatal case. Origin undiscovered, possibly due to indirect connection with earlier outbreak in Stepney.
5th October	(*Fulham*).—2 cases, 1 fatal. Both infected at Dartford.
26th October—18th December	(*Poplar*).—49 cases, of which 16 were fatal ; 42 of these cases and 14 deaths occurred at or in connection with the Poplar Institution.

26th October—18th December (*Lambeth*).—1 fatal case (school child). Source not traced, but probably connected indirectly with Poplar outbreak.
(*Bermondsey*).—1 non-fatal case. Origin not determined.
(*Southwark*).—3 non-fatal cases in one family, one of which was not notified, having recovered at the time of discovery of outbreak in family. Probable source in Poplar, where the "missed" case went to reside temporarily about time of infection.

As successful vaccination at first confers complete immunity from smallpox, and this immunity like that conferred by other infectious diseases gradually lessens, the main interest in the vaccinal condition of the above reported cases is to note the shortest interval which has elapsed between successful vaccination and any attack of smallpox, and between successful vaccination and a fatal attack of smallpox. The 65 patients may be classed thus :—

(*a*) Vaccination doubtful, 5; (*b*) unvaccinated, 14; (*c*) previously vaccinated, 46.

(*a*) Five showed no signs of vaccination, and it was doubtful whether it had been performed or not. Three died, 2 recovered.

(*b*) Of the 14 unvaccinated 7 died, 7 recovered.

(*c*) 46 had been vaccinated in infancy, 10 died, 36 recovered. The three shortest intervals between primary vaccination and the attack were 14, 16 and 16 years respectively. The three shortest intervals between primary vaccination and a fatal attack were 43, 44 and 49 years respectively; the ages of the other fatal cases vaccinated in infancy being 58, 66, 66, 67, 69, 72, 73 respectively.

The following table shows the age distribution of the 65 patients attacked :—

Age.	-5	5-10	10-15	15-20	20-30	30-40	40-50	50-60	60-70	Over 70
Number of cases ...	3	2	3	4	12	6	9	6	10	10

During the outbreak in October and November vigorous measures were taken to secure the vaccination and re-vaccination of unprotected persons, and more especially school children, and altogether upwards of 25,000 children were vaccinated in the Council's schools by public vaccinators. More could have been accomplished in this way but for difficulties arising owing to public vaccinators in certain districts not being authorised by the local Boards of Guardians to vaccinate children other than those in their own areas. In many districts the Guardians in face of the emergency which had arisen and acting on the authority of the Ministry of Health consented to mass vaccinations in the schools irrespective of the children's place of residence. It was found that out of 20,000 (approximately) children, concerning whom the history of vaccination was ascertained, 55 per cent. had never been vaccinated. Chickenpox was made notifiable by the Borough Councils in the boroughs of Deptford, Greenwich, Paddington, Holborn and Camberwell for varying periods.

A brief review of the history of smallpox since 1901 provides an instructive commentary on the widely held view that the risk of an epidemic of the disease in this country is negligible; and that those, on the other hand, who consider it to be a serious menace should be regarded as alarmists. In 1901 smallpox attacked heavily, the defence was not sufficiently strong, and the disease gained foothold and spread with rapidity. During that and the following year nearly 10,000 cases occurred, entailing an expenditure of £500,000, or an average of about £50 per case treated, in the smallpox hospitals alone. The epidemic did not come to an end until 1905, and in the following six years the disease was quiescent.

It is useful here to note the defects of organisation against smallpox which permitted the disease to penetrate London during 1901. These defects centred mainly around one factor, namely, the extreme difficulty which had been felt in identifying many cases of the disease. In consequence, smallpox was often completely successful in creeping through; and, even when its true nature was suspected,

it happened that several days elapsed before cases had developed sufficiently to place the diagnosis beyond doubt. In consequence, many cases of smallpox, highly infectious, remained unisolated and at large among the population; and until the diagnosis had been cleared up preventive measures could not be even begun, much less drastically carried out; the counter attack against smallpox was, therefore, paralysed by the delay in arriving at a diagnosis. All executive measures had to wait till that was settled; and in the meantime smallpox got a long start, and could not be overtaken. That was what happened again and again, and this led in 1901–1903 to the loss of 1,600 lives and an incalculable expenditure of money. Happily the mischief brought its own remedy. The late Dr. T. F. Ricketts after 10 years of research formulated a method for recognising smallpox promptly and accurately; a method which has this high scientific and educational value—that it was left by its author, who died in 1918, in such a form as enabled all who will to acquire and utilise it. The method in question was adopted by the Council in 1904 at the close of the last heavy epidemic when Dr. Wanklyn, who has carried on the traditions of Dr. Ricketts, was appointed in the Department, his services being placed at the immediate disposal of all the medical profession in London for consultation whenever a suspected case arose, and periodical warnings of the approach or presence of smallpox were from time to time issued by the Council.

Since 1901 there have been a few restricted outbreaks of smallpox, notably in 1911 (70 cases); 1918 (36 cases); 1919 (27 cases); 1920 (18 cases); and in 1922 (65 cases); any of which might easily have developed into a repetition of the events of 1901 but for improved organisation and more efficient administration.

Measles.

Measles caused 1,563 deaths in London during 1922, the death-rate being ·34 per 1,000 as compared with ·05 in 1921. After a break in 1917 and 1918, in both of which years measles was prevalent, the disease resumed its characteristic rhythmic recurrence every other year.

Whooping-cough.

There were 1,128 deaths from whooping-cough in London during 1922, the death-rate being ·25 per thousand. In the last seven or eight years whooping-cough has been prevalent in alternate winters, and in the years 1918–1922 the mortality curve is remarkably like that of measles.

Scarlet fever.

There were 17,226 cases of scarlet fever in London during 1922 (52 weeks), the corresponding number in 1921 being 32,738. In the first half of the year the cases notified were not far short of twice the average of the preceding five years; but the prevalence thereafter declined, and in the last quarter had fallen to nearly half the average. There were, however, more deaths in 1922 than in 1921, the figures being 301 and 292. The increased case-mortality is referred to on p. 82 of Part II. of this Report.

Diphtheria.

Diphtheria continued to be very prevalent during 1922, although the total cases notified, 15,304 (52 weeks) fell slightly short of the number in 1921 (16,319). The incidence of diphtheria during the year was somewhat similar, in its relation to the average, to that of scarlet fever; during the last quarter of the year the prevalence fell off considerably, though it did not, as in the case of scarlet fever, drop below the average of the preceding five years. The deaths numbered 1,145 as compared with 1,150 in 1921, the case-mortality for the 2 years being, therefore, much about the same. During the first quarter of this year 3,434 cases have been notified, as compared with the average for the past five years in this quarter of 3,288; but in recent weeks the cases have been below the average.

The case-rate and death-rate of the principal notifiable infectious diseases for each Metropolitan Borough and for London as a whole will be found in the table on p. 53.

Diarrhœa and Enteritis.

There were 676 deaths among children under 2 years of age from diarrhœa and enteritis in London during 1922, the mortality-rate being 7·13 per 1,000 births. This is

the lowest rate hitherto recorded in London, the lowest previous rate being 9·59, in 1920. The chief factor in infant mortality from diarrhœa is the summer temperature, but as was shown in last year's Report, there has since 1914 been a remarkable diminution in the effect of high summer temperature upon the mortality from infantile diarrhœa. The average temperature in the summer quarter of 1922 was 2·4 below the average of the past fifty years, and below that of any summer since 1887.

Tuberculosis. The deaths from tuberculosis of the respiratory system in the civil population of London during 1922 numbered 4,888, giving a death-rate of 1·08 per 1,000; the corresponding figures for 1921 were 4,813 and 1·07 respectively. Deaths from other forms of tuberculosis numbered 936 as against 964 in the preceding year. The International List of Causes of Deaths adopted in 1911 was modified in 1921 in respect of the classification of tuberculosis mortality; the heading "Pulmonary Tuberculosis" is replaced by "Tuberculosis of the Respiratory System" and does not include acute miliary tuberculosis, which is now classed to the heading disseminated tuberculosis. Prior to 1911 acute miliary tuberculosis was not included with "phthisis" and the figures under the heading tuberculosis of the respiratory system are, therefore, comparable with the earlier phthisis deaths. For the period 1911–1920 the deaths, excluding miliary tuberculosis, in London, and the similar figures classed according to the new code in 1921 and 1922, were as follows :—

Year.	Deaths.			Approximate death-rates.		
	Males.	Females.	Total.	Males.	Females.	Total.
1911 ...	3,744	2,376	6,120	1·76	0·99	1·35
1912 ...	3,803	2,312	6,115	1·79	0·97	1·35
1913 ...	3,634	2,229	5,863	1·71	0·93	1·30
1914 ...	3,901	2,430	6,331	1·84	1·01	1·40
1915 ...	4,064	2,651	6,715	1·92	1·11	1·49
1916 ...	3,737	2,527	6,264	1·88	1·05	1·44
1917 ...	4,040	2,728	6,768	2·01	1·14	1·53
1918 ...	3,946	2,974	6,920	1·99	1·24	1·58
1919 ...	2,945	2,252	5,197	1·47	0·94	1·18
1920 ...	2,675	2,000	4,675	1·29	0·82	1·04
1921 ...	2,737	2,076	4,813	1·32	0·85	1·07
1922 ...	2,841	2,047	4,888	1·35	0·84	1·08

With regard to the approximate death-rates shown in this table, it will be found that those for the war years differ considerably from rates published previously in these Reports. Until the census population figures became available, it was not possible to make any reliable estimate of the population at risk since 1914, and throughout the war period the phthisis rates have been calculated upon the residual civil population of London. Rates so calculated are, however, obviously not comparable with the rates of normal times, since the civil population of war time contained practically all men suffering from phthisis. The number of deaths from phthisis in the field was consequently very small, men on service developing phthisis while abroad being as far as possible sent back to England. In arriving at the rates given a proportion of the Army and Navy deaths occurring in England has been added, and the total population, instead of the civil population, has been used, with some adjustment to allow for war losses. In "Pulmonary Tuberculosis" Sir James Kingston Fowler gives (page 42) a tabular statement relating to the incidence and mortality of tuberculosis among troops of various nationalities stationed in France and Belgium in 1918 from which it appears that the mortality in British troops there was only 5 per 100,000, a practically insignificant rate.

The figures for 1921 and 1922 show a slight increase upon those for 1920. This is most noticeable among young adults, but some increase is observable at ages between 55 and 65.

A comparison of the post-war age-incidence of phthisis mortality per 100,000 living with that before the war is provided in the following table :—

Period.	0-	5-	10-	15-	20-	25-	35-	45-	55-	65-	75-
					Males.						
1900–02 ...	51	15	17	82	172	260	443	519	427	317	131
1911–13 ...	37	15	17	72	148	208	320	360	364	263	150
1920–22 ...	16	5	14	84	151	151	210	261	235	168	82
					Females.						
1900–02 ...	42	23	32	76	97	150	251	214	166	121	77
1911–13 ...	32	15	35	81	96	117	159	153	127	113	66
1920–22 ...	18	9	31	111	131	114	111	96	81	81	53
Increase (+) or decrease (—) per cent., of rates in 1920–22 on 1911–13 rates :—											
					Males.						
	—56	—64	—17	+16	+2	—27	—34	—28	—35	—36	—45
					Females.						
	—45	—40	—12	+37	+37	— 3	—30	—37	—36	—28	—19

It will be noted that the rates for ages 15–25 show increase in the post-war years ; and, on comparing the figures for 1900–02 with those for 1911–13, it will be seen that, although there is no increase among males at these ages, the decline is relatively much lower than at all other ages, while among females an increase occurred. The changes, therefore, have not been initiated by the war, which nevertheless may have had some share in causing the relatively greater change in the mortality among young adults which occurred in the later intercensal period.

Movement of population in relation to phthisis death-rate.

The census shows that the London population of both sexes at ages between 15 and 25 is greater than could be expected from the births in London. In 1911 the female population aged 15–20 exceeded that aged 10–15 by 9,422, and again those aged 20–25 exceeded those aged 15–20 by 25,437. The increase is not due to any increase in the birth-rate of the London population about 20 years earlier, but is due (apart from possible misstatement of age at the census) to the attraction to London of young adult women. Both misstatement of age, if any, and the movement of population would disturb the mortality rates calculated upon the census figures. The movement of population at these ages is the result of the attraction which London offers to young adults of both sexes, but particularly to females in domestic service, and to the movement out of London of young adults on marriage or in the earlier years of married life. The London Life Table for 1901–1911 published in the Report of the Medical Officer for 1912 enables an approximate estimate to be made of the number of females who would have been enumerated in 1911 if there had been no intercensal movement, and the result is to show that the number enumerated of age 20–25 in 1911, namely 237,825, was over 30,000 more than could have survived from the 1901 population aged 10–15 ; and it is concluded that about 65,000 females had moved into London and 35,000 out of London at these ages during the intercensal period to account for the difference between the actual and estimated female population. The corresponding approximate figures for males are inward movement 20,000 ; outward, 30,000. These movements of the population of young adults naturally affect the mortality rates, and especially those relating to such a disease as phthisis, where the advice has always been in favour of a life in the country or abroad. So much uncertainty does in fact attach to the calculated London phthisis mortality among young adults that it cannot be definitely concluded from the rates of recent years that the mortality among young adults has in fact increased, especially in view of the general decline at other ages not correspondingly disturbed by migration.

In last year's Annual Report (vol. III., p. 7) the influence of movement of population (*internal migration*, *i.e.*, migration within this country, and *external migration*, *i.e.*, migration between this country and foreign lands) upon phthisis death rates was considered. The decline in the phthisis death-rate, extending over half a century up to about the period 1912–14 ; its rise during the war years ;

and the subsequent renewed decline following upon the war: these three were shown to have been associated with to and fro shifting of maximum age incidence—first (up to 1912–14) from young adults to middle life, second (during the war years) from middle life back to young adults, and then in 1919 and 1920 there was some indication of a tendency to decline at the young adult ages again. This reverting process has not, however, been followed up since 1920, for, as has been seen, there has been an increase of incidence upon young adult females (15–25) in 1921 and 1922 as compared with 1919 and 1920.

The conclusion drawn last year, from the behaviour of the rates in 1919, 1920 and 1921, that a renewal of the outward flow of population from this country, following upon the re-establishment of peace conditions, had led to a fall in the death rates from phthisis at ages 15–25 in the three post-war years, has thus not been emphasised by a further fall in the rate at ages 15–25 in 1922. Two considerations need, however, to be borne in mind with regard to last year's phthisis rate at the ages specified. First, there was considerable mortality from influenza in the early months of 1922, and this led to a decided increase in the phthisis death-rate at advanced ages and to some increase among women at the ages 15–25 from influenza; the phenomenon was in fact a repetition of one which occurred on a considerably greater scale in 1918. Secondly, the selection for treatment in sanatoria in this country of early cases of phthisis, especially among young adults, has been more effectually accomplished in recent than had been the case in earlier years; and this has led to a certain number of young adult women undergoing treatment here, and not going abroad to the extent that occurred in earlier years. It appears, therefore, that, as was observed more than a year ago by Dr. Stevenson, "the transfer in 1916 of the maximum mortality of women from ages 35–45 (as in the preceding quarter century) to 20–25, or even earlier to 15–20 in 1917, has now been maintained for five (now six years) and the excess at 20–25 is so definite that it seems likely to continue for some considerable time longer. This is a very marked and sudden change in a feature of the disease which appeared to be stable, and to which much significance had been attached; and it will be of interest when the new census results are available to ascertain its distribution throughout those parts of the country hitherto characterised by early and late mortality, and to find whether the movement is shared by the other sex." A further point to be noted is the fact that the phthisis death-rates of 1920, the year which followed upon the heavy influenza years of 1918 and 1919, were abnormally low, owing in part no doubt to the large number of phthisical persons who had died as the result of attack by influenza in the two preceding years, The increased phthisis rates in 1922 (and in less degree in 1921) may be attributed to return, after experiencing the exceptionally low rates obtaining in 1920, to more normal conditions.

The influence of migration was (as briefly noted in last year's report) carefully considered by Dr. Greenwood in his Milroy Lectures on the Influence of Industrial Employment upon General Health. Dr. Greenwood refers to my paper of 1912 (Proc. Roy. Soc. Med.) and to the Annual Report for 1920 (vol. III., p. 13). He enquires whether the scale of internal migration of young adults "is large enough to make any supposed effect upon the health of migrants a substantial factor of mortality." He concludes, "Dr. Hamer is almost certainly correct in supposing there to be ample material for the revelation of effects." He agrees, moreover, that there is a townward trend of immigration at later ages of life, but that the quality of the immigrants is different. "In adolescence and young manhood it is a migration of the vigorous and hopeful; at later years it tends to be a migration of those broken in the struggle for life, seeking, not perhaps with much hope, what has hitherto escaped them. The immigration of the young and healthy lowers, the immigration of the middle-aged and unhealthy increases, the urban death-rate." He then suggests "that the change of environment from town to country may have an extremely unfavourable effect upon the immigrants," and he refers to the "considerable literature which has arisen of recent years around the question of

bringing 'unsalted' populations into contact with urban civilisation." He continues, "perhaps what happens to an extreme degree when Dryden's noble savage becomes a townsman happens to a less degree when Corydon repairs to the tenement, the picture palace and the factory." He concludes, "adolescent migration perhaps increases mortality in *both* populations—rural mortality by the withdrawal of those best fitted to survive under the rural environment, urban mortality by the introduction of those ill-adapted to survive under urban conditions." Upon this it might be suggested that the tendency, which has become so marked in the last few years, for young girls to exchange "living-in" as domestic servants for "living-out," may have operated prejudicially upon their health. The domestic servant, who formerly was well-housed and well-fed and cared for, has now in many thousands of instances repaired "to the tenement, the picture palace and the factory," and this change may perhaps find some reflection in the phthisis death-rate at 15–25.

In his concluding lecture Dr. Greenwood returns to the problem of internal migration and examines the case of the boot and shoe or slipper makers of Northants and Leicester, who have an even higher phthisis mortality than the textile workers of the North. He speculates as to whether inward movement, of "unsalted youth, of genuine rustics," from within 50 miles of the great Midland boot factories, materially contributes to this high mortality; but the acquirement of direct evidence bearing upon the question is, he finds, difficult. He points out, however, that "the conditions of life to which the youth in the country is exposed, are widely different from those awaiting him as a factory employee. He refers to the observations of the late Dr. Edward Smith, F.R.S., on the health of the London printers, that "usually they are pale and thin with sunken features and large pupils, but in other cases they are fleshy and have colour, and do not show a low type of health. Very generally they affirm that they are well, take their food heartily and digest it well, and have not degenerated in health." He adds, "it has been stated that country boys sooner lose flesh and colour than town boys, and are among the earliest to fall into serious disease." Dr. Greenwood thereupon proceeds to examine (assuming that a change from rural conditions to urban life *is* a factor of sickness and mortality) the mechanism of the deterioration. He suggests three contributory causes (i.) change of diet, (ii.) reduction of bodily exercise, (iii.) the immediate effects of atmospheric change. Dr. Greenwood concludes by quoting the words of his predecessor, the Milroy Lecturer of 1903, Dr. Bulstrode. It is, indeed, remarkable, looking back over the 20 years, to note how accurately Dr. Bulstrode diagnosed the needs of the situation, as it presented itself in 1903, and how much, as Dr. Greenwood says, "has been done in the last 20 years to satisfy these requirements."

Notification of tuberculosis.

The number of notifications of tuberculosis in London during 1922 (52 weeks) was 11,548 as against 12,214 in 1921. Of these 9,327 were pulmonary and 2,221 other forms of tuberculosis. These figures compare with those published in these reports prior to 1921. Further correction of the figures by the exclusion of cases notified as primary but eventually found to have been previously notified, brings the total number of pulmonary cases down to 7,826 and other cases to 2,158, the corresponding figures for last year being 8,460 and 2,188.

The following is an analysis of the corrected notifications in London during (52 weeks) :—

Form of tuberculosis notified.	Sex.	Notifications on Form A. (Total of primary notifications received in London boroughs, other than elementary school cases, *infra*.)											
		0—	1—	5—	10—	15—	20—	25—	35—	45—	55—	65+	Total.
Pulmonary tuberculosis	M.	9	56	118	109	299	533	961	949	773	414	153	4,374
	F.	9	37	108	182	387	553	889	604	335	178	118	3,400
Other tuberculosis ...	M.	42	186	256	191	112	83	97	50	37	24	9	1,087
	F.	28	145	211	156	110	83	107	59	44	22	14	979
All forms of tuberculosis	M.	51	242	374	300	411	616	1,058	999	810	438	162	5,461
	F.	37	182	319	338	497	636	996	663	379	200	132	4,379

Form of tuberculosis notified.	Sex.	Notifications on Form B. (Primary notifications of cases discovered through medical inspection in elementary schools.)				Notifications on Form C. (Secondary notifications from institutions receiving cases.)	
		0—	5—	10+	Total.	Poor Law.	Other.
Pulmonary tuberculosis	M.	—	9	15	24	1,109	3,317
	F.	1	11	16	28	699	1,887
Other tuberculosis ...	M.	3	24	21	48	124	418
	F.	2	22	20	44	101	322
All forms of tuberculosis	M.	3	33	36	72	1,233	3,735
	F.	3	33	36	72	800	2,209

The changes which have taken place in the incidence of phthisis in London during the past ten or twelve years, are the result of a complexity of causes; and although it may be possible to some extent to disentangle and define them, the share which each has had in producing the changes which have occurred cannot be ascertained owing to want of the necessary data.

The apparent arrest of the downward trend of the phthisis death-rate which occurred about 1911 has been discussed in earlier Reports, and is associated with decrease in emigration of phthisical persons and with the transfer to London of deaths of London residents taking place elsewhere in England and Wales.

Sex-incidence during the war.

The changes which were brought about by the European war were, however, of quite a special nature, and affected the two sexes differently. Towards the end of 1914 the female population of London was considerably increased by the influx of refugees. Later, more women were absorbed both by munitions work and in taking the place of men on active service. In the autumn of 1917 an opposite movement occurred: the air raids caused a number of people to leave London, and in 1918 in addition to this factor, the shortage in agricultural labour led to the enlistment of women in farm labour. The influence of these movements upon the notifications of phthisis is very apparent, there being up to 1917 less decline in cases at ages 15–25 than at all other ages. After 1917 the effect of the outward movement of population on the phthisis notifications is masked by the increasing effect of food shortage, and, later, by the influenza pandemics, tending to increase the cases.

Among males the movement was of a different character. The male civil population declined progressively, with the result that the notifications of phthisis continued to fall sharply until 1916. In 1916 and 1917 recruitment became so general that by the end of the latter year most of the male population of ages 20–35 had had to pass through the hands of the medical examiners, and, if found phthisical, had been notified. Consequently the notifications of males of military age, which had fallen relatively far more than females of the same ages, in 1917 increased to a height in excess of even the figure of 1913. In 1918 the notifications were higher still, for in addition to the result of medical examination *en masse* there came the influenza pandemics, and the aftermath of the food shortage in 1917 prior to the rationing of the food supply.

Fluctuations in the mortality rates corresponding to those shown in the notifications naturally did not occur, so far as the earlier war years are concerned, but such changes as did occur later were far more marked at the ages 20–35 among males and 15–25 among females, showing that the causes mentioned as influencing the notifications had also been the source of the increased phthisis mortality, especially in 1917 and 1918.

Influenza.

Influenza was epidemic in the closing weeks of 1921 and in the beginning of 1922 and the epidemic is dealt with in the last Annual Report (vol. III., p. 14). There were 2,600 deaths in 1922, and of these 1,423 were among females. In the outbreaks of 1918 the observed incidence was much greater upon females than males, as might be expected in view of the number of males on military service in that year. In the epidemics of the nineties the difference in sex-mortality is not marked, nor does

the ratio differ much from one epidemic to another ; the same is found to be the case in the years 1920–22, when the population had largely returned to the normal sex proportion, the excess in deaths among females being accounted for by the greater number of females in the population, especially at high ages.

Periodicity of epidemics.

Dr. Brownlee concluded from analysis of the epidemics of the nineties that influenza was apt to recur in periods of 33 weeks or multiples thereof with, however, the qualification that when the period occurred in the summer months no outbreak was to be expected. (See Report of the Ministry of Health on the Pandemic of Influenza, 1918–19, Appendix XII.) The first of the new series of epidemics, that in June–July, 1918, as well as the third (February–March, 1919), occurred after an interval which, measured from the epidemics of 1890, is a multiple of 33 weeks, while the epidemics of 1891, 1892, 1893, and 1895 approximately fulfil the same condition. The epidemic of October–November, 1918—the greatest of them all—is, however, an interloper, breaking midway into the period of 33 weeks and the last epidemic, that of January, 1922, followed this interloper after 165, *i.e.*, 33 by 5, weeks, and is also aperiodic in respect to the epidemics of the early nineties. Moreover, there is only one instance, in the last 32 years, in which the actual interval between two successive epidemics approximates to 33 weeks ; in all other cases the interval approximates to a multiple of this period. The intervals range in length from 16 weeks which separated the first, second and third of the recent series to 152 weeks to the fourth, that of 1922. The interval between two epidemics is measured by the time elapsing between the week of maximum mortality in each, but this is, of course, only an approximation. In the nineties the periods thus measured were 70, 35, 99 and 64 weeks, respectively between the five epidemics in the period 1890-95.

In its seasonal incidence as judged by the mortality influenza is similar to typhoid fever ; in both cases there is a definite seasonal recurrence, though the time of year is different, typhoid being an autumnal and influenza a winter disease. In addition to this more or less regular annual recurrence, there are mass outbreaks which do not appear to follow the seasonal incidence of normal prevalences, at least, not very closely ; but if experience were available of a large number of mass outbreaks of typhoid fever in London, it is probable that in the long run it would be found that they tend to be more frequent in the autumn. In the case of influenza it is difficult to draw a hard and fast line of distinction between an " epidemic " and a merely seasonal prevalence ; but if attention be confined to instances in which the deaths have risen to not less than 100 in one week, it is found that since 1889 there have been 17 such prevalences and that of these 13 have fallen in the first quarter, one in each of the second and third quarters and 2 in the fourth. If consideration be limited to the pandemics in this period, numbering 8, it is found that 5 occurred in the first quarter and 1 in each of the other quarters of the year. There were no pandemics in the 10 years 1901–1910, and for this period the week of maximum mortality was the tenth week in the year. Endemic influenza, therefore, tends to reach a seasonal maximum about the middle of March ; and the facts stated point to the probability that in England epidemic influenza also tends to a maximum about the same period.

The contrast in respect of mortality between the pandemics of the nineties and those of 1918 and following years is remarkable. The total deaths from " influenza " in the six years 1890–1895, in which there were 5 epidemic prevalences, numbered 9,658, while in the period 1918–1922, with 4 epidemics, the deaths numbered 22,332. Allowance must be made for varying fashion as regards nomenclature and for the possibility that the population in 1918 was, owing to the war, less resistant to influenza than in the nineties. It is interesting to note that in New South Wales, where the population could hardly in any direction have been affected by the war to the extent of the population of London, the death-rate in 1919 was four times that of the great epidemic of 1891.

The post-war mortality of European capital cities also offers some striking

contrasts. The influenza death-rate of Berlin and Vienna in the 4 years 1919–1922 is little more than half that of London during the same period ; on the other hand the rates for Copenhagen and Stockholm are both in excess of the London rate. The New York and Chicago rates are lower than that of London, but Paris is lower than either, and is not much higher than the rates of Berlin and Vienna. In some cities which suffered severely in 1918 a comparatively low mortality from influenza followed in the years 1919–1922. This was not the cause of the low post-war mortality in Berlin, for in the pandemic of the autumn of 1918 the weekly death-rate from all causes did not exceed 41·7 per 1,000, as compared with 55·5 per 1,000 of population (in two successive weeks) in London. In Copenhagen, where influenza has been notifiable for many years, the number of cases notified in the period 1918–1922 was over three times that in the first five years of the nineties.

In the last Annual Report (vol. III., p. 45) reference was made to some of the varied manifestations of influenza met with in 1920 and 1921 and particularly to prevalence in London and in Manchester of the form of the disease accompanied by a scarlatiniform rash. The Journal of the American Medical Association, 16th December, 1922 (p. 2,079), contains an account of "A scarlet fever epidemic in an agricultural school." It is stated that "In February, March and April, 1922, 59 of the 840 students of this school in the University of Minnesota contracted scarlet fever. Most of the students came from rural communities, 59 per cent. of them living in places of less than 100 population. There was usually a rash and the cases were frankly scarlet fever." There was, however, it transpires a "coincident epidemic of influenza . . . During February and March, while this section of the country was experiencing an epidemic of mild influenza or 'grip,' 374 students of the University contracted the infection, 182 of whom were admitted to the hospital as patients." Of the hospital patients it appears 58 were students in the school of agriculture. The outbreak recalls those commented upon in London and Manchester, and many other outbreaks recorded in this country, in which influenza has shown a tendency to manifest a scarlatiniform rash. The Journal of the American Medical Association, 12th May, 1923, further refers to a dengue epidemic in Galveston, Texas. "About 30,000 cases of dengue occurred in Galveston during the summer and fall of 1922 . . . The diagnosis is made on 5 principal points (i.) sudden onset with fever and a chill or chilly sensation ; (ii.) aching pains which may be generally localised in the head, back or legs ; (iii.) suffused face and eyes ; (iv.) normal or low leucocyte count with a relative lymphocytosis ; (v.) absence of jaundice and albuminuria. In addition to these fairly constant symptoms there are usually noted (i.) soreness of the eyeballs and skeletal muscles ; (ii.) prostration and loss of appetite ; (iii.) alteration of taste. The symptoms should be confirmed by : (i.) the appearance of a toxic rash ; (ii.) termination of fever within 3 to 7 days and (iii.) the absence of any other disease to explain the symptoms. Pregnancy was not disturbed. Convalescence was slow and attended by a sense of weakness, fatigue and soreness of the muscles, which lasted from 1 to 6 weeks." The diagnosis of a sudden supervention of 30,000 cases with these symptoms, in this country, would, of course, have been influenza and not dengue. In the above account of the outbreak the statement will have been noted that the symptoms "should be confirmed" by *the appearance of toxic rash and absence of any other disease.* Presumably the latter means disease affecting the individual. If absence of any other *epidemic* disease had been the test appealed to, the diagnosis of dengue would presumably have been upset, for there was widespread influenza at the time specified. It will be remembered that early in 1922, influenza was already prevalent in Europe ; in January and February it was reported in some of the larger cities in the United States ; in March it was in the West Indies and in New Orleans ; in June and July South Africa became widely affected ; it had extended by the summer to the western states and continued to smoulder in New Orleans through the autumn. "Dengue" has in times past been the name applied in tropical countries to any sudden widespread prevalences of disease pre-

senting the symptoms above described, particularly when these symptoms included a scarlatiniform rash. So that it may be surmised that considerable difficulty might be felt in distinguishing the Galveston " dengue " from influenza.

Cerebro-spinal fever.

The number of cases of cerebrospinal fever and post-basic meningitis notified during the year 1922 was 86, as compared with 109 for the previous year, thus continuing the steady decline in the incidence of the disease since 1915. Of the 86 cases notified, 13 were not confirmed as cases of cerebrospinal fever or post-basic meningitis, while one was considered to be doubtful. On the other hand, 14 cases were recorded (mainly through the Registrar General's Death Returns) which were not notified under the Public Health (London) Act, 1891. The actual number of confirmed cases was, therefore, 86, of which 71 (82·5 per cent.) proved fatal. The rise in the fatality rate may be due to the fact that the only unnotified cases which came to light were those which proved fatal. This applies more particularly to post-basic meningitis, concerning the notification of which there seems to be some misapprehension. The Order of the Council in 1912 making cerebrospinal fever a notifiable disease applied equally to the condition known as post-basic meningitis.

Poliomyelitis, polioencephalitis and encephalitis lethargica.

The number of cases of poliomyelitis and polioencephalitis notified during 1922 was 40. In 4 cases the diagnosis was revised, whilst another was considered to be doubtful.

During 1922 there were 72 cases of encephalitis lethargica notified. In 17 cases the diagnosis was revised, while in one fatal case the diagnosis was considered to be doubtful. In addition, 2 cases (one which was orginally notified as cerebrospinal meningitis) were recorded, which were not notified officially. Of the 56 actual cases, 30 (53·6 per cent.) proved fatal. The incidence was the lowest recorded since the disease was first made notifiable in 1919.

The following table shows the age incidence of actual cases of cerebrospinal meningitis, poliomyelitis and encephalitis lethargica during 1922.

	Under 3.	3–5.	5–10.	10–20.	20–30.	30–40.	40–50.	50–60.	Over 60.	Total.
Cerebrospinal meningitis	50	3	7	15	7	1	2	1	—	86
Poliomyelitis and polioencephalitis...	16	3	7	6	2	—	—	1	—	35
Encephalitis lethargica	1	2	4	10	4	10	13	7	5	56

The following table shows the yearly incidence (of cases notified) of cerebrospinal meningitis and poliomyelitis since 1913, and of encephalitis lethargica since 1919.

	1913.	1914.	1915.	1916.	1917.	1918.	1919.	1920.	1921.	1922.
Cerebrospinal meningitis ...	92	73	674	432	430	265	199	164	109	86
Poliomyelitis	145	93	97	197	53	53	96	65	59	40
Encephalitis lethargica	Not made notifiable till 1st January, 1919						86	149	243	72

Plague and cholera.

No cases of plague or cholera were notified during 1922. During the year passengers from five ships on which plague had occurred, or on which plague rats had been found, came to London and were kept under observation as contacts.

Anthrax.

During 1922 there were nine cases of Anthrax in London, two of which proved fatal. In seven cases the patients were engaged in handling hides, wool or skins from which the infection was no doubt derived. In another case the patient was employed as a butcher's assistant on a farm at Edgware and investigation proved that two horses on the farm had died suddenly. The carcase of one of these animals was skinned and cut up on the farm, and the patient is stated to have assisted in this work. These carcases were not submitted to bacteriological examination, and the exact cause of the death of the two animals was not established, but it is significant that the case of anthrax occurred very shortly after the death of these two animals. In the last case, which proved fatal, the source of infection was not traced.

Typhus fever.

Two cases of typhus fever were notified in London during 1922, one in Stepney and the other in St. Marylebone. In the former case the patient had recently returned

from a visit to Warsaw, where, in all probability, he was infected. In the latter case the source of the infection was not ascertained as there was no history of the patient's having travelled or having been in contact with the disease. Dr. J. A. H. Brincker was called in consultation to see this case, and agreed with the diagnosis of typhus fever. Both patients recovered.

Typhoid Fever.

There were 264 cases of typhoid fever notified in London in 1922, as compared with 329 in 1921 and 387 in 1920. The deaths numbered 45 as against 60 in 1921 and 48 in 1920. Of the total cases notified only 141 were admitted to hospitals of the Metropolitan Asylums Board; the corresponding number in the year 1921 was 193. Of the 141 cases admitted in 1922, 65 were found not to be cases of typhoid fever.

In 14 instances more than 1 case was notified from the same house, as compared with 19 instances in 1921. The multiple house invasions in 1922 included 1 with 6 cases, 1 with 5 cases, 2 with 4, and 2 with 3 cases. The group of 6 cases was notified from a house in Fulham, and the group of 5 from a house in Wandsworth; 2 groups of 4 were from houses in Kensington and Stepney; the 2 groups of 3 from houses in Stepney and Woolwich respectively. As regards the group of 6 cases, the Kensington group of 4 cases and the Woolwich group of 3 cases, no source of infection was traced. The group of 5 cases in Wandsworth formed part of a strictly localised prevalence affecting persons living in houses in two streets only, and it was apparently due to food infection. Milk at first seemed at fault, but enquiry led to the exclusion of milk infection. There remained, however, the suspicion that fried fish was incriminated. In the group of 4 cases in Stepney the dates of onset were from 25th October to 19th November, food origin was suspected, but no shellfish or fried fish had been consumed, and any plaice eaten was cooked at home. In the group of 3 cases in Stepney the dates of onset ranged from 10th March to 11th May.

Dr. Howell, Medical Officer of Health of Hammersmith, reported upon a small prevalence of typhoid fever in June and July; six of the sufferers in Hammersmith were on Epsom Downs on Derby day and drank, while on or near the race course, either "home-made lemonade," or water. It was subsequently ascertained by Dr. Howell from Dr. Williamson of Epsom, that a similar history of drinking lemonade or water at Epsom was elicited in two cases of typhoid fever, one from Leatherhead, and one in Sutton, and an Acton case and a Lambeth case with like histories were also forthcoming. The group of patients from Hammersmith included a young man (by trade a seller of fried fish) and 2 boys, his friends; they did not go to Epsom to sell fried fish, but for the races.

Cockles from Ramsgate are mentioned as a possible source of typhoid fever in 2 instances in 1922 (1 in Poplar and 1 in Deptford). The medical officer of health of Ramsgate in his Report for 1922 states that of 3 cases of typhoid in Ramsgate in the year, 2 had a history of consumption of cockles, the evidence in 1 case being very definite. The cockles were unsterilized and had been taken from a source known to be polluted.

In 42 cases, out of the total number notified, in which bacteriological confirmation of diagnosis is forthcoming, the presence of B. Typhosus is recorded in 10 instances; 12 are returned as "Paratyphoid"; while 5 are described as Paratyphoid A and 15 as Paratyphoid B. In 181 out of the total number of cases, in which information as to a possible source of infection is given, reference is made to shellfish in 15, to fried fish in 8, to other fish in 10, in 6 to watercress, and in 33 to other food (including lemonade in 8 cases, bad water 5 cases, and ice cream in 8 cases). In 25 cases contact with previous cases is mentioned. Nine patients contracted the disease in the country and 19 abroad. Seven nurses were among the sufferers. Forty-seven of the 181 cases were held not to be cases of typhoid fever.

Review of typhoid fever in London during the last 32 years.

The accompanying Diagram, showing incidence of typhoid fever, during the 13 four-weekly periods in each year, has been prepared to exhibit its behaviour in the 27 London sanitary areas during the past 32 years. (In order to facilitate comparisons Stoke Newington has been combined with Hackney, and Deptford with Greenwich, as the separation between these two pairs of boroughs could not readily be effected in the earlier years under review).

As a preliminary to the study of this Diagram, brief reference should be made to the incidence of the disease when a longer period than 32 years is passed under review. The diagram on p. 11 of the Annual Report for 1919 gives a general idea of typhoid fever incidence in London as exhibited by available mortality statistics; the accompanying diagram, on the other hand, is based upon notification statistics, and thus relates necessarily to a shorter series of years. The mortality figures are forthcoming since 1869, as in that year typhoid fever was distinguished from other "continued fevers"; and from 1869 down to 1884, there was no very marked decline in the typhoid death-rate; in those years, however, doubtless many cases which were not really typhoid were, owing to difficulty of diagnosis, included in the returns. In 1885 came a drop to a lower level, which was practically maintained until 1900. The sudden fall from 1884 to 1885 is almost as marked in the figures for England and Wales as in the London figures. In 1894 Bulstrode's Oyster report was published, and in 1900 the first fish outbreak was described. Since 1900, the general trend has been a decline, at first rapid from 1901–05, then came some slackening in the rate of fall down to 1912, and since that date typhoid fever has been at quite a low ebb.

The whole range of mortality statistics, 54 years, may thus be divided into three periods—a very high death-rate for 16 years (up to 1885); during this period, however, the deaths registered from "typhoid fever" probably included some typhus fever, cerebrospinal fever, appendicitis and other general and abdominal diseases: a lower level for a further period of years (up to 1901): then a steep decline for a few years to the present low rate, which has practically been maintained without any noteworthy fluctuations.

Turning now to notified cases shown in the accompanying Diagram.

(1). The first lessons to be learnt from the Diagram are that during the past 20 years typhoid has greatly declined, and that the "normal" autumnal increase of prevalence which became only slight in 1907, was absent in 1909, and has since 1911 practically disappeared. These changes have affected the whole of the boroughs of London, and the incidence was much heavier up to 20 years ago on boroughs containing considerable aggregations of poorer persons (St. Pancras, Islington, Hackney, Finsbury, Shoreditch, Bethnal Green, Stepney, Poplar and several South London boroughs); this excessive incidence on these boroughs, has now, after a sharp decline, ceased to be apparent. Such a transformation can only be due to the removal of some special source or sources of infection, which up to the end of the last century had operated widely, and then practically failed to do so in the last 10 or 12 years. During the nineties and in the early years of the twentieth century, this particular influence must have been one affecting mainly poor populations; and during the forty years 1869–1908 it was especially manifested in the autumn months.

In view of the fact that the waning of this prejudicial influence only became apparent about 20 years ago and that it did not cease to operate until after 1911, the falling off can clearly have had little to do with improvements in drainage or water supply, for both these conditions had been the subject of a great deal of attention long before the close of the last century, indeed, at least 15 years or more before the decisive fall came. Again it can have had but little to do with limitation of direct spread of infection from case to case, for fully 10 years before the close of the last century, hospital isolation, disinfection, etc., were extensively practised. It can have had nothing whatever to do with preventive inoculation or with segregation of "carriers," for these measures have never been applied on any really appre-

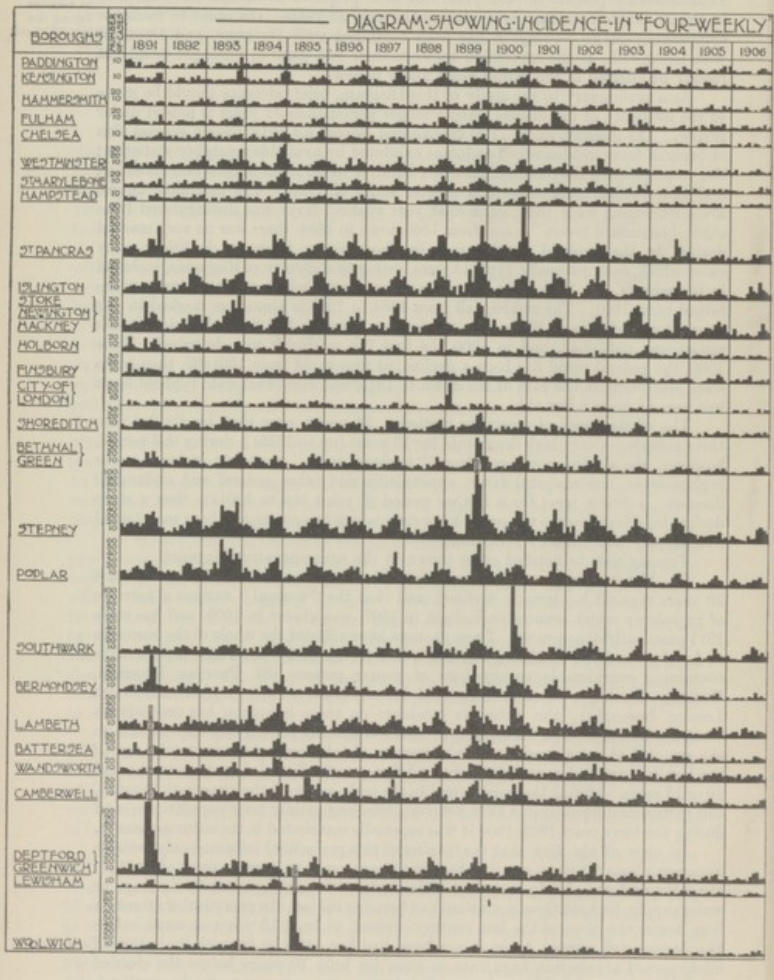
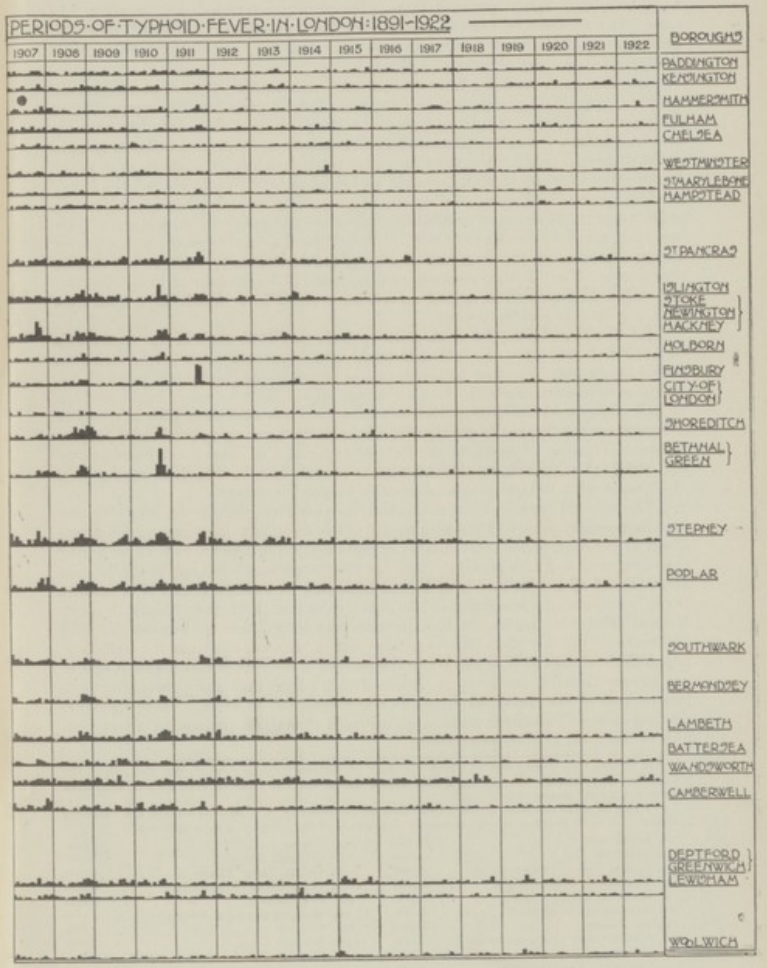


DIAGRAM SHOWING INCIDENCE IN "FOUR-WEEKLY"
1891
1892
1893
1894
1895
1896
1897
1898
1899
1900
1901
1902
1903
1904
1905
1906
BOROUGHS
PADDINGTON
KENSINGTON
HAMMERSMITH
FULHAM
CHELSEA
WESTMINSTER
ST MARYLEBONE
HAMPSTEAD
ST PANCRAS
ISLINGTON
STOKE NEWINGTON
HACKNEY
HOLBORN
FINSBURY
CITY OF LONDON
SHOREDITCH
BETHNAL GREEN
STEPNEY
POPLAR
SOUTHWARK
BERMONDSEY
LAMBETH
BATTERSEA
WANDSWORTH
CAMBERWELL
DEPTFORD
GREENWICH
LEWISHAM
WOOLWICH


PERIODS OF TYPHOID FEVER IN LONDON: 1891-1922
1907
1908
1909
1910
1911
1912
1913
1914
1915
1916
1917
1918
1919
1920
1921
1922
BOROUGHS
PADDINGTON
KENSINGTON
HAMMERSMITH
FULHAM
CHELSEA
WESTMINSTER
ST MARYLEBONE
HAMPSTEAD
ST PANCRAS
ISLINGTON
STOKE NEWINGTON
HACKNEY
HOLBORN
FINSBURY
CITY OF LONDON
SHOREDITCH
BETHNAL GREEN
STEPNEY
POPLAR
SOUTHWARK
BERMONDSEY
LAMBETH
BATTERSEA
WANDSWORTH
CAMBERWELL
DEPTFORD
GREENWICH
LEWISHAM
WOOLWICH

ciable scale to the civilian population of London.* Milk cannot be appealed to as a cause of the decline, for milk outbreaks, though sedulously searched for in London, have been very rarely recorded there. Ice-cream, watercress, etc., stand in like case. The problem in London has in fact been practically narrowed down to examination of the parts played by fish and shell-fish, and to this problem some further attention may therefore be directed.

(2) The most striking fact evident on examination of the accompanying diagram, apart from the general decline in the last 20 years and the disappearance of the autumnal rise, is the almost complete removal of the disease from its formerly favoured haunts. All these phenomena are, generally speaking, apparent on a glance at the diagram; which also shows the comparative freedom from attack even in the earlier series of years of such boroughs as Lewisham and Woolwich and the heavy incidence upon St. Pancras, Islington, Stepney, Poplar and other boroughs. In order to assist, however, in exhibiting these time and space relationships, a table has been prepared, which sets out the larger local prevalences of typhoid fever during the years in question, and also gives particulars as to some of the smaller prevalences. The following summary may be made of the data shown in the diagram and table, or discussed in special reports on typhoid fever which have from time to time been made to the Council.

(a) *The main burden fell in the past, up to the year* 1909 *and still just appreciably in* 1910 *and* 1911 *upon the 37th–48th weeks of the year and upon people living in certain poor areas.* The time incidence can be traced in the diagram on pages 20–21. for proof of the incidence on the poor areas, appeal must be made to an analysis in 1903 of cases notified during the years 1896–1903 and associated with 24 specially delimited areas occupied by poor persons.† In the 24 areas there lived some 130,000 persons. To these 24 areas, in the light of experience of subsequent years (up to, say, 1911), 11 other areas with some 60,000 persons may be added, making a total of 35 areas with 190,000 persons especially exposed to attack.

The cases of typhoid fever notified in the year 1900, during the 9th, 10th and 11th four-weekly periods (37th–48th weeks) of the accompanying diagram, constitute about 37 per cent. of the total number of cases notified in London as a whole during those 9th, 10th and 11th periods. Now the 190,000 persons belonging to the 35 poor areas almost all live in streets of houses belonging to sections C and D of Charles Booth's scheme of classification. As was noticed in 1911 (see Annual Report, Medical Officer of Health, 1911) experience has shown that in London the food outbreaks of the last 25 or 30 years have not implicated, as a rule, the well-to-do populations (classes E, F, G and H), or the persons of the very lowest classes A and B, but have attacked those living in Charles Booth's light blue and purple streets, in fact persons of the class inhabiting the above specified 35 areas. These specially-affected classes C and D include in all upwards of 900,000 persons, or about one-fifth of the total London population.

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* It is true that during the war large numbers of soldiers were inoculated, but the rest of the population (uninoculated) has enjoyed a like, indeed during the war years an even greater, immunity from attack by the disease.

† The 24 areas described in the Report for 1903 (Appendix I, p. 7), include areas in the following localities. In each instance the approximate population of the affected area is indicated:—

i.	Southwark	25,000	
ii.	Lambeth	5,000	
iii.	Kensal Town, Chelsea	5,000	
iv.	Newington, Southwark	4,000	
v.	Holborn	6,000	
vi.	Newington, Southwark	3,000	
vii.	St. Pancras	10,000	
viii.	Starch Green, Hammersmith	4,000	
ix.	Battersea	8,000	
x.	Clapham, Wandsworth	5,000	
xi.	Lisson Grove, Marylebone	4,000	
xii.	Somers Town, St. Pancras	6,000	
xiii.	Garratt-lane, Wandsworth	3,000	
xiv.	Hackney Wick, Hackney	4,000	
xv.	Poplar	4,000	
xvi.	Millwall, Poplar	3,000	
xvii.	Cubitt Town, Poplar	8,000	
xviii.	Rotherhithe, Bermondsey	4,000	
xix.	Bermondsey	4,000	
xx.	Wentworth-street, Stepney	5,000	
xxi.	Stepney	4,000	
xxii.	Bethnal Green	(i.) 5,000	
xxiii.	Bethnal Green	(ii.) 4,000	
xxiv.	Bethnal Green	(iii.) 4,000	
		132,000	

(*See continuation of footnote on page* 23.)

If then to the 190,000 persons in the 35 areas, addition be made, of say, 310,000 persons, representing a further sample of persons belonging to social classes C and D, it may be inferred that some half-million persons in London (the poorer moiety of the whole 900,000 persons in classes C and D, representing the principal aggregations in London of any considerable number of persons belonging to these classes) yield practically the whole of the excess number of cases which go to constitute the successive autumnal prevalences.

A further point must be noted. The diagram in the Annual Report of 1903 shows that in the 24 areas, during the times of special prevalence of typhoid, two striking phenomena make their appearance. In the first place, multiple attacks in houses become common; and, secondly, a special age-incidence of the disease is manifested, children and young adults being more than usually numerous among the sufferers. Where these phenomena occur a note is made in the accompanying table that "grouping of cases" was manifested. In almost every instance this grouping is found to have been accompanied by multiple attacks and by the special age-incidence.

If it be assumed that infected food was sold from time to time to the populations included in the half million persons above referred to, throughout the nineties and in the early years of the present century, that the sale of such food was especially common about the latter part of August or in September or early October in those years, and that these supplies were gradually restricted during the early years of this century, were discontinued in 1909, and (after reintroduction on a small scale in 1910 and 1911) from 1912 onwards, there is afforded a fairly complete explanation of the decline of typhoid fever as a whole, of the diminution in the extent of the autumnal rise, and of its complete absence in 1909 and from 1912 onwards.

(b) Detailed study of the larger local prevalences of typhoid fever (1891–1922) in London boroughs, shows that *coincidently with a large prevalence in one borough there has been a marked tendency for one or more smaller prevalences (showing the phenomena of multiple attacks and of special age-incidence) to affect other boroughs.* Moreover, the *locus in quo* concerned in many of these prevalences is found again and again to be one or other of the 35 areas already alluded to, or failing them, some other area occupied mainly by persons belonging to classes C and D. Further, it is occasionally found that outbreaks affecting institutions are developed at the times when larger or smaller prevalences involve populations of the classes C and D living in various parts of London. Finally, localities occupied by classes C and D of the London population, and sometimes institutions also, are found occasionally to be affected by small prevalences of typhoid at other times of the year than the 37th–48th weeks.

These phenomena may be examined in detail by study of the Diagram and Table. They convey, in the gross, an impression of the *occasional* interposition at various times of the year, and of the *frequent* appearance during the 37th–48th weeks in successive years, of some special influence favouring spread of typhoid fever in London.

(c) *One of the influences, and, indeed, the main one promoting spread of typhoid has been fish, which has been definitely incriminated in more than a dozen considerable prevalences of typhoid fever in London or its neighbourhood.* (These fish outbreaks are noted in the Observations column of the accompanying table, they are also described on pp. 13 to 15 of the Annual Report for 1919, and references are there

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The 11 additional areas are:—

i. Brixton, Lambeth	8,000	viii. Stoke Newington	5,000
ii. Upper Holloway, Islington	8,000	ix. Dalston, Hackney	6,000
iii. Caledonian-road, Islington	7,000	x. London Fields, Hackney	5,000
iv. Popham-road, Islington	4,000	xi. Upper Clapton, Hackney	5,000
v. Nile-street, Shoreditch	6,000		
vi. Hoxton-street, Shoreditch	4,000		64,000
vii. Finsbury	6,000		

TABLE showing the occurrence of groups of cases of typhoid fever in London boroughs during the years 1891–1922.

Year.	Four week period.	Boroughs with more than 30 cases in any four week period.	Concurrent prevalences in other boroughs affecting the same or an adjacent period.	Notes on the prevalences in columns 3 and 4, with observations on other special features in the year in question.
1891	29–32	Hackney 46	Bethnal Green 22, Poplar 24, St. Pan. 27, Step. 31, Holb. 19	Groups early in year in Holb. 21 (5 cases in a hospital), Fins. 18. Group of 32 cases in Hack. St. Pan. 9 cases in a house.
	41–44	Greenwich 272, Bermondsey 58, Islington 35, Stepney 36	St. Pan. 47, Hack. 26, Holb. 17, Beth. Gr. 24, Camb. 16, Pop. 26, Westmr. 18	Doubtless a food outbreak (see Public Health, Dec., 1921, p. 61). In St. Pan. 34 cases in "Foundling" and 6 in Univ. Coll. Hosp. In Holb. 10 cases in one house. G'wch outbreak attributed at time to ice cream.
1892	25–28	——	——	Grouping of cases in Islington and Hackney.
	37–40	Islington 41, Greenwich 33 ...	St. Pancras 25, Hackney 26, Poplar 24, Stepney 30	The Islington cases were grouped in Upper Holloway and Copenhagen St. Grouping also marked in Pop. and on border of City and Stepney. 3 cases occurred in Lambeth Infirmary, 28 in a school in Greenwich in which cases occurred earlier in year.
1893	1–4	——	——	Grouping in Hack., 14 cases in home in Step. (2–12 wks,) grouping in Poplar (17–20 wks.).
	25–28	Poplar, 63	Stepney 47, St. Pancras 25, Islington 23, Hackney 37, Shoreditch 20	The outbreak in Pop. affected a limited area with a fried fish shop at its centre. Simultaneously outbreaks with multiple cases (Warren St. and Mayville Gr.) in St. Pan. and Isl. Grouping in Step., Hack. and Shor.
	37–40	Hackney 50, Pop. 49, Step. 38	Greenwich 17	Grouping very marked again here. Some food (probably fish) again at fault.
	41–44	Islington 30	Kensington 21	Marked grouping of cases.
	45–48	Westmr. 31, Hack. 58, Step. 54, Pop. 41	Kens. 23, St. Mary. 24, St. Pan. 24, G'wch. 23	Marked grouping in Greenwich and Westminster. Area in Pop. already involved (see above) again affected.
	49–52	Islington 34	St. Pan. 21, Beth. Gr. 23, Batt. 21, G'wch. 21	Marked grouping in all 5 boroughs. Multiple cases marked in Greenwich (Queen St. 4, Knott St. 3)
1894	5–8	——	Greenwich 21; also 19 in weeks 9–12	Greenwich had suffered badly in 1891; grouping of cases was marked also on a smaller scale in 1892–4. E. and S.E. London during the "90's" had special supplies of very cheap fish.
	13–16	Lambeth 38	Camberwell 12	These prevalences were ascribed at the time to milk, but evidence far from conclusive.
	37–40	St. Pan. 36, Step. 32, Isl. 35 ...	Pop. 27, Hack. 21, Greenwich 17...	Grouping. In Greenwich, streets near Roy. Hos. Sch. affected.
	41–44	Islington 43	Hack. 24, Step. 27, Pop. 28, Lamb. 24	Grouping marked in all these boroughs.
	45–48	Hackney 34, Poplar 35 ...	Westmr. 35, Step. 28, Wands. 38...	Tendency to grouping.
	49–52	Westminster 40, Islington 39, Stepney 31, Lambeth 43	St. Marylebone 27, Hackney 27, Battersea 27	Widespread prevalence particularly in weeks 49–51. Attributed at time to floods in Thames and Lea. The Lambeth area affected in weeks 13–16 and in subsequent weeks again. Doubtless a food outbreak.
1895	1–4	——	Camberwell 26	Probably related to above prevalence. A series of 11 cases in a Marylebone nursing home commenced here (weeks 1–4).
	21–24	Woolwich 136	——	Outbreak attributed at time to milk, but this hypothesis did not fully explain distribution of the cases most of which were in two streets in Plumstead; a small outlying group in Woolwich proper (Public Health Dec., 1921, p. 63).
	33–36	Camberwell 38...	Step. 22, Pop. 21, Hack. 20 ...	Camberwell group near Dulwich. Hackney group in Hack. Wick.
	37–40	Poplar 37, Camberwell 38 ...	Hack. 49, St. Pan. 22, Lamb. 24, S'wark. 22, G'wch. 28	Camberwell group near Dulwich. Hackney group in Hack. Wick.
	45–48	Hackney 54, Islington 37 ...	St. Pan. 23, Step. 20, Pop. 21, Lamb. 24, G'wch. 30, Camb. 27	Grouping in U. Holloway, Islington and Lambeth Walk.
1896	33–36	Stepney 32	Hack. 26, Camb. 22	St. George's W'se, S'wark, 6 cases in year. Marylebone nursing home mentioned above 5 cases.
	37–40	St. Pancras 38, Islington 49 ...	Beth. Gr. 23, Pop. 23, Shor. 23, G'wch 18	Well marked grouping here. Queen's Cres., St. Pan. and Copenhagen St. Isl. A cluster of cases in Shor. attributed at time to defective water main, but groups of streets involved later showed evidence of fish infection. Grouping off Wandsworth Rd., Lambeth, these streets later involved in a fish outbreak.
	41–44	Hackney 32	Westmr. 17, Lamb. 18, Step. 24 ...	
	45–48	——	Isl. 19, Hackney 19, Poplar 22, Lambeth 22, Holborn 22	
1897	33–36	——	——	St. Pan. 21, Isl. 26, Hack. 28, Step. 26, S'wark. 21, G'wch. 18. Grouping especially in Queen's Cres., St. Pancras.
	37–40	——	——	Kens. 21, Isl. 30, Pop. 24, Camb. 22, G'wch. 17. Grouping in N. Kens.
	41–44	St. Pan. 50, Isl. 41, Hack. 48, Step. 37, Pop. 48, Camb. 37	Kens. 21, Westmr. 22, Lamb. 26, Bethnal Green 22, Battersea 18	23 cases in Univ. C. Hos. attributed to contaminated water. 5 cases in Roy. Free H. These and other groups in boroughs named are, however, very suggestive of food infection. 12 cases during the year at Isl. Infy. and St. Mary's Guardians Sch. (see later).
1898	29–32	——	——	Isl. 21. Also a group of children attacked in Hack. (See Ann. Rep., Lond., p. 37.)
	37–40	Greenwich 33	——	Grouping in G'wch.; Dalston, Hack.; Queen's Cres., St. Pan.; Beth Gr., Pop., Step., S'wark, N. Lamb. and Westmr. 2 cases in St. Mary's G. Sch. mentioned above, and cases in surrounding area. This was probably a fish prevalence.
	41–44	Isl. 42, Hack. 47, Step. 35, Pop. 32	St. Pancras 37, S'wark 26 ...	
	45–48	St. Pan. 38, Lambeth 33 ...	Kens. 20, St. Mary. 22, Holb. 24, Westmr. 20, Wands. 25, Camb. 24	
1899	5–8	City 39	Poplar 21, Greenwich 18	54 cases at a City establishment in weeks 1–12. A food outbreak.
	29–32	Islington 44	Step. 38, Fins. 16	Grouping especially in U. Holloway around St. Mary's G. Sch. in which 59 cases occurred during the year.
	41–44	Hamm. 34, Isl. 57, Hack. 51, Beth. Gr. 53, Step. 128, Berm. 48, Lamb. 43, Batt. 37	Shor. 31, S'wark 27	Grouping in Hack. Wick., Hom. and Dalston (Hackney). 7 cases in H.M. Prison, Hamm. (33–44 wks). Grouping in Nile St. (Shor.), Beth. Gr. and Stepney, also Hamm. and other N.W. boroughs. In Millwall (Poplar), Wandsworth Rd. and Clapham Rd. (Lamb.), Batt., G'wch. and Berm.
	45–48	Pop. 63, St. Pan. 55, Shor. 31	——	

Year.	Four week period.	Boroughs with more than 30 cases in any four week period.	Concurrent prevalences in other boroughs affecting the same or an adjacent period.	Notes on the prevalences in columns 3 and 4, with observations on other special features in the year in question.
1900	1–4	Stepney 38	Hack. 27, St. Pan. 25, Isl. 25, Pop. 29, Lambeth 27	Grouping again. 11 cases during year at St. Mary's G. Sch. (Isl.). 5 cases in Hamm. Prison (weeks 1–8). 9 cases in Mdsx. Cty. Asy. (Wands.) in 1st 8 mos. Groups in St. Pan. and Pop. (weeks 21–32).
	37–40	S'wark 115, Berm. 36, Lamb. 58	Chel. 22, Wands. 19, Step. 27, G'wch. 17	The first outbreak definitely traced to fried fish (Ann. Rep., Lond., 1900, App. I.). Only 3 prevalences—S'wark, Lamb. and Chelsea—were located at the time. It is now probable that other simultaneous groups of cases in Ful., Hamm., Isl., Hack., Shor., Beth. Gr., Step., Berm., Batt., G'wch., Wands., and perhaps others were similarly caused.
	41–44	Hack. 37, Step. 45, Camb. 31	——	
	45–48	St. Pan. 86, Isl. 35	Westmr. 20, Fins. 18, Shor. 21, Beth. Gr. 24	
	49–52	Camb. 34	Kens. 19, Lamb. 29, G'wch. 20 ...	
1901	1–4	Stepney 34	St. Pan. 20, Beth. Gr. 16, Camb. 20, Isl. 27	3 cases in H.M. Prison (Wands.). Grouping in Islington.
	33–36	Islington 40	Ful. 36, Shor. 15, S'wark 18 ...	Fulham (Ann. Rep., Lond., p. 40), Isl., Hack. and Shor. show grouping. Some cockle cases in Westminster.
	37–40	Stepney 48, Poplar 34 ...	Hack. 29, Lamb. 24, Camb. 27 ...	Well marked groups in Stepney, Poplar, Hackney, Islington, Bermondsey and Camberwell.
	41–44	Islington 34	Hack. 27, Bermondsey 26 ...	
1902	29–32	Islington 30	Step. 28, Pop. 26, Lamb. 22, Fins. 18, Westmr. (Strand)	Dr. Allan (Strand) reported 30 cases due to shell fish, mainly cockles. (Ann. Rep., Lond., pp. 59–60.)
	33–36	Stepney 40	Southwark 27	——
	37–40	Islington 51, Poplar 39 ...	Hack. 30, Lamb. 29, St. Pan. 28, Beth. Gr. 28, Shor. 24	Grouping in most of these boroughs.
	41–44	Hackney 32, Lambeth 30 ...	Wands. 25, Camb. 20, G'wch. 27...	Grouping in most of these boroughs.
1903	25–28	——	——	Grouping in Ful., Isl., Hack. and Stoke Newington.
	33–36	Hackney 45	Islington 23	Grouping in Hack., Isl., Step., Shor., Stoke N. and S'wark.
	37–40	Stepney 45	Fulham 15, Stoke N. 11, Shor. 20	Grouping in Hack., Isl., Step., Shor., Stoke N. and S'wark.
	45–48	Southwark 34	Lamb. 24, Camb. 18, Hack. 22, Holborn 17	The second outbreak traced to fried fish in Holb., Westmr. and S'wark. It appears probable now that other parts of London were simultaneously involved.
1904	33–36	St. Pancras 37	——	——
	37–40	Hackney 38, Stepney 37 ...	Islington 28, Southwark 14 ...	Grouping marked and continued in Stepney in weeks 41–48.
1905	37–40	——	——	Grouping in Hack. and S'wark and continued in Hack. in weeks 45–48.
1906	25–28	——	——	Isl. 21, Fins. 11. These coincident with groups in W. Ham, Walthamstow and Lambeth. ? Fish or cockles.
	37–40	——	——	5 cases in Wandsworth Prison (13 in all during the year).

Year.	Four week period.	Boroughs with more than 30 cases in any four week period.	Concurrent prevalences in other boroughs affecting the same or an adjacent period.	Notes on the prevalences in columns 3 and 4, with observations on other special features in the year in question.
1907	33–36	——	——	3 groups in Batt. (Ann. Rep., Lond., p. 42). 4 cases in Wands. Prison during the year.
1908	—	——	——	During weeks 33–52, 72 cases in Shor. and 55 in Beth. Gr. (Ann. Rep., Lond., p. 41, where it is shown fish was at fault). Other cases in Isl., Hack., Lamb., etc., may have been due to same cause.
1909	—	——	——	No autumnal increase in prevalence this year.
1910	37–40	Bethnal Green 44	Step. 37, Shor. 18. Groups in 7 other London boroughs and in Tottenham and Edmonton	These outbreaks were all traced to fish. (See Ann. Rep., Lond., 1910, p. 100, and 1911, p. 35), where it is shown that 33 distinct retail supplies were at fault. 4 cases in Wandsworth Prison during the year.
1911	33–36	Finsbury 32	——	In Aug. 20 cockle cases in London. The Fins. outbreak in Sept. and possibly some of the other groups were due to fish. (Ann. Rep., Lond., p. 34). 4 cases occurred in Wandsworth Prison this year.
	37–40	——	Fins. 29, St. Pan. 18, S'wark 13, Lew. 12	
1912	—	——	——	Autumnal increase in prevalence disappears from now onward.
1913	—	——	——	3 cases in H.M. Prison, Wandsworth.
1914	—	——	——	Groups of cases in Isl., St. Pan., Fulham, Lew., Wands. (Ann Rep., Lond., p. 20). 11 cases occurred in Poland St. Refuge, Westminster.
1915	—	——	——	7 cases in the year at Mdsx. County Asy, Wandsworth.
1916	—	——	——	5 cases during weeks 25–32 at Fountain Asy., Wandsworth.
1917	—	——	——	11 cases traced to oysters. 4 further cases in Mdsx. Cty. Asy., Wands.
1918	—	——	——	Two groups of "paratyphoid B." Probably really cases of influenza.
1919	—	——	——	Multiple cases in houses in Pop., G'wch. and Wool. (Ann. Rep., London, pp. 9–10.)
1920	—	——	——	Some 20 cases of "paratyphoid B" among students at a Ladies' College.
1921	—	——	——	Multiple cases in houses in Kens., Step., and Pop. (Ann. Rep., Lond., p. 11).
1922	—	——	——	A few small groups of cases referred to in Annual Report.

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given to the special reports on these outbreaks published from time to time as Appendices to the Annual Report of the Medical Officer of Health, County of London). In addition, there have been during the last 32 years a few outbreaks traced to shellfish (1, perhaps 2, to oysters ; 2 perhaps 3, to cockles ; and there has been suspicion entertained in a few instances with regard to mussels.)

For many years doubt was felt as to the relative importance of the parts played, by fish and various kinds of shellfish, in determining prevalence of typhoid in London. Recent study of outbreaks shown in the accompanying diagram and table has thrown further light on this question. For example, a few instances may be quoted. In 1900 an area in North St. Pancras (one of the 35 areas referred to above) suffered coincidently with other areas in which typhoid prevalences were traced to fish. As the result of the enquiry in St. Pancras at the time, mussels, which originally fell under suspicion, were clearly not the cause of the mischief, but the question of fish origin at the time was not investigated. The St. Pancras area suffered, however, in other years, at about the same season and coincidently with fish outbreaks in other boroughs ; it may be concluded that if mussels were not at fault and fish probably was, in one of these prevalences, the same conclusion is likely to be correct in the case of other outbreaks occurring at the same time of year in the same locality.

Again, an outbreak of typhoid occurred early in 1894, in Lambeth, which was attributed at the time to milk. The evidence against the milk was by no means conclusive, indeed the distribution of the disease did not tally very closely with the area of milk distribution. Later in the year sporadic cases of typhoid occurred, still affecting the area of the supposed milk outbreak. At the end of 1894, in the 49th, 50th and 51st weeks, there was an increase in the amount of typhoid fever in London extending over a large area, but at the time of this widespread prevalence there was again special incidence upon the area involved at the time of the supposed milk outbreak. It may be suggested that a possible explanation of these phenomena is that fish distributed from a coster market (which exists at the centre of the area involved in the supposed milk outbreak) (i.) was at fault in the original outbreak, (ii.) was also concerned in producing the succeeding sporadic cases, and, (iii.) was still more widely distributed over London in the wider prevalence of the 49th, 50th and 51st weeks, the original "milk outbreak" area being also specially involved at this time. A third instance is that of two outbreaks in 1899 (due to causes then unrecognised) in "Area II." and "Area VII." of the 1903 Report. Area II. suffered from a fish outbreak in 1900, and Area VII. is that in north St. Pancras referred to above, which it is also presumed presented a fish outbreak in 1900. It is highly probable that the causes at work in 1899 were identical with those of 1900.

During the years 1896–1903 the grouping of cases, combined with occurrences of multiple cases and the manifestation of a peculiar age-incidence of attacks, began to compel attention. It was not until 1900, however, that the occurrence of a large but localised prevalence in St. George the Martyr, Southwark, synchronising with somewhat similar though smaller prevalences in Lambeth and Chelsea (detached), directed enquiry to fried fish ; and it was not until 1903, when experience of such smaller outbreaks in widely separated parts of London was repeated on a more extended scale, that it became realised that infected fish, distributed perhaps on successive occasions by particular retailers, might produce sporadic cases of typhoid fever spread broadcast over the county. Looking back, it seems now possible that in 1896 (or even earlier) areas, which later were found to be associated with fish infection, were already involved, one in Lambeth, also two in St. Pancras, (Areas II., VII. and XII. in the diagram of the 1903 Report, all again implicated in 1898, 1899 and 1900), and one in Shoreditch (again implicated in 1908). It is further apparent too, that institution outbreaks such as those involving the St. Mary's Workhouse Schools in 1897–1900, and certain prisons, asylums and hospitals in the same or in later years, were probably due to a like cause. In the schools first named and in some of the hospital groups the areas surrounding the institutions suffered coincidently

with the institutions themselves. It is also clear, now, that fish of the same kind, and presumably of like origin with that demonstrated (in 1900, 1903, 1906, 1908, 1910 and 1911) to have caused typhoid in certain localities, was also operative at the same times in a similar manner in respect of groups of cases in other parts of London and Greater London.

Furthermore, casting back to still earlier years, there is seen now to be high probability that such outbreaks as those of 1891 (attributed at the time to ice-cream) and of 1894 and 1895 (attributed at the time to milk) were really due to fish. At the time of the great prevalence in S.E. London in 1891, the Foundling Hospital (in St. Pancras) was heavily involved, and there were two other less considerable institution outbreaks at the same time ; but it was the wide distribution of *groups* of cases, with multiple attacks in households, in many parts of London, that here make fish origin specially probable. The Lambeth prevalences, "milk" and "water" outbreaks, of 1894 have already been referred to. The Woolwich "milk" outbreak of 1895 was of a more unique character, but it is remarkable that a fish vendor's establishment adjoined the suspected milk shop, and was thus centrally situated as far as the prevalence was concerned. The "water outbreaks" of 1896 and 1897, the well-marked groups of 1898–9 and 1900, the city establishment outbreak early in 1899, the institution outbreaks of these same years, the groups of 1901–03, as well as those of 1908, 1910 and 1911 can seemingly in the light of all the facts have had no other origin. The wide-spread prevalences of 1906 and 1910 were unquestionably due to food and those in the latter year were definitely traced to fish. In 1906 cockles were appealed to in some of the affected localities, but detailed particulars ascertained at the time with regard to distribution of a particular wholesaler's fish supply seems to place fish origin of most of these 1906 prevalences beyond all doubt. This wholesale dealer supplied, between 1899 and 1905, from 12–21 retail fried-fish shops in Greater London ; 8 of these were situated in one or other of the 35 localities previously referred to, and the remainder in areas which all suffered exceptionally heavily from typhoid fever.

As was pointed out, moreover, in the Annual Report for 1911 (p. 89), "It is noteworthy that difficulty has arisen in some outbreaks as between cockles and fried fish, watercress and fried fish, mussels and fried fish, and ice-cream and fried fish." The impression gained from study of all the outbreaks of the last 30 years is that in the large majority of them it was fish that was actually at fault.

(d) Finally, certain deductions may be drawn from study of the seasonal fluctuations in typhoid prevalence in London. The two or three suspected cockle outbreaks occurred in June–July. In Belfast nearly all the great typhoid prevalences, which were traced to cockles, in the five or six years following upon 1900, particularly affected this time of the year. Moreover, Easter Monday and Whit Monday, the two bank holidays, have in the past been the great occasions in London for wide-spread consumption of cockles. (See, however, on this question of bank holiday cockle outbreaks in London, the remarks of Dr. Bulstrode in his Report on "Shellfish other than Oysters in relation to Disease" p. 105. Analysis of the notification figures for 10 years, 1899–1908, yields but scant evidence of mischief caused on any considerable scale by cockle infection during those years.) As regards mussels, Dr. Niven in Manchester speaks of a "rush of mussel cases" from October onwards. In London in the decade 1891–1900 the seasonal peak of typhoid fever occurred in November, a few weeks later than, on the average, in subsequent years. Probably, in the decade in question, an appreciable amount of mischief may have been produced in London (as was apparently the case in several other large towns in this country) by mussels ; but on the whole, and particularly since 1900, there has been little, if any, proof of mussel infection in London.

The London evidence in fact, at any rate since 1891, incriminates mainly flat fish, generally plaice, almost always purchased as cooked (fried) fish and often in an ungutted state. Careful enquiry into the history of many hundreds of patients

(the patients themselves, be it noted, and not merely the relations or friends—and such enquiry has usually meant a visit to the patient in hospital in each instance), clearly disposes, so far as *outbreaks* of disease and so far as the *particular time*, the 37th–48th weeks of the year, are concerned, of suspicion as regards shell-fish, watercress, celery, lemonade, ginger beer, water, milk and ice-cream, while leaving suspicion, in some outbreaks amounting to certainty, that fish (usually fried fish) was at fault.

It may be asked why should fried plaice come so specially under suspicion, and why just at this particular time (37th–48th weeks) of the year. First of all, the plaice which has come in question has always been immature plaice, from 4 to 10 inches in length (10 to 25 c.m.), and there is a presumption that most of it has been consumed ungutted. Such plaice seem to be specially dangerous when consumed in August or September. In this connection the following passage from McIntosh and Masterman's "British Marine Food Fishes" (p. 365) may be quoted. "Close in shore the little plaice hidden in the sand or sandy mud grow rapidly and prosper, in company to some extent with little flounders and dabs, and as they become older they not only migrate alongshore but move seaward with increasing bulk till at last they complete their life cycle by spawning and launching their thousands of offspring upon the sea of life." The eggs are launched late in each year, the little plaice are found very abundantly in the inshore plaice nurseries in the early months of the following year, attaining at eight months old some 3 inches, and at a year old some $4\frac{1}{2}$ inches in length. Thus about September large numbers of these small immature fish have reached a size of 4 or 5 inches; in bygone years (particularly in the nineties) considerable numbers of such fish were fried and sold ungutted in many of the poorer parts of London.*

As mentioned in the Annual Report for 1919 (vol. III., p. 19), efforts have been made from time to time by the fish trade to obtain legislation preventing the sale of fish under a certain size. In 1906 the London County Council raised the question with the City Corporation as to the need for inspection, more particularly of these small fish, at Billingsgate. The bulk of the small plaice reaching London at that time came from an area known as A_3, near the mouth of the Elbe, including the "Continental Nursery Grounds and close inshore waters where very small plaice abound." This area says Dr. Masterman, in a report of 1915 on the "Distribution of Plaice," has been increasingly abandoned by English trawlers, and this has been especially the case since about 1907; indeed, about 6 years ago" (*i.e.*, in 1909), "first the Hull, and then a year or two later, the Grimsby boats, altogether discontinued going there." The Departmental Committee's Report of 1914 practically confirms this (see Questions and Answers set out in Annual Report for 1919 (vol. III., pp. 16–19). Question 525 refers to the estuaries on the English coast. Question 4539 (*loc. cit.*, p. 16) deals with nurseries in the Bight of Heligoland and on the Dutch, German and Danish coasts. Questions 7172 and 7309 (p. 18), refer to complaints as to use of these German nursery grounds, as to voluntary agreements entered into by fishermen to keep off these grounds, and as to difficulty in securing that these agreements were kept.

The gradual falling away from about 1904 in the autumnal wave of typhoid fever in London, the disappearance of the wave in 1909, and its absence from 1912 onwards, tally very closely with the disuse of these grounds as a source of London food supply. On the cessation of the war, resort to the grounds in question by trawlers was still severely restricted, if not altogether ruled out, owing to danger from mines in this part of the North Sea.

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* This fact was ascertained by purchasing samples of these small fish and dissecting them. A point of some interest is that the gut in such small fish is apt to contain quite small cockles $\frac{1}{8}$ to $\frac{1}{4}$ inch across, and this no doubt explains the further fact that sufferers from typhoid fever, in 1900 and 1903, again and again complained of the "gritty feeling to the teeth," and the "gassy taste," of their fried fish.

Immature plaice have gone much out of favour with fish friers during recent years, but from the autumn of 1921 onwards there has been some evidence of increase in the amount of the small plaice sold as "wet fish" in London. In July, 1921, the Plaice Fisheries Sub-Committee of the International Council on Fisheries in the North Sea recommended the prohibition of fishing by steam trawlers and motor vessels of more than 50 h.p. in certain areas along the eastern and southern shores of the North Sea, and limitation of use of other parts of these nursery grounds to April, May, and June. These recommendations were approved in September, 1922, by the Council, but it was recognised that restrictions could not be enforced without the sympathetic support of the industry. The use of these grounds should from a public health point of view be carefully watched.

A final reference must be made to the *occurrence of multiple cases in institutions*, including hospitals, schools and colleges, infirmaries, prisons. M.A.B. hospitals and private establishments. The grouping of these cases is very suggestive of food infection.

Hospitals.—The numbers of notified cases in three successive decades 1891–1900, 1901–1910 and 1911–20 were 175, 148 and 159. The largest groups of cases were one of 34 cases at the Foundling Hospital in 1891, and one of 23 cases at University College Hospital in 1897. The former outbreak was contemporaneous with the later part of the great prevalence in S.E. London (Greenwich and Bermondsey), and may be strongly suspected, therefore, to have been a food outbreak. The outbreak in 1897 was attributed at the time of its occurrence to water from a cistern; it, too, may, however, have been due to infected food.

Schools and Colleges.—There were 133, 0 and 20 cases in the three decades. The main outbreaks include first 28 cases in a school in Greenwich in 1892; none of these cases were fatal, and it is possible that the outbreak was not really one of typhoid; secondly, 14 cases in a home in Stepney in 1893; third, a persistent series of cases in a workhouse school in North Islington, 8 in 1897, 59 in 1899, and 11 in 1900; these coincided in point of time with prevalences in the area surrounding the school, and were all possibly of food origin; finally, in 1920 there were some 20 or more cases of "paratyphoid fever" at Bedford College.

Asylums.—Here there were in all 9, 0 and 13 cases in the three decades. The Middlesex County Asylum contributed 9 cases in 1900, 7 in 1915 and 4 in 1917. There were, however, in addition a considerable number of London cases in the Mental Hospitals situated just outside the County; in particular at Hanwell 12 cases occurred in 1897; at Colney Hatch 8 in 1899, 3 in 1900, 21 in 1901, 3 in 1902 and 5 in 1903; and at Cane Hill in the two years 1917 and 1918 there were some 90 cases notified. In these asylum outbreaks the water and milk could be exculpated and shell-fish was certainly not at fault. The question as between possible case to case infection and possible fish infection remains in doubt.

Infirmaries.—The numbers were 50, 49 and 37 in the three decades. In 1891 the Wandsworth and Clapham Union Infirmary contributed 13 cases.

Prisons yielded 15, 26 and 7 cases in the three decades; 13 of these were in the year 1906.

Metropolitan Asylums Board Hospital Staffs.—There were 119, 123 and 30 cases notified in the three decades. The large majority of these were cases of nurses; thus during the first two decades on an average some 10 nurses a year were attacked. This gives a rate rather more than twice as high as the corresponding rate upon women (of the average age of nurses) in the population generally. It must, however, be remembered that nurses during those decades may have been equally, or perhaps even rather more likely, than the average woman of similar age, to partake of infected food, and in the event of any indisposition arising the nurse has more highly-skilled expert diagnosis at her disposal than the average woman has. Hence the total number of cases of typhoid in these M.A.B nurses is not so great as to favour strongly the view that infection from patient to nurse can be held to be

very notably in question. In some instances, for example, in an outbreak in 1910 (Annual Report, Medical Officer of Health, 1910, Chap. XXXII., p. 105, Footnote), the cases among nurses were almost unquestionably of food origin. In other instances in 1893, 1899 and 1900, outbreaks affecting staff in Metropolitan Asylums Board hospitals coincided in time with outbreaks (probably of food origin) in the surrounding neighbourhood. Again, cases affecting nurses tend to occur in groups. On the other hand it has been observed that the notifications relating to Metropolitan Asylums Board nurses show a tendency in the later series of years to be delayed in point of time as compared with other notifications, and this might be held to suggest case to case infection. The number of Metropolitan Asylums Board nurses involved in these later years is not, however, sufficiently large to permit of stress being laid on this point; it may, moreover, be the fact that in the case of nurses notification is held over for a week or two until the diagnosis has been finally confirmed.

Private establishments and other institutions.—As regards these some 54 cases, occurring in a City establishment in 1899 where the employees were catered for on the premises, may well have been due to food. A like origin is possible in the case of 11 cases developed in 1914 in a shelter for Polish refugees; and also in 70 or 80 cases occurring, in the last fortnight of 1913 and the first six or eight weeks of 1914, to which special reference is made in the Annual Report for 1914.

The cases of typhoid in institutions considered as a whole show so marked a tendency to occur in groups, as to make a food origin highly probable. Judged by the behaviour of typhoid fever in London, elsewhere than in institutions, fish necessarily falls under grave suspicion; though it should be noted that the small institution outbreaks often occur at times of the year other than the 37th–48th weeks, when typhoid prevalences on a large scale, presumably of fish origin, have been apt to prevail. It must be remembered, however, that proof that fish has been at fault has only been pressed home in the past in considerable prevalences in which, moreover, immature and imperfectly cleansed fish have been consumed. It is highly probable that such instances may be practically limited to a special season of the year; but if it be granted that this is the case, then it will be readily agreed that small groups, or actual sporadic cases, may result at other times from distribution of material possessed of a less pronounced capacity for causing disease.

Report on Bacteriological Work.

The work done in the bacteriological laboratory during 1922 comprised the examination of nearly 8,500 specimens, including chiefly cultures from throat and nose, in connection with diphtheria investigations in the schools and suspected ringworm hairs from school children, also material sent for diagnosis from various institutions or obtained in the course of consultation visits to parents' homes by Dr. J. A. H. Brincker and Dr. J. G. Forbes. The bacteriological analysis of this large amount of material involved the use of over 10,000 tubes and plates of solid and liquid media prepared and sterilised by the two laboratory assistants. The media employed included serum, lactose litmus agar, special media prepared according to McConkey's, Gordon's and Hiss's formulæ, also ordinary agar and gelatine, broth, peptone and various sugar nutrient preparations for differential diagnosis.

Details of laboratory examinations.

(I.) *Diphtheria Investigations.*—5,401 cultures from throat and nose (school children and Council's staff), of which 471 or 8·7 per cent. showed the presence of the diphtheria bacillus, 377 or 7 per cent. suspicious organisms and 4,553, or 84·3 per cent. proved negative. The diphtheria bacillus was isolated in pure culture for the application of animal virulence tests by the Wellcome Research Laboratories in 290 (or 62 per cent.) of the total diphtheria carriers. In 37 cultures from discharging ears the diphtheria bacillus was isolated and identified in 2 only, the rest showing diphtheroid and other organisms.

(II.) *Ringworm.*—2,845 hair specimens were examined. 1,372 proved negative and 4 suspicious. In 1,459 ringworm fungus was found; 86 per cent. being the small

spore variety (Microsporon Audouini) and 14 per cent. the large spore (Megalosporon Endothrix). In 10 specimens favus fungus (Achorion Schönleinii) was found.

III. *Conjunctivitis and Ophthalmia Neonatorum.*—87 films sent by the Council's medical inspectors under the Midwives Act from eye discharges of new-born infants were examined and the gonococcus was identified in 13 (15 per cent.). In 51 no organisms could be recognised and the remainder showed chiefly Gram positive cocci (pneumococci or staphylococci) and diphtheroid or coliform bacilli in a few cases.

IV.—Ten specimens of fæces from patients, suffering from diarrhœa or dysenteric symptoms at Colney Hatch Mental Hospital, were examined, but no specific organisms of the dysentery or typhoid group or dysenteric amoebæ were found.

V.—Ten specimens of urine were examined chemically or microscopically and by culture.

VI.—Serum agglutination tests were applied to 9 specimens of blood from patients at Colney Hatch Mental Hospital and proved positive to B. typhosus in 4 cases and to B. paratyphosus in one case.

VII.—Other material examined included blood for malarial parasites, pus films and 8 specimens of sputum, in 2 of which tubercle bacilli were found.

VIII.—*Cerebrospinal Fluid.*—A total of 84 specimens was examined and reported on chemically, cytologically and bacteriologically, the majority having been sent by the Fulham Infirmary, St. James's Hospital, Balham and St. Pancras Hospitals and coming from cases of :—

(*a*) *Tuberculous Meningitis.*—In 22 specimens from 19 cases differential diagnosis was made by finding tubercle bacilli (in 10) or by the chemical and cytological characters of the lymphocyte cell deposit—confirming the provisional diagnosis made in hospital in 10 cases, and correcting the suggested diagnosis, of cerebrospinal or pneumococcal meningitis, cerebral abscess, encephalitis lethargica or mastoid disease, put forward in 9 cases.

(*b*) *Other forms of Meningitis.*—In 19 specimens from 16 cases as the result of cytological and cultural examination the causative organism proved to be pneumococcus in 8, the streptococcus in 2, B. influenzæ in 2, and the meningococcus giving rise to chronic post-basic meningitis with hydrocephalus in 2. There was also one case of serous meningitis associated with mastoid disease and one case of chronic syphilitic meningitis, in which the laboratory supported the clinical diagnosis.

(*c*) *Encephalitis Lethargica.*—The negative characters of the cerebrospinal fluid and subsequent clinical course of the case confirmed the diagnosis in 10 out of 14 cases. The other 4 proved to be cases of pneumonia, infective endocarditis, cerebral tumour and nephritis, in all of which examination of the cerebro-spinal fluid would afford no assistance except to exclude meningitis.

(*d*) *Cerebral Disease.*—The cerebrospinal fluids from 15 cases, including general paralysis of the insane, neuro-syphilis, dementia, melancholia, epilepsy, cerebral softening, thrombosis and tumour, were examined and the diagnosis was assisted by exclusion of acute inflammatory lesions, and in the cases of cerebral syphilis was confirmed by the lymphocytosis and protein excess.

(*e*) *Diseases of the Spinal Cord.*—Examinations of the cerebrospinal fluid assisted in the diagnosis of 6 cases, which included amyotrophic lateral and disseminated sclerosis, paraplegia and spinal caries, and osteoma of the vertebral column.

(*f*) *General Diseases.*—(8 specimens) in which the provisional diagnosis, on clinical grounds, of meningitis, was not supported by the results of examination of the fluids, and which proved by subsequent events to be cases either of uræmia, broncho-pneumonia, pneumonia, septicæmia or rickets with tetany, the meningitic symptoms associated with the various disorders being described as " meningismus."

Ten special visits were paid in various parts of London, at the call of private

practitioners or medical officers of health, to assist in the diagnosis of suspected cases of infectious disease, particularly cerebrospinal fever and encephalitis lethargica. They included one case of doubtful typhus (visited by Dr. Brincker), which was subsequently confirmed as such in the North Western Fever Hospital. The other cases proved to be cerebral hæmorrhage, gastric fever, influenza, diabetic coma, pneumococcal meningitis, influenzal meningitis and "meningismus."

B.—Administration.

It may be noted at the outset that certain statistical information available is summarised in Table II on p. 54, and details connected with the administration of the General Powers Acts (Tuberculous Milk) and with the supervision of slaughter houses, cow-houses, and offensive trades, will be found in Chapter XXV.

Offensive trades.

During 1922 the establishment anew of the businesses of a fat melter and a fellmonger were sanctioned, as were also structural alterations to premises on which the businesses of a fellmonger and a gut-scraper were carried on. Two cases of illegal fat-melting were brought to the notice of the borough councils concerned. An application for permission to establish anew the business of a dresser of fur skins was refused.

Common and seamen's lodging houses.

The supervision of the 179 common lodging-houses licensed by the Council entailed 10,265 day visits and 293 night visits by the inspectors.

In connection with the supervision of 44 seamen's lodging-houses licensed under the Merchant Shipping Act, 1894, the Council's inspectors paid 1,168 visits by day and 138 by night.

Census of homeless persons.

A census of homeless persons in London was taken on the night of 10th February, 1922. The whole of the county was included except the outlying districts which are not usually the resort of such persons. The night was clear and very cold. Only eight persons (five men and three women) were found sheltering under arches and staircases. In the streets 81 men and 23 women were found, as compared with 48 men and 8 women on the night of the census in 1921, and 296 men and 76 women at the census taken shortly before the war, in the early part of 1914. In the common lodging-houses 13,076 persons were accommodated, as compared with 14,090 in 1921, and 20,173 in 1914. In the free shelters and labour homes, not licensed, 597 men, 148 women and 13 children were accommodated, as compared with 747 men, 165 women and 22 children in 1921. The number of persons in casual wards on the night in question was 276 men, 11 women and two children, and there were 247 vacant beds. The number of inmates at the date of the last census was 176 men and 12 women, and there were 263 vacant beds. At Rowton Houses 5,042 men were accommodated as against 5,041 in 1921, and there were no vacant beds as compared with five in 1921. A noteworthy point was a change in the type of homeless persons found. The men were younger on the whole, and as regards women, there was a notable decrease in those of the prostitute class.

Furnished rooms.

The Chief Inspector, Mr. H. A. Jury, reports:—In connection with the small number of persons found in the streets of London, especially females, on the occasion of the last census of "Homeless Persons," I thought it would be interesting to ascertain whether any change had taken place in the "furnished rooms" provided for poor casual persons, which in the past have been largely occupied by persons of the common lodging-house class. It was found that in Kensington there had been a great reduction in the number of these rooms, and one keeper who formerly owned a large number, told me that he had given them all up. The principal "furnished room" centres are to be found in Notting Dale at Kensington; Campbell-road and Queensland-road, in Islington; in Spitalfields; Essex-street, Shoreditch; Stepney Green, Deptford, Woolwich and Bermondsey. In former years this last district had a large population of this class, and there was also a group in the City of Westminster which is now reduced to 2 or 3.

The medical officer of health for Kensington, in his report for 1921, states

that, whereas in 1921 there were 187 houses of this class on the register there are now only 95, and he adds, "it is, therefore, very pleasing to note that the number of dwellings of this type in the Borough is gradually diminishing."

This same feature is true of London as a whole. As a result of enquiry it has been ascertained that in 1909 there were about 800 houses, 4,000 rooms, and approximately 10,000 persons; in 1919, about 450 houses, 2,500 rooms and approximately 6,000 persons; in 1921, about 400 houses, 2,200 rooms, and approximately 5,200 persons.

Much the most important feature in connection with the enquiry is the fact that only a very few of the rooms are now available for casuals. Most of the keepers state that they do not have a room vacant perhaps in three months, so that the population of these rooms is almost a fixed one, and it is open to doubt whether they are now mainly of the class of the former occupants.

I have come to the conclusion that although they have become regular in their habits, they are largely made up of people, who if they were turned out of their rooms, would seek accommodation in the common lodging-houses, or what is more likely, in the casual wards. If this assumption is correct there is obviously a raising in standard, inasmuch as the population of the common lodging-houses is also on the decline.

Other factors may be working to account for the change, viz., the unemployment dole and the increased poor law allowances, making it easier for these people to lead a regular and settled life, but I feel pretty sure that there has been a raising of the morals of this particular class, especially as on the last night census there was found only one woman of the "unfortunate" class in the streets.

Venereal diseases.

The number of new cases dealt with by the hospitals during 1922 was 23,811, of which 6,809 were syphilis, 10,632 gonorrhœa, and 321 soft chancre. Comparing these figures with those of the previous year it will be observed that the total number of new cases dealt with is 1,607 less than in 1921.

Year.	Syphilis.	Gonorrhœa.	Soft chancre.	Non-venereal.	Total.
1921 ...	8,188	10,709	471	6,050	25,418
1922 ...	6,809	10,632	321	6,049	23,811
Decrease ...	1,379	77	150	1	1,607

With regard to the number of new cases of syphilis and gonorrhœa it is satisfactory to note (*a*) the decrease in the number of cases of syphilis which is largely associated with the disinfection of cases at a much earlier stage than was possible prior to the establishment of the Clinics, and (*b*) the increase in the ratio of cases of gonorrhœa to syphilis, showing that the number of cases of gonorrhœa in attendance at the Clinics is gradually approximating to the relative figures, of 1 of syphilis to 3 of gonorrhœa, hitherto held to be the ratio of cases in the community.

The total attendances were 529,003, and apart from the returns of the number of new cases, this figure is one of the most satisfactory features to be noted in connection with the statistical returns, inasmuch as it shows that the ratio of attendances to new cases continues to increase from year to year. The following table shows the total number of new cases and attendances for each of the six years since the commencement of the Scheme.

Year.	New cases		Total.	Attendances.
	Venereal.	Non-venereal.		
1917 ...	13,025	2,360	15,385	120,659
1918 ...	13,679	2,693	16,372	169,485
1919 ...	23,147	5,118	28,265	307,722
1920 ...	24,454	6,592	31,046	464,033
1921 ...	19,368	6,050	25,418	496,209
1922 ...	17,762	6,049	23,811	529,003

Attention is also drawn to the very large number of non-venereal patients who present themselves for examination at the Clinics. In all probability this is a direct result of the better education of the public in the knowledge of venereal diseases and their effects. Many patients who have exposed themselves to possible infection, come to the Clinics for examination in order to satisfy themselves that they are not infected. In addition a considerable number of cases are referred for examination from the maternity and child welfare clinics, lying-in hospitals and hospital out-patient departments.

Another point in the Returns worthy of note is the total number of examinations made of pathological specimens. Comparative figures for the six years are shown in the following table :—

	Pathological examinations.	
Year.	*For treatment centres.*	*For private practitioners.*
1917 ...	13,988	3,649
1918 ...	25,973	6,380
1919 ...	51,554	10,464
1920 ...	58,920	14,027
1921 ...	66,134	18,472
1922 ...	75,351	18,507

The increased use made by medical practitioners of the facilities for the examination of pathological specimens is highly satisfactory.

While the total number of new cases as compared with 1921 has fallen 6·3 per cent., a certain number of the Clinics show an increase, the most important of which is St. Thomas' Hospital. This centre was established as an all-day clinic three years ago, and was intended to act as a model representative of V.D. clinics in large urban communities, and experience would seem to show the soundness of the principle upon which this centre was established, viz. : (a) that the premises should be specially designed for the convenience of both the medical staff and the patients ; (b) that the clinic should be open all day from 8 a.m. to 10 p.m. ; (c) that it should be under the direction of a medical officer, whose duty it would be to co-ordinate all branches of V.D. work, and to give instructions to students and practitioners in the diagnosis and treatment of these diseases. The table gives particulars for six years.

Year.	New cases.	Attendances.	Pathological examinations.	
			For centre.	For practitioners
1917 ...	1,433	11,770	1,504	152
1918 ...	1,289	14,134	2,150	179
1919 ...	2,513	34,990	4,585	238
1920 ...	3,253	75,602	6,661	136
1921 ...	4,086	113,341	16,149	77
1922 ...	4,559	149,682	23,557	345

The work done at this clinic in 1922 compared with the work done by the 28 centres in London was as follows :—New cases, 19·1 per cent. ; attendances, 28·3 per cent. ; pathological examinations, 25·4 per cent.

It is somewhat remarkable that the number of pathological examinations made for general practitioners was so low, but it appears that a large number of examinations of pathological specimens are made in the general laboratory of the Hospital, and that the figures for such are not included in those of the clinic.

Failure to complete treatment.

With regard to the question of patients ceasing to attend before the completion of treatment, reference has frequently been made of late to this factor as one of the gravest defects in the present arrangements for the treatment of venereal diseases. It is undoubtedly true that defaulting does occur, but the extent to which this defect exists is often considerably exaggerated. This is due to the fact that when defaulting is spoken of it is assumed that it represents a state of affairs in which patients go to

the Hospital for examination, but do not return for treatment, whereas in point of fact, owing to the strictness of the definition of cure, a very large percentage of cases, which have been under treatment for considerable periods, and which formerly would have been recorded as satisfactorily treated, are now classified in the same category as persons who make but one attendance. This method of classification has undoubtedly given rise to quite an erroneous impression in the minds of both the public and the medical profession as to the extent to which defaulting occurs and in consequence the work of the clinics has been severely criticised, and as a result a demand has been made in some quarters for the introduction of compulsory notification and treatment on the same lines as exist in some of the colonies. This matter will, no doubt, be dealt with in detail in the forthcoming report of the Trevethin Committee of Enquiry, and in the meantime it is sufficient to say that there are good grounds for believing that the record of work done at the V.D. clinics in London will compare very favourably with that obtaining in those colonies where the system of compulsory notification and attendance is in operation.

Housing of transmigrants.

In order to minimise the risk of the introduction and spread of infectious diseases, the attention of the Secretary of State for the Home Department was called to the action of certain shipping companies in directing transmigrants on their arrival in London to premises where no suitable provision was made for bathing and disinfecting.

Housing Acts.

Details of the progress made with the several represented insanitary areas and the housing schemes undertaken by the Council are specially dealt with in Chapter XXVII.

The table on page 38 shows the houses in each borough in 1922; the number repaired under section 28 of the Housing Act of 1919; certain other particulars as to conditions in 1922; and the action taken by the metropolitan borough councils under the provisions of section 17 of the Housing and Town Planning Act with regard to the making of representations and closing orders—the figures for the years 1914, 1915 to 1919, and 1920-1, are included for comparison.

Overcrowding.

In Part I. of the 1921 census volume for the County of London statistics are given bearing upon the question of overcrowding. The figures, relating to size of family, number of rooms occupied, etc., are similar to those in the 1911 census, but details are not given as to the number of children under ten years of age in each family, and while the definition of a room for the purpose of the census remains the same, rooms in joint occupation, which in 1911 were ignored, are counted as a room in each tenement sharing them. The total number of rooms jointly occupied was very small and does not materially affect comparison of the two censuses.

The changes which have taken place in the tenemental occupation in the county as a whole are broadly indicated in the following table:—

	1911.		*1921.*
Number of private families	1,023,951	...	1,120,897
Number of private families per occupied dwelling	1 51	...	1·59
Average size of family	4·15	...	3·79
Average rooms per person in 1–9 roomed tenements	0·88	...	0·91
Average number of rooms per family in 1–9 roomed tenements ...	3·56	...	3·38
Percentage of total private family population living in tenements occupied by more than two persons per room	17·84	...	16·11

The increase in the number of families is almost entirely confined to tenements of 1–4 rooms, the families occupying this class of tenement having increased by 130,831 or 18 per cent. The decrease in the number of persons living in tenements occupied by more than two per room between 1911 and 1921 amounted to 74,940: during the same period the number of children under 10 years of age fell by 125,158, and it is to the decrease in the child population that the decline in the proportion of the population living more than two per room is, apart from war losses, mostly due.

Metropolitan borough.	No. of houses.			No. of houses for the working classes.		No. of representations.					No. of closing orders.					No. of houses demolished.				
	In borough.	Inhabited by working classes.	Repaired by local authority.	Erected.	In course of erection.	1914.	1915-19.	1920.	1921.	1922.	1914.	1915-19.	1920.	1921.	1922.	1914.	1915-19.	1920.	1921.	1922.
	1922.	1922.	1922.	1922.	1922.															
Battersea ...	28,708	24,890	1	69	38	185	1	11	1	1	38	—	11	1	1	—	—	—	—	—
Bermondsey ...	19,170	18,910	14	—	3	—	13	—	1	2	—	46	—	1	—	36	—	—	—	—
Bethnal Green ...	19,244	Almost all	—	79 tenements	—	31	34	5	—	3	25	19	—	—	2	—	2	—	4	—
Camberwell ...	41,419	⅘ of total	—	140	12	—	—	3	—	5	—	—	—	—	—	—	—	3	—	—
Chelsea	12,256	—	—	—	—	3	—	—	—	—	—	—	—	—	—	—	8	—	—	15
Deptford... ...	16,966	—	—	135	—	5	8	—	—	—	5	7	—	—	—	6	2	—	—	—
Finsbury... ...	6,700 and 88 blocks of flats	6,200	—	—	—	—	17	—	—	5	—	17	—	—	5	—	—	—	46	4
Fulham	25,979	—	28	405tenements	—	—	1	—	—	7	—	1	—	—	7	—	—	—	—	—
Greenwich ...	16,600	Majority	—	213	—	193	—	—	—	—	—	—	—	—	3	—	—	—	—	—
Hackney ...	34,749	14,032	—	40	62	—	29	—	16	6	—	34	—	—	—	—	—	—	—	—
Hammersmith ...	18,456	—	21	676	43	37	26	—	2	8	6	38	1	4	7	—	25	—	2	1
Hampstead ...	12,582	1,833	—	140 flats	—	9	17	16	1	1	9	17	14	1	1	5	—	10	—	—
Holborn	6,494	8,571 t'ments	—	—	—	2	4	1	—	—	2	2	1	—	—	—	—	—	—	—
Islington ...	42,633	26,896	—	165 flats	48 flats	21	10	1	—	1	1	8	1	—	2	6	1	—	—	1
Kensington ...	28,400	9,141	—	54	6	13	9	—	—	—	3	9	17	—	—	—	—	—	—	—
Lambeth... ...	42,607	31,955	—	200tenements	48	7	38	17	—	—	7	—	—	—	—	7	—	6	67	20
Lewisham ...	35,539	—	—	1,957	—	—	9	—	—	—	3	19	15	—	—	6	3	—	—	—
Paddington ...	17,153	9,443	—	—	—	5	17	15	8	—	5	10	—	5	—	—	—	—	1	—
Poplar	22,607	22,607	—	—	—	10	39	—	1	—	10	33	—	3	—	2	1	—	—	—
St. Marylebone ...	21,472	7,266	—	—	—	1	20	—	—	—	—	19	—	—	—	6	3	—	1	—
St. Pancras ...	25,216	20,000	—	254 flats	—	37	53	—	—	—	—	56	—	—	—	—	—	—	—	—
Shoreditch ...	13,000	12,400	—	25	14	—	9	—	—	—	—	3	17	—	—	—	7	—	—	11
Southwark ...	18,562	12,208	5	92	2 blocks of flats	—	4	37	226	24	—	—	—	3	24	—	32	15	19	9
Stepney	31,639	31,639	13	34	—	6	27	2	—	—	6	59	—	—	—	—	6	—	—	—
Stoke Newington	8,046	3,978	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Wandsworth ...	67,753	43,880	—	846	48	—	1	—	—	—	—	—	—	—	—	—	7	—	—	—
Westminster(City)	33,946t 'm'nts	—	—	95 tenements	—	—	7	—	—	—	—	6	—	—	—	11	39	—	—	—
Woolwich ...	24,688	22,428	—	139	98	18	40	5	—	10	9	32	4	—	6	7	5	2	—	—

While the London population, adjusted to allow for those absent on holidays at the date of the census, was much the same in 1921 as in 1911, the number of families had increased. If the allocation of rooms in 1–9 roomed tenements be regarded from the point of view of the family it is found that families consisting of more than two persons, which comprise five-sixths of the tenement population, had less space per head in 1921 than in 1911; notwithstanding this fact the general distribution of the available accommodation is better than in 1911 from the point of view of overcrowding.

The following table shows the changes which have taken place in the occupancy of 1–4 roomed tenements in London during the past four censuses :—

Tenement of	Percentage of total tenements.				Percentage of total population living in tenements occupied by more than two persons per room.			
	1891.	1901.	1911.	1921.	1891.	1901.	1911.	1921.
1 room	9·2	14·7	13·5	13·2	5·10	3·26	2·58	2·31
2 rooms	16·4	19·8	19·2	21·1	7·84	6·54	6·14	5·50
3 rooms	15·8	17·8	21·4	23·5	4·57	4·14	4·93	4·66
4 rooms	14·1	13·7	16·1	18·0	2·19	2·07	2·40	2·29
1–4 rooms ...	55·5	66·0	70·2	75·8	19·70	16·01	16·05	14·76

The proportion of the private family population of the county and of each metropolitan borough living in tenements with more than two persons per room in 1911 and 1921 is shown in the following table, in which the boroughs are arranged in topographical order to facilitate comparison :—

Metropolitan boroughs.	Percentage of total private family population living in tenements occupied by more than two persons per room.		Metropolitan boroughs.	Percentage of total private family population living in tenements occupied by more than two persons per room.	
	1911.	1921.		1911.	1921.
West—			*East—*		
Paddington	16·2	15·4	Shoreditch	36·6	32·0
Kensington	17·1	16·7	Bethnal Green ...	33·2	27·8
Hammersmith ...	14·2	13·8	Stepney	34·9	29·0
Fulham	14·6	13·1	Poplar	20·6	21·2
Chelsea	14·9	13·7			
Westminster, City of	12·9	10·1	*South—*		
North—			Southwark	25·8	23·5
St. Marylebone ...	20·7	17·9	Bermondsey	23·4	23·2
Hampstead	7·1	6·5	Lambeth	13·6	12·7
St. Pancras	25·5	22·4	Battersea	13·3	12·4
Islington	20·0	19·4	Wandsworth	6·3	6·8
Stoke Newington ...	8·8	8·1	Camberwell	13·5	12·8
Hackney	12·4	11·5	Deptford	12·2	12·8
Central—			Greenwich	12·1	13·8
Holborn	25·6	19·8	Lewisham	3·9	4·7
Finsbury	39·8	34·0	Woolwich	6·3	7·8
City of London ...	12·3	6·6	London County ...	17·8	16·1

It will be seen that in Deptford, Greenwich, Lewisham, Poplar, Wandsworth, and Woolwich, the proportion of population in tenements living more than two per room has increased somewhat, but in all of these except Poplar the percentage is below the average for London as a whole. It is a very striking fact that in the majority of the boroughs there has been a distinct improvement in respect of overcrowding conditions, especially in the central and eastern districts, which are largely occupied by the poorer classes.

Sanitary officers.

The subjoined table shows the number of sanitary officers and health visitors employed by the sanitary authorities in London :—

Sanitary area.	Sanitary inspectors.				
	Male.	Female.		Health visitors.	
		Whole time.	Part time.	Whole time.	Part time.
City of London... ...	21	1	—	—	—
Battersea	11	—	2	6	2
Bermondsey	11	—	—	8	—
Bethnal Green	10	—	—	10	—
Camberwell	12	3	—	3	—
Chelsea	4	—	1	1	1
Deptford	8	—	—	6	—
Finsbury	7	1	—	3	—
Fulham	9	1	—	5	—
Greenwich	5	1	—	5	—
Hackney	18	2	—	9	—
Hammersmith	9	1	—	3	—
Hampstead	7	1	—	3	—
Holborn	3	—	1	1	1
Islington	18	2	—	7	—
Kensington	11	7	—	7	—
Lambeth...	15	—	2	4	2
Lewisham	9	1	—	9	—
Paddington	9	2	—	2	—
Poplar	10	1	—	6	—
St. Marylebone ...	11	—	3	3	3
St. Pancras	14	4	2	3	2
Shoreditch	12	—	—	5	—
Southwark	13	2	—	11	—
Stepney	20	—	—	11	—
Stoke Newington ...	3	—	—	3	—
Wandsworth	11	—	3	4	3
Westminster, City of ...	10	1	—	5	—
Woolwich	10	1	2	6	2
London County ...	311	32	16	149	16

By-laws :— Houses let in lodgings.

Section 26 of the Housing, Town Planning Act, 1919, extends, in the case of houses intended or used for occupation by the working classes, the power of making and enforcing by-laws under section 94 of the Public Health (London) Act, 1891. These, as regards London, are to be made by the Council and, with the exception of by-laws for securing stability, and the prevention of and safety from fire, are to be enforced by borough councils. A draft series of by-laws has been prepared and is now under consideration.

Rag and bone dealer.

Draft by-laws with regard to rag and bone dealers have been prepared and the Minister of Health has expressed his willingness to approve the draft when formal application is made by the Council.

Dresser of fur skins.

By-laws for regulating the conduct of the business of a dresser of fur skins were made by the Council and, on 20th March, 1922, confirmed by the Minister of Health.

Tuberculosis.

The Council's scheme for the treatment of tuberculosis is described in Chapter XXV. The details of treatment are as follows :—

The average bed occupation for the year is approximately equal to the figure provided in the estimates, viz., 2,200. The total number of beds actually in use on 31st December, 1922, was as follows :—

Institutions.	*Adults.*		*Children.*	*Total.*
	Ex-service.	*Civilian.*		
Metropolitan Asylums Board ...	138	693	477	1,308
Voluntary	157	382	178	717
Total	295	1,075	655	2,025

Applications for institutional treatment were received in respect of 4,895 adults. These applications were as indicated below :—

First applications—		Applications for further treatment—	
Males (Ex-service men)	415	Males (Ex-service men) ...	801
„ (Civilians) ...	1,597	„ (Civilians)	347
Females	1,338	Females	397
	3,350		1,545—Total 4,895

Of the total of 4,895 applications, 486 were not accepted for treatment under the Council's scheme ; 653 patients were examined at the County Hall, and their disposal then determined ; 2,281 were referred to observation hospitals for admission as a preliminary step to their disposal ; 1,380 were accepted for admission direct to institutions without previous observation or examination, and in 95 cases the applications for various reasons were not proceeded with. In 70 of the cases for residential treatment, the patients for various reasons failed to enter observation hospitals or other institutions, and their applications were treated as withdrawn. In 302 other cases treatment was not commenced before the end of the year.

As a general principle, the cases passed through the observation beds are patients in whom the diagnosis has not been confirmed by the presence of tubercle bacilli in the sputum ; patients with acute symptoms ; and patients with well-marked disease whose suitability for sanatorium treatment can be determined only after a few weeks' close observation. Cases examined at the County Hall are those in which the diagnosis has been confirmed by the presence of tubercle bacilli in the sputum and which appear, from their reports, to be suitable for sanatorium treatment, and cases of surgical tuberculosis. Cases sent direct to sanatoria are chiefly applicants for further treatment, whose condition and prospects are already known.

Adult patients examined at the County Hall during the year 1922 *and disposal thereof.*

Sent to :—	*Observation hospital.*	*Sanatorium.*	*Home for advanced cases.*	*Not accepted.*	*Total.*
	188	393	64	8	653

During the year 2,494 patients were discharged from observation hospitals and 3,718 from other institutions.

The classification of the 2,494 *patients discharged after observation in hospitals.*

Classification—Group A	416	cases or	19·8%
„ B.1	249	„	11·9%
„ B.2	999	„	47·5%
„ B.3	438	„	20·8%
Surgical cases	102		
Total diagnosed as tuberculous	2,204		
Diagnosis of tuberculosis not confirmed	290		
Total discharged after observation	2,494		

Disposal of 2,204 *cases in which tuberculosis was diagnosed with comparable figures for* 1921.

	Year. 1922.		1921.
Discharged home—further institutional treatment not needed ...	189	...	247
Made their own arrangements	169	...	170
Transferred to institutions for advanced cases	292	...	195
Elected to go to infirmaries	49	...	32
Transferred to surgical hospitals	11	...	12
Transferred to general hospitals	3	...	—
Transferred to training centres	12	...	3
Died during observation	48	...	82
Discharged for misconduct	4	...	11
Transferred to sanatoria	1,427	...	1,677
Totals	2,204	...	2,429

Tuberculous children

In the Annual Report for 1921 (vol. III., p. 19) reference was made to the increase in the proportion of non-pulmonary to pulmonary cases in the number of applications received by the Council for the institutional treatment of tuberculous children. The figures for 1922 show a still further increase in the percentage of non-pulmonary cases. The following tables indicate the changes in the proportions :—

Year.	Number of applications.		Numbers treated.	
	Pulmonary.	Non-pulmonary.	Pulmonary.	Non-pulmonary.
1918 ...	68·6%	31·4%	72·4%	27·6%
1921 ...	56·7%	43·3%	62·1%	37·9%
1922 ...	48·4%	51·6%	52·5%	47·5%

Type of case.	Numbers under treatment on the dates indicated (and percentages.)					
	31.12.17	31.12.18	31.12.19	31.12.20	31.12.21	31.12.22
Pulmonary ...	270 (71·6%)	253 (67·6%)	310 (55·0%)	347 (49·3%)	275 (41·1%)	189 (28·9%)
Non-pulmonary	107 (28·4%)	121 (32·4%)	254 (45·0%)	357 (50·7%)	394 (58·9%)	466 (71·1%)

The scheme of co-operation between the Council and the Invalid Children's Aid Association, under which, in return for a grant, the Association provides convalescent treatment for children, and also assists in the provision of surgical appliances for children who had received treatment under the tuberculosis scheme was continued during 1922. The sum paid to the Association during 1922 was £1,350, including a special grant of £350 to enable the Association to provide convalescence for children of necessitous parents, who by reason of lack of employment, were unable to pay the usual contribution expected by the Association. During 1922 the Association received 305 applications for convalescent treatment and 275 children were sent away with the assistance of the Council's grant. The remaining 30 cases were found to be ineligible. In addition to these, 31 children were sent away with no help from the Council's grant in aid as the parents were able to pay the full cost of treatment. Twenty-four children were supplied with surgical instruments with the help of the Council's grant in aid. In addition to the foregoing, children were sent to the five open-air schools for tuberculous children provided by the Council (see vol. III., p. 74).

As in 1920 and 1921, the Council arranged with the Association for the children attending the Council's schools for tuberculous children to go away to the seaside for a fortnight's holiday during the summer of 1922. Two hundred and one children were sent to a Convalescent Home at St. Leonards-on-Sea, the Council making a grant of £435 towards the cost. The medical officers of the five schools concerned are unanimous regarding the beneficial effects of the holiday on the health of the children. The general opinion is that the holidays were more successful than in former years owing to the children being under the direct care of teachers.

At the commencement of 1922, the Council had in use 669 beds for children in hospitals and sanatoria, of which 209 were in voluntary institutions and 460 in Metropolitan Asylums Board institutions. The number under treatment on 31st December, 1922, was 655 (178 in voluntary institutions and 477 in Metropolitan Asylums Board institutions). On 1st January, 1922, 349 boys and 320 girls were under treatment and 390 boys and 373 girls were sent away during the year. The total number treated during the year 1922 was, therefore, 1,432, as compared with 1,514 in 1921. In addition, 275 children had the advantage of convalescence through the Association with the financial assistance of the Council.

Mental Deficiency Act, 1913.

On 31st December, 1922, of the 2,711 cases being dealt with at the expense of the Council there were in institutions, 1,380; under guardianship, 13; under supervision, 1,308; in places of safety awaiting other action, 10. There remained 2,790 out of the total number 5,501 of cases of alleged mental defect, of which notice had been received since the Act came into operation. These cases include 333 in which

no action could be taken ; 1,055 ascertained not defective, or not to be London cases ; 477 dealt with through the Poor Law ; 590 removed from the register (died, discharged, or removed to mental hospitals), and 335 still under consideration.

During the year 894 cases (an increase of 122 or 17 per cent.) were examined with the following results :—

Type.	*Male.*	*Female.*	*Total.*	*Type.*	*Male.*	*Female.*	*Total.*
Idiot	10	14	24	Not defective	21	38	59
Imbecile	204	158	362	Insufficient evidence ...	2	11	13
Feeble-minded	205	231	436				
				Total	442	452	894

In addition to the foregoing, certain cases were examined while still of school age and are recorded on a later page.

Delinquency in relationship to Mental Deficiency.

The care of delinquent persons is an important section of the work under the Mental Deficiency Act.

A further investigation has been carried out by Dr. Shrubsall and Dr. Williams into the relationship between delinquency and mental deficiency. Habitual delinquents are among the class of defectives most dangerous to the community, and experience shows that defectives may commit any class of offence, the circumstances in each case being regulated by propinquity and opportunity. Even in normal individuals, delinquencies may arise from several causes.

(i.) The persistence of infantile condition of thought in which the child does immediately what seems most desirable without consideration of the rights of others.

(ii.) Suggestions from, or imitation of, others.

(iii.) The unusual predominance of certain specific instincts, such as pugnacity and acquisition.

(iv.) From motives such as desire for revenge on individuals or on society at large, as in some cases this feeling arises from a sense of mental inferiority which is resented by the subject, who therefore, desires to show that in some ways he can get his own back.

Once delinquencies have proved successful, a habit may be established which may be stronger than the original impulse. Mental deficiency may assist in the formation of delinquent habits, in that the subject may not have the intelligence to appreciate the reasons for social conventions or even for obedience to personal authority ; he may show undue irritability or deficient inhibition or may be unusually apathetic or suggestible.

The average mental age of the general population of defectives for the age of 16 is 7·9, and of delinquent defectives is 8·5. The percentage distribution of intelligence quotients is shown in the tables which compare the delinquent with the non-delinquent groups of defectives, both for those under and over 16 years of age.

Percentage distribution

Intelligence quotients.	Delinquent defectives.		Non-delinquent defectives.	
	100 children	415 adults.	8,737 children	1,870 adults
·00–·09	—	—	0·4	0·2
·10–·19	—	—	2·0	1·7
·20–·29	—	1·0	5·4	1·9
·30–·39	—	6·5	5·8	7·5
·40–·49	3	10·4	8·5	16·5
·50–·59	15	47·6	15·8	49·6
·60–·69	56	24·6	23·8	20·2
·70–·79	21	8·2	28·9	2·2
·80–·89	5	1·2	8·5	0·2
·90–·99	—	0·5	0·9	—

From this it appears that the delinquents are above the average of the other defectives, but not to an extent which excludes the possibility of random sampling.

The relationship between the nature of the offence and the intellectual capacity, emotional status and employability has been ascertained in the case of 234 men and 81 women charged with definite punishable offences who have been dealt with under the Mental Deficiency Act.

Relationship between mental ages and charges.

Women. Charge.	Mental age.										Total.	Average mental age.
	4	5	6	7	8	9	10	11	12	15		
Wandering and begging ...	1	—	2	2	4	2	1	—	—	—	12	7·5
Stealing	1	1	1	3	3	7	3	1	1	—	21	8·4
Soliciting and indecency ...	—	—	1	5	5	15	4	2	5	1	38	9·3
Neglect, desertion, etc. ...	—	—	—	2	2	4	2	—	—	—	10	8·6
Total	2	1	4	12	14	28	10	3	6	1	81	8·7
Men.	3	4	5	6	7	8	9	10	11	12	15	
Wandering and begging ...	1	—	1	8	8	22	13	4	3	1	—	61	8·0
Stealing	—	1	2	4	11	25	39	13	2	4	1	102	8·6
Drunk and disorderly, etc.	—	—	1	1	—	2	5	—	—	1	—	10	7·4
Indecent exposure ...	—	—	2	2	2	6	3	2	1	—	—	18	7·9
Indecent assault	—	—	—	—	2	3	7	3	1	1	—	17	9·0
Gross indecency, unnatural offences	—	—	—	1	1	5	5	1	—	—	—	13	8·3
Assault, etc.	—	—	—	—	4	3	3	2	—	—	—	12	8·2
Total	1	1	6	16	28	66	75	26	7	7	1	234	8·4

From this it would appear that the lower mental ages are associated with offences such as indecency and indecent exposure in which a prominent factor in the causation may be due to a failure of orientation or a lack of appreciation of surroundings and ordinary social conventions on the part of the offenders; the higher mental ages are found in those defectives charged with heterosexual offences, while the average mental ages of those charged with stealing and common assault correspond almost exactly with the general average of all defectives, whether delinquents or otherwise.

An attempt has been made to ascertain the relationship between the nature of the offence and the emotional stability of mentally defective offenders by grading them into four classes in accordance with the general evidence of their behaviour without attempting to consider the respective qualities of specific instincts or emotions.

Degree of emotional stability.

Nature of offence.	Stable.	Slightly or at times unstable.	Moderately unstable.	Very unstable.	Total.
Women.					
Wandering and begging	—	2	5	5	12
Stealing	—	7	6	8	21
Sex offences	—	5	10	23	38
Total, all cases ...	—	15	21	45	81
Men—					
Wandering and begging	9	6	19	27	61
Stealing	9	19	18	56	102
Indecent exposure ...	3	3	3	9	18
Indecent assault ...	2	5	2	8	17
Gross indecency ...	1	2	4	6	13
Total, all cases ...	25	42	52	115	234

The unstable classes are in the majority, especially in the case of women offenders. In the case of some men whose conduct in other respects than as regards the charge might be regarded as stable, the actual offence itself may be in part due to the recent conditions of the labour market. This would apply in particular to such offences as begging, stealing and possibly to desertion. As a check on these possibilities, it seemed desirable to extract from the records the evidence as to the regularity of the past employment of the offenders. They were, therefore, grouped under three heads, regular employment, occasional employment and unemployable, but as it appeared that a small number had only just left school and had not yet been in any place, they were accorded a special section.

Employability.

Nature of offence.	Unemployable.	Occasional employment.	Regular employment.	Just left school.	Total.
Women—					
Wandering and begging	3	7	2	—	12
Stealing	2	8	9	2	21
Sex offences	12	17	9	—	38
Total, all cases ...	22	34	23	2	81
Men—					
Wandering and begging	25	24	8	4	61
Stealing	26	43	24	9	102
Indecent exposure ...	7	5	4	2	18
Indecent assault ...	4	6	7	—	17
Gross indecency ...	4	8	1	—	13
Total, all cases ...	73	97	48	16	234

From this it appears that in men the greater number of cases of stealing arise among the unemployable or those with very irregular employment, while in the women the largest figure is for those in regular work.

The relationship between emotional stability and working capacity is shewn in the following tables.

Relation between capacity for employment and stability.

Employability.	Stable.	Slightly or at times unstable.	Moderately unstable.	Very unstable.	Total.
Women—					
Unemployable	—	—	6	16	22
Occasional employment	—	3	10	21	34
Regular employment ...	—	11	4	8	23
Still at or just left school	—	1	1	—	2
Total	—	15	21	45	81
Men—					
Unemployable	7	7	12	47	73
Occasional employment	7	17	25	48	97
Regular employment ...	9	15	8	16	48
Still at or just left school	2	3	7	4	16
Total	25	42	52	115	234

The relation between lack of employment and emotional instability is evident and bears out the general observation that an employer, particularly for rough and poorly-paid work, will put up with a good deal of stupidity but not with outbursts of temper. Those who combined emotional stability nearly amounting to apathy, with little capacity for employment, were of the lower intellectual grades; the unstable who were regularly employed were for the more part of the higher grade. The offences of the more stable and employable were either stealing, or of a miscellaneous character, such as cruelty, assault or desertion.

Blind Persons Act, 1920.

The Council's scheme for the carrying out of the provisions of the Blind Persons Act, 1920, provides, *inter alia*, for the examination of persons by the Council's medical officer. Most of the examinations related to children of school age and information in regard thereto is given on a later page; seven persons not of school age were also examined, and of these six (4 males and 2 females) were found to be capable of benefiting by training, and advice was given as to trades in which the persons should severally be trained, having regard to the prospects of future employment; one male was considered to be unfit for training.

Children Act, 1908.

The Council's powers, etc., under the Children Act, 1918, with regard to infant life protection were described in the Annual Report for 1921 (vol. III., p. 64). Inspection under Part I. of the Act is carried out by 14 female visitors and two male inspectors. There is power to remove nurse infants who are being kept under certain unsatisfactory conditions, or by foster mothers who are for certain reasons found to be unsuitable, to a place of safety, *i.e.*, in London to poor law institutions. During 1922 14 infants were removed as compared with 20 for the previous year. Total exemption from inspection was granted in one case, and inspection limited to once or twice a year in two other cases. With a view to ascertaining that the sanitary condition of the home of a foster mother is satisfactory all new premises, or premises to which a foster mother has removed after registration, are inspected by the Council. Also, if doubt arises subsequently, as to the suitability of any premises, or complaint is made as to any serious defects or nuisance, similar action is taken. During 1922, 971 reports, as compared with 1,006 during 1921, were made. In 668 cases the premises were found to be satisfactory, the same number of cases as in the previous year. In 141 homes sanitary defects were discovered as compared with 146, while overcrowding was reported in 92 as compared with 131 in the year 1921. In 9 homes overcrowding and sanitary defects were found to exist as compared with 29 homes in the previous year. No action could be taken in the remaining 61 homes owing to the removal of the infant prior to the inspector's visit.

The attention of the borough council was drawn to any case of serious sanitary defect. In some cases it has been found possible by re-arrangement of accommodation to secure an improvement where overcrowding existed. In others this has not been found possible, and the foster mothers concerned are in such cases instructed either to obtain more suitable premises or return the nurse infant to its parent. The enforcement of the requirements is rendered more difficult at the present time owing to the lack of housing accommodation.

In the case of an illness of a nurse infant the help of the local infant welfare centre is frequently obtained. Where a foster mother has charge of a weak or ailing infant she is urged to take the infant to the local centre and to follow the advice of the doctor there. Such cases are watched by the visitors with a view to seeing that the treatment advised is carried out. From time to time the visitors report cases in which they are doubtful as to the condition of the infant, and an inspection of the infant is then made by one of the Council's medical officers. The visitors are of opinion that this is of great assistance to them in their work. The period during which an infant remains under the Act is limited to the age of seven years, but as the child generally goes to school at the age of five years it has the additional advantage from that age of supervision by the School medical service. During 1922 the number of deaths of nurse infants reached 53, as compared with 42 in 1921, and inquests were necessary in nine cases as compared with six in the previous year. In eight of these the verdict was death from natural causes, and in the other accidental death by suffocation.

In the Annual Report for 1921 (vol. III., p. 22), reference was made to the fact that a departmental committee had been appointed by the Home Secretary to deal with the question of child adoption. During 1922 a Bill was brought before the House of Commons with the object of enabling the parents or guardian of any

child to transfer to any other person their rights and duties in respect of the said child, subject to the approval of the Court. The Bill deals with only a portion of the recommendations of the Departmental Committee, but if it becomes law it will have the effect of regularising and legalising the adoption of infants.

Section 1 of the Act of 1908 sets out particulars which foster mothers must obtain and furnish to the Council when giving notice of the reception of a nurse infant. From time to time difficulty has arisen owing to the correct date and place of birth of the infant not being in the possession of the foster mother. Visitors are now instructed to insist upon foster mothers obtaining birth certificates in all cases.

Administrative difficulty has also occurred in cases where the periodic payments made for the maintenance of nurse infants appear to have ceased. The visitors are now instructed to continue inspection in such cases if no objection is raised. If, however, inspection is resented or the visitor is refused admission the visitors are instructed to make independent enquiries as to the condition of the house and child. They take no further action unless the result of the enquiries is unsatisfactory or definite evidence has been obtained that payments have been resumed.

In past years arrangements have been made under which the staff of the Public Health department undertakes the inspection at the request of local War Pension Committees of homes in which it is proposed to board-out neglected children of deceased or serving soldiers. During the years 1919–1921 inclusive 326 inspections and reports were carried out on behalf of local War Pension Committees. No new requests have been received during the present year.

Midwives and lying-in homes.

The number of duly certified midwives with London addresses exceeds 5,000, of this number 829 notified their intention to practise within the county during the whole or part of the year. This is an increase of 71 on 1921. It is probable that about 10 per cent. of the above 5,000 are in actual independent practice in London, while the remainder act for the most part as monthly or general nurses under medical supervision. All practising midwives, except those working entirely within hospitals and infirmaries, under medical supervision, are subject to inspection by the Council's officers, in order to ensure that a proper standard of efficiency is maintained. This work is carried out by four women medical inspectors. Special visits are paid to the midwife if any case of a septic nature or a persistent high temperature occurs in her practice and in all cases of inflammation of the eyes. Advice is given where necessary to midwives on any point of difficulty which may arise in connection with their work. The medical inspectors paid 2,366 visits during the year to midwives or institutions employing midwives.

Infringements of rules.

In 95 cases there were infringements of the rules of the Central Midwives Board. Of these 60 were slight and were dealt with by verbal caution; 20 were of a more serious nature and received a letter of caution from the Council. Of the remaining 15 cases, 9 midwives were interviewed and cautioned. Four *prima facie* cases of negligence or misconduct were reported to the Central Midwives Board with the following results:—(a) midwife struck off the roll; (b) charge not proved; (c) charges adjourned *sine die*; (d) Council requested to report again on practice of midwife. The two remaining cases were reported to the Board, but not by the Council. In one case the charges were brought by a doctor and the midwife was cautioned by the Board. In the other the husband of the patient complained that the midwife herself applied forceps without a doctor being present. As this case was the first of its kind to be brought before the Board, it was decided to take no action although the charge was proved.

Two midwives were suspended from practice to prevent spread of infection and compensation was authorised in one case. In one instance legal proceedings were taken against the midwife by a local sanitary authority on account of her failure to notify a case of ophthalmia neonatorum. The midwife was fined one pound and £3 3s. costs.

Uncertified women,

By Section 1 (2) of the Midwives Act 1902 it has been illegal since March, 1910, for any uncertified woman habitually and for gain to attend women in childbirth except under the direction of a registered medical practitioner. During the year enquiries were made into 21 cases in which it was alleged that a delivery had been conducted by an uncertified woman. In seven of these no further action was taken; 13 cases were dealt with by a verbal or written caution and in one case legal proceedings were instituted, but the Council failed to obtain a conviction.

Still-births.

During the year, 720 still-births were reported by midwives in their practice. The figures for previous years were: 1918, 535; 1919, 686; 1920, 896; 1921, 684. Of these infants 398 were males, 315 females and in 7 cases the sex was not stated. Of the 720 still-births, 400 were reported macerated, 310 not macerated and there was no statement with regard to the remaining ten.

Puerperal fever.

During the year 311 cases of puerperal fever were reported, of which 91 proved fatal, a case mortality of 29 per cent. In addition to these cases the Registrar General records 31 deaths from puerperal sepsis, which were, however, not notified as puerperal fever. The distribution of the notified cases was as follows:—

Delivery conducted by	*Cases.*	*Deaths.*
(*a*) Medical practitioners	117	33
(*b*) Certified midwives	116	29
(*c*) Medical practitioner and certified midwife	7	2
(*d*) Hospitals and Poor Law institutions	60	23
(*e*) Cases of miscarriage or abortion where no attendant was engaged	11	4
Total	311	91

Medical aid.

The rules of the Central Midwives Board provide that in certain emergencies, which are specifically enumerated, a midwife must advise in writing that medical help be summoned and must also see that such help is obtained. The form on which this advice is given is sent to the doctor and a copy must also be sent forward to the local supervising authority. During the year 6,804 of these notices were received, as against 7,269 last year; assuming that approximately 44,000 confinements were conducted by midwives during the year it appears that medical aid was required in just under 16 per cent. of the cases, a precisely similar figure to that of 1921.

Ophthalmia Neonatorum.

There is no part of a midwife's activities on which the Council lays greater stress than a due observance of the rules of the Central Midwives Board dealing with inflammation of the eyes; the midwife is bound to call in medical aid for this condition however slight it may be, and the case is at once followed up by one of the Council's medical inspectors. The borough medical officer is also informed in order that the health visitor may continue to keep the infant under observation after the midwife has ceased her attention. The Voluntary Nursing Associations render most valuable help in cases receiving domiciliary treatment.

The subject of in-patient hospital treatment for *ophthalmia neonatorum* came under notice during the year. In July a conference was convened by the Metropolitan Asylums Board with a view to considering what steps could be taken to bring about an extended use of the facilities offered at St. Margaret's Hospital. It was stated that about 25 per cent. of notified cases were sent into the hospital, whereas many more could be accommodated. Later in the year the Departmental Committee on the Causes and Prevention of Blindness referred to the matter in their report, giving it as their opinion that for various reasons, it would be better to have a few beds allocated to the treatment of *ophthalmia neonatorum* in some of the well-known teaching hospitals rather than concentrate all the cases, as is now done, in one institution. The whole subject is under consideration by the Council. The Departmental Committee also referred to the general scheme of control of *ophthalmia neonatorum* in force in London at the present time and expressed the view that these arrangements were satisfactory.

During the year 1,241 notices were received from midwives stating that medical assistance had been advised on account of inflammation of the eyes of infants, and in addition to these 86 other cases came to light in which either medical help was not called in by the midwife or in which she did not notify the Council of having done so. Of these 1,327 cases, 547 proved to be *ophthalmia neonatorm*. In addition 291 cases not occurring in the practice of midwives were notified, making a total for the year of 838 cases. The percentage occurring in the practice of midwives was thus 65·3. The Council's inspectors investigated all cases occurring in the practice of midwives. 514 cases were reported to be completely cured, 20 died. In three cases there was blindness of one eye and serious impairment of the vision in the other; in four cases there was slight impairment of one or both eyes; whilst in six instances the result could not be ascertained owing to the removal of the patients, who could not be traced. Ninety cases received in-patient hospital treatment at St. Margaret's.

Lectures to midwives.

These Classes which were arranged by the Council for the further instruction of midwives were well attended. The length of the course was shortened from nine to six months in order that the lectures should not extend into the spring and summer.

Lying-in homes.

The Council's action with regard to the registration of lying-in homes is dealt with later (see p. 104). During the year by-laws made under Section 18 of the L.C.C. (General Powers) Act, 1921, have received the approval of the Ministry of Health. The Council's women medical inspectors see that the by-laws are duly observed. No. 2 of the by-law requires the keeper of a lying-in home to provide a register wherein certain details must be recorded. Arrangements were made for a form of register to be prepared and placed on sale through the Council's publishers.

The question of providing separate nursing for medical or surgical cases in mixed homes in which maternity cases are also taken has been under consideration. Considerable enquiry was made into the subject during 1922 and the practice obtaining at mixed homes of varying grades of up-keep was investigated. It appeared, however, that all necessary precautions were taken to prevent cross-infections, and as regards the actual incidence of puerperal fever there was no evidence to show that those homes which were kept solely for the use of maternity patients had a better record than the others. In these circumstances the Council decided that no further action should be taken at present.

Work of the Chemical Branch.

The work of this branch was carried out at four laboratories, viz., the Central Laboratory at the County Hall, the Greenwich generating station and the northern and southern outfalls.

Central laboratory.

During the year a large number of samples submitted by departments of the Council have been examined, in most cases as to their compliance with specified conditions or general suitability for use; among these were 190 of building materials, 205 of coal, 42 of disinfectants, 66 of foods, 23 of metals, 227 of oils, 104 of paints and colours, 128 of petrol (under the Petroleum Acts), 450 of seeds, 1 stomach contents for detection of poison. Analyses were made of 137 gases used in connection with dry-cleaning and degreasing plant in use in London. In connection with the supervision of dietary of necessitous children in Council's schools, 1,074 samples of milk and 52 complete meals were examined.

In addition to the examination of samples,the staff at the laboratory carry out analytical work in connection with a variety of investigations, principally connected with the materials in use in various branches of the Council's activities.

Destruction of lice.

Further investigations have been carried out with a view to finding a rapid and efficacious means of cleansing the heads of verminous children. After discussion of the problem with the late Mr. A. Bacot, laboratory experiments with various mixtures were carried out and the actual operation of cleansing was studied in a cleansing station. A mixture containing wood tar oil as its active ingredient, diluted with paraffin and scented with lemon grass oil to mask the odour of the paraffin, was found to be effective and not unpleasant. Later a suitable proportion of cotton-

seed oil was added to facilitate the removal of the excess of mixture by shampooing with soap mixture. Experiments on individual hairs showed that borax was effective in loosening nits from hair so that they could easily be removed by combing or even by sliding down the hair between the fingers. Determination of the breaking strain of several treated and untreated hairs showed that borax did not weaken the hair or seriously affect its elasticity.

Specifications for the cleansing mixture.

The tar oil cleansing fluid now in use and the borax soft soap mixture for the subsequent shampoo are prepared as follows :—

Cleansing fluid.		*Borax shampoo.*	
*Paraffin oil	74 volumes.	Soft soap	2 pounds.
Cotton-seed oil ..	20 volumes.	Borax	4 ounces.
Oil of lemon grass ..	1 volume.	Water to make up to one gallon.	
†Tar oil	5 volumes.		

Concrete. Linear expansion.

A long series of experiments on the expansion after setting of concrete has been carried out at the request of the Council's architect. Measurements made on bars of concrete, made with clinker as an aggregate, some of which were kept under observation for more than a year, showed that both calcium sulphide and unburnt coal had a very marked effect in causing expansion or even disintegration. It did not appear that iron sulphide in any form contributed materially to the expansibility or disruption of concrete. Expansions of the order of 1 to 2 per cent. of the length of the bar were obtained with concretes containing calcium sulphide or coal, whilst the greatest expansion obtained with iron pyrites was about $\frac{1}{4}$ per cent.

Greenwich Generating Station Laboratory.

The work of the laboratory at the Greenwich generating station comprises :— (1) The daily examination of samples and materials for controlling the operation of the water-softening plant, the blowing down of boilers, condenser leakage, and the purity of condensed water supplied to the Station batteries ; (ii.) the sampling, preparation and examination of fuel (coal); (iii.) the preparation and examination of fuel ashes, the analysis of flue gases, boiler scales, stores, etc., and investigations connected with corrosion and other troubles incidental to the operation of the Station plant.

Outfalls.

At the Outfall Laboratories, the systematic daily examination of sewage treated and the resulting effluent and sludge, as well as the water of the river Thames at both high and low tides, has been continued, in addition to the other work which is carried out in connection with these laboratories.

Biological treatment of sewage.

During 1922 the plant erected by the Activated Sludge Company has been in more or less continuous action. Stoppage has on several occasions been necessitated by defects arising in the sewage pumping or air compression plant. It has been found generally, that a clear but not colourless effluent, containing relatively little oxidisable organic matter, can be obtained by the aeration of a continuously flowing mixture of sewage and activated sludge in certain ascertained proportions, the mean period of stay in the aerating tanks being about 7 to 8 hours and the period for settlement being 2 hours, making the whole period from entry of sewage to escape of effluent over the measuring notch about ten hours. The production of nitrates which occurs if for any reason the flow of sewage is interrupted for a prolonged period almost entirely ceases when continuous flow is again started. Experimental work has been started and is in progress on the actual sequence of changes occurring in mixtures of activated sludge and sewage.

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* The paraffin oil should flash at well above 73° F. There is no difficulty in obtaining oil of fairly high flash point now that the lower boiling fractions of petroleum are in demand for motor spirit.

† A yellow to reddish-brown liquid with characteristic smoky-acid odour, specific gravity 0·93 to 1·00 at 15·5° C. One hundred cubic centimetres on distillation shall yield not less than 90 c.c. of a distillate containing from 16 to 20 per cent. of tar acids and from 1 to 6 per cent. of acetic acid, at a temperature not exceeding 300° C.

The plant for the other two processes forming part of the general investigation namely, treatment of mixtures of sewage and activated sludge by mechanical agitation and by spraying, has been designed and constructed. It is expected that during the current year these processes will be in continuous action alongside the plant already referred to.

River Thames.

In connection with the examination of the water of the river Thames, the seasonal prevalence of super-saturation with dissolved oxygen of the water of the estuary of that river has formed the subject of a paper in the Biochemical Journal by the Medical Officer (General Purposes) and the Chemist, in which the phenomena and their causes are discussed fully. It is shown that a marked, sometimes very great, excess of oxygen in solution is observed annually in the Spring. Theoretical considerations and evidence based on observations, on the prevalence of green growths in the water and determinations of hydrion concentration, point to the conclusion that photosynthesis is mainly responsible for the seasonal excesses of dissolved oxygen. Besides indicating the source of the excess of oxygen, the authors show, by argument based on the known conditions of heterogeneous equilibrium and by actual experiments with waters containing upwards of three times the proportion of oxygen proper to water saturated with atmospheric air, that even with fairly vigorous agitation, supersaturation persists for some time and, in still water, for a very long time. These experimental results were consistent with the observation that supersaturation was most often associated with quiet atmospheric conditions.

This phenomenon of a seasonal supersaturation by oxygen of the water of the Thames Estuary was an unexpected discovery, as a result of the systematic examination which has been carried on for many years in connection with the observations of the results of sewage effluent entering the Thames. Were no unoxidised matter to enter the tidal waters of the Thames there would, during the period of seasonal prevalence, continuously flow through the heart of London water surcharged with oxygen, brought up from the sea on the flood and from the upper river on the ebb. In its passage this supersaturated water would, as a result of the agitation associated with its flow, set free this newly-formed oxygen which, by the mechanical action of the tides, would be forced into the streets in the neighbourhood of the river.

It has been found that considerable shoaling has taken place in the Edinburgh Channel in the estuary, and this shoaling has been attributed to the practice of depositing dredged material, sludge, etc., in the Black Deep. The Board of Trade, in informing the Council of this, stated that it had been decided to close the Black Deep area and, as a temporary measure, to open a new deposit area in the Middle Deep. A conference was subsequently called by the Board of Trade, at which the Council, the Admiralty, the Corporation of Trinity House, the Port of London Authority and the Ministry of Agriculture and Fisheries were represented. The Medical Officer (General Purposes) attended this conference, at which it was agreed that the best solution practicable was to move the present area in the Black Deep about one mile N.E. of its existing position. Action has now been taken on this decision.

The condition of the river generally during the year showed the lasting effects of the great drought of 1921. During the winter period, November, 1921–April, 1922 inclusive, a stretch of water observed to be over 32 miles, probably about 35 miles in length, extending up to Waterloo Bridge or higher, contained on the average less than 50 per cent. of the dissolved oxygen required for saturation. In the summer period, May to October, 1922, a similar stretch of water extended nearly as far downwards and certainly much further towards Teddington.*

* It was not until well into 1923 that increased fresh water flow materially shortened, by dilution and propulsion, this region of greatly reduced aeration and dispersed a smaller region where the average dissolved oxygen content was 10 per cent. or less of that required for saturation.

River Lee

Attention was directed to unpleasant conditions in the river Lee in the neighbourhood below Tottenham Lock.

During May last, an inspection was made of the river Lee Navigation from Tottenham Lock to Lee Bridge. It was observed that there was but little offence above Tottenham Lock. Running beside the Lee, however, and to the west of it, is the intercepting ditch which carries the water of the Pymmes Brook, which is largely sewage effluent; it was foul and bubbling, but there was an appreciable current of water. Below the Lock, this intercepting ditch discharges into the Lee and the stretch of water from this point for some two miles was almost stagnant. Bubbling was conspicuous and a sour unpleasant smell was observable. The surface of the water is so thickly covered with débris and fermenting matter from the river bottom as to retard the movement of boats and barges.

Below Lee Bridge the waterway divides; the left-hand or eastward branch (the Lee proper) skirts round Hackney Marsh, where it forms the county boundary, and there was a distinct current though, as the stream was very shallow, but a small volume of water was being carried down; The right-hand branch is the Hackney Cut Navigation and is much more stagnant and foul than the left-hand branch. The river is largely used for boating, and two bathing parties were seen. The conditions were quite unsuited for either bathing or boating.

Other rivers flowing through the county.

During 1922, it has been found necessary to give further attention to the river Wandle. This river receives large volumes of sewage effluent from two sources and is used as cooling water at the power station of the L.S.W.R. immediately before it enters London. The opening of the penstocks by mill-owners, and the cleansing of the bed of the river by the Council, has alleviated the conditions, but little real improvement can be hoped for until some time after the new work, being carried out by the Wandle Valley Joint Sewerage Board, is completed.

Lewisham rivers—Ravensbourne and Pool.

Attention was also drawn to the state of the Ravensbourne, and its tributary, the Pool, which, flowing from the S.E. and S.W. respectively, join near Catford Bridge and flow into the Thames at Deptford Creek. A topographical and chemical examination showed that, although both rivers are used to an undesirable extent as receptacles for disused metal and earthenware vessels, etc., neither was in an offensive condition, although there were indications in the water of the Pool river of contamination with sewage or similar matters. The mineral content of the water of this river is much greater than that of the Ravensbourne.

Hertford sewage.

Attention was drawn to the discharge of sewage effluent from the Hertford Sewage Works into the Manifold Ditch. Arrangements were made for the Manifold Ditch to be inspected and for samples of the water to be analysed by the Council's Chemist, who reported that chemical and topographical considerations alike pointed to the water of the Manifold Ditch as being unfit for discharge into a river—especially a small one—above a drinking water intake. These conclusions were transmitted to the Lee Conservancy Board, who, in thanking the Council, stated that pressure was being brought to bear upon the Hertford Corporation to carry out its proposed new sewage works.

Inter-Departmental Committee on the Thames and Lee Conservancies.

On the 29th June, 1922, the Council's Medical Officer of Health gave evidence before the Inter-Departmental Committee of the Ministries of Transport and Health on the Thames and Lee Conservancies as to the conditions of the river Lee below Tottenham Lock down to Lee Bridge, with special reference to the inspection of the stream referred to above, dealing with it principally from the point of view of the possible effect upon the health of the inhabitants of East London.

TABLE I.

COUNTY OF LONDON.

Vital statistics for the several metropolitan boroughs and the County of London in the year 1922. (Rates per 1,000 of civil population.)

Metropolitan boroughs. (Arranged in topographical order.)	Estimated civil population, 1922.	Births.	Deaths.	Infant mortality (per 1,000 births).	Measles	Scarlet fever.	Diphtheria.	Whooping cough.	Typhoid fever.	Diarrhœa and Enteritis, age 0–2 (per 1,000 births).	Phthisis.	Cancer.	Small-pox	Cases of notifiable infectious disease.							
														Scarlet fever.	Diphtheria.	Typhoid fever.	Erysipelas.	Puerperal fever (per 1,000 births).	Cerebro-spinal fever.	Acute pneumonia.	Small-pox.
Western.																					
Paddington ...	145,300	18·8	13·0	70	·23	·02	·17	·08	·01	8·8	·84	1·37	—	3·67	2·91	·06	·58	2·93	·01	2·36	—
Kensington ...	179,100	17·6	13·6	84	·32	·03	·19	·16	·01	9·5	·80	1·49	—	2·75	2·32	·10	·25	3·17	·01	1·05	—
Hammersmith ...	134,400	20·5	12·9	71	·26	·08	·36	·30	·03	4·7	1·06	1·40	—	3·71	3·25	·10	·29	3·26	·03	1·15	—
Fulham	159,500	20·3	12·1	69	·26	·10	·21	·16	·03	9·3	1·02	1·30	·01	3·93	2·77	·10	·60	9·56	·01	1·87	·01
Chelsea	63,920	16·7	13·5	65	·17	·09	·25	·17	—	3·7	·77	1·61	—	3·06	1·95	·06	·27	3·74	·06	1·08	—
Westminster, City of	139,390	13·3	12·9	55	·08	·02	·18	·04	·01	3·7	1·05	1·70	—	1·88	2·18	·09	·27	2·66	·03	·35	—
Northern.																					
St. Marylebone ...	105,200	16·0	13·8	68	·29	·04	·27	·16	·02	10·7	·94	1·71	—	3·32	2·74	·12	·52	1·79	—	1·08	—
Hampstead ...	86,920	14·8	11·2	56	·07	·02	·22	·02	·03	4·7	·60	1·55	—	3·13	2·78	·09	·21	1·55	·01	1·14	—
St. Pancras ...	212,500	21·5	14·6	74	·50	·09	·21	·14	·00	7·7	1·23	1·45	·00	5·53	3·46	·07	·56	2·41	·02	2·59	·00
Islington	333,900	22·6	13·9	76	·42	·09	·17	·30	—	9·5	1·13	1·29	—	4·49	3·40	·03	·40	2·38	·00	·47	—
Stoke Newington ...	52,620	17·8	13·6	67	·06	·08	·13	·04	—	4·3	·80	1·41	—	3·03	1·89	—	·23	6·40	·02	·51	—
Hackney	225,400	21·0	12·8	73	·22	·05	·12	·30	·00	10·5	·94	1·33	—	3·04	3·28	·02	·28	2·11	·02	·22	—
Central.																					
Holborn	42,850	15·5	13·3	72	·16	·05	·09	·14	—	9·0	1·00	1·35	—	3·98	2·71	·09	·33	1·51	·02	1·52	·02
Finsbury	76,840	25·2	16·3	82	·39	·07	·42	·30	·01	4·7	1·37	1·46	—	4·52	4·91	·05	1·59	3·62	·04	1·08	—
London, City of ...	13,650	10·8	14·1	61	·07	—	·29	·15	—	—	1·39	1·76	—	2·42	3·16	—	·29	—	—	·59	—
Eastern.																					
Shoreditch	105,800	28·0	16·3	103	·82	·06	·25	·27	—	12·2	1·44	1·00	—	3·35	4·25	·05	·51	3·04	·01	3·68	·02
Bethnal Green ...	118,400	25·2	15·3	91	·84	·05	·28	·70	·02	9·4	1·59	1·12	·01	3·05	4·57	·03	·48	3·69	·04	1·10	·01
Stepney	252,170	23·8	14·1	80	·27	·04	·32	·49	·00	10·8	1·30	1·10	—	2·54	3·36	·12	·37	3·83	·04	2·22	·02
Poplar	165,700	26·7	14·3	79	·39	·04	·36	·56	—	5·4	1·09	1·13	·10	2·51	3·79	·06	·42	3·85	·03	3·61	·31
Southern.																					
Southwark	187,220	24·4	15·6	79	·77	·10	·33	·34	·01	5·0	1·37	1·11	—	4·30	4·01	·02	·77	3·72	·02	2·09	·01
Bermondsey ...	121,100	26·9	16·9	100	·84	·10	·77	·58	·01	7·1	1·35	1·17	—	5·44	9·22	·03	·41	2·15	·04	1·94	·02
Lambeth	307,000	20·7	13·8	77	·23	·07	·17	·20	·03	6·9	1·08	1·54	·00	4·39	2·11	·06	·38	4·87	·02	·90	·00
Battersea	169,200	21·7	13·2	69	·39	·08	·34	·13	·01	4·9	1·01	1·33	—	4·55	4·22	·05	·39	4·09	·01	3·02	—
Wandsworth ...	334,900	16·4	11·3	62	·22	·06	·22	·14	·01	4·5	·87	1·34	—	3·78	2·56	·06	·33	3·09	·02	1·96	—
Camberwell ...	270,300	21·5	13·5	78	·36	·10	·22	·32	·01	7·1	1·08	1·23	—	3·98	3·07	·04	·39	1·72	·01	1·10	—
Deptford	114,100	23·1	13·8	74	·52	·10	·34	·31	·02	4·2	1·17	1·28	—	4·81	3·97	·06	·69	2·66	·02	1·10	·01
Greenwich	102,000	20·9	12·9	57	·29	·06	·40	·11	—	1·9	1·20	1·17	—	5·84	6·84	·03	·42	2·81	·03	1·59	—
Lewisham	176,600	18·2	11·2	55	·10	·07	·17	·08	·01	5·9	·78	1·44	—	3·51	2·54	·03	·35	1·56	—	·96	—
Woolwich	138,250	20·7	11·6	63	·15	·08	·26	·14	·01	2·4	1·18	1·20	—	3·74	3·24	·05	·25	3·74	·01	2·33	—
London	**4,534,230**	**20·9**	**13·5**	**75**	**·34**	**·07**	**·25**	**·25**	**·01**	**7·1**	**1·08**	**1·33**	**·00**	**3·81**	**3·38**	**0·6**	**·43**	**3·28**	**·02**	**1·56**	**·02**

TABLE II. COUNTY OF LONDON. Statistics of the administrative work carried out during the year 1922.

Sanitary Authority.	Cow-sheds.		Slaughter-houses.		Offensive Trades.		Smoke nuisances.			Under-ground rooms.		Over-crowding.		Houses let in lodgings.			Common lodging houses.		Cleansing of persons and rooms.			Water supply	Milk-shops.		Ice cream premises.		Other food places.	
	No. licensed.	No. of inspections.	No. licensed.	No. of inspections.	No. licensed.	No. of inspections.	Observations.	Complaints.	Notices.	No. illegally occupied.	No. closed or otherwise remedied.	Instances found.	No. remedied.	No. on register.	No. of inspections.	Prosecutions.	Houses licensed.	Authorised lodgers.	Adults.	Children.	Premises or rooms.	Tenement houses extra supply.	No. on register.	No. of inspections.	No. on register.	No. of inspections.	No. of places.	No. of inspections.
City of London ..	—	—	7	*	—	—	115	11	—	—	—	1	1	142	Periodical	—	1	455	27	1,084	5	—	557	94	290	47	943	1,157
Battersea ..	1	2	2	311	3	10	130	18	13	3	3	8	8	85	165	—	3	201	274	4,444	3,737	31	130	319	148	336	238	1,657
Bermondsey ..	—	—	1	30	13	36	11	—	7	—	—	—	—	223	446	—	3	853	35	—	3,407	31	312	897	131	169	358	4,562
Bethnal Green ..	12	61	3	25	1	—	41	10	6	3	3	17	17	209	908	—	7	388	30	—	3,617	—	216	807	139	343	291	1,673
Camberwell ..	1	4	5	88	2	25	21	2	2	—	—	14	4	318	122	—	5	438	89	3,273	124	—	450	1,164	321	460	276	649
Chelsea	—	—	3	75	—	—	8	—	—	—	—	4	4	—	—	—	3	208	—	99	621	1	68	116	17	47	76	100
Deptford.. ..	—	—	2	62	4	39	22	4	4	—	—	46	6	289	578	—	4	1,088	—	1,927	1,631	—	153	421	114	264	121	519
Finsbury.. ..	—	—	2	63	1	29	33	17	4	—	—	2	2	984	3,826	—	1	98	—	—	127	1	147	154	85	91	240	264
Fulham	—	—	2	60	—	—	73	10	10	—	—	—	9	—	—	—	2	94	—	—	6,619	7	127	381	216	201	73	117
Greenwich ..	3	9	4	40	3	4	16	8	—	2	2	8	8	—	—	—	2	90	11	957	14	20	90	127	121	137	180	932
Hackney ..	9	113	19	287	—	—	117	36	20	—	—	24	8	459	—	—	4	313	73	1,868	32	1	269	1,495	186	186	129	163
Hammersmith ..	—	—	7	202	—	—	128	28	25	1	1	19	11	2,496	542	—	1	292	—	—	143	9	81	1,813	114	181	Not stated	3,479
Hampstead ..	—	—	2	44	—	—	72	1	—	20	20	8	8	—	—	—	—	—	13	1,469	45	117	88	261	68	150	594	1,683
Holborn	—	—	1	6	—	—	385	12	20	3	3	6	6	591	832	4	14	1,093	120	—	55	4	154	159	85	207	238	2,419
Islington ..	4	31	17	982	9	67	209	46	9	5	5	10	10	1,012	8,459	4	23	805	19	4,243	4,928	92	623	710	242	95	818	17,590
Kensington ..	—	—	6	284	—	—	542	9	2	11	11	13	13	2,169	6,744	16	9	463	210	3,547	1,420	53	168	808	185	123	809	1,004
Lambeth.. ..	3	9	12	144	3	48	126	10	84	4	4	34	34	372	4,464	—	4	415	—	—	352	175	355	2,130	165	495	6	6
Lewisham ..	9	53	9	86	—	—	18	4	4	—	—	18	18	3	24	—	—	—	—	—	66	—	132	290	—	—	Not stated	Not stated
Paddington ..	1	4	4	233	—	—	440	12	7	3	3	10	9	1,404	6,507	19	3	165	—	—	336	19	95	267	125	163	422	1,272
Poplar	10	51	9	48	5	36	23	77	50	—	—	17	17	1,450	8,967	—	6	972	126	1,759	542	—	120	420	107	252	362	1,082
St. Marylebone ..	2	50	3	140	2	70	218	12	4	18	18	8	8	1,147	10,331	—	5	763	3,999	3,305	950	37	144	350	128	160	403	1,441
St. Pancras ..	2	15	8	133	2	73	775	62	7	3	3	23	11	2,365	5,282	—	2	78	943	5,558	1,790	8	203	844	268	412	Not stated	4,706
Shoreditch ..	2	24	3	47	1	1	94	24	4	—	—	41	12	295	1,623	—	5	324	2	—	8,089	—	219	1,792	77	215	207	1,001
Southwark ..	—	—	5	50	2	6	18	7	4	2	2	77	77	1,313	1,447	12	23	2,786	626	4,032	25,040	23	303	1,644	167	311	428	1,768
Stepney	24	92	3	9	8	28	377	39	24	9	9	54	52	2,512	3,315	2	27	3,871	351	1,042	2,588	2	430	1,409	200	365	443	1,034
Stoke Newington	1	—	4	87	—	—	12	3	—	—	—	3	3	259	259	—	—	—	—	424	218	12	68	68	12	24	256	480
Wandsworth ..	3	12	9	122	5	53	49	20	20	—	—	48	48	292	545	—	6	173	193	2	11,312	—	238	561	324	366	872	1,599
Westminster ..	1	2	—	—	—	—	1,795	31	80	4	4	20	10	1,150	3,000	2	4	1,538	245	672	351	53	473	1,211	150	200	6,000	1,500
Woolwich ..	12	66	8	23	—	—	23	5	—	2	—	2,559	55	422	273	—	13	403	16	1,887	181	1	78	211	224	519	115	633

NOTE.—In the columns above a dash signifies a nil return.

Common lodging houses, licensed number, 180; lodgers, 18,367; visits—day, 10,265, night, 293; prosecutions, 1; penalties and costs, £3.
Seamen's lodging houses, licensed number, 44; Bermondsey, 7; Deptford, 1; Poplar, 9; Stepney, 27; lodgers, 1,180. Visits—day, 1,168; night, 138.
Prosecutions—*Smoke Nuisances*: Poplar, 2; Hackney, 1; St. Pancras, 1; Lambeth, 1
Water Supply: Southwark, 6; Hammersmith, 1.
Overcrowding: Southwark, 1; Hampstead, 1; Holborn, 1; Paddington, 1; Bethnal Green 1; Chelsea 1.
Milkshops: Hackney 2; St. Pancras 4; City 4; Chelsea 1; Finsbury 2.

* Continuous supervision during slaughtering.

TABLE III.

TUBERCULOSIS DISPENSARIES—ANALYSIS OF RETURNS JAN.–DEC., 1922.

1	2		3		4		5				6		7		8	9		10	11	12
Borough and dispensary.	Under observation on 1-1-1922 pending diagnosis.		Examined for first time during 1922, including contacts.		Number of contacts included in (3).		Number included under (3) suffering from				Numbers included under (3) found to be non-tuberculous.		Under observation on 31st December, 1922, pending diagnosis.		Total attendances, including col. 3.	Visits to homes by		Home consultation with practitioners.	References to affiliated hospitals.	Specimens of sputum examined
							Pulmonary.		Non-pulmonary.											
	dults.	Children.	Adults.	Children.	Adults.	Children.	Adults.	Children.	Adults.	Children.	Adults.	Children.	Adults.	Children.		Tuberculosis officer.	Dispensary nurse.			
City of London	79	35	174	63	15	26	83	6	5	4	154	82	5	4	2,081	5	591	3	84	196
Battersea	*	—	462	380	84	200	140	10	7	31	254	301	52	36	4,910	238	7,048	26	177	925
Bermondsey	*	—	405	632	111	491	124	26	10	22	181	487	8	15	5,985	103	4,399	34	96	662
Bethnal Green	16	1	401	284	176	215	101	3	11	25	277	253	11	2	4,375	122	1,679	22	146	641
Camberwell	*	—	883	773	309	452	285	28	35	48	494	680	69	17	10,587	947	4,382	25	213	1,474
Chelsea	110	115	275	232	31	57	46,	4	4	4	285	311	38	24	3,268	36	3,378	—	—	957
Deptford	*	—	332	299	80	151	102	4	5	16	205	269	16	9	4,559	427	3,343	8	—	780
Finsbury	56	74	231	137	80	97	101	8	8	11	164	172	9	15	4,147	281	2,720	—	12	260
Fulham	31	22	469	403	96	215	163	13	12	34	315	368	9	5	6,210	1,227	5,447	37	4	1,493
Greenwich	9	11	366	429	164	301	128	26	13	22	223	383	11	9	8,227	287	6,008	247	—	299
Hackney (Vic. Pk. Hpl.)..	15	2	381	259	158	205	119	1	18	17	226	239	8	—	5,752	126	2,310	20	125	708
,, (Metro. Hpl.) ..	41	10	218	130	95	98	73	4	3	10	164	117	10	9	2,919	29	2,643	5	89	372
Hammersmith	19	16	371	286	58	151	143	16	9	11	228	255	7	12	3,305	128	3,413	27	8	525
Hampstead..	16	15	250	195	94	129	71	—	13	28	167	170	12	7	1,738	62	1,943	12	—	185
Holborn	10	3	65	51	21	30	29	4	3	4	27	37	15	9	824	15	1,709	4	9	146
Islington (R.N. Hpl.) ..	*	—	366	234	90	178	150	2	12	19	197	210	7	3	3,297	215	1,222	4	35	340
,,¶ R. Ch. Hpl.) ..	72	31	404	178	101	117	224	8	4	9	232	183	10	5	6,660	373	2,398	2	13	518
Kensington (Lad. Gr.) ..	69	49	359	248	81	102	99	7	8	38	259	209	27	19	1,743	106	2,450	4	—	552
,, (Brompton) ..	42	58	96	52	9	13	23	—	2	12	73	84	35	14	1,311	4	604	—	—	64
Lambeth (Cent.)	94	82	369	145	82	54	128	9	12	11	187	152	57	29	5,303	120	1,792	—	143	651
,, (St. Thomas's)..	†—	—	505	114	68	46	157	1	13	23	315	86	15	2	5,196	—	1,952	—	462	453
Lewisham	6	7	403	255	105	140	155	10	19	24	223	217	6	3	3,028	367	2,873	12	5	102
Paddington (Talbot Rd.)	47	89	328	238	123	96	78	6	8	20	230	215	59	81	5,114	415	2,502	27	18	156
,, (St. Mary's)	4	6	167	116	57	69	43	1	14	25	103	81	9	4	4,984	71	1,123	6	126	116
Poplar	641	779	803	938	186	343	196	30	9	12	400	664	839	1,001	7,333	169	8,046	10	16	1,013
St. Marylebone	79	150	214	113	18	57	79	15	3	13	168	115	43	120	3,643	420	1,736	10	7	353
St. Pancras (Oakley Sq.)	22	28	309	166	59	80	124	10	10	27	138	110	37	19	3,675	175	364	2	—	883
,, (Malden Rd.)	1	12	44	47	11	26	10	3	1	5	26	38	7	1	587	18	59	3	—	104
,, (U.C. Hpl.) ..	*—	—	105	35	10	16	57	3	3	12	34	18	12	5	1,474	10	752	2	19	196
Shoreditch	63	28	393	283	111	177	176	11	6	12	240	266	23	17	7,121	343	2,715	—	16	432
Southwark	67	17	706	543	212	363	238	35	13	48	485	469	22	8	5,636	39	3,322	3	4	529
Stepney (Green)	89	171	740	689	441	485	179	84	15	31	581	660	38	44	5,864	181	2,321	11	42	368
,, (St. G.-in-the-E.)	29	57	353	357	140	334	77	17	6	19	265	342	13	25	2,750	228	1,180	20	19	291
,, (Whitechapel) ..	103	215	408	308	277	246	71	36	3	14	417	441	20	32	3,145	248	1,880	—	29	289
Stoke Newington	12	7	132	55	43	37	47	1	6	5	76	53	7	3	1,544	16	698	5	39	217
Wandsworth	21	14	772	586	188	301	238	8	26	33	510	550	12	9	8,222	390	3,658	24	43	1,310
Westminster	3	5	253	168	77	106	109	9	9	15	126	140	4	3	3,275	315	4,995	181	37	327
Woolwich	*—	—	594	577	136	226	151	19	14	11	430	575	21	25	8,607	755	4,597	72	—	658

* Numbers of cases under observation on 1st January, pending diagnosis not available.

† 72 undiagnosed cases at the end of 1921 and, of these, 50 cases approximately were carried forward into 1922, but no records are available as to these cases and when they were diagnosed.

CHAPTER XXIV.

REPORT OF THE SCHOOL MEDICAL OFFICER (SIR WILLIAM HAMER) FOR THE YEAR 1922.

Introductory Note.

During the year under review, 1922, many quite exceptional though in some instances opposing factors were operative in determining on the one hand retardation, or on the other acceleration, of progress in respect of health conditions in the London schools. The year opened with a considerable prevalence of infectious disease in London. In the second week of January the deaths from influenza were 551, and were thus higher than those recorded in any single week for nearly two years previously. Moreover, prevalence of throat maladies, scarlet fever, and diphtheria, followed in 1921 at the usual interval of seven years upon the preceding waves, which had culminated in 1907 and 1914. After attaining the 1921 maximum, the numbers suffering from these diseases, and particularly from diphtheria, remained at an unwontedly high level throughout the early months of 1922. The time too, in the spring of 1922, was ripe for the appearance of the usual periodical measles wave, and the maximum mortality from this disease (115 deaths) was attained in the 14th week of the year. Whooping cough was also during the early months of 1922, unwontedly prevalent.

Certain social conditions were unfavourable in 1922. The rise in unemployment, which had followed upon the coal strike of April–June, 1921, and other trade disputes later in that year, raised the proportion of unemployed persons to a quite exceptionally high level in October, 1921 ; and then, after a slight fall in November, and December, the curve showing unemployment was once more very notably raised by the engineering lock-out of March to June, 1922, and it remained unprecedentedly high throughout the year.

Administrative difficulties were, furthermore, accentuated by the fact that, following upon the report of the Government Committee appointed in 1921 on national expenditure, detailed consideration was devoted to the possibility of retrenchment. The main change affecting medical work in the schools was that consequent on the discontinuance of compulsory day continuation schools to which reference is made on p. 58. Again, in the first six months of the year there was a falling off in attendances at the treatment centres, partly due to unemployment, and partly to other causes referred to later (see p. 69).

Three particularly satisfactory influences remain to be mentioned, which may clearly be regarded as redeeming the time. Thus, there was notable activity with regard to " following up " in 1922, in continuation of the progress in this respect already apparent during immediately preceding years ; in particular, the cumulative effect of the work at the treatment centres relating to tonsils and adenoids and to the care of the teeth, was at length becoming unmistakably apparent. As regards throat operations, the precedent of establishing a hospital as a war memorial was inaugurated by Lady Henry two years ago in South-East London ; and this was followed by the building by Mr. and Mrs. Kohnstamm of a new hospital in North-West London, which was almost completed at the end of 1922. In the second place, there was decided increase in the rate of progress made in respect to the personal hygiene of the children ; this was much facilitated by use of the new head cleansing stations sanctioned in 1921 by the Council, by an improved technique in the cleansing operation itself, by the abandonment of the objectionable practice of hair cutting, and by the acquirement of new legislative powers, obtained under the General Powers Act of last session, which remove difficulties formerly experienced in the work of cleansing homes and bedding, etc., carried out by borough councils. Finally, during

the spring of 1922, the Board of Education decided to make a comprehensive review of the work of medical inspection and treatment in London. In the light of certain suggestions made by the Board's officers, opportunity was taken to revise the agreements between the Council and Committees of Treatment Centres and by general consent important modifications were made (see p. 71).

Medical inspection.

During the year 199,812 children in the three statutory age groups were examined by the school doctors in elementary schools, and of these 75,874 were found to require treatment for one or more defects; 40,331 children approaching the age of 14 were examined in the first two terms of the year, but the examination of this group of children was discontinued upon the closing of the day continuation schools. A further 2,002 children in the age groups were inspected in the special schools, and 67,471 children not in the age groups were specially examined. In addition the school medical staff inspected 4,813 children for scholarship awards, and 17,742 children in connection with their specific defect in special schools. A detailed analysis of results by Dr. C. J. Thomas is given on pages 58 to 65.

Medical treatment.

The number of children treated under the arrangements made by the Council was 193,854, as compared with 212,579 in 1921. There was a decrease from 94,177 to 84,848 in the number of children treated for dental defects, which was no doubt largely due to conditions referred to above. Towards the end of the year, however, the numbers improved considerably. There was also a decrease of 6,823 in the number of children treated for ear, nose and throat defects. This is accounted for in part by the fact that the steady progress made during the past twelve years has reduced the number of children referred for treatment.

Re-inspections.

The number of re-inspections was 178,964. The combined results of first and second re-inspections showed that 77·7 per cent. of the cases reviewed had been dealt with, as against 78·2 per cent. in 1921. In view of the many difficulties which were experienced during the year, this result may be regarded as very satisfactory.

Personal hygiene.

In the London County Council (General Powers) Act, 1922, increased powers were given to the sanitary authorities for dealing with the homes of persons infested with vermin (including fleas, bugs, lice and itch mites). This will remove some of the difficulties which have hitherto been experienced owing to re-infestation due to bad home conditions. The school doctors' examinations show that there has been a considerable improvement in the cleanliness of the children during the year. The decline in the prevalence of scabies has continued, thus to some extent relieving the pressure at the cleansing stations, and enabling the staff to deal with increased numbers of verminous children.

Infectious diseases.

The behaviour of scarlet fever and diphtheria during the year was watched with great interest. The waves of prevalence of these maladies, which, speaking broadly, rise and fall coincidently, had swelled to a considerable height in the autumn of 1920 and a still higher level was attained in the autumn of 1921, when scarlet fever reached almost to the mark of the epidemic of 1893 and the diphtheria cases actually exceeded those of that year. In 1922, in accordance with the precedent of 1894 (the year after the maximum year in the great prevalence of nearly thirty years ago), the scarlet fever figures markedly fell and there was an almost complete absence of autumnal rise betokening apparently, in 1922 as in 1894, a considerable reduction in the number of susceptible children at risk. The decline last year in diphtheria was not so marked as in the case of scarlet fever and the London figures remained unusually high throughout 1922. The question arises as to how far the maintenance of this high level is due to the wide use of bacteriological methods of examination, for quite a number of notified cases showed no definite clinical signs of diphtheria; and how far to the inclusion of so-called "diphtheritic" sore throats, which may not have really been examples of true diphtheria.

London has in the recent prevalence suffered disproportionately from diphtheria in comparison with the rest of England and Wales, though the higher incidence upon London is much more marked as regards cases than in respect of deaths.

The influenza epidemic of 1921–22, which reached its maximum severity in the second week of 1922, caused about the same number of deaths as that of February–March, 1919.

The increased case-mortality from scarlet fever which was observed in the great influenza epidemics of 1918 and 1919, also occurred in the last epidemic, the case-mortality during its course being about twice the normal. There is some increase in the number of cases of scarlet fever notified during influenza epidemics, but this is not solely sufficient to account for the increase of deaths on the ground of confusion in diagnosis.

Some notes in relation to diphtheria by Dr. J. Graham Forbes are set out on p. 84; the facts as to measles, whooping-cough, smallpox and ringworm during 1922 are given on p. 86.

The results of medical inspection.

Number of children inspected. Routine inspection.

The number of elementary school children inspected in the three age-groups prescribed by the Board of Education was 199,812. These were made up by 33,083 entrant boys, 31,502 entrant girls, 33,514 eight-year-old boys, 33,151 eight-year-old girls, 34,647 twelve-year-old boys and 33,915 twelve-year-old girls. In addition 2,002 boys and girls of the age-groups were inspected in special schools.

In the two earlier terms of the year 20,138 boys and 20,193 girls were inspected on approaching the age of 14, but with the discontinuance of the continuation schools after the summer holiday the medical examination of this group was discontinued.

During the year 1922, therefore, 242,145 children in elementary and special schools were inspected in accordance with the official syllabus of the Board of Education. Further, 67,471 children were passed through the hands of the school doctors as special cases, nearly all outside the routine groups, making in all 309,594 children in elementary schools (allowing for a small number of children seen twice) inspected during the year.

Special inspections.

Number of ailing children.

75,874 children in the official age groups were found to be suffering from ailments for which treatment was considered necessary. This is a smaller percentage than obtained in any previous year, being 37·9 per cent., compared with over 39 per cent. in 1920 and 1921, over 42 per cent. in 1919 and 44 per cent. in 1918. In addition 23,150 children were referred for treatment as a result of special inspections. Eighty per cent. of parents attended the inspection of entrant children, but there is a falling-off of maternal solicitude in regard to the health of the older children and only 39 per cent. of parents attended in the case of twelve-year-old boys.

Attendance of parents.

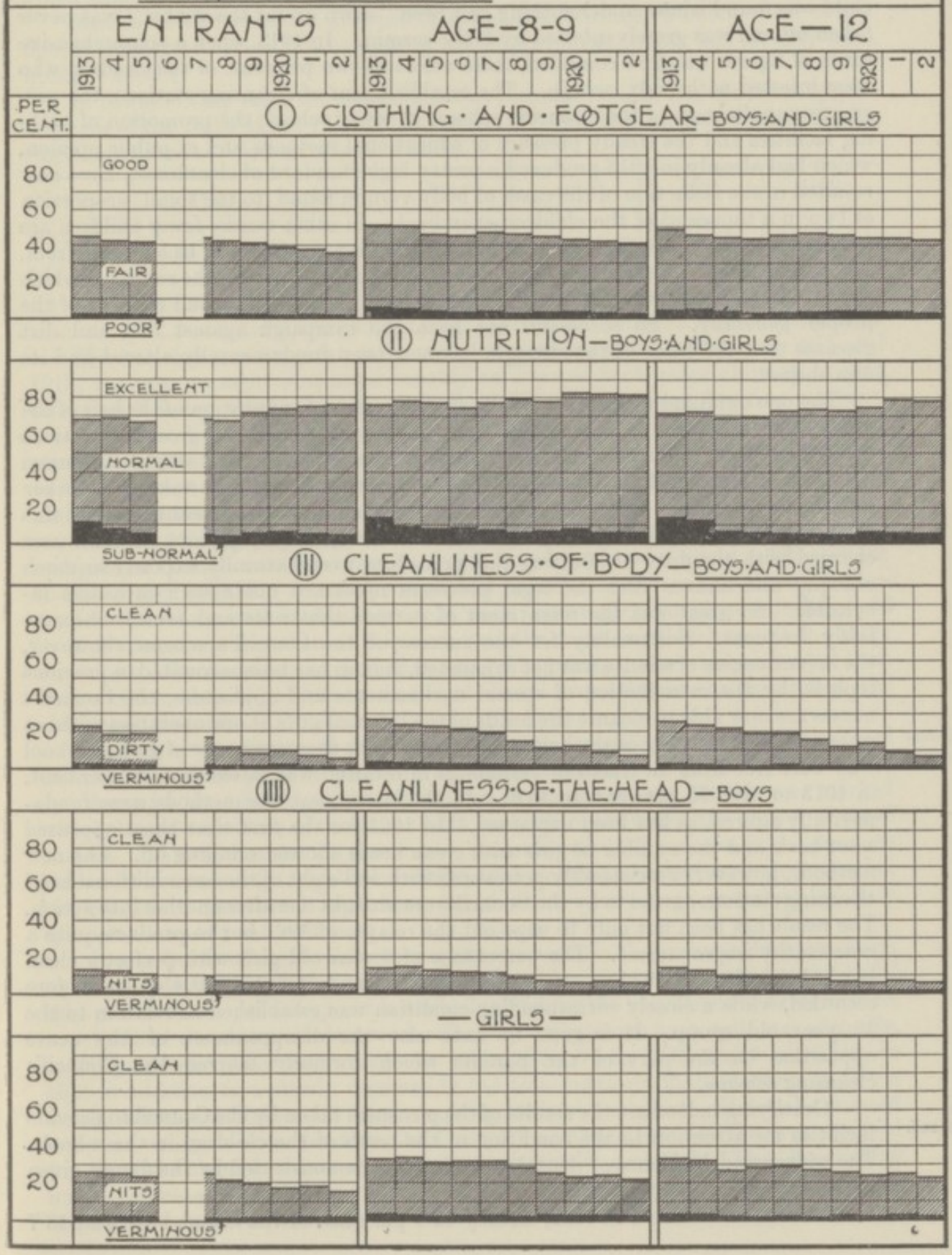
Nutrition.

Between five and six per cent. of the children were found in 1922 to be sub-normal in nutritional condition. The story of the reactions of economic conditions on the physical state of the children, as shown in the accompanying diagram, is very illuminating. The artificial prosperity during the war years produced a rapidly increasing improvement in the conditions, which was maintained until 1919. In 1920, however, this came to an end and in that year at each age group there was shown a rise in the number of children found to be under nourished. Remedial measures on the part of the community were at once brought into play; as a result of school feeding and unemployment allowances the number of under-nourished children showed again a reduction in 1921 and this improvement was maintained in 1922. Although the general measures established by the Government in a time of wide-spread unemployment are to be mainly credited with this result, there is no doubt that the children's care organisations working with the medical service in the schools, by concentrating effort upon particular children, also greatly contributed. Had it not been for these beneficent measures who can doubt but that the condition of the children would have receded to what it was in the days preceding the war, or even to a worse state than has hitherto been recorded. Instead, as the figures show, although the general nutritional state of the children is not so good as it was when the temporary war prosperity was at its height, the numbers of children actually suffering from under nourishment are now *even lower than they were during that time.*

LONDON — 1913-1922

DIAGRAM SHEWING GENERAL CONDITIONS FOUND AT ROUTINE MEDICAL INSPECTIONS OF SCHOOL CHILDREN

NOTE:- EACH SECTION OF THE DIAGRAM IS DIVIDED INTO AREAS REPRESENTING THE PROPORTION OF CHILDREN CLASSED IN THREE DIFFERENT GRADES



Cleanliness.

One of the chief concerns of the School Medical Service is the preservation and improvement of the personal hygiene of the children in the schools. The steady fight which has been maintained by the school nurses, aided by the teachers and the school doctors during the last twenty years against dirt and verminous conditions, has been rewarded by a considerable measure of success. In the earlier years the fight was with conditions of gross infestation. Officers and teachers old in the service all remember that when medical inspection was first established, the conditions revealed when the children were undressed in school were indescribable. Child after child was found whose underclothing had been " sewn up for the winter," was never taken off and was grossly infested by body vermin. In 1913, when a comprehensive series of figures was first compiled, there were still two per cent. of the children who were infested with body vermin. The establishment of cleansing stations, the progressive application of the cleansing scheme to every school, the promotion of bathing facilities and the steady pressure of educational methods and of public opinion, which had already in 1913 produced a pretty high standard of cleanliness, have now resulted in the reduction of the cases of body vermin found to the small proportion of two in a thousand of the children examined. In other words, fewer children are found in school to be suffering from body vermin than are found to be suffering from, say, tuberculosis. This is not only a physical, but a moral success, the results of which cannot fail to be far reaching in their effects upon the well-being and comfort of the people generally. So successful has been the campaign against dirt and dirt diseases that the basis of the struggle has now been fundamentally altered and its aim shifted.

The one outstanding evil now is the slighter cases of infestation of the hair of the girls. This condition is much more difficult to tackle than the grosser infections which have been mainly overcome. The accidental incidence of a single louse upon the head of a girl will produce in a night evidences which it may take the mother months to eradicate. Until the last year or two the only known means to effect this eradication was the cutting away of all infected hair, and the patient school nurses charged with the duty of effecting this procedure were naturally exposed to much obloquy and abuse. Yet the legal processes necessary made such measures inevitable. So great was the resentment of parents that riots and assaults became fairly frequent. Fortunately for the success of the Council's scheme, however, the inventiveness of science was not exhausted, and, as has been recounted in previous reports, by the introduction of special medicaments and appliances, the Council's nurses are now able to cleanse the heads of the infected girls at one operation without resorting to the cutting of the hair. By steady work the percentage of girls in school who were free from all traces of verminous infestation was raised from 67 per cent. in 1913 to over 75 per cent. in 1920. In the latter year the methods were fundamentally altered, as has been explained. In 1921 for the first time there appeared a set-back and the number of girls with clean heads showed a falling off. The new methods, however, were steadily persevered with and eight of the ten additional head cleansing stations agreed to by the Council were brought one after another into action. The result has been not only to wipe out the relapse of 1921 but to produce quite a noteworthy improvement. The percentage of 8 year old girls with perfectly clean heads being 79·3 in 1922 as against 74·9 in 1921 and 76·5 in 1920, the best before recorded, while a closely corresponding condition was established in relation to the 12 year old group. It is good to note also the disappearance of the acute opposition on the part of the parents which formerly marred the Council's cleansing scheme.

Dental conditions.

Gratifying indeed are the results of the measures taken by the Council to provide facilities for attention to the condition of the teeth of the children in the schools. The widespread incidence of dental caries is again demonstrated by the figures given in the tables in the Appendix.

At entrance to school in 1922, already 42·6 per cent. of the infant boys and 43·7

per cent. of the infant girls were recorded as having teeth attacked by caries, in 13·4 per cent. the caries was marked as extensive.

At the 8 year old period 45 per cent. of boys and girls presented carious teeth, extensive caries being, however, now reduced to 10·8 per cent. of boys and 10·4 per cent. of the girls.

At the 12 year old period 34·7 per cent. of the boys had dental caries and 32·5 per cent. of the girls, but a great improvement was noted in those with extensive caries which stood at more than 3·2 per cent in boys and 2·7 per cent. in girls.

Serious as this recorded amount of caries still remains, a comparison of the figures from year to year reveals the great improvement which has already been brought about.

In the following table the figures show at biennial periods the condition in percentages of the teeth of the 12 year old pupils : (1) standing for sound teeth, (2) for slight dental caries, (3) for extensive caries.

	1913			1915			1917			1919			1921			1922		
Boys 12	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
years old	50·0	40·0	10·0	53·1	39·7	7·2	55·2	38·6	6·2	55·1	39·7	5·2	60·3	35·7	4·0	65·3	31·5	3·2
Girls 12 years old	52·4	39·0	8·6	55·5	37·8	6·7	56·4	38·1	5·5	56·5	39·1	4·4	63·5	33·3	3·2	67·5	29·8	2·7

Here is seen a very great and cumulative improvement. Between 1913 and 1919, the improvement amounted roughly to five per cent. more children leaving school with sound teeth ; in two years, from 1919 to 1921, another five per cent. was added, and in the last year, 1922, still another five per cent., making fifteen per cent. in all in 9 years. The astonishing progress of the last three years is due to the fact that children are now leaving school, who, nine years ago, first came under dental inspection and treatment at the ages 6 to 8.

Last year it was regarded as a noteworthy achievement that some 8,000 boys and girls in London were leaving school with sound teeth, who would not have done so had it not been for the preventive and curative measures introduced in connection with the school medical service. That this number would so soon be raised to 12,000 was scarcely then anticipated, and the result is, therefore, all the more inspiriting. It can safely be said that never was money more wisely invested than that which is devoted to the medical and dental inspection of the children in the elementary schools.

Tonsils and adenoids.

Unhealthy conditions of the throat and nose are still rife amongst the school children, but show year by year a diminishing incidence.

Amongst the 199,812 children examined in the age groups, 22,213 were marked with enlarged tonsils or adenoids, or both, or with other unhealthy throat or nasal trouble. This represents 12·8 per cent., compared with 16·5 per cent. in the previous year. In many surveys of school children, both in this and other northern countries, the conditions mentioned have been found to be much more prevalent, as they were also formerly in London.

It may be that the school doctors are less prone than they were to draw attention to the very minor departures from health, but there is good ground for the belief that greater attention to hygiene is really diminishing the prevalence of nasal disease.

7,290 of the above children were referred for treatment for tonsils and adenoids, or 3·6 per cent. The percentage was 4·8 in 1921, 5·5 in 1920, and 6·1 in 1919, so that in addition to a steady decrease in the total numbers marked, there is also a steady decrease in the serious cases requiring medical treatment. It may be pointed out that owing to this decrease the Council's arrangements for the treatment of tonsils and adenoids have also been progressively curtailed. The diminishing number of cases requiring operation fortunately gives an opportunity for the introduction of more adequate methods than were formerly possible.

Ear diseases and hardness of hearing.

One of the greatest gains resulting from the diminution of unhealthy throat conditions is the corresponding reduction of the number of children suffering from discharging ears. There were still 3,225 children in the age groups suffering from discharging ears (or 1·6 per cent.), and although this is a lower number than was formerly found, it is still, considering the serious results of these conditions, a number that is too high to contemplate with equanimity.

1,572 children were found to be suffering from defect of hearing; this is equivalent to 0·8 per cent.; in this respect, too, the figures show a slight but steady improvement year by year; the figure of 0·8 per cent. is lower than that recorded in any previous survey.

Of the 135,227 children examined in the eight year and twelve year old groups, 14,075 (10·4 per cent.) were referred for refraction for visual defect.

Visual acuity

The following table sets out the figures for visual acuity from 1918-1922; the first column in each case refers to children who readily pass the Snellen test at 20 feet, the second column those who just fail, and the third column those with relatively serious visual defect.

Year.	Eight years old.						Twelve years old.					
	Boys.			Girls.			Boys.			Girls.		
	Normal.	Poor.	Bad.	Normal.	Poor.	Bad.	Normal	Poor.	Bad.	Normal.	Poor.	Bad.
1918	38·2	42·0	19·7	34·7	43·5	21·8	52·6	25·7	21·7	46·8	29·1	24·1
1919	39·7	40·2	20·1	35·6	42·8	21·6	51·6	26·9	21·6	47·8	29·5	22·7
1920	42·4	36·7	20·9	35·9	38·5	22·6	55·0	24·3	20·7	52·2	25·7	22·1
1921	47·1	33·5	19·4	43·7	35·1	21·2	56·9	22·8	20·3	52·0	25·9	22·1
1922	46·7	35·5	17·8	44·8	36·0	19·2	57·1	22·6	20·3	52·5	25·3	22·2

The heavier incidence of visual defects upon girls compared with boys is still evident, and can only be ascribed to the difference in occupational pursuits followed by the two sexes during childhood, both in and out of school. It is satisfactory to note that the disparity between the sexes is tending to diminish, particularly at the older age. It is one of the penalties of modern civilisation that there is no longer a selective influence against myopia, so that short sight tends to become more prevalent in the community. It is the opinion of ophthalmic surgeons that close application to reading and other fine tasks like sewing in childhood intensifies this tendency, and many children naturally predisposed to short sight suffer from undue encouragement to devote themselves to tasks involving strain upon the eyes.

The energies of the school medical service are being consistently directed towards modifying these tendencies and the arrangement by which children with rapidly advancing myopia of high degree are shielded by education in special sight-saving (myope) schools and classes, and children with lower degrees of visual defects are permitted to attend elementary school for "oral teaching" only, or placed upon "easy treatment" in regard to eyework, have contributed both to limiting the damage done to vision by school life and to the nearer approximation of the incidence of severe defect upon the two sexes.

Heart defects and anæmia.

5,535 children were noted with cardiac defect, being 2·8 per cent. compared with 2·9 per cent. in 1921, and 3·4 per cent. in both 1920 and 1919. 6,058 children were also noted with anæmia (or 3·0 per cent.) compared with 3·7 per cent. in 1921, and 4·1 per cent. in 1920. In both conditions, therefore, there is improvement. Once more the special incidence of these defects of the circulatory system upon the older girls is manifested in the figures.

Lung complaints.

7,151 children were marked with lung complaints (excluding tuberculosis). This represents 3·6 per cent. as compared with 4·2 per cent. in the previous year—a considerable improvement. By far the greatest share in the lung diseases found is taken by the rickety bronchitis found in so many entrant infants, amongst whom 6·2 per cent. suffer from bronchitic catarrh, as against less than 2 per cent. of the boys and girls at the older ages.

Phthisis and tuberculosis.

Phthisis is almost non-existent amongst the children in the age groups regularly attending school, only one case in a thousand children examined being suspected of phthisis. Other tuberculous manifestations, chiefly tuberculous glands, are found more often amongst the younger boys and older girls, in whom 2 in every thousand are found with tuberculous disease other than phthisis.

Nervous diseases and speech defects.

About one per cent. of the children in the age groups are found with nervous disease, including chorea, epilepsy and stammering. 350 stammerers were noted, nearly all amongst boys, especially at the older ages. Stammering and speech defects are much less common amongst English children than in foreigners.

Deformities.

Rickets was noted in 3,900 children, or 2 per cent., the same proportion as in the previous year. By far the highest percentage (3·3) is found in entrant boys; this is twice as high as in entrant girls; the deformities noted amongst the infants tend to disappear during school life.

Deformities other than rickety were noted in 1,626 children (0·8 per cent.). No fewer than 764 of these cases were furnished by elder girls alone, amongst whom 2·2 per cent. suffered from spinal defects and flat foot. These 12 year old girls, however, are much better than their sisters of the previous year, who showed 2·9 per cent. suffering from identical deformities. Special drill classes and greater attention generally to physical training are undoubtedly doing much to improve the carriage of girls, and to check the development of incipient deformities due often to faulty postures adopted in and out of school.

Skin diseases and external eye disease.

2,668 children were found with skin diseases. This represents 1·3 per cent., compared with 1·5 per cent. in the previous year. 5,606 children suffered from external eye diseases, or 2·8 per cent., compared with 3 per cent. in the previous year. These diseases are largely if not entirely due to dirt and unhygienic home conditions.

Summary of results of routine inspection.

It will be seen that steady and continuous progress is being made in the improvement of the health of school children in London. In the past year the improvement has been maintained in every direction, and in no single instance has a check been experienced. In the relief of dental disease a most noteworthy advance is recorded and something has been done to reduce the excessive incidence of visual defect, anæmia, heart-strain and deformity upon the older girls, which has been consistently pointed out in these reports as the most striking difference between the sexes due to preventable conditions.

It can be claimed, therefore, that progress is being made along the road indicated by King Edward when he exclaimed " If preventable why not prevented."

Special examinations.

In addition to the routine inspections, arrangements were made for the examination of 35,066 ailing children not in the age groups, as special cases, and a further 32,405 children were passed through the hands of the school doctors in general reviews, such as the special investigation of outbreaks of infectious disease, or in the course of selection of children for playground classes or other special forms of education. Of the 67,471 children thus examined, 28,186 were found to be suffering from definite disease, including 25,705 of the 35,066 children presented as ailing in some respect. They included 1,808 cases of scabies, 770 of impetigo, 1,375 cases of external eye disease, 478 case of phthisis or suspected phthisis, 363 cases of epilepsy, and 544 of chorea. Many of the above children were not attending school at the time but were brought up for examination by the attendance department.

Condition of children leaving elementary schools.

In connection with the continuation schools, 20,138 boys and 20,193 girls were examined immediately before leaving in the spring and summer terms. This examination was discontinued after the summer holidays, when it was decided to close the compulsory day continuation schools.

The inspection of these children gave the full result of the efforts towards the amelioration of the health of the children during elementary school life, and it is satisfactory to find that further improvement takes place during the last two years. Nutrition and cleanliness are decidedly improved, for instance the 14 year old girls show 81·7 per cent. with satisfactory condition of the head as against 77·5 per cent. of

the 12 year old girls. The vision of the 14 year old children is much better, 58·9 per cent. in 14 year old boys as against 57·1 per cent. in the 12 year old group, and 55·1 per cent. of girls as against 52·5 per cent. in the 12 year old group were found with normal or fully corrected vision, thus showing a further bridging of the differences between the sexes noticeable at the older ages. No improvement, however, was shown in heart defect,,anæmia, and deformities, by the older children in comparison with the twelve year old group, although the marked tendency of the girls to suffer especially from these conditions was only infinitesimally increased in the last two years.

The decision to abandon the inspection of the fourth age group has caused a certain amount of difficulty in regard to the filling-in of the school leaving certificates. It has been decided during the present year to postpone the examination of the 12 year old group until the latter part of the year, in order to shorten the period between the last examination of the children and the date of leaving school, while exceptional cases, in which a final report of the doctor is desirable, will be examined as special cases immediately before leaving.

Medical inspection at secondary schools, etc.

1,343 students were inspected at the Training Colleges. Of these 30 were returned as below normal in nutrition, 99 requiring dental treatment, 19 with defect of hearing or ear discharge, 35 with abnormality of the circulation, 29 anæmic, 2 with lung trouble and 195 with postural deformity of the spine.

During 1922 the pupils at secondary schools were inspected as a routine measure at the ages of 12 and 15. 2,362 boys and 2,086 girls were inspected at these ages, and 1,768 boys and 1,788 girls were in addition seen as special cases, making 8,004 examinations in all. Further, 937 male and 789 female students were inspected at trade schools maintained or aided by the Council, in all, therefore, 11,073 pupils and students were medically examined in the various types of higher education institutions. Although a picked class from a medical point of view, numerous physical defects were found amongst them, 8 per cent. were undernourished, 2 per cent. deficient in personal hygiene, 25 per cent. suffered from dental decay. Although 16 per cent. wore spectacles, 29 per cent. nevertheless had less than the normal acuity of vision, 1·7 had ear diseases or hardness of hearing, 4·7 per cent. defect of the circulation, 3·8 per cent. were anæmic and 11·5 per cent. showed postural deformities.

All these conditions, if unattended to, lead to strain and inefficiency in later life with consequent waste of the advantages bestowed by higher education. The importance of physical development and the establishment of perfect bodily health as a part of educational effort is still not grasped as it should be, and education is still to some extent overshadowed by the delusion that *mens sana* and *corpus sanum* have no relation one to the other.

The examination of the 12 year old group of children in secondary schools permits of a comparison of their condition with that of the children of the same age in elementary schools.

The average nutrition of the secondary school children is superior to that of the elementary school children on the whole, but the percentage of children definitely undernourished is, contrary to expectation, rather higher amongst the former. While 5·8 per cent. of boys and 5·2 per cent. of girls in the elementary schools are marked as undernourished, 7·2 per cent. of boys and 13·7 per cent. of girls in secondary schools are so marked.

Personal cleanliness is much superior in the secondary schools. 3 per cent. of the girls are found unsatisfactory in this respect compared with 22·5 in the elementary schools.

76·7 per cent. of boys and 71 per cent. of girls in the secondary schools have sound teeth compared with 65·3 and 67·5 per cent. respectively in elementary schools. The eyesight of the secondary school children is much superior at the age of 12 to that of the elementary school children, 72·3 per cent. of girls attaining normal vision as compared with 52·5 per cent. only in the elementary school girls. It is noted that 10 per cent. of secondary school boys at 12 are wearing spectacles and 13·3 per cent. of girls.

Visual defect, heart strain and incipient deformity are more marked in secondary school girls than in the boys. Comparing the 12-year old children in secondary schools with the 15-year old pupils, it is found that these defects in girls still further increase; for instance, while the percentage of girls with perfect vision sinks between 12 and 15 from 72·3 to 69·9, the percentage wearing spectacles increases from 13·3 to 17·3; and while 4·9 per cent. are suffering from anæmia at 12, 6·3 per cent. are suffering at the age of 15.

The strain of education falls very heavily upon girls at this important physiological age, and more consideration requires to be given to periods of recreation and their proper utilisation.

Special Enquiries.

Chorea.

Dr. Chaikin, with the assistance of the school doctors working in the Eastern Division, has conducted an enquiry into cases of chorea occurring amongst the school population in that district between 1919 and 1923. In all 124 cases were investigated. 91 of the cases were between the ages of 7 and 12, although there were two cases at the early age of 3 years. The number of girls affected was excessive, being 75 out of the 124; this excess fell chiefly upon girls aged 10, 11 and 12, of whom there were 36.

The largest number of new cases occurred in 1922, with 51 cases as opposed to 29 in 1921. The heaviest seasonal incidence in the 13 quarters studied was in the second quarter of 1921 and the first quarter of 1922. As the point of seasonal incidence is of some interest, it may be as well to set out the whole of the cases occurring in quarters—1919, 3rd quarter, 9; 4th quarter, 4—1920, 1st quarter, 8; 2nd quarter, 7; 3rd quarter, 4; 4th quarter, 10—1921, 1st quarter, 9; 2nd quarter, 22; 3rd quarter, 10; 4th quarter, 10—1922, 1st quarter, 15; 2nd quarter, 12; 3rd quarter, 4. With regard to weather influence, Dr. Chaikin points out that in 1921, when the largest number of cases occurred, the year was warm, dry, and sunny, and the particular quarter in which the greatest excess of cases occurred was the driest period of that year. There is a definite tendency for the cases of chorea to follow inversely the rise and fall of barometric pressure, but no relationship could be found between changes of relative humidity and the incidence of chorea.

Dr. Chaikin considers that no close relationship could be established between the instances of chorea and the prevalence of scarlet fever. On the other hand, if chorea be regarded as possibly a manifestation of post scarlatinal rheumatism, the exceptionally high prevalence of scarlatina in the last quarters of 1920 and 1921 cannot be entirely ruled out. The age distribution of the cases lends some support to the theory that school pressure has some influence, and the special incidence upon girls between the age limits of 10 and 12 suggests that the combined effect of school anxiety and exhaustion of the vital forces entailed by the pre-pubertal increase in growth is a determining factor in these cases.

The periods of absence from school of the choreic children varied from 2 to 75 months, the general average loss of school attendance per child subsequent to notification was 7·19 months.

Dr. Chaikin draws a comparison between the tuberculous child and the rheumatic child. In the former it is possible to deal with the case in the pre-tuberculous period, and forces are mobilised to this end, so that a great deal of preventive work is not only possible but actually carried out. In the rheumatic child, however, there is usually no attention drawn to the case before the supervention of profound disease such as chorea, or, worse still, organic heart trouble. The onset of rheumatism is unseen and insidious, "as a thief in the night so is the poison of rheumatism." Stress is laid upon the necessity of general attention to unhealthy throat conditions which favour the entry of the disease.

Goitre.

Dr. C. N. Atlee has carried out an investigation into the prevalence of goitre amongst children in the south-eastern quarter of London. No child was included

over the age of 12, in order to eliminate the effect of puberty, which results in disturbances of the thyroid gland, especially in girls.

34 of 895 boys examined were found with goitre and 43 out of 944 girls. Even before puberty, therefore, there is a slightly higher percentage of girls affected (4·5 per cent. as compared with 3.8 per cent. in boys).

The total of 77 out of 1,839 children examined is a higher incidence of thyroid enlargement than was expected. 21 of these children were apparently normal and healthy otherwise, but the remaining 56 were abnormal, no less than 10 were mentally defective, and 4 were congenitally deaf, 1 had congenital heart disease, 1 congenital cataract and 3 were epileptic. The comparatively large number with serious congenital defect is very striking.

Dr. Atlee is of opinion that goitre has increased latterly ; one of the normal children with goitre had recently lived for eight months in Derbyshire, where goitre is so common that the common name in England for the condition is " Derbyshire neck." In the latter county the cause is held to be the character of the water supply. Many observers have thought that disturbances of the thyroid gland became much more frequent during the war, and it is thought by some to be a concomitant or effect of anxiety neurosis. Further statistical enquiries into the incidence of goitre seem highly desirable.

Observations by Dr. Boome on the weekly curve of efficiency.

Some thirty years ago Professor Leo Burgerstein worked out the fluctuations of the manifestations of fatigue during a lesson of a single hour. In a series of observations recorded with Verdin's Spirometer on classes of boys by Dr. E. J. Boome, it was noticed that there appeared to be differences only to be explained by assuming change of vital capacity from hour to hour during the day, and especially from day to day during the week. At Dr. Boome's suggestion Mr. W. C. Barham undertook to make regular observations upon Class I. at Vauxhall Street Boys' School. The apparatus used was a U-tube of mercury with a dial arrangement magnifying the readings ten times. The boys were required to maintain by lung pressure a column of 25 millimetres of mercury for as long a period as possible. Observations were taken throughout the day, every day in the week. In this way the working curve of the day and of the week was obtained.

The results show that Mondays and Fridays are the days upon which the boys are at their lowest pitch educationally and physically. During the week from Monday until Thursday there is a gradual improvement, the highest efficiency being recorded at mid-day on Thursday. Each day the maximum efficiency is reached in the readings at 12 noon and 2 p.m. Thus there appears to be a daily curve of efficiency reaching its maximum at mid-day, and a weekly curve reaching its maximum on Thursday mid-day. These results have a bearing not only upon the arrangement of school work during the daily time-table, but also upon the weekly scheme of work.

Following-up and re-inspections.

All children found at medical inspections to need treatment or further observation are re-inspected in six months' time, and, if necessary, again in a further six months. Re-inspections, therefore, partially bridge the intervals between the three comprehensive age-group inspections. 178,964 children came up for review during 1922 ; 112,974 children for primary re-inspection during the year, and 45·2 per cent. were discharged as cured and not requiring further observation. The remainder were marked for a second re-inspection ; 65,990 children were presented for second re-inspection, and of these 59·3 per cent. were discharged.

Combining the results of first and second re-inspections, it is found that 77·7 per cent. of the children had been satisfactorily dealt with within a year after the detection of their defects. The corresponding figure for 1921 was 78·2 per cent., the highest ever obtained. In view of the difficulties experienced in following-up during the past year, which are elsewhere commented upon, the result may be looked upon as very satisfactory.

The service is indebted to the children's care organisation and the numerous voluntary workers connected with it for their unstinting efforts at following-up the cases. Ignorance and apathy on the part of the parents are still the chief hindrances to fully successful work. The Society for Prevention of Cruelty to Children give very valuable assistance in dealing with intractable cases of neglect. In the annual report of the Society for 1921–22 special attention is drawn to the activities of the London Medical Branch which dealt with 804 children. The Society's ambulance has proved of considerable assistance in conveying children for treatment who otherwise would fail to obtain it.

Very encouraging is the growing appreciation on the part of the hospitals of the aid which is available through the school care organisation in the following-up and ancillary treatment necessary for the cure of their child patients.

A special arrangement exists at Guy's hospital by which assistant organisers of children's care work attend in the ear, nose and throat, orthopædic, eye and skin departments to follow-up the children attending the elementary schools, and to help to obtain their regular attendance.

During 1922 in the ear, nose and throat department 2,521 children were followed-up, of these 477 had operations for the removal of tonsils and adenoids, and other cases were admitted to the wards for various operations on the ear, nose and throat.

The 391 children attending in the orthopædic department are under Care Committee supervision. Many of these are referred by the surgeon for treatment in the massage and electrical departments, and, as a result of supervision, attend with fair regularity.

1,611 children attended the eye department during the year; 949 were tested for vision; 90 were found not to require glasses, and of the remaining 859 for whom glasses were ordered, 809 children are known to have obtained them.

In the skin department 1,707 children attended, of these 186 being cases of ringworm of the head. The number of children attending this department suffering from scabies has considerably decreased, only 94 cases being recorded, against 263 in 1921.

In addition to the work in these departments, by the co-operation of the almoner, many enquiries concerning children attending in other departments of the hospital have been made. It has thus been possible to inform the Care Committee with regard to the doctor's instructions as to treatment and school attendance.

Medical treatment.

At the end of 1922 the treatment scheme included 13 hospitals, 55 treatment centres and the dental centre at Bushy Park Camp School. These 68 centres had accommodation for the treatment annually of 209,158 children, the arrangements including the following ailments: eye, 32,310; ear, nose and throat, 16,150; ringworm, 2,628; minor ailments, 52,690; teeth, 105,380. As from the 1st April, 1922, certain modifications were made in the remuneration of the medical and dental staff at the hospitals and treatment centres. The Council has decided that for the next financial year the allowance made to local nursing associations for the equivalent of a full-time nurse shall be adjusted in accordance with reduction of the bonus addition on the salaries scales; and, further, that the special maintenance grants to hospital and treatment centre committees, which were granted at the time when the cost of living figures were at their highest, shall be reduced by 50 per cent.

(*a*) *Minor ailments.*—74,467 children received treatment for minor ailments, 71,478 of these coming under the Council's scheme, being 3,195 more than in the previous year. The number of attendances made at the treatment centres amounted to the large total of 1,292,929. In addition 3,944 cases of scabies were treated at the cleansing stations. 131 cases of chronic external eye disease were sent by the

Council to the home at Swanley under the facilities accorded by the Metropolitan Asylums Board.

(*b*) *Visual defect.*—32,752 children were submitted for refraction under the Council's scheme. Spectacles were prescribed in 24,407 cases, and of these 21,266 obtained them. The numbers referred and the numbers for whom spectacles were prescribed were practically identical with the numbers in the previous year, but an improvement of 3·5 per cent. is to be noted in the cases known to have obtained spectacles. That 87 per cent. of the children requiring spectacles are known to have procured them is very satisfactory, especially when it is considered that no part of the cost of provision of spectacles falls upon the education rate.

(*c*) *Nasal and aural disease.*—13,001 children were referred for treatment by the school doctors (compared with 18,463 in the previous year), 10,525 children received treatment, of whom 8,720 were treated under the Council's scheme. 6,430 operations for enlarged tonsils and adenoids were carried out at the Council's centres and hospitals. This is a very considerable reduction in the numbers dealt with.

Dr. Wells' report on ear disease and ionisation.

Dr. Wells has continued his work at special inspection centres for children with ear diseases. 1,113 children have been seen by him. 939 children were found requiring continued observation and were seen on an average four times in the year. 454 children (48.3 per cent.) were discharged as cured. This is a higher number than in previous years, and Dr. Wells attributes the success mainly to the employment of ionisation which effects a quick cure in suitable cases.

Of 155 children referred for ionisation concerning whom Dr. Wells has personal notes, 126 or 81·3 per cent. were cured, 108 in one ionisation, 26 in two, 14 in three, 5 in four and 2 in five. The great majority are cleared up in a single visit. The advance thus made over the other methods, which necessitated daily treatment over many months with indifferent success, is thus marked.

As opportunity arises facilities are being extended for the treatment of children with ear disease by the ionisation method which was introduced to the Council's notice by Dr. Friel, who continues to carry out its application at the Cable Street and Lissonia centres, where 227 children were treated. Omitting 31 children who were lost sight of, out of the remaining 196, 127 were cured, 29 are still under treatment and 40 were referred for mastoid operation, etc.; most of the latter were suffering from involvement of the mastoid cells before reference to the centres. In cases in which the sepsis was confined to the tympanic cavity 89 per cent. were cured by ionisation.

In connection with the special arrangement for the treatment of mastoid cases with the Metropolitan Asylums Board, supervised by Dr. Wells on the Council's behalf, a change has occurred. The Cleveland Street Institution was abandoned for this purpose and the children were transferred to Belmont. Dr. Wells reported that 137 mastoid operations were performed and 129 were completely successful representing the high percentage of 94. Dr. Wells attributes the highly successful results of the operations to careful and efficient after-treatment, in which ionisation has proved an important aid and was tried in all cases.

(*d*) *Dental Disease*—192,730 children were inspected by the school dentists, an increase of 41,345 over the number seen in the previous year. As the system of dental inspection extends and a large number of the children have already been submitted to treatment, it is clear that the number of children who can be dealt with by the inspecting dentist at his school visits is increased. The very large growth in the numbers seen during the past year must be chiefly due to this but is also partly due to substitutions of "inspecting" sessions for treatment sessions owing to shortage of cases at the centres and to the necessity of spreading a wider net.

137,487 children were referred by the dental inspector for treatment. In addition 60,550 children were referred by the school doctors. 84,848 children were treated under the Council's scheme, a drop of about 9,000 below the figures of the previous year. This is undoubtedly the most serious set-back experienced in the

whole of the school medical work during the year. During the early part of the year the combined effect of unemployment and the increased charges made for treatment made it very difficult to keep the centres going at full strength. Fortunately a recovery took place towards the end of the year, and it is anticipated that the slackening off which resulted in this rather serious lack of full utilisation of the facilities provided will no longer be apparent in the coming year.

Stammering children.

The classes for stammering children were transferred during the year from the Education Officer's department to that of the Medical Officer. They are now, therefore, to be regarded as treatment centres, and during the year have been under the medical supervision of Dr. Margaret Hogarth and Dr. E. J. Boome. 326 children were treated in 1922, and of them 95 were discharged as provisionally cured. In children who had previously been discharged after attendance there were four relapses and further instruction was necessary. Dr. Margaret Hogarth has found that in a certain number of children the methods of instruction appear temporarily to lose their stimulus and there is a tendency for progress to be arrested after a certain point. In such cases it is beneficial to intermit the instruction for a time, after which further treatment progress again takes place. Three times as many boys as girls were treated. In 191 cases out of 247 (where particulars could be obtained) the onset of stammering occurred before the age of seven.

The onset of the ailment coincided with the first attempts at speech in the child's babyhood in 83 cases. 131 cases were ascribed to shock and 17 to imitation, while severe illness caused the complaint in 23 children. Heredity was (or seemed to be) a factor in 88 cases and bad physique in 38 cases.

Inspection of the work of the School Medical Service by Medical Officers of the Board of Education.

In March and April an inspection was made by the Board's Medical Officers of the work of the School Medical Service in London. In forwarding the report of their officers on 29th May, 1922, the Board stated that they were glad to endorse the expressions of appreciation of the efforts made by the Council to provide an efficient and comprehensive school medical service, and assumed that the criticisms and suggestions made in the report would receive the Council's consideration in due course. The conclusions of the Board's officers are quoted below :—

" Compared with the arrangements obtaining in well administered areas in other parts of the country, the London scheme presents exceptional features; there are two medical services, one for medical inspection, and one for treatment, practically distinct and separate. Following up is done only to a limited extent by school nurses; the main burden of the work is undertaken by the 5,000 voluntary care committee workers acting under the direction and instruction of salaried organisers. The whole of the arrangements for following up and treatment are so devised that at any moment alternative provision is available, should for any reason the existing arrangement fail.

" The scheme works well and successfully, not in certain localities only but in London as a whole. The volume of inspection is in excess of the estimate and includes not only the routine age groups, but also special cases and re-examinations, and covers secondary and continuation schools as well as elementary; each child in the elementary school is examined for cleanliness three times a year and oftener if necessary, in accordance with a strict standard of scrutiny followed up rigorously until cleanliness has been secured. Except in the case of dental work the volume of treatment secured for every type of school defect reaches the normal estimate and even exceeds it in most categories. Medical inspection and treatment have secured the sympathy and interest of the parents. It is satisfactory to see the large groups of mothers at inspections, keen to know what they should do for their children and prepared to pay according to their means. It is an eloquent reply to critics who urge that the school medical service tends to diminish the responsibility of the parent in the home.

Admirable though it is as a whole, the London scheme is not of course free from defects, and for the sake of convenience they are set out below :—

" (i) *The care committees* are not rendering uniformly effective service. Whilst appraising the success already achieved, we desire to indicate the need for great effort towards securing a larger number of interested, keen and effective workers. We would also invite the Council to consider whether it is not possible to strengthen some of the committees.

" (ii) *The treatment scheme*—We appreciate in full measure the success of the Council in making treatment accessible to every family in the Metropolis by means of the arrangements with hospitals and centres as well as by the moderate cost at which the treatment is provided. At the same time we desire to draw attention to the need for further *administrative supervision* in order that (*a*) time is not wasted by the failure to supply medical and dental practitioners with a full complement of cases at each session, (*b*) that practitioners may be discouraged from coming late and going early. Further, (*c*) the Council should increase the *professional supervision* of the treatment centres ; this is needed particularly in the case of the administration of anæsthetics, operation treatment for tonsils and adenoids, and dental work. Finally, (*d*) as regards operative work and anæsthetics, it is essential that the skill of those appointed to undertake the work in the centres should be in no way inferior to that which obtains in the best managed hospitals.

" (iii) *The cleanliness scheme*—The cleanliness scheme is well administered. Gross cases of uncleanliness are rare. Nevertheless the good results secured are not obtained without some friction. This should be avoided as far as possible. In addition to the steps already taken to prevent ' stigma,' it is suggested that the examinations be conducted in such a way that no child becomes aware of another child's condition and that, pending cleansing, the practice of segregating dirty children at school be discontinued as far as possible. If however this is arranged, there should be the least possible delay between the examination and the cleansing. The longer the lapse of time between the two, the more difficult it is to avoid segregation successfully and the consequent incidence of stigma upon the unfortunate child. The criterion of a successful cleansing scheme is that it shall be acceptable to the parent and to the child."

The report was carefully considered by the Education Committee, and on 13th November, 1922, a letter dealing with the three points referred to above was forwarded to the Board to the following effect :—

(i) The Council was making every effort to secure that every school care committee shall be an active organism.

(ii) The time at which the inspection took place was most unfavourable as compared with 1921. During 1921 the centres were full to overflowing, and the pressure on the accommodation was so great that patients had to be put on waiting lists, and vouchers issued for dates long ahead. At the time of the inspection in 1922, there was a falling-off in many areas, and centres were found to be working below their normal output. The principal causes of this falling-off in the number of cases for treatment were : (1) unemployment was acute : (2) unjustified attacks in a section of the public press on throat operation work had momentarily affected the position ; (3) the inspection was carried out in the midst of the greatest prevalence of infectious disease since the inception of school medical treatment ; (4) the effect of the increased charges on the parents was being felt by the parents. Steps had now been taken to augment the supply of cases to the centres.

As regards the personnel of the treating doctors and administrative control of the centres, the Council had given careful consideration to the need (i) for standardising the qualifications and experience to be required of medical officers employed at school treatment centres ; (ii) for eliminating from the agreements, with the committees of those centres, clauses which might unduly interfere with the output of work at the centres.

With a view to obtaining the highest attainable standard of work at those centres where operations are undertaken, it had been agreed that for any appointment involving specialist work, one or other of the following qualifications should be required by the Council :—

(*a*) Tenure of hospital and other appointments affording special opportunities for acquiring experience ; or

(*b*) Special academic or post-graduate study or recognised proficiency and experience in the particular capacity for which service is offered, in each case to be combined with evidence of actual practice of the speciality.

The Council had also decided that no surgeon should be required, as a rule, to operate on more than eight tonsil and adenoid cases per session of 2½ hours, or 352 cases a year. Hitherto, the number of new ear, nose, and throat cases provided for in the agreements has been ten per session of 2½ hours. It was also arranged that a time book should be kept at each centre, in which the hours of arrival and departure of the medical staff would be recorded.

These conditions would be set out in future agreements with the committees of school treatment centres.

As regards (iii) the Council was considering whether it was possible to alter the working of the cleansing scheme so as to remove any procedure which may make the scheme unacceptable to parents and children.

Nursery Schools.

Dr. Margaret Hogarth's report.

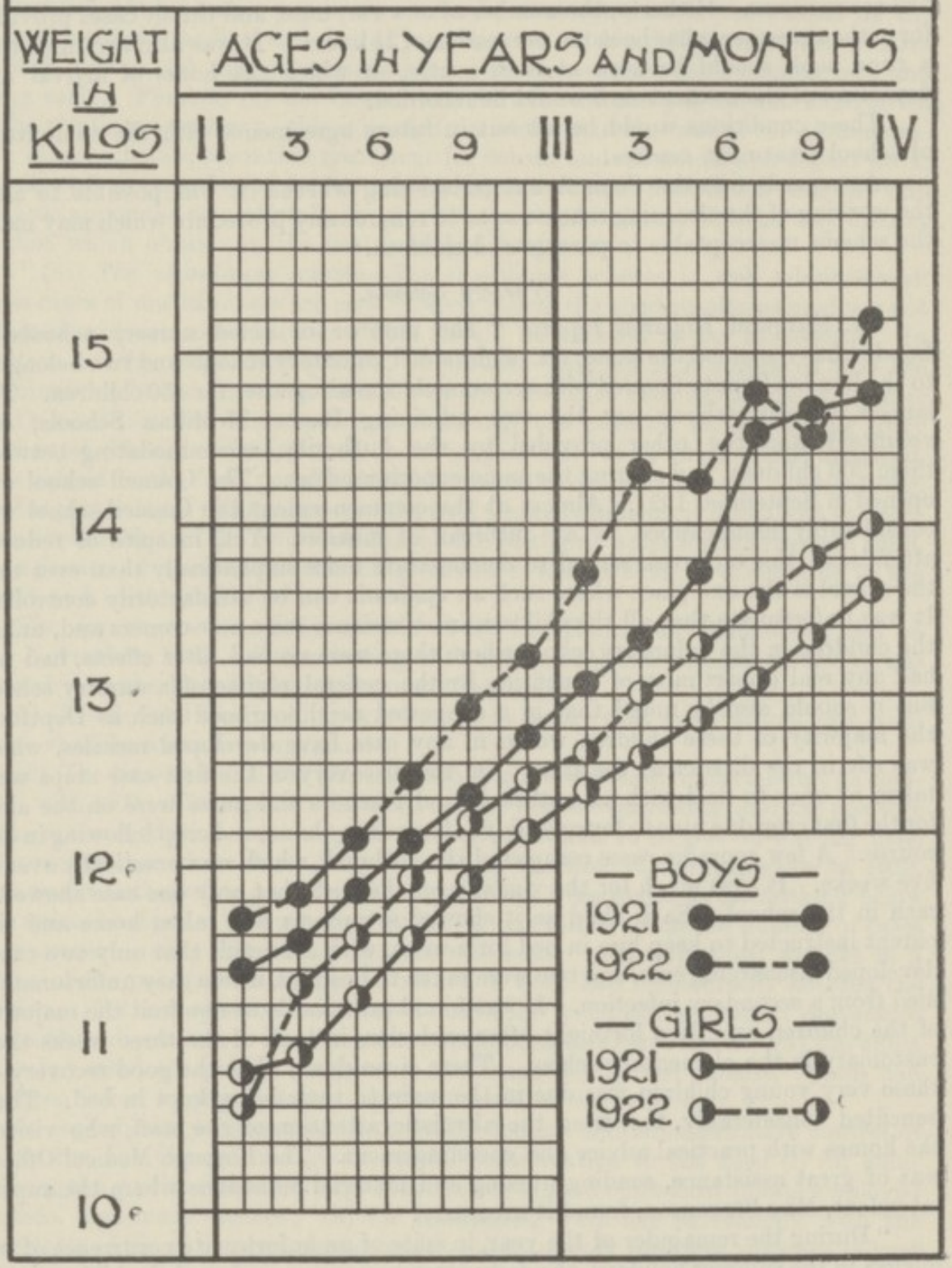
Dr. Margaret Hogarth reports "The number of aided nursery schools in London has remained the same, viz., eight aided voluntary schools and two belonging to the London County Council with accommodation altogether for 450 children. The largest nursery schools are the two adjoining Rachel McMillan Schools, one voluntary and the other provided by the Authority, accommodating between them 200 children, and sharing the same superintendent. The Council school was opened in September 1921. Almost at the commencement the Council school was considerably handicapped by an outbreak of measles. Yet, in spite of reduced attendance, this outbreak served to demonstrate more emphatically than ever that the school is the one place where such an epidemic can be satisfactorily controlled. It was unfortunate that all the children in attendance were new-comers and, unlike the children in the voluntary school where there were no bad after effects, had not had any real opportunity of benefiting by the general régime of a nursery school, but it should also be noted that in a congested neighbourhood such as Deptford, the majority of these children would in any case have developed measles, which was rife in the district at the time. On the discovery of the first case steps were taken at once to deal with an outbreak, and teachers and nurse were on the alert for the first crop due nine to fourteen days afterwards, the second crop following in due course. A few sporadic cases completed the outbreak, which was practically over in five weeks. It says much for the vigilance of the staff that only one case showed a rash in the school. Each child as it showed symptoms was taken home and the parent instructed to keep him in bed for a week, with the result that only two cases developed discharging ears, and two were taken to hospital, where they unfortunately died from a secondary infection. It was found practicable to re-admit the majority of the children exactly a fortnight after exclusion, instead of the three weeks then customary in the elementary school. There is no doubt that the good recovery of these very young children was due in the main to their being kept in bed. They benefited considerably, too, from the altruistic attention of the staff, who visited the homes with practical advice and encouragement. The Borough Medical Officer was of great assistance, sending nursing and material assistance where the superintendent, Miss Stevenson, found it necessary.

"During the remainder of the year, in spite of an unfortunate occurrence of influenza in the summer holidays, the daily attendance increased, and the high attendance percentage maintained during the winter, when one expects the lowest numbers,

DEPTFORD NURSERY SCHOOL

1921-2

DIAGRAM SHEWING COMPARATIVE WEIGHTS OF CHILDREN IN THE SCHOOL



testifies to the faith the parents have in the school as well as to freedom from illness. The smallness of the number of cases of impetigo, combined with the absence of ringworm in this school, besides demonstrating the nurse's care, is an indication of the cleanliness of the children ; the work of the staff in this direction is arduous, especially on Monday mornings.

"The new diet appears to suit the children admirably, and although at first there is some difficulty in getting them to drink milk, with very few exceptions they rapidly acquire a taste for it. The attached diagram demonstrates an appreciable increase in weight, which I think can be definitely attributed to the change in diet. A remarkably rapid improvement in children suffering from rickets is noticeable. This is evidently due to the general school conditions, as the only treatment these children get is the daily addition of a little cod liver oil to the diet. The action of the direct sunlight to which the children are freely exposed is probably also responsible.

"A question which has yet to be tackled satisfactorily is the problem of discharging ears. With the exception of two children who developed discharging ears after measles, all seven cases entered the school with this affection and attended the clinic daily for treatment. One has been definitely cured by the zinc ionization treatment introduced into the clinic by Miss McMillan, and it is proposed to get the parents' consent to having adenoid growths removed where indicated as soon as the weather gets warmer, and to proceed with any further treatment suggested by the Council's ear specialist.

"Another condition which obviously requires consideration is the prevalence of nasal catarrh, which appears to be at its height during February and March. This is a feature common in all nursery schools, and I cannot help thinking that exposed legs with short thin cashmere or even cotton socks, and consequent cold feet are conducive to this condition. It is most difficult, and especially so in the case of toddlers, to keep the children supplied with woollen stockings or leggings, but I think the Committee ought to consider seriously the question of nasal catarrh among small children in an open-air school such as this."

Open-air Education.

Open air schools.

The three open-air day schools for pre-tuberculous and debilitated children at Stowey House (Clapham Common), Birley House (Forest Hill) and Shrewsbury House (Shooter's Hill) were continued with the usual successful results throughout the year. In addition, a further school was opened at Bow Road (Poplar).

Residential open-air schools.

The Council has also three residential open-air schools at Bushy Park, Wanstead House (Margate) and Barham House (St. Leonards-on-Sea). These form a valuable means of dealing with the large number of children found in the schools who are flagging in energy and unable fully to profit by instruction owing to the need of a change of air.

The largest of these schools is the one for 300 boys at the King's Canadian Camp School, Bushy. The present director, Mr. Devonshire, has introduced many innovations in regard to the régime and education of the boys with very beneficial results. Amongst them are corrective exercises for boys with round shoulders and crooked backs.

Dr. S. H. Lee, the Medical Officer of the school, reports that the majority of the boys sent are debilitated and anæmic, many having enlargement of the glands of the neck and some with chronic ear discharge. Most of them are blessed with big appetites, which enable them quickly to respond to the improved conditions under which they live at the school. Very many are ill-developed, flat chested, round shouldered, bad breathers. Special classes have lately been established for boys of this type, and already signs of an improved condition of things are apparent. The boys all seem very happy, their average increase in weight during their month's stay being 2 lbs. The excellent dental treatment given at the school is a very large contributing factor in the benefit they derive from their stay.

Open-air classes.

There are two main groups of open-air classes :—Types A and B are composed of delicate children selected by the school doctors from one or more schools, and types C and D are an arrangement of ordinary classes working in the open throughout the season or in turn with other classes of the school. 21 classes of type A or B were held and 69 of type C or D. The Education Officer reports " the physical improvement of the pupils is the primary object, and any educational set-back is compensated for by the beneficial effect on future school work."

The average increase in the weight of the children varied from 1 to 2 kilogrammes. At Cork-street Dr. Boome investigating by means of Verdin's spirometer the increase in the " vital capacity " of the pupils—that is, the difference in the amount of air contained in the lungs between full inspiration and full expiration—found that the increase during the period they were in the open-air was marked in comparison with that of the boys undergoing the ordinary school régime. An encouraging feature is the interest taken by the parents. In fact the proposal to include the children in the open-air class in some cases originated with the parents ; this shows a wider appreciation than formerly existed of the benefits arising from fresh air and an open-air life.

One of the Council's inspectors has called attention to the point that while the effect of fresh open-air is being increasingly recognised the benefits arising from bathing in sunlight are less fully known. It is hoped that something may be done in the coming year to apply the sunlight cure on approved lines to a selected class in one of the open-air schools.

School journeys.

No financial assistance was given by the Council to the school journey movement in 1922. Nevertheless 107 school journeys were made. The average distance travelled was about 65 miles from London. In view of the risks that may be incurred by the inclusion of children unfit to take part, on account of physical defect or contagious or infectious diseases, the endeavour was made to secure medical examination of all the children immediately before departure. Dr. Reginald Hanson utters a warning against allowing pupils who have suffered from discharging ears to swim or dive. Dr. M'Ilrath reported in one case : " I thought you would like to know that the improvement found in the boys at St. Saviour's who have just returned from the school journey is simply wonderful. I could hardly believe that a fortnight could make such a difference. The average gain in weight is 1·3 kilos."

Tuberculosis.

In addition to the provision for treatment of tuberculous children in residential institutions, which is dealt with in Part I. of this report, the Council continued the use of five open-air schools specifically for children notified under the Tuberculosis Regulations, 1912, as suffering from tuberculosis of the lungs and of glands with no open wounds. The children are admitted on the certificate of the medical officer of the Council, and preference is given to those returning home after a period of treatment in a sanatorium. The five schools—Camberwell, Elizabethan, Kensal House, Springwell House, and Stormont House—have, together, accommodation for 365 children. In respect of the last three only for the year 1922 are full particulars available, and these may be summed up as follows :—admitted, 101 ; discharged, 106 ; fit for elementary school, 28 ; fit for work, 52 ; transferred to hospital or sanatorium, 19. The average gain in weight in kilograms was—Kensal House, 2·9 ; Springwell House, 3·07 ; and Stormont House, 2·8.

The medical officer of Springwell House School reports that the general health of the children at the school during the past year has been very good. There have been very few cases of infectious disease. The cleanliness of the children has been very satisfactory. With the exception of two-and-a-half days it has been possible to conduct the school out of doors throughout the year. Since the opening of the school in 1919, 63 scholars over 14 years of age have been discharged as fit for work, and about 50 have been discharged as fit to return to an elementary school. It appears that most of the children who have obtained work have taken up indoor occupations.

The medical officer of Stormont House School called attention to the satisfactory nature of the figures given on the last page. It will be seen that it has not been necessary to transfer any children to a hospital or sanatorium during the year. The following paragraphs are quoted from the Medical Officer's report :—

"The open-air school is, in my opinion, serving a very useful purpose. Quite a number admitted to Stormont House would, if no such school existed, have to be recommended for sanatorium treatment. Children receiving sanatorium treatment usually do well when actually in the institution, but frequently lose ground again after returning home. On the other hand, one notices that the progress of a child at an open-air school is steadier, and certainly more lasting.

"In this connection, it was very gratifying to learn at the old scholars yearly re-union, inaugurated by the head teacher, that the children had maintained their health after leaving school, and that all of them looked so well. The after care committee is, I think, to be congratulated on the fact that all were in employment. It would appear that contrary to the usual belief, the fact that a child had attended a school for the treatment of consumptives did not lessen his chance of obtaining suitable work."

Arrangements have been in operation for some years for co-operation between the school medical service and the tuberculosis dispensaries for the detection of early tuberculosis in children and for the observation of doubtful cases by the school medical officer at the schools.

A scheme has been put into operation during the year with a view to the earliest possible diagnosis of tuberculosis in children. For this purpose systematic examination and supervision of child contacts is essential. To effect this the tuberculosis officers have been requested to fill up a card for every unsatisfactory child, whether a contact or not, who, after observation at the dispensary, is considered to be probably non-tuberculous but who requires supervision ; for all child contacts who on the first examination appear healthy, and for all other contacts who have not been examined. The cards are then sent to the divisional medical officer, who arranges for the supervision of these children in the schools. Cases, seen by the assistant medical officers at school medical inspections, which appear to be tuberculous are referred by them to the dispensary, and the result of examination by the tuberculosis officer is communicated to the assistant medical officer. The cases are reviewed once a year at a conference with the tuberculosis officers concerned.

Children absent from school on account of ill-health.

The co-operation which has been established between the attendance department and the school medical service remains close and thorough. The local officers of the two services are in constant touch one with another and avoidable loss of school attendance is reduced to a minimum. All cases in which the child has been absent from school for 3 months are made the subject of a special report in order that the question of examination for special education, convalescence or other remedial measures may be explored in each case. A census of such children is made every year and the following table gives the result classified under heads of special diseases :—

Complaint.	*Number of Children and Percentage of Whole.*			
	1919	1920	1921	1922
Rheumatic Diseases ...	412 (14·4)	537 (20·2)	659 (21·6)	682 (23·5)
Nervous Disorders	211 (7·4)	291 (8·2)	238 (7·8)	245 (8·4)
Tuberculosis	586 (20·6)	595 (22·3)	613 (20·1)	502 (17·3)
Anæmia (Debility)	226 (7·9)	155 (5·8)	219 (7·2)	212 (7·3)
Ringworm	129 (4·5)	125 (4·7)	231 (7·6)	200 (6·9)
Other Skin Diseases ...	161 (5·6)	102 (3·8)	77 (2·5)	52 (1·8)
Eye Disease	180 (6·3)	167 (6·3)	150 (4·9)	144 (5·0)
Other Diseases	951 (33·3)	765 (28·7)	862 (28·3)	865 (29·8)
Total	2,856 (100)	2,665 (100)	3,049 (100)	2,902 (100)

This table gives very important indications as to the incidence of chronic ill-health upon the child population. It will be seen that external eye disease and skin diseases which together accounted for 12 per cent. of chronic absences in 1919 have fallen to 7 per cent. in 1922, but the reduction is chiefly in chronic skin disease, which was so prevalent in the later years of the war but has fallen from 5·6 per cent. in 1919 to 1·8 per cent. in 1922. The other satisfactory feature of the table is the reduction in absolute numbers and in percentage of the total complaints of tuberculosis in school children, which amounted to 20 per cent. in 1919 but only to 17 per cent. in 1922.

On the other hand there has been a very great increase both absolutely and relatively in the number of children absent for rheumatic conditions (including chronic and heart disease). In 1919 there were only 412 such cases, while in 1922 there were 682, and the proportion of the whole causes of absence rose from 14·4 per cent. in 1919 to 23·5 per cent. in 1922.

It is impossible to avoid the suggestion that this great increase in rheumatic disease is in some way connected with the prevalence of scarlet fever which has been so marked a phenomenon during the last three years.

The preponderance of girls over boys absent at the age of 12 and 13 is again marked (girls 11·2 and 12·5 per cent., boys 7·8 and 7·7 per cent.). The heavier incidence of rheumatism upon girls is also very striking, as in absolute numbers 469 girls were affected as compared with 213 boys, and this disease accounted for 27·3 per cent. of the total complaints in the case of girls as opposed to 18 per cent. in boys.

Employment of school children.

Generally.

Under the Employment of School Children By-laws 2,461 children were specially examined. Of these, 57 only were girls. In 57 instances certificates could not be granted on medical and physical grounds. In a further 158 children certificates were granted conditionally upon the rectification of defective conditions physical or social. In many of the latter cases re-examination at definite intervals was insisted upon. By far the greater number of certificates sought was on account of boys required to deliver newspapers.

Theatrical children.

Under the Employment of Children in Entertainments Rules 261 applicants for license were examined and kept under observation by the school medical department. Many Eurasian children and others of foreign birth or nationality were among them, only 20 were boys.

In general the condition of the children is much improved since the introduction of the rules, but children who go on tour are much subjected to the risk of contraction of contagious diseases. Eighteen children were found in a verminous condition, and certificates were refused to eight others who suffered from contagious skin complaints. Three children were rejected for heart disease and debility. Medical treatment was necessary in 39 other children for various defects, including dental decay and defective vision.

Physical exercises.

Major Gem, the Council's organiser of physical exercises, in his annual report refers to the improvement in the general standard of work during the past year, and in regard to elementary schools points out two interesting features.

(*a*) The spread of the "team" system and the consequent increase in enthusiasm by the boys, together with a growth of self-discipline which has a marked effect upon the life of the school, and

(*b*) The introduction in schools of "efficiency tests." An average attainment is decided upon, *e.g.*, a boy, average age of 12 years, should make a standing broad jump of 4 feet 5 inches. All boys in the class attempt to pass the standard, those who succeed attain their "efficiency" mark, and those who fail practise until they succeed. This method, Major Gem points out, promises great possibilities and has, when it has been taken up, proved extremely popular.

It is necessary that the pupil's medical record card should be consulted before allowing him to compete for his efficiency mark, and in doubtful cases to refer to the school doctor's opinion; with this proviso, such physical tests will prove very valuable in encouraging boys to develop their physical condition to its maximum efficiency.

Corrective exercises for special children.

The holding of special exercise classes in the schools for the benefit of children found by the school doctors to need corrective exercises for incipient and postural deformities is a very valuable extension of the physical exercises movement. These children are taken by a specially competent teacher in small groups in which individual attention is possible, and the classes are held more frequently than it is practicable to arrange for the general school population. The results of the classes under favourable conditions are remarkable.

Amongst many special reports received from the school doctors, the following account by Dr. C. E. Thornton of the class under his medical supervision in the girls' department of Smallwood-road School will serve to illustrate the methods followed :—

"The results obtained in the remedial exercise class at this school continue to be very good, a fact attributable to the capability and enthusiasm of the mistress in charge, Miss Sayer. The class consists of 25 girls mostly suffering from the milder degrees of lateral and antero-posterior spinal curvature. In a few cases other deformities are present. The exercises are carried out daily, and in the majority of the cases, in addition to the deformity being reduced or completely cured, a great improvement in the general health is noticeable. Following is an analysis of the defects treated and the results :—Number in class 26. Admissions 1922, 34 ; discharged cured 26, improved 18. Defects, Kyphosis 26, Scoliosis 11, Kypho-scoliosis 10, Flat feet 3, Talipes 2."

The Vauxhall Street School experiments.

In the last report reference was made to the experimental scheme of physical education carried out at Vauxhall-street Council School. Dr. E. J. Boome has continued his interest in the scheme and some important researches into the question of fatigue have been carried out. I am indebted to Messrs. H. P. Haley and W. C. Barham, masters at the school for notes upon the work.

Among the general results observed Mr. Haley points out :—

1. Physical.—The majority with pale sickly features have become a minority and a healthy brightness predominates. The flabby indefinite muscle formation has hardened into definite form promising development, physical activity, agility and good deportment have superseded lethargy and slothfulness, and medical inspection has commented favourably upon the changes.

2. Moral.—The unkempt and dirty post-war appearance has been replaced to such good effect as to prove deceptive to the visitor as to the actual social standing of the children. A very unpleasant and despicable tone has been counteracted and the finer spirit of playing the game inculcated through the instrumentality of sportsmanship.

3. General.—It was noted that the classes specialising in the scheme consistently had the best weekly attendances. The absences from actual sickness were so few as to be almost negligible. Personal thanks from a few parents is evidence that the scheme has produced beneficial results which have not escaped notice in the homes.

Some interesting observations have been made on the temporary loss of physical fitness associated with the onset of puberty in lads, followed by increased progress. Also the effect of contracting the habit of smoking has again been shown in a failure to show physical progress. The measurements upon which these observations were founded were obtained by means of Verdin's spirometer and were taken in the same manner as those carried out at Oxford by Professor Dreyer.

Mr. Barham undertook a regular series of measurements on the class under his control with a view to ascertaining the diurnal and hebdomadal variation of capacity amongst school boys. Some notes on these observations are given in the section dealing with special enquiries.

Feeding of school children.

The reduction of the Treasury Grant on account of school feeding necessitated very careful reorganisation of the arrangements, and much additional responsibility has in consequence been thrown upon the care organisation.

It is of great importance that no child should suffer from lack of nutriment. Closer co-operation with the Guardians of the Poor has in many cases solved the difficult situation that arose.

In London much benefit has resulted from the arrangement whereby milk is given in school to debilitated and ill-nourished children upon the advice of the school doctors. It has been necessary carefully to standardise this work. Special reports have been obtained in each case and very careful following-up initiated in order that no child needing milk under the provisions of the Act should suffer.

Re-inspection of all milk cases has been instituted throughout the area, as it appeared that certain children placed upon the milk list remained on the list after the need for special feeding had passed by.

During the year an average number of about 25,000 milk meals was given each week to necessitous children in elementary schools.

Personal hygiene.

The total number of examinations made at rota visits during the year by the district school nurses was 2,158,100; verminous conditions were present in 405,335 instances, or 18·7 per cent., as compared with 20·5 per cent. in 1921 and 18·9 per cent. in 1920.

Cleansing scheme.

The results of the work for the several years 1912–1922 under the Cleansing Scheme are shown in the following table :—

Year.	No. of examinations made at Rota visits.	No. of verminous conditions noted at Rota visits.	Per cent.	No. of verminous children referred to stations.	No. subsequently cleansed by parents.	No. of verminous children cleansed at stations.	No. of scabies cases bathed at stations.	No. of cleansings for vermin and scabies.
1912 ..	—	—	—	23,573	10,179	10,340	—	26,913
1913 ..	—	—	—	29,903	15,241	14,662	—	41,458
1914 ..	1,053,218	286,664	27·2	28,361	14,392	13,969	589	42,557
1915 ..	2,444,885	689,428	28·1	28,063	14,677	13,386	1,059	43,884
1916 ..	2,399,280	612,659	25·5	24,705	11,314	13,391	3,213	54,945
1917 ..	2,130,186	528,658	24·8	19,506	8,506	11,000	6,940	80,755
1918 ..	1,921,762	465,608	24·2	13,237	4,912	8,325	9,624	95,033
1919 ..	2,031,735	459,396	22·6	33,222	15,929	17,292	8,371	105,639
1920 ..	1,944,105	368,732	18·9	43,764	16,355	27,409	9,675	123,975
1921 ..	2,113,463	435,282	20·5	65,084	22,489	42,595	5,863	92,024
1922 ..	2,158,100	405,335	18·7	73,800	26,031	47,769	3,944	80,744

In addition to the figures set out above for the year 1922, the number of children dealt with at the head cleansing centres was 25,987.

The reduction in the percentage of children found unclean corresponds closely with the findings of the school doctors at routine medical inspections. It is the practice of the school nurses in London to include not only children found harbouring pediculi and their ova, but also children who are found flea-bitten; also as the children are seen more than three times during the year by the school nurses, and as it is probable that especially dirty schools receive more attention, it is clear that the above figures are not to be compared with those of other authorities where differing methods and standards may exist.

The great reduction in the number of children suffering from scabies is due to the concentrated efforts used to deal with this scourge, even at the expense of some of the ordinary cleansing work. With the lightening of the burden thus effected the campaign against lice has been intensified, and progress in educating the people to observe a higher standard of personal cleanliness generally has been resumed.

The number of cleansings at the cleansing stations again shows a decrease as compared with the previous year, this being due to the continued fall in the number of children suffering from scabies and the closing of two borough Council stations for some periods during the year, on account of repair work, or the use of the station as a shelter in connection with the outbreak of smallpox. The movement referred to in last year's report, whereby a decrease in the number of children suffering from scabies is followed by an increase in the number of verminous children actually dealt with (these children being formerly crowded out) is again shown by the increase of the figure from 42,595 to 47,769, but whereas a child suffering from scabies has from four baths upwards, the verminous child is cleansed generally speaking in one operation.

Out of 73,800 children whose verminous condition was brought to the notice of the parents, 30,619 attended voluntarily at the cleansing stations, but in 22,975 cases it was necessary to serve statutory notices after a further examination. Following upon these statutory notices 6,669 children attended the stations voluntarily, but of the remainder 10,481 were found verminous after a still further examination and were compulsorily taken by the nurses for cleansing. Among the children who were compulsorily cleansed 797 were subsequently found to have relapsed and prosecutions under Sec. 122 of the Children Act were instituted in 726 cases.

During the year arrangements were made for the use of the Chelsea borough Council station, this addition making a total of 18 sanitary authorities with whom the Council now has agreements.

These stations, together with the 7 centres organised by voluntary committees, and the Council's 9 stations, make a total of 34 centres which are now available for the cleansing of school children throughout the area.

Co-operation with local sanitary authorities.

As in previous years the practice was continued of notifying to the borough medical officers particulars of children dealt with under the Council's cleansing scheme in order that where possible the home conditions might be remedied under the Acts of 1904 and 1922. During 1922 reports were received in regard to 5,005 homes visited ; out of this number disinfestation or destruction of bedding or disinfestation of homes was carried out in 1,228 instances. In 1921 the corresponding figures were 4,882 homes visited, action taken in 1,792 cases ; whilst in 1920, 3,645 homes were visited, and action was taken in 1,852 instances.

Use of public washing baths during school hours.

The scheme for bathing children at certain public baths was continued throughout the year, but the extensions of the scheme referred to in the last report were not put into operation. The number of baths arranged for during 1922 was 5,206 in Camberwell and 8,827 in Kensington.

There have been increasing demands upon the facilities provided, but the limited expenditure on the scheme has led to the number of children attending the baths during school hours being somewhat restricted. The scheme is appreciated by the teachers, and it is understood has led to larger attendances at the baths of children out of school hours. In connection with this last point certain borough councils are now providing cheap tickets, the use of which is limited to school children attending the baths, generally before 6 p.m.

Infectious diseases.

Scarlet fever.

During the year 8,026 cases of scarlet fever were reported as occurring in the Council's schools. The geographical distribution of the disease shifted as compared with 1921, being less marked in the East-end where it had persisted during the preceding year or more, and in the extreme western and north-eastern districts, and more notable in the south-eastern and south-western areas. The only boroughs affected above the normal on the north of the river were Fulham, St. Pancras, Islington, Finsbury and Holborn. The number of schools specially affected during the year was 213, and 376 special investigations were conducted by assistant medical officers into outbreaks of scarlet fever.

There was no heightened autumnal prevalence in 1922, there being a steady downward tendency in the notifications throughout the year, in striking correspondence with 1894, which year was (like 1922) preceded by two years of exceptionally high prevalence.

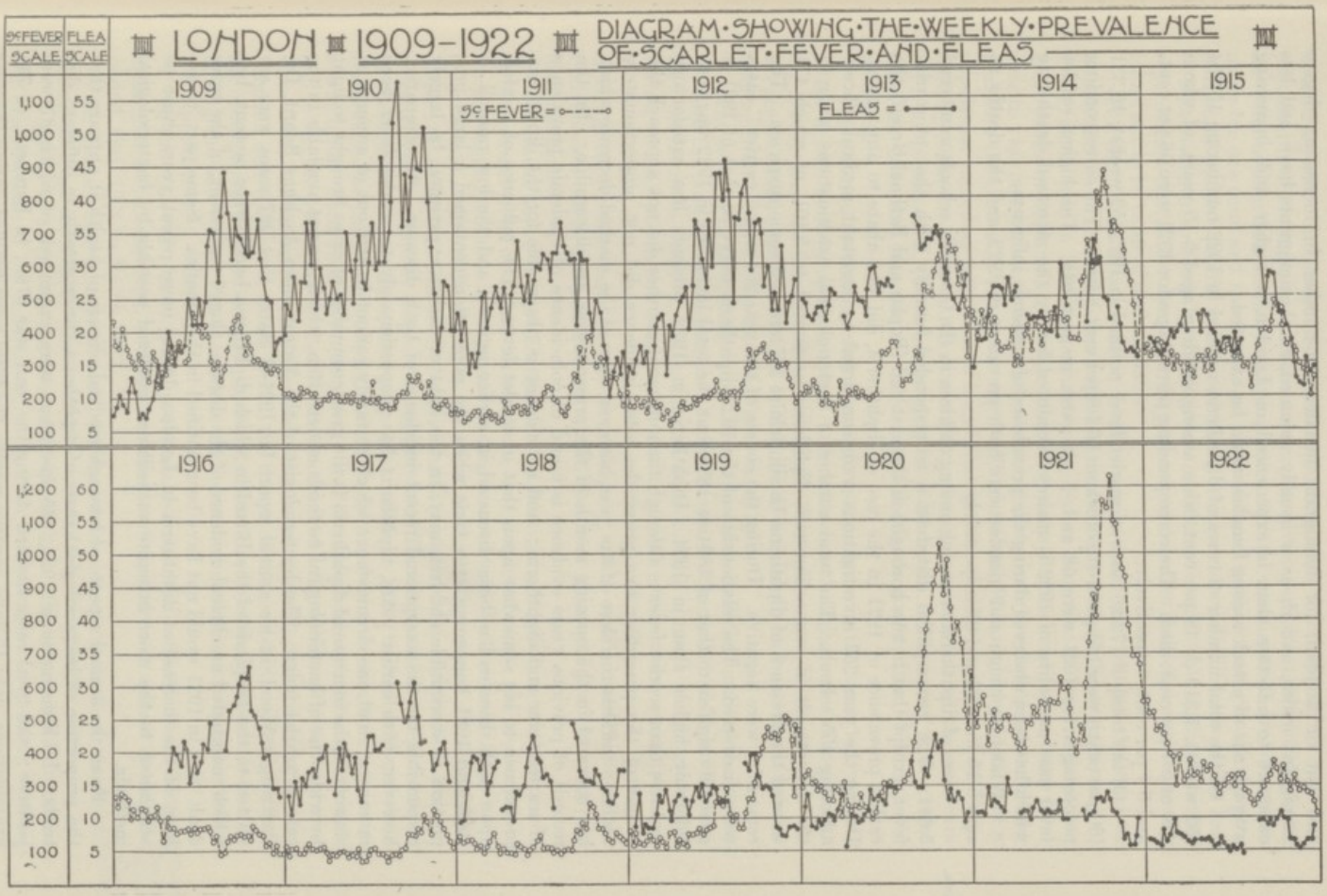
Rainfall and flea prevalence.

In last year's report the influence of rainfall upon scarlet fever prevalence was traced year by year through the period 1891–1921, and the conclusion was reached that the influence of an excess or defect of rain is largely modified by the extent of susceptibility of the population at the time. In 1922 the rainfall returned to normal after two years of drought, accompanied with high scarlet fever incidence, and the effect of merely average rainfall, coming upon conditions of depletion of susceptible units in the population, was practically to obliterate the usual autumnal wave of scarlet fever, as will be seen on reference to the diagram shown on page 81. The rainfall of 1922 differed little from that of 1913 or 1919, but the scarlet fever contours of these years are in marked contrast to 1922. The autumnal prevalence of diphtheria in 1922 was also out of proportion to the high prevalence which marked the early weeks of the year.

The relationship between flea prevalence and the incidence of scarlet fever is shown in the diagram on page 81. With two exceptions, 1909 and 1922, there is always a slight lag in the attainment of the scarlet fever maximum, which follows from 2 or 3 up to 9 or 10 weeks after the flea maximum. In 1909 there was an apparent exception to this rule, the highest number of notifications being attained during a milk outbreak of scarlet fever in June, though a second peak occurred later in September, 5 weeks after the attainment of the flea maximum. In 1922, as already observed, there was practically no autumnal wave of scarlet fever, and it is not, therefore, surprising that the lag of the maximum of scarlet fever upon the flea maximum was not apparent in that year. The curve showing flea prevalence is based upon the records of flea-marked beds in common lodging-houses for the first four years shown ; thereafter the curve shows the percentage of children found in the course of medical inspection to have fleamarks. The common lodging-house records show a far greater autumnal prevalence than do the school figures, and to this extent accord more with common experience. The weekly fluctuations shown in the school records is noteworthy in view of the numbers upon which the percentages are based ; one important factor in these fluctuations is the great contrast in the conditions in this respect found in different schools of the same district, a circumstance which has to be borne in mind when following the weekly contour of prevalence. The fluctuations from week to week may in part be explained as resulting from differing character of the groups of children, entrants, &c., dealt with in the course of school routine inspections at the time. The breaks in the flea records after 1912 are due to holiday periods.

A noticeable point in regard to the contour of the flea prevalence in the last two years is the comparative absence of seasonal fluctuation. The tendency is downward throughout the course of the school records, *i.e.*, 1913–22, but the last two years do not show a minimum incidence in the winter season, and subsequent autumnal rise, to the same extent as earlier years.

Dr. F. M. Turner, Medical Superintendent of the South-Eastern Hospital of the Metropolitan Asylums Board, in a paper read recently before the Royal Society of Medicine drew attention to multiannual fluctuations of the average age of scarlet fever cases, and to the fact that there has been a slow but continuous increase in the average age of cases in London during the past thirty years. The increase occurs mainly among females ; thus in the five years (1895–9) the average age of notified cases was—males, 8·61 years ; females 9·12 years. In the five years (1916–20) the averages were 8·67 and 9·88 years. The difference in the average for the two sexes has thus in the course of 21 years increased from ·51 to 1·21 years. The difference is, apart from changes due to the war, not greater perhaps than could be accounted for by the nature of the movement of population into


Sc FEVER SCALE
FLEA SCALE
LONDON 1909–1922
DIAGRAM SHOWING THE WEEKLY PREVALENCE OF SCARLET FEVER AND FLEAS
Sc FEVER = o-----o
FLEAS = •——•
1909
1910
1911
1912
1913
1914
1915
1916
1917
1918
1919
1920
1921
1922
1,100 55
1,000 50
900 45
800 40
700 35
600 30
500 25
400 20
300 15
200 10
100 5
1,200 60

and out of London, for immigrant females out-number in increasing degree immigrant males, and if, as is usually assumed, rural immigrants have had less exposure to infection than is experienced in London, a higher and increasing average age of attack among females would be expected.

Of the total number of cases of diphtheria notified in 1922 numbering 15,304 (52 weeks), 7,349 or 48 per cent. were among children aged 5-15 years, of whom 420 or 5·7 per cent. died. The corresponding percentages for 1921 were 56 per cent. and 5·4 per cent. respectively.

Of the total of 17,226 cases of scarlet fever notified in 1922 (52 weeks), 10,331 (60 per cent.) were of ages 5-15, of whom 86 (·8 per cent.) died. The corresponding percentages for 1921 were 68 and ·5 per cent. respectively. The higher scarlet fever case mortality of 1922 is mainly accounted for by the increased death-rate which has been observed during the prevalence of epidemic influenza.

Whooping-cough and measles were both prevalent in 1922, and the deaths at ages 5-15 were 26 and 83 respectively.

Diphtheria.

Cases of diphtheria occurring among children in the Council's schools numbered 5,641. The geographical distribution corresponded broadly with that of scarlet fever, except that in two boroughs in the east-end (Poplar and Bethnal Green) the earlier prevalence of 1921 in the case of diphtheria, did not abate to any extent. During the year 257 investigations were conducted by assistant medical officers affecting 155 schools. The total number of bacteriological examinations made in the department in connection with diphtheria amounted to 5,401, of which 471 showed the presence of diphtheria bacilli, whilst 377 aroused some suspicion. The remainder were negative. During the course of the year 251 new "carrier" cases were discovered. The relationship of the 1922 diphtheria curve to that of 1921 is generally similar to that of 1894 to 1893, but the total incidence in 1922 was considerably higher than in 1894. Diphtheria in 1922 presents less satisfactory features than scarlet fever; although the autumnal increase did not approach the height of the preceding two years the total incidence did not proportionately decline; towards the close of the year, however, signs of the marked decrease which has occurred in the opening month of the present year are discernible. In the records of previous years evidence is found of coincidence of epidemic prevalence of scarlet fever and diphtheria; and a tendency is observable for the diphtheria prevalence to lag somewhat upon that of scarlet fever. The influence of rainfall upon both diseases has been discussed in earlier reports, and the low rainfall of 1920 and 1921 happening at a time when the population contained a large proportion of susceptible children may, in the light of earlier experience, be largely responsible for the exceptional recent incidence of both diseases. As compared, however, with earlier years, diphtheria has proportionately to scarlet fever been in excess; and one circumstance which certainly cannot be left out of account as sharing in the increase of diphtheria is the greater number of cases brought to light by wider use of bacteriological methods of detection, which are not available in the case of scarlet fever. The bacteriologist of the Metropolitan Asylums Board, Dr. Cartwright Wood, in his annual report for 1921–2 states that 997 cases were admitted to the hospitals of the Board in which diphtheria bacilli were present, but which manifested no clinical evidence of the disease, thus 6·4 per cent. of the cases dealt with in 1921 would not have been notified in the nineties. Some part, therefore, of the increase of diphtheria in London during more recent years must be attributed to the more intimate surveillance rendered possible by bacteriological methods.

From the annual reports of borough medical officers of health it appears that the proportion of bacteriological cases of diphtheria varies greatly in different districts. In Kensington in 1921, 465 specimens were examined, of which 87 were positive; the total cases notified during the year was 376. In Lambeth, of 734 examinations, only 15 gave positive results, the total cases notified during the year

numbering 548. In Hampstead, where diphtheria of an unusually severe type was prevalent in 1921, 826 examinations were made, giving positive results in 158 cases, the total notifications in the year being 408. Several examinations are, of course, made for one case, and the figures are only adduced to show how greatly the proportion of positive results varies, and the differing extent to which recourse is had to bacteriological methods by practitioners in different areas. The medical officers' reports show that rather more than 10 per cent. of the cases notified are subsequently found not to be cases of diphtheria.

The diphtheria attack-rate in London during 1922 was 3·4 per thousand of population ; in 1921 the rate was 3·6 and in the ten years 1911-20 the average was 2·0. The London rate in 1922 was considerably higher than that in any of the other great towns in England and Wales. In view of the fluctuations in incidence from year to year comparison is best made of average rates over a series of years ; taking therefore the sixteen towns in the rest of England and Wales which in 1921 had a population exceeding 200,000 it is found that in four of them, namely, West Ham, Cardiff, Stoke-on-Trent and Portsmouth the London rate of 2·0 for the ten years 1911–20 is exceeded, the rates ranging from 2·1 to 3·1. The towns with lowest rates are Leicester, Manchester, Salford and Newcastle ranging from ·9 to 1·2 per thousand.

The position of London with regard to scarlet fever in the same ten years is rather better, there being eight towns of the sixteen with higher rates of incidence ; the lowest rates are found in Bradford, Hull, Nottingham and Leeds, from 1·7 to 2·6 per thousand ; and the highest in Salford, Liverpool, Cardiff and Birmingham, ranging from 3·8 to 4·8 the London figure being 3·1.

The severity of an epidemic prevalence appears to be determined by the extent to which the population is immunised by recent attack ; thus in 1914-5 diphtheria was very prevalent in Stepney, but not in the neighbouring borough of Islington, and with a smaller population Stepney at that time had nearly twice as many cases. In the epidemic of the past two years the position was entirely reversed. Islington suffering earlier and more severely than Stepney. It is not improbable therefore that London has in the past two years paid the price of several years of relatively low prevalence.

As stated above the notifications do not form an altogether satisfactory guide to the general trend of diphtheria incidence over a series of years, the greater use of bacteriological methods in diagnosis tending to overstate the incidence in the more recent years. This difficulty does not affect the mortality rates. In the Annual Report of the Medical Officer of 1914 the annual mortality from diphtheria in London since 1858 is shown in the diagram facing page 16. The diagram shows that the trend of the death rate was downward from 1859 to about 1872, thereafter there was a remarkable increase, to a maximum in 1893, followed by a decline to a minimum about 1913. From then up to the present time there has been a continuous increase, and in the last two years the death-rate has reached a figure above that of any year since 1902. The upward trend of recent years is not apparent in the similar rates for England and Wales as a whole, but in the course of the period of comparison there are other groups of years in which the London death-rate shows divergence from that of England and Wales. The periods of maximum and minimum incidence nevertheless approximately coincide.

The bacteriological diagnosis of diphtheria carriers.

In the report of 1921 (vol. III., p. 47) analysis was made of 6,973 bacteriological examinations in connection with the occurrence of diphtheria in schools during the period April 1921 to March 1922.

In the last nine months of 1922, 3,866 examinations were made of throat and nose swabbings from 3,325 school children with the following results :—

Negative in 3,323 examinations of 2,966 children. Diphtheria bacilli found in 303 examinations of 158 children, or 5·3 per cent., and suspicious organisms reported in 240 examinations from 201 children or 6·6 per cent.

With the object of securing pure cultures of B. diphtheriæ for the application of virulence tests, attempts at isolation of the bacilli by plate culture were made involving 475 cultivations from 324 cases, including 189 examinations which had been originally reported as suspicious and from which diphtheria bacilli were isolated in 17 cases. B. diphtheriæ was successfully isolated in a total of 219 cultivation tests from 141 cases and to these, thanks to the courtesy of Dr. R. A. O'Brien and his colleagues of the Wellcome Research Laboratories, animal virulence tests were applied with the following results :—

Virulent 138 tests of 102 cases = 72 per cent.

Avirulent 81 tests of 39 cases = 28 per cent.

Included in the above figures were 6 cases in which original cultures were virulent in 8 examinations and avirulent in 13 subsequent cultures.

The relationship of virulence to abnormal conditions of throat or nose and history of exposure to infection in 141 cases tested is set out in the subjoined table.

	Defects of throat or nose.	History of sore throat illness or cold.	In hospital with diphtheria.	In hospital with scarlet fever.	Family history of sore throats or carriers.	Home or desk contacts of diphtheria.
KLB Virulent ...	76	13	1	3	1	11
KLB Avirulent ...	25	5	2	—	—	6

The value of virulence tests may briefly be summed up by saying that all the children found avirulent are at once re-admitted to school, thereby saving considerable loss of school attendance. During the past two years it has been calculated in the case of 33 avirulent carriers that their re-admission to school on the results of the virulence test might in times past have involved the loss of no less than 166 months, or close on 14 years of school life, an average of 5 months for each child concerned; for it was found in subsequent swabbings that the carrier condition persisted after re-admission for periods ranging from one to 20 months, or even as long as 3 to 4 years, as shown by the recent re-examination of 14 past avirulent carriers, in 7 of whom avirulent bacilli were still present.

In actual practice the periods of absence of carriers from school varies widely according to circumstances, but it may be stated that during the 6 months ended February, 1923, the average duration of exclusion from school was 10·5 weeks for virulent and 2·9 weeks for avirulent carriers. The latter period could no doubt be reduced still further under favourable conditions.

A review by Dr. J. G. Forbes of the Schick test for diphtheria susceptibility and the advocated prevention of the disease by artificial immunisation.

The test, introduced by Professor Schick, of Vienna, in 1913, is made by the injection of a minute measured quantity of diphtheria toxin into, not under, the skin. If the person injected has no natural anti-toxin in his blood or an insufficient amount for his protection, a positive reaction follows in the form of a circumscribed area of redness and infiltration in 24 to 48 hours at the seat of injection, thus giving evidence of non-immunity or an absence of anti-toxin to counteract the very small amount of toxin injected. Since the introduction of this well-known test, information, chiefly from America, has been steadily accumulating both as to its use, and as to the practice of active immunisation (of those found to be naturally unprotected) by means of injection with diphtheria toxin-antitoxin mixture.

In children of both the pre-school and school age the results of the Schick test in the percentage proportions of those giving positive reactions (*i.e.*, the non-immune) have shown an age distribution closely in accordance with that of the incidence of the disease itself and of the case mortality rate.

This agreement between the tested non-immunity, the diphtheria incidence and mortality rate, as Park and Hughes in America and workers in this country have emphasised, can be traced through the successive years of early life and the later school age period. During the first 6 months the comparatively slight susceptibility

is probably due to the temporary influence of protection derived from natural maternal immunity. Such immunity is gradually lost, as evidenced by the increasing number of children between the ages of 6 months and 5 years found to be Schick positive.

Later, as the result probably of exposure from time to time to mild doses of diphtheria infection, the individual acquires some degree of immunity, reflected in the reduced number of those found to be Schick positive and in the lower incidence of diphtheria and case mortality after the age of 6 years.

Confirmation of these facts, mainly established in America, has been provided by the results obtained by workers both in this country and in France, though restricted to a limited number of investigations during the past three years.*

Zingher, in 1921, from application of the test to 52,000 children drawn from every class of life in New York, found considerable variation in the immunity rate of town and country dwellers, poor and well to do. In the poorer town quarters the percentage of Schick negative (immune) school children proved to be as high as 80-84; in good class schools only 33, and in a rural school but 15 per cent were found immune, a range dependent on the degree to which the various groups of individuals had been exposed to infection and had acquired a corresponding passive immunity. The prophylactic use of diphtheria toxin-antitoxin injection under the skin for the purpose of actively immunising the non-immune or Schick positive school child, first proposed by Von Behring in 1913, has been carried out on a very considerable scale by American workers in the past two years. In view of the very high proportion of children between the ages of 6 months and 6 years found to be Schick positive, and therefore unprotected, Zingher has considered it advisable in future to dispense with the preliminary test, and particularly in time of epidemic, and to immunise all children from 5 months up to the age of 6, reserving the test only for adults and children over 6 years.

The method of immunisation now practised in America consists in the subcutaneous injection of three doses of toxin-antitoxin mixture, each of 1·25 c.c. and given at intervals of two weeks.

After completion of the series, certificates of immunity are only given when immunity is proved by subsequent negative reaction to the Schick test—a varying period which may not be reached for two or three months. Those proving still Schick positive receive a second, or, it may be, a third series of injections before complete immunity is established. Quite exceptionally cases occur which persistently remain Schick positive after one or more series of injections.

Results of active immunisation.

Park (New York) states (Journal American Medical Association, May, 1922); We have seen no harmful effects from the application of the Schick test and the use of toxin-antitoxin in more than 100,000 school children. At a later date (January, 1923) he has recorded (in the New York State Journal of Medicine) the fact that the New York department of health had 180,000 children indexed and under observation, of whom 90,000 have been Schick tested. Of this number, 60,000 have proved negative at the original test, 30,000 received toxin-antitoxin injections and of these 20,000 were negative when re-tested subsequently. 10,000 of those originally positive had either not been re-tested or on re-test were still found positive after the injections.

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* An interesting addition to the literature on the Schick test has recently been published by the Medical Research Council in their Special Report Series, No. 75, this being a report by Surgeon-Commander Sheldon F. Dudley, R.N., on throat illness in a London school. It is deserving of note that in this report comparison is made between about 1,000 boarders and 100 day boys in the school. Diphtheria, scarlet fever, and sore throat affected 30 per cent. of the former, but no single case of diphtheria or scarlet fever was reported among the day boys. Taking a broad view of the facts it seems likely that the boarders of the school, recruited as they are from all parts of the country, come to the London environment without the protection which previous school life here might have afforded. With regard to the day boys, most of them are undoubtedly Londoners, who may have been protected by previous attack.

During January, February and March, 1921, 54 cases of diphtheria occurred among the 90,000 untreated school children, whereas among the 90,000, who had been tested and when positive (non-immune) had been given two or three injections of toxin-antitoxin, there were only 12 cases, *i.e.*, there were four and a half times as many cases of probable diphtheria among the untreated 90,000 as among the tested 90,000. Four cases of diphtheria occurred among 8,200 children originally Schick positive who had not been re-tested since the immunising injections.

Every effort was therefore being made in New York to secure the immunisation of all school children. It may be pointed out as corroborative of the results of the preventive measures by active immunisation adopted in America that during 1921 in New York City diphtheria cases and deaths were less numerous than ever before, the death rate from diphtheria for 1921 falling to ·16 per 1,000 population. This improvement, moreover, was maintained in 1922, when the diphtheria death rate fell to ·15. Support of the prophylactic value claimed for anti-diphtheria immunisation is forthcoming, not only from workers in other parts of America, but also from limited observations made in this country.

Dr. R. A. O'Brien and his colleagues of the Wellcome Research laboratories in 1921 undertook the testing and immunisation of the inmates of two poor law schools in Mitcham and Norwood, owing to the prevalence of diphtheria in the two institutions. At Mitcham in August, 1921, all the children aged 3 to 14 years, numbering 329, were Schick tested, and 102 who were found to give positive reactions received injections of toxin-antitoxin. As a sequel to this successful immunisation, no further cases of diphtheria have occurred in the school in the past 18 months up to date.

Similarly at the Norwood school, where there had been much diphtheria since 1916, 600 children were Schick tested and the positives were given toxin-antitoxin, with the result that no further cases of diphtheria have occurred among those immunised. But as it was not possible to complete the testing and immunising of all the children, it is important to note that some 20 cases have developed since among the unprotected ; a fact which may be regarded as evidence in support of the value of artificial immunisation. During the last 4 years London has been through combined waves of scarlet fever and diphtheria prevalence, the crest of which was reached in the autumn of 1921. Under these special circumstances the scheme now in force in America, for the prevention of diphtheria in New York and elsewhere, has been carefully watched. The experience there forthcoming during the next year or two will be followed and studied with the closest attention. It is to be hoped that the future may show a distinct decline, such as appears to have already occurred in the incidence of diphtheria.

Measles.

After a period of quiescence in 1921 the incidence of measles commenced to rise in the early part of 1922 and reached epidemic proportions in the months of March and April. During the year 34,385 cases of measles were reported by the head teachers as occurring among children attending the Council's schools.

"Unprotected" children were excluded from 249 class-rooms for periods varying from a few days to three weeks.

Whooping cough.

The number of cases of whooping cough reported in school children during 1922 was 10,340 as compared with 9,584 (1921), 8,779 (1920), 3,397 (1919), and 11,671 (1918).

Ringworm.

The decline in the number of ringworm cases recorded in 1921 was continued, in a more marked degree, during 1922, 2,766 fresh cases having been reported for the twelve months as compared with 3,473 in 1921 and 3,983 in 1920. At the end of 1922, 818 children were known to be suffering from ringworm as compared with 999 at the close of 1921. The number of children cured by X-Ray treatment at the Council's treatment centres rose to 65 per cent. as compared with 60 per cent. in the previous year. During 1922 the number of hair specimens examined in the laboratory was 2,824, of which 1,448 (including re-examinations) proved to contain ringworm fungus, 10 favus fungus and the remainder were free from disease.

During the year only four fresh cases of favus were discovered.

Influenza.

The outbreak of influenza, referred to in the report for 1921, which commenced towards the close of that year and reached its height about the middle of January, 1922, had subsided by the end of February. The type of illness was not so severe as that experienced during the pandemic of 1918-19, but considerable loss of school attendance was entailed in certain districts. Gastric symptoms, evanescent rashes and jaundice were the special features associated with the outbreak. After the cessation of this outbreak influenza was quiescent for the remainder of the year.

Smallpox.

Two distinct outbreaks of smallpox occurred in London during the year, one in the summer and the other in the autumn, comprising 65 cases (including one discovered at Westcliff-on-Sea), of which 20 died. Only four children were attacked, three attended the Council's elementary schools and the fourth a secondary school not maintained by the Council. All schools in the affected areas were kept under strict observation and every precaution taken. Vaccination of school children was extensively carried out by special arrangement with public vaccinators on the school premises and in all some 25,000 children were vaccinated of whom 55 per cent. had not previously been vaccinated. These outbreaks are referred to in more detail in the first part of the annual report of the County Medical Officer of Health.

Residential Special and Industrial Schools.

The health of the children in the Council's residential schools was on the whole satisfactory as far as infectious disease is concerned. No serious outbreaks of dangerous infectious illness occurred. There was, however, an outbreak of scalp ringworm at Rayners Deaf School, Penn, Bucks, where twelve such cases occurred. Special visits to the school were made by one of the Council's assistant superintendents of nurses and by radical measures, *e.g.*, treatment by X-rays, etc., the outbreak was suppressed.

Examination of Candidates.

The number of candidates submitting themselves for first examination during the year was 5,496, but some of these attended for their first examination in the previous year. The total number of examinations was 6,514. The candidates may be classified as (*a*) candidates for entrance to the permanent service, (*b*) candidates for the award of scholarships.

Candidates for permanent service.

The total number of candidates examined was 683 (295 males and 388 females), but of these candidates 20 attended for their first examination in the previous year. There were, however, 771 examinations (327 males and 441 females); in 83 cases (28 males and 55 females) a second or third examination was necessary. Of the number thus referred, remedial treatment was satisfactorily obtained in 64 cases; 2 were rejected; 6 withdrew their applications; and 11 were still under consideration at the end of the year. The total number of rejections was 12. The reasons for rejections were, vision, 4; heart, 2; miscellaneous, 6.

Candidates for the award of scholarships.

The scholarships and awards granted by the Council fall into three divisions, each of which requires different treatment in so far as the medical examination of candidates is concerned. (*a*) County scholarships enabling candidates to proceed to institutions of university rank; (*b*) Technical scholarships enabling candidates to receive instruction in trades, and special scholarships; (*c*) Awards enabling candidates to prepare for the teaching profession.

The total number of candidates examined was 4,813; these include 14 who attended for their first examination in the previous year. There were, however, 5,743 examinations, the excess being due to the fact that in 820 cases a second or third examination was necessary; 787 obtained satisfactory treatment and were on re-examination certified as fit. 116 candidates were found to be unfit; of these 19 were rejected for two defects each and 1 for three defects; 99 were rejected as the result of their first examination and 17 as the result of subsequent examinations. The reasons for rejections were:—Defective vision 58; unsatisfactory personal

hygiene 1; defective teeth 3; unsatisfactory general health 14; unsatisfactory condition of heart 12; miscellaneous 49.

Cases specially referred.

There are also referred to the Public Health Department special cases of employees in the education service absent owing to personal illness; questions in regard to students in institutions for higher education whose health is considered such as to render exceptional attention advisable; cases of teachers returning to duty after extended leave of absence (*a*) owing to personal illness; (*b*) for educational purposes; (*c*) to married women under No. E.22 of the Regulations in regard to the education service; cases of teachers about to be superannuated; applications for special consideration owing to wounds, etc., of teachers demobilised from H.M. Forces; and claims received from teachers and others in the permanent service for exceptional treatment as regards sick pay and re-imbursement of medical and other expenses in respect of illnesses alleged to be due to the conditions under which they may have been required to carry out their duties. The number of cases thus referred was 2,934, as compared with 2,333 in 1921, an increase of 601 or 25·76 per cent. The major part of these consisted of teachers, of whom 312 were men and 1,263 women; 126 men and 527 women being referred for consideration more than once, a few being referred not less than six times. The increase is attributable, apart from the gradual ageing of the teaching staff, to the change of practice relative to teachers absent owing to sickness, other than those suffering with nervous complaints. Hitherto non-nervous cases have been referred to the department after an absence of two months, but at the beginning of the year under review, it was decided to refer such cases at the conclusion of one month, and to instruct the teachers that those proposing to leave London must ascertain through the Education Officer whether the Medical Officer wishes to see them.

Exchange teachers proceeding overseas.

One of the London teachers who had been given leave of absence to proceed overseas under the interchange of teachers scheme had a serious breakdown while teaching in Canada and it was therefore thought that it might be a desirable precaution to enquire into the state of health of teachers proposing to exchange in either direction. Arrangements have been made accordingly and it is now the practice to forward to the overseas authorities concerned a medical certificate in respect of each teacher.

Physical education of teachers.

All applicants for admission to the Council's course of physical instruction, instituted during 1920 in order to train teachers to carry out the provisions of the Education Act, 1918, relative to the examination of school children were examined. 567 examinations were conducted, and over 13·9 per cent., actually 79 candidates, were found to be unfit to undergo the prescribed course for the reasons specified, viz., heart 14; general condition 40; war wounds 3; miscellaneous 22.

The examination of applicants for admission to these courses generally is limited to what is practically useful, and also to what is reasonable or convenient to ask every teacher to submit. Where the necessity arises, however, more exhaustive examination is made in any direction which appears to be essential. The previous health records of all candidates, as known to the department, are laid before the examining doctor, who also makes notes on the record of the examination which he is conducting. The name of the applicant is verified, and then the general appearance of the applicant is compared with the recorded age. A prematurely old person often has to be considered unfit. The visual acuity and strength of any glasses worn are recorded, as there is risk of damage in certain eye conditions. Eye movements also often have to be tested. The general appearance as to nutrition, condition of blood, breathing and so on, and the facies as regards nervous symptoms are all assessed as well as the attitude which displays certain abdominal disabilities, spinal rigidity, flat-footedness and other hindering conditions. The condition of the teeth is inspected, as dental sepsis so often leads to lowering of reserve powers; any signs of deafness are also followed up. The hands and fingers are extended to note the general muscular bearing and any tremor or nervous hesitation. The pulse is

recorded and, in a certain proportion of cases, the blood pressure measured by sphygmomanometer. The heart condition is investigated by palpation and auscultation, not only as regards presence or absence of actual disease, but with a view to assessing reserve powers for physical strains. If there is any doubt about heart or lung conditions, the pulse and respiration rates, and, when necessary, also blood pressure, are compared both before and after standard exercises, and a note made as to the ability to tolerate exercise without risk or distress. As a routine measure, abdominal conditions are not physically examined, but patients are questioned to elicit any stomach, liver or kidney symptoms, or any signs of local inflammation, appendicitis, hernia or pelvic troubles. The commonest hindering defect here is visceroptosis, usually readily diagnosed by posture and appearance. Further questioning follows and inspection is made as regards varicose veins, knee or joint troubles, swelling of ankles after exercise or flat-footedness. Where any suspicion of disease or defect arises, it is followed up by thorough investigation, save that X-rays are not at the disposal of the examining doctor, and, apart from radioscopy, every reasonable care is taken to detect anything likely to be a hindrance or to cause unusual risk in the practice of the physical exercises.

Accidents and sudden illnesses at County Hall.

On the transfer, in June, 1922, of the Public Health Department to the County Hall, arrangements were made whereby medical aid and advice could be given in the event of cases of accident or sudden illness occurring at the Hall. From June to the 31st December, 1922, aid was rendered and advice given in 37 cases. Generally, the cases were of a minor character, such as faintness, bruises owing to falls, sprains, foreign bodies in the eyes and poisoned wounds; there were in addition a few cases of serious burns.

Supervision of dietaries.

In connection with the scheme for the provision of dietary to necessitous and other children, the systematic examination of milk meals has been continued during the year. The total number of samples dealt with was 1,074, the results must be considered as satisfactory, only 6·4 per cent. of the samples examined being reported to contain added water or to be deficient in fat. This figure compares with 5·5 per cent. during 1921 ; the apparent increase is, however, due to a higher requirement of the Council's contract as regards the amount of fat, viz., 3·25 per cent. instead of 3·0 per cent. Calculated on the basis of 1921, the percentage of unsatisfactory samples would have been as low as 4·3 per cent., the lowest figure reached since systematic examination was carried out. The maximum addition of water found in any one sample examined during the year was 17 per cent., whilst the maximum abstraction of fat was 35 per cent.

Samples of meals other than milk meals have again been systematically examined this year. In a number of cases the meal has been found to be below the recognised standard in nourishing constituents.

Defective children.

The total number of examinations conducted under the Education Act during the year was 23 128.

Admission examinations.

4,843 admission examinations were held as compared with 5,371 in 1921. 1,439 children (742 boys and 697 girls) were deemed suitable to attend elementary schools, 89 (45 boys and 44 girls) schools for the blind, 291 (121 boys and 170 girls) schools for myopes, 102 (54 boys and 48 girls) Swanley, 898 (439 boys and 459 girls) P.D. schools, 1,172 (663 boys and 509 girls) M.D. schools, 4 (3 boys and 1 girl) open air schools, 67 (33 boys and 34 girls) schools for hard of hearing, 134 (53 boys and 61 girls) schools for the deaf, 33 (17 boys and 16 girls) were epileptic, 466 (197 boys and 269 girls) invalided from school attendance, 133 (80 boys and 53 girls) imbeciles, and 15 (9 boys and 6 girls) were idiots.

The following statement shows the nature of the conditions found among the children certified suitable for admission to physically defective schools at the admission examinations during the year :—

Morbid condition.	*Boys.*	*Girls.*	*Total.*
Infantile paralysis	61	49	110
Cerebral paralysis	10	12	22
Various paralyses...	16	12	28
Tuberculosis of bones and joints	120	92	212
Congenital deformities	5	10	15
Other deformities	48	29	77
Heart disease—			
Congenital	27	26	53
Acquired valvular	99	163	262
Acquired non-valvular	9	15	24
Other diseases	44	51	95
	439	459	898

The special schools were visited at least once a quarter and every child present was seen at least once during the year, the total examinations amounting to 17,742; in addition, 454 special examinations were made of children already on the rolls of special schools in connection with applications for non-enforcement of attendance at special schools, etc., etc. As a result of the visits and re-examinations, the following re-classification took place :—267 returned on improvement to elementary schools, 9 to schools for the deaf, 8 to schools for the blind, 33 from schools for the physically defective to schools for the mentally defective; 220 were excluded as imbecile, 96 were invalided on medical grounds, and 427, over 14 years of age, were excluded as no longer certifiable.

Examinations were also conducted of 89 cases with a view to committal to industrial schools and reformatories.

Residential schools.

There are 4 residential (industrial) schools, 6 residential schools (2 for blind, 2 for deaf, 1 for defective deaf and 1 for mentally defective children), with a total accommodation for 845 residential and 90 day scholars. To each institution is allocated a medical officer and provision has been made for dental inspection and treatment. During the year 880 boys were admitted to Pentonville-road Place of Detention and 310 girls and infants to Ponton-road.

Deaf children.

275 children were referred for special examination as suffering from deafness. These cases were seen by the Council's consulting aural surgeon, Mr. Yearsley, with the following results :—Special defects, 2 ; fit for elementary school, 18 ; fit for elementary school (front row) 44 ; fit for Hard of Hearing Centre, 66 ; fit for Deaf Centre (Normal) 109 ; fit for Deaf Centre (Defective) 4 ; fit for Mentally Defective Centre, 10 ; Physically Defective, 4 ; invalided, 10 ; advice given, 8.

In the 177 cases found suitable for special education, the cause of deafness has been classified as under :—

Congenital	Boys—25	Girls—40	Total—65
Acquired	„ 44	„ 51	„ 95
Doubtful	„ 8	„ 9	„ 17

The 95 acquired cases were due to the following causes :—

Meningitis (various forms)	Boys— 9	Girls— 2	Total—11
Infectious fevers	„ 4	„ 10	„ 14
Tuberculosis (suppuration)	„ 1	„ 1	„ 2
Congenital syphilis...	„ 0	„ 7	„ 7
Pneumococcal infection (internal ear)	„ 1	„ 0	„ 1
Primary ear diseases (catarrh, suppuration or otosclerosis)	„ 26	„ 29	„ 55
Injuries	„ 3	„ 2	„ 5

Physically defective children.

The result of a survey by Major Elmslie of the conditions of orthopædic cases attending the Council's special schools for physically defective children, is under consideration. The report has been published and is now on sale.

Mental deficiency in relation to venereal disease.

The Ministry of Health appointed a Committee of Enquiry on Venereal Disease, and an application was received from the Committee asking for information as to the relationship between mental deficiency and venereal disease. Arrangements were made for Dr. F. C. Shrubsall, the medical officer in charge of the branch dealing with the administration of the Mental Deficiency Act in London, to give evidence.

Criteria for the certification of children for special (M.D.) schools.

During the year considerable attention has been paid to the certification of children for special (M.D.) schools and to the criteria for exclusion of children as ineducable with a view to their being dealt with under the Mental Deficiency Act, 1913. The following statement has been prepared by Dr. F. C. Shrubsall.

Children come to notice because of either all round inefficiency, delinquency or failure to profit in ordinary schools. Those who have to be excluded as ineducable in special schools come within the former category.

The estimation of the mentality of an individual depends on many factors; due credit has to be given to all kinds of ability, and the lower the apparent grade, the more definitely the emphasis falls on simpler activities. In dealing with low grade children great weight is always assigned to any attainments of a practical or normal character, though full credit is allowed for any knowledge of reading, writing, or counting. No child would be excluded from school solely because of inability to acquire the fundamentals of the R's, or because of a failure in any one type of activity. Decisions as to educability rest on a wider basis than formal tests alone. The Board of Education point out that children excluded from special schools, save in some very rare circumstances, will be either idiot or imbecile. The idiot is so far defective as to be unable to protect himself against ordinary physical dangers, while the imbecile can protect himself thus far, but cannot be taught to manage, himself or his affairs. The points noted, therefore, in the main, concern the adaptation of the individual to his environment. A few children show such all-round intellectual defect coupled with such instability of temperament and lack of physical or emotional control as to be obviously unsuitable even for a trial in a special school, since their presence could only prove detrimental to the interest of others, without appreciable benefit to themselves. Such children are, at once, definitely certified as idiots or imbeciles, as the case may be, and proposed for notification to the local authority under the Mental Deficiency Act. Children on the border line are given a trial in special schools, and this trial is continued as long as there are evidences of material improvement. A considerable number of these children prove amenable to educational influences; a few, after a trial, fail from emotional or intellectual reasons. Some can acquire a little knowledge, but prove so irresponsible and inefficient in practical matters as to be incapable of managing themselves, while others, though of a stable emotional type, prove eventually unable to acquire the simplest rudiments both of a literary and a manual education. All children in the special schools are reviewed by the medical officers at regular intervals, and if a suspicion of failure is aroused, a special report is made before any administrative action is proposed.

There are types of congenitally feeble-minded persons whose physical characteristics are such that the medical officer is able at an early age to make a definite prognosis of incapacity. The children in some of these types appear to lay observers to be bright and engaging. Their imitative capacity is such that they may even appear to the casual spectator more intelligent than a normal child of the same age. As an example, the type which goes by the name of Mongolian imbecile may be cited. Characterised by definite bodily stigmata, they are recognised almost from birth if brought under medical observation, but frequently their brightness is so marked that it is impossible to resist the claim that they should be given a trial in a special class. For the purpose of certification, the results of mental tests are considered in the full light of the physical condition of the subject and the whole observable and recorded behaviour as interpreted in the light of clinical experience. It is recognised that, whereas certain subjects merely represent the lowest grades of inherited mentality found in a normal scale, in others, the result is due to actual damage to the nervous

system or sense organs, and that, in these cases, the whole basis of mentality may be so altered as not to be comparable with any scale derived from the study of normal children. Defective vision, and again defective hearing, affect the appreciation of his environment by the subject, and also interfere with the due comprehension of any problem set before him. Paralyses profoundly vary not only the nature of the motor output, but the whole of the mental re-actions, while such conditions as meningitis, encephalitis, and the like, alter the whole basis of feeling and willing. There may, therefore, in such cases, be successes in relatively advanced tests and failures in relatively simple tests. In some cases of brain damage, the mentality may be underestimated, but, in the majority of cases, a failure to appreciate the limitations and risks imposed by the injury leads to a misleading optimism as to the future. This is particularly true of children suffering from epilepsy or from some forms of paralysis due to brain injuries received at the time of birth.

An important part of the clinical examination consists in the application of mental tests which afford an opportunity of noting the re-actions of the subject to definite problems, his power of perceptions, the continuity of his attention, the extent to which he plans or works by chance, the character of his mental associations and various other characteristics. Two fundamental biological features separating man from the animals are his powers of using language and of employing tools to assist his efforts. These features must be kept in the foreground of any investigation. Aptitudes of a practical nature are investigated by means of performance tests, of which a large variety exists. In the early stages, these consist of simple movements, such as clapping the hands, or catching a ball. Slightly more complex is the carrying out to order of definite actions, such as simple drill movements. In the course of these, an estimate may be made of the power of understanding spoken language and the control of movements. Of great importance is the degree of development, the power of control and of co-ordinated action of the finer muscles, especially those of the eyes, of the lips, of the larynx, and of the hand, which are used in human expression. The powers of articulation, the movements of the eye muscles, the facial expression or its absence, the use of simple tools, such as scissors or needle and thread, the performance of simple actions, such as buttoning and unbuttoning garments, all are capable of throwing light upon the condition of peculiarly human muscles of expression and the nervous and mental mechanisms controlling their action. Atrophy of these muscles, as evidenced by direct examination, and lack of power of co-ordination, as evidenced in their use, are valuable characters from the diagnostic standpoint.

Perception is investigated by such tests as naming or matching colours, recognising simple objects and the like. Recognition and recollection are tested by the child being shown a picture and asked to say what he sees, or by giving him a series of cards such, for example, as are used in the common nursery game of animal grab and asking him to pick out the dogs, cats or other subjects depicted, or by asking him "What does a dog or cat say?" Discrimination is tested by asking the child to say which is the longer of two sticks or lines; which is the larger, the nearer or the farther off of a series of boxes, or which of two apparently similar boxes is the heavier. Appreciation for form and powers of planning are tested by asking the subject to replace the blocks in a form board, various patterns of which exist, adapted to the needs of children of different ages. The point which is noted here is not so much the success or failure, as the method of attacking the problem. The lower grades of defectives almost always work in a haphazard manner, constantly repeating the same errors. Another method is to give the child a picture to build up from a series of blocks such as are commonly used in the nursery. At a more advanced stage, the picture may be complete save for certain blocks and the subject offered a choice of blocks to complete the whole.

Social activities are tested by giving the child one or more simple errands to

carry out, or by testing his power of giving the change in an imaginary transaction, using real coins for small amounts.

Of recent years, certain simple tests have been arranged in graduated series. Of these the Binet-Simon tests and their modifications, the Porteous Tests and the Healy tests are in fairly general use.

By the use of such series, it is possible to say that the intelligence of a given child, as far as it is measured by such tests, is roughly equivalent to that of a child of a specified age. It is not infrequently held that a child whose " mental age " is distinctly less than half the actual age may, on these grounds alone, be deemed to be imbecile ; but such numerical standards and generalisations, though having their value as indices, have not been found by certifying medical officers to afford an adequate basis for the certification of individuals. The bare fact of pass or failure with tests, apart from observation of the methods employed, does not give a true idea of mentality. A child would not be called mentally defective merely because his so called intelligence quotient (mental age divided by his chronological age) was below ·75, or excluded from a special school because this I.Q. was below ·50, although these figures have been suggested as forming the boundaries of feeble-mindedness and imbecility respectively. Emotional and temperamental characteristics, of which shyness, obstinacy, irritability, etc., are familiar examples, give rise to difficulty, but when it is necessary, such cases are specially re-examined that the certifying officer may be the more certain of obtaining the best possible responses of the child. Emotional disturbances often have a physical basis and are much affected by individual states of health. No child is even considered for exclusion unless his behaviour is quite uncontrolled or his attainments in the practical as well as literary aspects of education show no appreciable degree of improvement. Further, the necessary certificate is not given unless, when all physical conditions and temperamental factors have been considered, there is such evidence of lack of continuity of attention, or of powers of planning, willing or self-correction, or such lack of emotional balance as renders it clear to the certifying officer that the child cannot be taught to manage himself or his affairs—in other words, that he is an imbecile, but the presence or absence of physical stigmata will often enable the diagnosis to be made at an earlier stage than would otherwise be the case.

Should occupation centres be generally established, they would make suitable provision for certain of the children unfitted for special schools. Almost all imbeciles and some idiots may be improved in habits of cleanliness and order, though incapable of acquiring formal instruction or of developing manual capacities to an extent that would offer any hope of their becoming employable in the world. The methods adopted in occupation centres aim at the inculcation of habits rather than the training of ability. They provide simple and pleasant activities and companionship under controlled conditions for those who are unfitted for the more collective routine of a special school, and assist the children attending to conform to some of the simpler social conventions and, in some cases, in time enable them to carry out some of the very simplest household duties under constant supervision. This is of the greatest advantage to the children, as it widens their interests in daily life and affords a measure of relief to the families by relieving them of the duty of supervision for a certain number of hours per week.

After-careers of children formerly attending special mentally defective schools for the year ended December 31st, 1922. (Data furnished by the London Association for the Care of the Mentally Defective.)

	Male.	*Female.*	*Total.*
1. Number of children born in or subsequent to 1904, who have left special (mentally defective) schools and who have been on the books of the association	1,312	1,001	2,313*

* Particulars in regard to cases over 18 years of age have not been supplied by the London Association.

	Male.	*Female.*	*Total.*
2. Number who—			
(*a*) have since died	5	5	10
(*b*) who are known to be incapable by reason of mental or physical defect of undertaking employment	42	51	93
(*c*) are in attendance at an institution for further education ...	4	—	4
(*d*) are in other institutions	21	19	40
(*e*) were notified and placed under "supervision"	14	2	16
3. Number employed in—			
(*a*) Industrial or manual occupations (*i.e.*, factory work, any trade or part of a trade)	340	296	636
(*b*) Agricultural or rural occupations	7	—	7
(*c*) Domestic occupations (*i.e.*, servants sleeping in or out, lift boys, and those "helping at home")	40	245	285
(*d*) Commercial (*i.e.*, shop assistants or selling behind a counter), professional (or Army and Navy), clerical (office boys or girls)	52	11	63
(*e*) Blind alley or other precarious occupations (*i.e.*, van-boys, newsboys, errand boys or girls, selling from a barrow) ...	219	18	237
(*f*) Judged to be employable but out of work owing to industrial crisis	296	182	478
(*g*) Not seen either at home or employment centre, and position not known	212	123	335
4. Number whose after-careers have not been traced or who have left the neighbourhood	48	43	91
5. No action possible	12	6	18
Total	1,312	1,001	2,313

Delinquency in relationship to mental deficiency.

In continuance of the study of delinquent children commenced last year by Dr. F. C. Shrubsall and Dr. A. C. Williams, a comparison has been made between mental status of children in Special Schools and those charged with various delinquencies and sent to Special Industrial Schools. Most of these latter had previously attended Special Schools. The results are shown in the following table :—

Chronological age.	*Average mental age.* *Non-delinquent defectives.*	*Delinquent defectives.*
8	5·7 ...	6·0
9	6·1 ...	6.2
10	6·6 ...	7·2
11	7·1 ...	7·0
12	7·5 ...	8·1
13	8·0 ...	8·1
14	8·4 ...	8·7
15	8·9 ...	9·2

It thus appears that delinquents shew a slightly greater average intelligence than the general mass of day Special School children.

From data derived from a study of adult delinquents under the Mental Deficiency Act the following table would appear to show that emotional stability and working capacity have relatively less relation to mental age than to one another.

	Women. Average mental age.	*Men. Average mental age.*
Emotional stability.		
Stable	— ...	8·1
Slightly or at times unstable	7·8 ...	8·6
Moderately unstable	8·4 ...	8·3
Very unstable...	9·1 ...	8·4
Employability.		
Unemployable...	8·7 ...	8·1
Occasional employment	8·7 ...	8·7
Regular employment...	8·6 ...	8·3
Still at or just left school	8·5 ...	8·0

The later history of children, many of whom had been in special or other schools, shows that the types of schooling received were as follows :—

Charge.*	Elementary schools (London).	Special schools (London).	Elementary schools (Country).	Private schools.	Not known.
Women.					
Wandering and begging	4	3	2	1	2
Stealing	8	11	1	—	1
Soliciting and indecency	15	13	6	1	3
Neglect, desertion, etc.	2	6	—	—	2
Total...	29	33	9	2	8
Men.					
Wandering and begging	20	22	10	—	9
Stealing	28	55	12	2	5
Drunk and disorderly, etc.	4	4	1	—	1
Indecent exposure	5	9	3	—	1
Indecent assault	6	8	4	2	—
Gross indecency, etc.	4	5	2	2	—
Assault, etc., ...	6	6	—	1	—
Total	73	109	29	7	16

* In most cases the school attendance of these individuals was prior to general medical inspection established under the Administrative Provisions Act.

As this represents the sum total of delinquent cases dealt with in London under the Mental Deficiency Act up to the end of 1922, it is satisfactory to note the very small proportion of Special School children who subsequently get into serious conflict with the law and also to note that, in these cases, important influences appear to be emotional instability rather than poor intellectual capacity and lack of power to profit from special methods of education.

TABLE I.

Number of Children inspected 1st January, 1922, to 31st December, 1922.

(*a*) ROUTINE MEDICAL INSPECTION, 1922.

	Entrants.						Age 8.	Age 12.	Age 13.	Total elementary schools.	Total special schools.
	3.	4.	5.	6.	7.	Total.					
Boys ..	4,094	8,685	14,651	4,671	982	33,083	33,514	34,647	20,138	121,382	1,032
Girls ..	3,442	7,921	14,692	4,523	924	31,502	33,151	33,915	20,193	118,761	970
Total ..	7,536	16,606	29,343	9,194	1,906	64,585	66,665	68,562	40,331	240,143	2,002

(*b*) SPECIAL INSPECTIONS. (*c*) TOTAL NUMBER INSPECTED.

	Special cases.	General cases.*	Total number of children examined.
Boys	17,119	16,380	155,899†
Girls	17,947	16,025	153,695†
Total.. ..	35,066	32,405	309,594†

* The general cases relate to examinations *en masse* where individual records are not kept unless some defect is noted for treatment or observation

† Only 22 children were noted as having been seen previously in the same year.

164,046 children were re-inspected during the year (24,827 had been previously inspected during the same year, and 19,442 had been previously re-inspected in the same year).

TABLE II.

Return of Defects found in the Course of Medical Inspection in 1922.

Defect or disease.	Routine examination.		Special.	
	Number referred for treatment	Number noted for observation.	Number referred for treatment.	Number noted for observation.
Malnutrition	514	1,114	522	283
Ringworm (head)	31	5	173	23
,, (body)	70	6	72	4
Scabies	154	3	1,800	8
Impetigo	358	29	752	18
Other skin defects (non-tubercular)	1,426	312	638	74
Blepharitis	926	135	358	28
Conjunctivitis	351	47	547	26
Keratitis	7	9	79	19
Corneal ulcer	10	8	107	28
Corneal opacity	16	20	22	10
Defective vision	18,629	7,511	3,344	478
Squint	1,399	593	509	41
Other eye defects	594	79	133	18
Defective hearing	791	431	377	77
Otitis media and otorrhœa	2,296	856	1,266	94
Other ear defects	558	140	219	29
Enlarged tonsils	5,063	4,757	1,160	319
Adenoids	1,328	655	458	80
Enlarged tonsils and adenoids	1,828	736	378	33
Other nose and throat defects	1,440	710	715	461
Enlarged cervical glands	414	1,848	217	221
Defects of speech	143	270	112	58
Dental defects	57,410	1,122	3,140	114
Heart disease, organic	65	437	115	74
,, functional	19	872	24	52
,, not stated	274	3,988	464	857
,, anæmia	1,728	1,426	1,879	435
Bronchitis	1,480	1,723	622	233
Other lung defects (non-tubercular)	712*	948*	204	339
Phthisis, definite	89	38	106	41
,, suspected	—	139	181	150
Tuberculosis, glands	24	27	73	36
,, spine	—	10	11	7
,, hip	3	13	26	14
,, bones and joints	7	17	31	20
,, skin	21	11	1	—
,, Other forms	61	31	52	13
Epilepsy	64	159	238	125
Chorea	80	133	380	164
Other nervous conditions...	220	379	142	147
Rickets	119	110	101	16
Spinal curvature	749	725	158	65
Other deformities	278	185	299	138
Other defects	3,000	2,296	2,973	878

Number of children referred for treatment or observation { Routine, 109,971 / Special, 28,186

* Probably some of these are cases of suspected phthisis.

TABLE III.

Numerical Return of all Exceptional Children in the Area in 1922.

	Boys.	*Girls.*	*Total.*
Blind (including partially blind) within the meaning of the Education Act, 1921 —			
Attending public elementary schools (*a*)	34	32	66
Attending certified schools for the blind	536	589	1,125
Not at school (*b*)	13	28	41

	Boys.	*Girls.*	*Total.*
DEAF AND DUMB (including partially deaf), within the meaning of the Education Act, 1921—			
Attending public elementary schools (*a*)	2	6	8
Attending certified schools for the deaf	439	384	823
Not at school (*b*)	20	11	31
MENTALLY DEFICIENT.			
Feeble-minded.			
Attending public elementary schools	16	16	32
Attending certified schools for the mentally defective children	4,133	3,225	7,358
Number notified to local control authority by local education authority during the year	52	69	121
In institutions of the Metropolitan Asylums Board	184	130	314
Not at school	96	99	195
Imbeciles.			
At school	—	—	—
Number notified to local control authority by local education authority during the year	182	145	327
In institutions of the Metropolitan Asylums Board	498	356	854
Not at school	440	351	791
Idiots.			
Not at school	44	50	94
Number notified to local control authority by local education authority during the year	5	6	11
In institutions of the Metropolitan Asylums Board	92	77	169
EPILEPTICS.			
Attending public elementary schools	455	422	877
Attending special (M.D.) schools	82	62	144
Attending special (P.D.) schools	17	15	32
Attending blind schools	—	1	1
Attending deaf schools	1	4	5
Attending certified schools for epileptics	47	47	94
Not at school (*b*)	355	344	699
Imbeciles or idiots (*c*)	198	149	347
PHYSICALLY DEFECTIVE.			
Pulmonary tuberculosis.			
*Attending public elementary schools (*d*)	120	102	222
Attending certified day schools for physically defective children (day open-air schools for tuberculous children)	190	175	365
Attending certified residential schools for physically defective children	13	17	30
In institutions other than certified schools	198	243	441
Not at school (*b*)	115	146	261
Crippling due to tuberculosis.			
Attending public elementary schools (*d*)	270	242	512
Attending certified day schools for physically defective children	533	440	973
Attending certified residential schools for physically defective children	54	48	102
In institutions other than certified schools	542	502	1,044
Not at school (*b*)	129	112	241
Crippling due to causes other than tuberculosis, i.e., paralysis, rickets, traumatism.			
Attending public elementary schools (*d*)	1,300	1,740	3,040
Attending certified day schools for physically defective children	1,075	825	1,900
Attending certified residential schools for physically defective children	70	55	125
In institutions other than certified schools	101	92	193
Not at school (*b*)	53	64	117
HEART.			
Attending public elementary schools (*d*)	375	517	892
Attending certified day schools for physically defective children	457	637	1,094
Attending certified residential for physically defective children	4	10	14
In institutions other than certified schools	27	36	63
Not at school (*b*)	96	169	265

* Suspected pulmonary tuberculosis.

Other Physically Defectives, *e.g.*, defectives and other children suitable for admission to open-air schools—	*Boys.*	*Girls.*	*Total.*
Attending public elementary schools (*d*)	4,900	4,810	9,710
Attending certified day schools for physically defective children	79	68	147
Attending certified residential schools for physically defective children	—	—	—
In institutions other than certified schools	151	131	282
Attending open-air schools	270	240	510
Attended playground classes	1,200	1,900	3,100
Attended certified holiday camps (*e*)—			
Bushy	3,154	—	3,154
Margate	—	451	451
St. Leonards	159	151	310
Not at school (*b*)	741	1,168	1,909
Dull or backward.			
Retarded two years	9,415	8,573	17,988
Retarded three years	492	552	1,044

(*a*) These figures refer to cases of partial blindness and partial deafness.

(*b*) The number "not at school" includes children permanently disabled, certified as unfit to attend school for various periods, in the country, etc. Many are in attendance at other institutions, such as hospitals, or in the care of the Metropolitan Asylums Board.

(*c*) Feebleminded children imbeciles and idiots. This includes certain children who have been transferred to institutions outside the county, and also some under school age. A certain number have been dealt with under the Mental Deficiency Act; others are under the care of the Metropolitan Asylums Board as the Poor Law Authority.

(*d*) The figures of the physically defectives in the ordinary schools are made up from the returns of routine inspection, and may include certain cases which also come under other categories. The greater number of these cases would not be in any way certifiable as defective in the terms of the Education Act,1921, the crippling not being of such an extent as to interfere with ordinary education.

(*e*) The figures refer to the number of children passed through the camps during the year (accommodation 31.12.22—Bushy 300, Margate 64, St. Leonards 40).

TABLE IV.

Treatment of Defects of Children during 1922.

A.—Treatment of Minor Ailments.

Disease or defect.	Number of children.			
	Referred for treatment by school doctor.	Treated.		
		Under scheme.	Otherwise.	Total.
Scabies	1,954	3,944	—	3,944
Ringworm—Head	2,766	1,507	1,411	2,918
„ —Body	142			
Impetigo	1,110			
Other Skin Diseases ...	2,064	66,027	1,578	67,605
Ear Disease	4,339			
Eye Disease	3,150			
Total	15,525	71,478	2,989	74,467

B.—Treatment of Visual Defect.

Number of children.						
Referred for refraction by school doctors.	Submitted to refraction under scheme.				Treated by private agencies (hospitals, etc.).	Total number treated.
	No. refracted.	Spectacles prescribed.	Spectacles obtained.	Other forms of treatment.		
23,881	32,752	24,407	21,266	8,345	1,871	34,623

C.—Treatment of Defects of Nose and Throat.

Number of children.				
Referred for treatment.	Treated under scheme.		Treated otherwise.	Total treated.
	Operation cases.	Other cases.		
13,001	6,430	2,290	1,805	10,525

D.—Treatment of Dental Defect.

I.

Number of children.					
Inspected by dentist.	Referred for treatment		Treated under scheme.	Re-treated under scheme.	Otherwise treated.
	By dentist.	By school doctor.			
192,730	137,487	60,550	84,848	16,859	5,858

II.

Particulars of time given and operations undertaken.								
Half-days given by dentist to inspection.	Half-days given by dentist to treatment.	Attendances made by children.	Teeth extracted.		Fillings.		Other operations.	General anæsthetics
			Temporary.	Permanent.	Temporary.	Permanent.		
1,741	13,420	139,798	235,501	40,730	21,059	57,770	18,670	41,899*

* Made up as follows:—Nitrous-oxide, 25,340; ethyl chloride, 12,767; other, 3,792.

TABLE V.

Summary of Treatment of Defects as shown in Table IV.

Class of defect.	Referred for treatment.	Number of children treated.		
		Under scheme.	Otherwise.	Total.
Minor ailments	15,525	71,478	2,989	74,467
Visual defects	23,881	32,752	1,871	34,623
Nose and throat defects ...	13,091	8,720	1,805	10,525
Dental defects	198,037	84,848	5,858	90,706
Other defects	14,757	1,612	6,042	7,654
Total	265,201	199,410	18,565	217,975

TABLE VI.

Summary relating to Children Medically Inspected at the Routine Inspections during the year 1922.

(1) Total number of children examined at routine inspections 242,145

(2) Number suffering from—

Malnutrition	1,427	Heart disease, organic	320
Skin disease	3,210	,, functional ...	631
Defective vision and squint ...	87,966	,, not defined ...	5,983
Eye disease	3,508	Lung disease (not stated to be Tb.)	*7,808
Defective hearing	2,027	Pulmonary tuberculosis, definite	89
Ear disease	5,036	,, ,, suspected	151
Nose and throat defects... ...	29,221	Non-pulmonary tuberculosis ...	373
Enlarged cervical glands... ...	10,616	Nervous diseases	2,236
Defective speech	1,182	Deformities and rickets	7,838
Dental disease	95,365	Other defects and diseases ...	6,192
Anæmia	7,251		

(3) Number of children in (1) noted for observation (not including clothing or cleanliness) 19,068

(4) Number of children in (1) referred for treatment (not including clothing or cleanliness) 90,903

(5) Number of children in (1) reported at reinspection to have received treatment for one or more defects ... ... †9,424

* Probably some cases of suspected phthisis are included in this number.

† Only cases examined in the first term of the year are re-inspected in the same year.

CHAPTER XXV.

Public Health.

Treatment of tuberculosis—History.

The responsibility in London for the public provision of treatment for tuberculosis rests on the Council which in 1914 prepared a comprehensive scheme. In October, 1922, the Council made a revised scheme*, codifying, or declaratory of, the arrangements obtaining in London as a result of decisions of the Council and the Government departments concerned during the past eight years. The scheme has involved no change in the main purposes underlying the original scheme, but will have a special value, for administrative purposes, as a means of defining the relations between the various public authorities and voluntary agencies working for the common purpose of combating tuberculosis. The scheme was approved by the Minister of Health.

Under the scheme the Council provides or arranges for the provision of residential treatment required through a public authority (other than poor law guardians) and the metropolitan borough councils provide or arrange for the provision of dispensary treatment.

Clause 40 specifies the working arrangements into which the Council is prepared to enter with the authorities of other county areas with regard to certain cases in which questions may arise as to the county authority which should be responsible for the provision and continuance of any course of residential treatment. This clause lays down the general rule that when treatment is found to be necessary responsibility for treatment shall rest on the authority of the area in which the patient ordinarily resides. The Minister of Health apprehended that under this rule cases might arise in which it would be difficult to determine in what area a patient is ordinarily resident, and at his suggestion the clause provides that in any such case the authority in whose area the patient is living when application for treatment is made should be responsible for the provision of residential treatment.

Arrangements for the residential treatment of uninsured adults and children have been undertaken by the Council since 1914, and in 1920 the Council commenced to make arrangements for the provision of residential treatment of insured persons and discharged soldiers and sailors. The National Health Insurance Act, 1920, provided for the discontinuance of sanatorium benefit, and by the combined operation of this Act and the Public Health (Tuberculosis) Act, 1921, the responsibility for the institutional treatment of tuberculous insured persons was transferred, as from 1st May, 1921, from the Insurance Committees to the local authorities responsible for the institutional treatment of the remainder of the population.

Accommodation.

Becoming thus responsible for the residential treatment of tuberculous persons in London, the Council has been able to ensure that the best possible use is made of all existing accommodation. The number of cases awaiting residential treatment has also been reduced to a minimum. General information with regard to the Council's action for the provision of accommodation is given in the last Annual Report (vol. III., p. 61).

The Council agreed with the Metropolitan Asylums Board that the block grant due to the Council from H.M. Government in consequence of the termination of sanatorium benefit is to be allocated between the Board and the Council on the basis of the average numbers of beds respectively occupied during the year by insured civilians in institutions of the Board and in other institutions.

Patients' contributions.

Under certain conditions the Council requires a contribution towards the cost of residential treatment. In respect of both adults and children the amount is fixed in each case by the local Tuberculosis Care Committee ; their assessments are reviewed by the Public Health Sub-Committee. The contributions received from adults are credited to the County Fund, but the proportion attributable to residential treatment in institutions of the Metropolitan Asylums Board is paid to the Board.

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* *Scheme for the treatment of tuberculosis in London.* No. 2183. Price 4d.

The following table shows the provision for residential treatment under the Council's scheme (excluding insured persons and ex-service men)* :-- Care committees.

Year.	New cases admitted during year.			Beds occupied at end of year.		
	Adults.	Children.	Total.	Adults.	Children.	Total.
1920 ..	932	1,167	2,099	306	704	1,010
1921 ..	1,215	1,050	2,265	225	669	894
1922 ..	1,024	906	1,930	250	655	905

The following table shows the provision for residential treatment in London for insured persons and ex-service men.

	Admissions during year.			Beds occupied at end of year.		
	Insured adults.	Ex-service men.	Total.	Insured adults.	Ex-service men.	Total.
1920 ..	2,320	3,045	5,365	712	618	1,330
1921 ..	3,356	2,544	5,900	727	430	1,157
1922 ..	3,121	1,289	4,410	835	285	1,120

The above figures exclude cases of children referred by the Council to the Invalid Children's Aid Association for residential treatment under an agreement between the Council and the Association. The number of children so referred during 1922 was 273. At the end of 1922 there were 282 cases (206 adults and 76 children) on the waiting list for residential treatment.

The Local Government Board, in 1915, suggested that metropolitan borough councils should form tuberculosis care committees in connection with local dispensaries, mainly for the purpose of co-ordinating the activities of public health officers, concerned with the medical side of the work, and voluntary agencies, concerned with the social side and with the function of providing aids to treatment, such as additional food, change of air, clothing, better home conditions, etc. During the war it was not found possible to proceed with the formation of care committees, and the Council appointed interim committees to undertake the work. In May, 1922, the Minister of Health, after consultation with the Council, issued a circular letter to metropolitan borough councils on the subject of the formation and functions of care committees. The Minister suggested that the composition of the committees should be generally on the lines of the circular of April, 1915, and should accordingly be composed of representatives of local authorities, boards of guardians, insurance committees and charitable and social work organisations in the district. The addition of a representative of the Local War Pensions Committee, who should be especially familiar with the circumstances of ex-service men in the area, was also suggested.

The functions of the care committees are generally to look after the welfare and interests of patients, to render such advice and assistance as circumstances dictate, with a view to enabling a family to adjust its circumstances to the new conditions and to derive the fullest advantage from the medical treatment prescribed; and further, to co-ordinate voluntary effort for the provision of certain kinds of assistance that may be needed in particular cases, *e.g.*, additional food, change of air, clothing, etc. A subsidiary but important function of the care committees is to undertake, on behalf of the Council, the assessment of charges made in proper cases in respect of residential treatment afforded to children and adults. As regards expenses, approved expenditure incurred by borough councils in respect of office and clerical expenses in connection with the care committees ranks for the Government grant and the Council's grant towards the cost of the dispensary service. Proposals are being submitted by metropolitan borough councils and, in some cases, have been dealt with.

The dispensary service was the subject of a special survey in 1920.† As a Tuberculosis dispensaries —survey of their work.

* Figures for 1914–19 are given in the Annual Report for 1921 (vol. III., p. 62).

† *Tuberculosis in London. Report of the Public Health Committee.* 1st July, 1920. No. 2035. Price 6d. The development of the dispensary system was described in the Annual Report for 1920 (vol. III., p. 110).

result the Council, with the approval of the Minister of Health, approved, as part of the comprehensive scheme, a number of proposals to be brought into effect as soon after 31st December, 1920, as practicable. A further survey was made in the autumn of 1921, and it was ascertained that while improvement in certain directions had resulted since the previous survey, a number of defects still required to be remedied.

There are now 21 municipal dispensaries, one voluntary dispensary—largely aided by a borough council—and 8 dispensaries—also aided by the borough councils—at hospitals. Two borough councils have branch dispensaries.

The medical officers (or tuberculosis officers) of dispensaries number 40, of whom nine have part-time appointments. In order to co-ordinate the work of the public health departments and the dispensaries, borough medical officers have been appointed administrative tuberculosis officers, the position of the tuberculosis officer being assimilated with some limitations to that of an assistant to the borough medical officer, except in clinical matters, in which the tuberculosis officer is independent.

One half of the cost of approved arrangements for the dispensary service for uninsured persons is met by Exchequer grant. The Exchequer also makes an annual grant in consequence of the termination of sanatorium benefit. There are also Exchequer grants in respect of services rendered by the dispensaries in respect of ex-Service patients. One half of the balance of the cost of such arrangements approved by the Council in accordance with its scheme is borne by the Council, after deduction of Government grants for insured persons and discharged soldiers.

During 1922 the numbers of new cases examined at the dispensaries were :—7,843 adults (insured), 6,378 adults (uninsured), and 10,995 children.

Dental treatment.

Proposals for the provision of dental treatment in connection with dispensary treatment were submitted by several metropolitan borough councils, the Council having, in 1919, decided to regard dental treatment as an essential part of the tuberculosis dispensary service. At the end of 1922, 12 of these proposals had been approved.

Venereal disease.

Details are given in the last Annual Report (vol. III., p. 63) of the joint scheme by the Council and authorities near London for the diagnosis and treatment of venereal diseases. Arrangements have been made for free treatment and diagnosis for in-patients and out-patients at 30 hospitals and for the reception of patients for treatment at nine hostels. Special provision has been made for the treatment of pregnant women and very young children. Practitioners secure, at the cost of the Council, scientific reports on materials from patients suspected to be suffering from venereal disease, and approved practitioners may obtain, free of cost, salvarsan or its substitutes. The cost of diagnosis and treatment at hospitals and hostels is divided between the Council and the participating authorities according to the user of the facilities available. The Council makes direct payments to hospitals for salvarsan or its substitutes supplied to medical practitioners in London.

These facilities have been fully advertised. The following table shows the extent to which they have been utilised by London patients during the last three years the scheme has been in operation.* The number of beds available for in-patients is 270.

Year.	1920.	1921.	1922.
Number of hospitals	28	29	30
New patients	23,612	19,216	18,219
Attendances	365,478	400,416	434,624
In-patient days of treatment	54,529	54,244	75,413
Pathological examinations for practitioners	11,234	15,385	15,433
Practitioners on the approved list	297	332	365

* Figures for 1917–19 are given in the Annual Report for 1921 (vol. III., p. 63).

Publicity arrangements.

The Council's scheme provides in general terms for lectures and addresses to selected audiences, and for the publication and dissemination of information. Since 20th March, 1917, a voluntary association—the National Council for Combating Venereal Diseases—has been permitted for limited periods to exercise on behalf of the Council certain of its powers relating to publicity and propaganda work; the purposes for which the permission was to be operative for the year ending 31st March, 1921, were determined by the Council on 30th March, 1920. For the year 1922–23 the Council decided itself to undertake certain publicity work which could most usefully be directed through official channels. The Council also arranged for certain propaganda work to be undertaken by the National Council.

Rescue and preventive work.

The Annual Report for 1921 (vol. III., p. 63) referred to proposals of the National Council of Social Service in regard to rescue and preventive work. The Council, on 14th June, 1921, expressed itself in favour of the suggestion that a central joint committee should be formed representing public authorities and voluntary agencies concerned in rescue and preventive work in London. A conference of representatives of bodies interested was summoned by the Minister of Health in February, 1922, and it was decided to form a central council for the co-ordination of rescue and preventive work among women and girls in London. The Council has four representatives on the Central Council.

Infant life protection.

Part I. of the Children Act, 1908, provides that a person who undertakes for hire or reward the nursing and maintenance of an infant under the age of seven years apart from its parents shall, within 48 hours, give notice of such reception to the local authority (in London the Council), and empowers such local authority to fix the number of infants which may be kept in any dwelling. If an infant dies the foster-mother must notify the coroner within 24 hours, and the Council within 48 hours. During 1922, 2,411 foster-mothers and 2,921 nurse-infants were notified.* Power is given to remove to a place of safety, an infant in the charge of a foster-mother who is unfit to have the care of it owing to negligence, ignorance, inebriety, immorality, criminal conduct or other similar cause.

Similar action may be taken where the premises are overcrowded, dangerous or insanitary, or if the infant is being kept by a person or in any premises in contravention of the Act. The Act also empowers a local authority to exempt either partially or wholly premises which are so conducted as to render ordinary inspection unnecessary. Some particulars of the Council's work are as follows :—

Year.	Infants removed from foster mothers.	Exemptions.	Deaths.	Infringements discovered.	Cautions.	Prosecutions.	Convictions.
1920 ..	14	7	26	318	302	16	16
1921 ..	20	3	42	302	285	26	26
1922 ..	14	3	52	279	266	13	13

On 1st March, 1921, the Council authorised officers of the Greenwich Metropolitan Borough Council to act as infant life protection visitors under the Act for a period of one year extending to 30th June, 1922, and on 25th July, 1922, on the application of the borough council, continued this arrangement until 30th June, 1923. The authority is subject to agreed terms and conditions and to review at the end of the period.

The Council on 18th May, 1920, expressed the opinion that Part I. of the Children Act, 1908, required amendment, and with that object made several proposals † to the Minister of Health, but no definite action has yet been taken by him thereon.

Inspection of homes.

Towards the end of 1919, the London War Pensions Committee asked the Council to arrange for the inspection of homes in which the Committee proposed to place neglected children of deceased or serving soldiers and sailors, and the Council

* Figures for 1915–20 are given in the Annual Report for 1920 (vol. III., p. 112).

† See Annual Report for 1920 (vol. III., p. 113).

agreed, as a temporary arrangement, to carry out the work as part of the routine inspection undertaken by its visitors under the Children Act. In 1921 local war pensions committees were formed in the various metropolitan boroughs to carry on the work of the London War Pensions Committee and the inspections have since been continued temporarily.

Lying-in-homes.

Part IV. (Lying-in homes) of the London County Council (General Powers) Act, 1921, repealed Part IV. (Lying-in homes) of the London County Council (General Powers) Act, 1915, but provided that any registration under that Act should be of the same validity and effect as if effected under the later Act. The Act of 1921 prohibits any person from carrying on a lying-in home unless such person and the premises used are registered with the Council. In addition to specifying the particulars which must be submitted, the Act empowers the Council to refuse to register or to cancel registration if (i.) the person is under the age of 21, (ii.) person is unsuitable, (iii.) premises or their equipment are unsuitable, (iv.) premises are used or intended to be used for the accommodation at any one time of an excessive number of patients, and (v.) premises or any other premises used for any purpose in connection with such first-mentioned premises or with any business or occupation carried on therein are being used for any immoral purpose. Recognised hospitals and similar establishments, homes approved for the training of midwives and lying-in homes in which relatives alone are received are exempt from the Act. Homes carried on by duly registered medical practitioners are also exempt provided that the necessary approved certificate is submitted to the Council annually. The Council is authorised to make by-laws prescribing the records to be kept of the patients received and the business carried on and requiring the notification of any deaths, and is empowered to inspect any premises used or believed to be used as a lying-in home and the entries in any records kept in connection therewith. In accordance with this authority the Council, on 1st August, 1922, made by-laws on the lines specified in the Act, which by-laws were duly confirmed by the Minister of Health on 4th October, 1922.

At the end of 1922, 278 premises were on the register, 51 were added during the year, four registrations were cancelled, and 48 entries were removed (owing to discontinuance of user, removal, etc.), leaving a net total of 277 on the register at the end of the year. Ten premises carried on by registered medical practitioners were exempted during the year. In 1920 the Ministry of Health issued a memorandum (15/M & C.W.) which indicated the standards of measurements suitable for the accommodation of maternity cases. The space suggested was 960 cubic feet a bed for wards to contain patients with infants, 800 cubic feet a bed for wards to contain only the mother at night, and 600 cubic feet a bed for wards to contain ante-natal cases. The Council has decided that, when considering applications for registration, it will have regard to these standards.

Under the powers conferred by Part IV. of the Act of 1915 as superseded by Part IV. of the Act of 1921, the Council on 1st March, 1921, delegated to the Greenwich Metropolitan Borough Council for one year extending to 30th June, 1922, its powers of inspection of lying-in homes in that borough. On 25th July, 1922, the Council, on the application of the borough council, continued this arrangement until 30th June, 1923.

Midwives.

Under the Midwives Act, 1902, the duties of the Council, as the local supervising authority for London, were chiefly disciplinary in connection with the conduct, professional or otherwise, of midwives or persons practising as midwives in London. To enable it to carry out these and allied duties the Council appointed four qualified women medical practitioners, to inspect midwives and to investigate special cases. The Midwives Act, 1918, passed to amend the Act of 1902, enlarged the Council's responsibilities, the chief alteration dealing with the provision of medical assistance for midwives. By section 14 midwives are required to summon medical aid in an emergency as defined by the rules of the Central Midwives Board. The fees

of the medical man so called in are payable by the Council (in accordance with a scale fixed by the Local Government Board and amended by the Ministry of Health), which has power to recover them from the patient, her husband, or other person liable to maintain her, unless it can be shown that such person is unable to pay the fees. Owing to the difficulty of assessing the sums to be recovered, the Council, in 1921, adopted a scale of assessments graduated according to net income, after allowing a deduction in respect of each maintainable child or other dependant. From 1st April, 1922, to 31st March, 1923, the Council's expenditure under this head was about £4,500, of which about £1,000 was recovered. The scale of assessments was revised in 1922 in view of the fall in the cost of living.

Under section 5 of the Act of 1902, as amended by section 2 of the Act of 1918, any adverse balance in the accounts of the Central Midwives Board is apportioned between the councils of the several counties and county boroughs in proportion to population at the last census, and the Council's proportion for the year 1922 was £625.

Notifications by midwives of intention to practise during the year numbered 796; of intention to practise for specific periods less than a year, 19; and of having acted in specific cases, 14. There were 311 cases of puerperal fever and 838 of *ophthalmia neonatorum*. Eleven inquests were held on women, and 73 on children. Four *prima facie* cases of negligence or misconduct were reported to the Central Midwives Board. In one of these the Board found that charges had been established and removed the name of the midwife from the roll; in one case the Board found the charges not proved; in one case the Board found certain charges to be proved, but postponed sentence and requested the Council to report, at the expiration of periods of three and six months, as to the practice of the midwife, and after the receipt of such reports, decided to take no further action. In the remaining case, the Board, being unable to get the essential witnesses to make statutory declarations or to promise to be present at the hearing of the charges, adjourned the hearing *sine die*.

One midwife, whose name had been removed from the Midwives Roll by the Central Midwives Board, applied for a certificate of the Council in support of statements contained in an application for the restoration of her name to the Roll, and a certificate was granted.

Houses divided into separate tenements.

Early in 1920 model by-laws under section 26 of the Housing, Town Planning, etc., Act, 1919, with regard to houses divided into separate tenements were issued by the Minister of Health, and on 27th July, 1920, the Council made by-laws based on the model by-laws, and applied for confirmation of the same. Suggestions made by the Mnister of Health as to the application of the by-laws are under consideration.

Census of homeless persons.

Censuses were taken by the medical officer, in continuation of those in previous years, of homeless persons in order to ascertain the use made of common lodging-houses, and the provision existing for the accommodation of persons of the poorest class. The censuses were taken on a winter night, and the total number of homeless persons found in the streets, on staircases and under arches were: February, 1915, 178; 1916, 44; 1917, 28; 1918, 9; 1919, 8; 1920, 51; 1921, 56; and 1922, 112.

Common lodging houses.

Particulars with regard to common lodging-houses licensed by the Council are as follows:—

Year.	Houses licensed.	Lodgers authorised.	Prosecutions.	Convictions.	Penalties and costs.	Cases of infectious disease.
1920.. ..	186	18,763	1	1	£3	2
1921.. ..	181	18,503	1	1	£3 18s.	1
1922.. ..	178	17,948	1	1	£3	2

Seamen's lodging houses.

Particulars of seamen's lodging-houses licensed by the Council are as follows:—

Year.	Houses licensed.	Lodgers authorised.	Prosecutions.	Convictions.	Penalties and costs.	Cases of infectious disease.
1920.. ..	53	1,298	9	6	£91 10s.	—
1921.. ..	51	1,287	13	*11	£130 10s. 6d.	1
1922.. ..	44	1,170	1	†1	—	1

* One case was adjourned *sine die*, but defendant was cautioned against a repetition of the offence.
† The case was adjourned *sine die*, but if defendant did not carry out the necessary work at the premises in due course the summons was to be reinstated.

In accordance with the powers conferred upon the Council by Part V. of the London County Council (General Powers) Act, 1907, the Council has during 1922 made and renewed agreements with certain metropolitan borough councils for the cleansing of verminous inmates of licensed common lodging-houses and their clothing.

Offensive businesses.

The following table gives particulars of licensed slaughterhouses, knackers' yards and registered offensive businesses for 1920–22 :—

Year.	Slaughterhouses.	Knackers' yards.	Offensive businesses.
1920	165	4	53
1921	158	4	60
1922	153	4	60

The Council for some time past has considered the conditions under which the businesses of a fur-skin dresser and a slaughterer of poultry have been conducted, and after careful investigation decided that in many instances such businesses constituted a nuisance and a danger to health. Accordingly early in 1920 it made orders declaring these businesses to be offensive businesses within the meaning of section 19 (1) (*b*) of the Public Health (London) Act, 1891, and the Minister of Health confirmed the Orders. The Council on 20th December, 1921, made by-laws for regulating the conduct of the business of a fur-skin dresser, and these by-laws were confirmed by the Minister of Health on 22nd March, 1922. Draft by-laws for regulating the conduct of the business of a slaughterer of poultry and a rag and bone dealer are under consideration.

Cowhouses.

The numbers of cowhouses licensed by the Council are as follows :—1915, 154 ; 1916, 145 ; 1917, 141 ; 1918, 132 ; 1919, 116 ; 1920, 107 ; 1921, 101 ; 1922, 100.

Tuberculous milk.

Under the powers conferred upon the Council by Part IV. of the London County Council (General Powers) Act, 1907, samples of milk forwarded to London from places outside the county are examined. In 1922, 2,284 samples from milk consigned to London railway termini from 35 counties were submitted for bacteriological examination. Of these samples, 60, or 2·6 per cent., yielded tubercle bacilli as against 3·48 per cent. in 1921, 5·9 per cent. in 1920, 6·5 per cent. in 1919, 7·4 per cent. in 1918, 10·3 per cent. in 1917, and 8·7 per cent. in 1916. In connection with these samples the veterinary inspector visited 82 farms and examined 2,699 cows. It was found that 45 cows, *i.e.*, 1·34 per cent., showed signs of tuberculosis or were otherwise unhealthy. In each case the farmer undertook to have the animal slaughtered and meanwhile not again to use the milk. In addition the inspector re-visited 355 farms, and inspected 12,517 cows ; all the animals examined at these re-visits were found to be in a satisfactory condition with the exception of 108 which appeared to be tuberculous. In each instance the owner undertook to have the animal removed. At the request of the City Corporation four farms, the milk from which was found on analysis to be infected with tuberculosis, were also inspected. Of the 231 cows examined, three were found to be suffering from generalised tuberculosis and one from tuberculosis of the udder. The usual arrangements were made with the farmer for the disposal of the animals affected.

A sum of £14 was paid in complete settlement of a claim for compensation owing to the withholding from sale of certain milk from a cow suspected to have been tuberculous.

During 1922 four inspections were made of the cows in 107 London cowsheds, and the total number of examinations made was 7,283. One case of generalised tuberculosis was detected, and the owner undertook to slaughter the animal immediately, while in 92 cases other unhealthy conditions were found.

Milk supply and storage.

The Milk and Dairies Act, 1914, was repealed in 1915 by the Milk and Dairies (Consolidation) Act, which consolidated the law set out in the Act of 1914, with certain provisions of the Contagious Diseases (Animals) Acts, 1878 and 1886, and the Food and Drugs Act, 1899. It was provided that the Act of 1915 should come into operation on such date, not later than one year after the war, as the Minister of

Health might appoint. The Milk and Dairies (Amendment) Act, 1922, (i.) postpones until 1st September, 1925, the operation of the Milk and Dairies (Consolidation) Act, 1915, except in so far as it repeals the Milk and Dairies Act, 1914, and the Milk and Dairies Acts Postponement Act, 1915, (ii.) empowers local authorities (in London, the City Corporation and the metropolitan borough councils) to refuse to register or to remove from the register the name of any retailers of milk when such a course appears necessary in the interests of the public health, (iii.) prohibits the sale or offer for sale of any milk as "certified," "Grade A," "Pasteurised" or under any other designation except under and in accordance with a licence granted by the Minister of Health or with his authority under the provisions of an Order made by him under the Act, (iv.) prohibits the addition to milk for sale of colouring matter or water or any dried or condensed milk or any fluid reconstituted therefrom, or any skimmed milk or separated milk, (v.) makes it an offence for anyone knowingly to sell the milk from a cow suffering from tuberculosis of the udder, (vi.) authorises the Minister of Health to make Orders for the prevention of danger arising to public health from the importation of milk for sale for human consumption. In addition, the Act contains several other provisions in regard to the administration and enforcement thereof.

Measles and verminous conditions.

In connection with the arrangements for the better control of measles in London, the Council on 12th July, 1921, decided that, if so desired by the metropolitan borough councils, it was prepared to send to authorities of all hospitals and general medical dispensaries, and to all private practitioners in London, a communication in a form satisfactory to the borough councils, directing attention to the facilities available through the public health services for the nursing of cases of measles. The replies of the borough councils did not indicate complete accord with the Council's suggestion, and it was decided therefore that for the present no further action should be taken on the resolution. The London County Council (General Powers) Act, 1922, empowers sanitary authorities on a report from their medical officer of health (i.) to cleanse or destroy articles in any house (*a*) which are in such a filthy and dangerous or unwholesome condition that health is affected or endanged thereby, or that the cleansing, disinfection or destruction of any such articles is requisite to prevent risk of or to check infectious disease, or (*b*) which are infested with or likely to be infested with vermin; and (ii.) to give notice in writing to the owner or occupier of a house or part thereof infested with vermin requiring him within the period specified in such notice to cleanse such house. Sections 59 and 105 of the Public Health (London) Act, 1891, are extended and applied to the provision of means for removing, cleansing and destroying articles or cleansing houses under the Act. The Act gives to sanitary authorities the power of entry to premises which are suspected of being infested with vermin or of containing articles which are filthy or verminous, and imposes on these authorities the duties of enforcing this part of the Act.

Epidemic, endemic and infectious diseases.

In connection with the prevention of the spread of infectious diseases, and with a view of securing prompt recognition of cases of smallpox at the earliest possible moment, the Council in 1922 issued notices calling the attention of all medical practitioners, and the authorities of all hospitals and public medical institutions in London to the facilities provided by the Council in connection with the diagnosis of smallpox. Sixty-five cases of smallpox occurred in London during 1922, of which twenty proved fatal. As a precautionary measure against the spread of epidemic diseases the Council has entered into an agreement in respect of the use of certain premises as a contact shelter.

The Council on 3rd February, 1920, expressed the opinion that (i.) regulations, to be in operation when necessary, for objects similar to those of the Public Health (Influenza) Regulations, 1918, namely, the more effectual perflation and ventilation of, and the exclusion of children from, places of public entertainment, should be made at the earliest practicable date, and as a precautionary measure against the spread of epidemic, endemic or infectious diseases; and (ii.) the Council should be

the authority in London to determine when such regulations should be operative and to enforce the same. The Council accordingly made representations to the Minister of Health who replied that he was not yet satisfied as to the desirability of re-imposing the regulations in any form, but that if he should decide to do so, the suggestion that the Council should be made the administrative authority under the regulations would receive careful consideration, and that no decision had yet been arrived at as to what could be regarded as a minimum standard of ventilation for cinemas and theatres. The question of the securing satisfactory atmospheric conditions in places of public entertainment and thereby preventing, as far as possible, the spread of infection was again under consideration in the early part of 1922 and the Council, on 4th April, 1922, decided that, in connection with those places of public entertainment in which the ventilation is determined by the Council to be unsatisfactory, it considered that it should be empowered in times of epidemic to close such places for short intervals or to take such action as may appear to be expedient in order to prevent the spread of infectious disease among persons frequenting such premises. Representations were accordingly made to the Minister of Health with a view to a general power for this purpose being given to the Council, but no decision had been come to by the end of 1922.

Appeal Committee.

The Appeal Committee are the statutory appeal committee under the Metropolis Management Act, 1855, section 212. The Committee also hear and decide all appeals made to the Council under any other Act of Parliament (except appeals under section 20 (5) of the Public Health (London) Act, 1891, against decisions of the Public Health Committee). No appeals were heard during the year 1922.

Health administration in London.

Details are given in the last Annual Report (vol. III., p. 67) of the Council's action with regard to the organisation of health administration in London. At present there is nothing to add to that information.

Diseases of animals.

The Diseases of Animals Acts, 1894 to 1911, the object of which is the suppression of contagious diseases in animals, naturally do not affect London so much as the country. In London, apart from swine fever, attention is now principally directed to glanders, anthrax, rabies and parasitic mange, diseases which are communicable to man. The Acts are supplemented by Orders issued by the Minister of Agriculture and Fisheries. During 1922 the incidence of the principal animal diseases so far as London is concerned was as follows, the number of animals affected being given in brackets :—Glanders, including farcy, 3 (3); swine fever, 10 (467); anthrax, *nil*; parasitic mange, 96 (164).

Glanders or Farcy.

Glanders is the disease in animals which has caused most trouble and expense to the Council. The disease is now dealt with under the Glanders or Farcy Order of 1920, which requires veterinary surgeons, etc., who consider that any horse, ass or mule is affected with glanders, or was so affected when it died, or was slaughtered, to notify the local authority. A fee of 2s. 6d. is payable by the local authority to the person giving such notice. Under the Glanders or Farcy (Metropolitan Police District) Order, 1911, the Council had powers to destroy nosebags and other stable material not capable of disinfection. The Order was revoked, but its provisions were re-enacted in the Glanders Order, 1920, and the powers continue to be fully utilised after each outbreak. All infected material of this kind is burnt at one of the knackers' depots at the expense of the Council. During 1922 two diseased horses were slaughtered, the compensation payable amounting to £26 10s. Glanders was also found to exist in an animal which died and had been taken to a knackers' depot. A contravention of the provisions of the Order by failing to give notice of the existence of disease formed the subject of legal proceedings, a penalty of £20 being inflicted.

Exportation of horses, asses and mules.

In order to deal with certain abuses connected with the exportation of animals the Minister of Agriculture and Fisheries made an Order entitled the Exportation and Transit of Horses, Asses and Mules Order, 1921, which was intended to be complementary to the Diseases of Animals Act of 1910, as amended by the Exportation of

Horses Act, 1914, in so far as these Acts regulate the method by which horses shall be carried from any port in Great Britain on board ship. The new Order prescribed the character of the fittings of vessels engaged in the trade and the general provision to be made on board for a supply of food and water and for the general comfort of the animals. One of the most important provisions of the Order is that which requires that, as from 1st April, 1922, the fittings of all vessels used for the carriage of horses by sea from Great Britain shall be constructed in accordance with the specifications contained in the schedule to the Order. A clear and definite standard to which all vessels engaged in this traffic are required to conform is thus established. Other provisions of the Order regulate the carriage of animals by railway in Great Britain, and specify the protection to be provided during the winter in open-sided trucks, and lay down regulations as to the supply of food and water. The Council is the authority in London for enforcing certain of the provisions of the Order, and the new requirements have been brought to the notice of persons concerned.

Animals in transit.

To ensure that the requirements of the Animals (Transit and General) Order, 1912, and the Exportation and Transit of Horses, etc., Order of 1921, are being observed, and that the animals are free from signs of disease, the Council's inspectors pay numerous visits to railway wharves, depots, etc., where animals in transit are collected. The visits during 1922 numbered 3,736, the animals examined being—horses 3,577, cattle 35,182, sheep 51,578, swine 6,041, making a total of 96,378. There were 20 infringements, 18 written cautions and 2 convictions, with penalties and costs amounting to £20.

Swine fever.

Swine fever has been very prevalent throughout Great Britain during the past few years, and no fewer than ten outbreaks were dealt with in London during the year. The work carried out during 1922 under the Swine Fever (Regulation of Movement) Order, 1908, and the Regulation of Movement of Swine Order of 1922 (a modified Order which superseded the former Order as from 1st October, 1922) was as follows :—swine examined at feeders' premises, 21,133 ; infringements, 11 ; penalties and costs imposed, £8s. 3s.

Anthrax.

Anthrax occurs occasionally in London, and so long as fodder is imported from abroad sporadic cases will probably arise. Most stringent precautions in the way of cleansing and disinfection are taken by the Council's inspectors who personally supervise the destruction of the entire carcase of an infected animal as well as any article with which it may have come into immediate contact. During 1922 there were nine cases of anthrax among men, two of which proved fatal. In seven of these infection was traced to the handling of imported hides, hair, etc., in the course of the patients' employment. In another case the patient had assisted in skinning a horse which had died suddenly on a farm. In the remainlng case the source of infection was not traced. No case of animal anthrax in London was confirmed during 1922.

Rabies.

The Council is convinced that the most efficacious measures for stamping out hydrophobia are muzzling, the seizure of all stray dogs, and the regulation of the importation of dogs. Under the Dogs Order, 1906, which revoked all then existing muzzling regulations, the Council made new regulations requiring the wearing of collars by dogs while on a highway. Under these regulations, 12,411 dogs were seized by the police during 1922 and 6,266 were destroyed.

Parasitic mange.

On the outbreak of the war, the Order dealing with parasitic mange was temporarily suspended, with the result that the disease increased largely. The conditions under which trade horses are fed and worked in London, particularly during busy seasons, tend to encourage the spread of the disease. During 1922, however, the returns of cases in London showed a marked decrease, and a satisfactory feature of this decrease was the fact that fewer animals were affected in each outbreak. The following figures relate to 1922 :—outbreaks, 96 ; horses affected, 164 ; infringements, 21 ; written cautions sent, 6 ; convictions, 15 ; penalties and costs, £85 5s. For the purposes of comparison, the number of outbreaks in 1921 was 218, affecting 414 horses.

Foot and mouth disease.

On 24th January, 1922, foot and mouth disease was detected on several premises in the north of England. The outbreak spread with such alarming rapidity that the Minister of Agriculture and Fisheries, on 31st January, 1922, addressed a circular letter to local authorities in Great Britain requesting them to take special steps to secure the strict enforcement of the Orders on the subject. On 3rd February, 1922, the Minister issued an Order empowering a veterinary inspector of a local authority who might suspect the existence of the disease at any premises or place to prohibit any movement of stock within the neighbourhood of such premises until the veterinary officers of the Ministry had had an opportunity of examining the suspected animals. In consequence of the continued spread of the disease, the Minister, on 5th February, 1922, issued an Order placing under control the movement of livestock throughout the whole of Great Britain.

On 4th February, 1922, an outbreak of the disease was confirmed at Rochford, Essex, in cattle purchased at the Metropolitan Cattle Market, Islington. This was followed four days later by an outbreak among the cattle in lairs adjoining the market. Two cows, which had been in the lairs for seven days and which were found to be affected, were slaughtered and the carcases destroyed. The remaining animals in the lairs were also killed. The diseased animals were sent to the market by a dairy company from their farm in south-east London. The other animals on the farm were kept under observation by a veterinary inspector for one month, but no further case of disease was disclosed. The Ministry of Agriculture considers it probable that the cattle took infection from the Essex cattle. Four outbreaks in the country were attributed to cattle removed from the Metropolitan Cattle Market between 30th January and 5th February, 1922. It therefore became necessary to take steps to trace the whole of the animals removed from the market between those dates. This proved to be a task of some difficulty owing to the numerous re-sales which take place in the market. No fewer than 361 cattle and 876 sheep were found to have been moved into the districts of 26 local authorities and these local authorities were all communicated with in order that they might satisfy themselves that the animals were slaughtered or were in a healthy condition. The cleansing and disinfection of the Metropolitan Cattle Market and the lairs adjoining proved to be a task of considerable magnitude owing to the large area (about 30 acres) dealt with.

A further provision of the Order prohibited the holding of a market for the sale of animals except by permission of the local authority. Application was made by the City Corporation, which is responsible for the Islington Cattle Market, for authority to hold a market on the usual market days. The Ministry of Agriculture saw no reason why the market should not be held, and the Council accordingly gave the necessary authorisation.

A further outbreak of the disease at the premises of a London cowkeeper involved the slaughter of 37 cows, the destruction of their carcases and all infected material and fodder, and the thorough cleansing and disinfection of the premises. Notwithstanding exhaustive enquiries, the source of contagion in this outbreak was not discovered, although there is reason to believe that it might have been conveyed from an Essex farm.

Many infringements of the conditions of movement licences granted under the Orders were reported, and in 33 cases legal proceedings were instituted against the offenders, the total amount of penalties and costs imposed being £319 4s.

When the outbreak had been finally suppressed, the Minister of Agriculture and Fisheries expressed his appreciation of the work carried out by the Council and its inspectors.

CHAPTER XXVI.

MAIN DRAINAGE.

Drainage area and statistics.

The district drained by the Council's main drainage system has an area of nearly 149 square miles with a population (in 1921) of 5,333,387. This includes an area of nearly 32 square miles, with a population of 850,138, outside London.

The following statement shows the quantities of sewage, etc., dealt with during 1922 :—

	Million gallons.
Sewage treated—	
Northern outfall	55,137·2
,, ,, (daily average)	151·1
Southern outfall	32,417·4
,, ,, (daily average)	88·8
	Tons.
Sludge sent to sea—	
Northern outfall	1,391,000
,, ,, (daily average)	3,811
Southern outfall	824,000
,, ,, (daily average)	2,258

The sludge vessels made 2,215 trips and travelled altogether 244,372 miles.

London sewage system.

The Council's by-laws prescribe the methods for the drainage of premises, and subject to these, the metropolitan borough councils are charged with the control of house drainage. Disputants have a right of appeal to the Appeals Committee of the Council (see p. 108). The metropolitan borough councils provide local sewers for house drainage and surface water, the plans of these sewers being subject to the approval of the Council. From the point at which local sewers discharge into main sewers the Council becomes entirely responsible. The main sewers, many of which are on the lines of streams formerly discharging into the Thames, now connect with intercepting sewers which run roughly parallel to the Thames. In turn the intercepting sewers connect with the outfall sewers which convey the sewage to the outfalls, where, after the extraction of solid matters, the effluent is run off into the river and the solids are sent to sea in specially designed sludge vessels. For the disposal of rain-water, storm-relief sewers have been constructed which discharge into the Thames by the shortest practicable route. Many main sewers also have storm water outlets to the river. Sewage and storm water flow principally by gravitation, but pumping stations are necessary at certain places.

Sewage treatment.

The severe drought during 1921 had caused the tidal portion of the Thames to show signs of pollution owing to the fact that the flow of upland water had been so small and the consequent downward displacement due to the flow of fresh water had been reduced to a minimum. The rainfall during the earlier months of 1922 was not sufficient to restore normal conditions and, in order to avoid the possibility of nuisance, arrangements were made in July for the use of chemical re-agents to be resumed. About this time, however, more rain fell and the consequent improvement in the condition of the lower river made the use of chemicals unnecessary. The improvement has been maintained, but in the absence of exceptional rainfall time must elapse before conditions can become normal.

Experiments in connection with the biological treatment of sewage on the activated sludge basis have continued during the year and useful knowledge has bee gained, but the conditions affecting London sewage appear to be more difficult than those at other places where this system is at work. New tanks have been equipped with different types of appliances for agitating the sewage.

Northern outfall.

Further repairs to the pier at the northern outfall, which have proceeded continuously since 1913, were authorised during the year at a cost not exceeding £2,000. The repair of the roadways at the outfall has been undertaken at a cost of £1,000.

The boilers in the eastern boiler house at the outfall which were installed about 33 years ago showed signs of wearing out and it was decided to obtain tenders for new boilers of the water tube pattern. The estimated cost including installation is £14,000. The Council on 23rd November, 1922, accepted the tender, amounting to £485 of M. Greenwood and Son (Burnley), Ltd., for painting works.

Southern outfall.

After the opening in 1916 of the new engine house at the southern outfall, it became possible to lay off fro overhaul the main beam-engines and pumps. The work is proceeding continuously. The expenditure authorised during 1922 amounted to £2,200 for work to be executed by direct employment of labour. The approach roads to the outfall have been repaired at an estimated cost of £750.

Sludge vessels.

The Council has six vessels for conveying sludge from the outfalls to the Black Deep deposit area. The vessels are old, having been launched between 1887 and 1895. The oldest, the s.s. *Bazalgette*, was repaired and new machinery was installed at a total cost of about £55,000. Extensive repairs have been carried out to the hull of the s.s. *Barking* and, in due course, the vessel will be equipped with new machinery. Owing to the conditions then prevailing in the shipbuilding industry the repair of these old vessels appeared to be the most economical course. The method of dealing with the other vessels has been carefully reconsidered and it is not proposed to re-condition any of them in a similar way. Vessels of larger size thould be more economical in working and tenders were invited for the construction of a new vessel of 1,500 tons carrying capacity as compared with 1,000 tons of the present vessels. The tender of William Beardmore and Company, Ltd., amounting to £49,000, was accepted on 6th December, 1922. The s.s. *Barking*, *Belvedere*, *Barrow*, *Bazalgette*, *Binnie* and *Burns* were overhauled during the year at a total cost of £4,940.

Outfall and intercepting sewers.

A proposal for utilising the top of the northern outfall sewer embankment as a thoroughfare between Old Ford and Barking was put forward by the Poplar Metropolitan Borough Council. The embankment is not suitable for vehicular traffic, but that portion which lies in West Ham has been laid out as a promenade and fenced by the Corporation. Westward of Stratford High-street no such use is made of the embankment, nor is it practicable to construct a thoroughfare between Stratford High-street and Old Ford in view of the obstacle offered by the main line of the Great Eastern Railway, which is on the same level as the top of the embankment. It would, however, be possible to shorten the route between those places by making use of the embankment between Old Ford and Marsh Gate-lane, and the borough council was informed that, subject to its entering into an agreement for the protection of the Council's interests, the Council would give permission for the formation of a footway between these points.

Permission has been given to the Wandsworth Metropolitan Borough Council for the land underneath the Wandsworth aqueduct which carries the Clapham to Putney extension of the southern high level sewer No. 1 over the low-lying ground adjacent to the River Wandle at Earlsfield to be used in connection with Southfields Park.

Main sewers, etc.

During 1922 repairs to main sewers were executed at approximate amounts as follows :—

	Feet	£
Fleet sewer, reconstruction of twin culvert, Farringdon-street ..	900 ..	11,750
Fleet sewer main line, Packenham-street	340 ..	620
Regent-street sewer, east branch	1,830 ..	3,130
Ranelagh sewer, under L.N.W.R., Belsize-road	180 ..	1,750
Stamford Brook sewer, under L.N.W.R., Willesden Junction	485 ..	3,475
Marsh sewer, Clapton	340 ..	2,750
Hackney Brook sewer, brick sewer, Victoria Park-road, and pipe sewer, Downs Park-road	1,500 ..	3,580
London Bridge sewer, Moorgate-street, etc.	250 ..	2,300

	Feet	£
Ratcliff Highway sewer, Shadwell	1,000 ..	2,400
Northern outfall sewer, bridges over G.E. Ry., Manor-road and river Lee, repairs and repainting	— ..	4,300
Coldharbour-lane sewer	720 ..	500
Wandsworth aqueduct	500 ..	2,780

Abbey Mills pumping stating.

The percolation of water from the Channelsea river through the river bank at Abbey Mills pumping station has necessitated repairs to the bank. The original scheme, estimated to cost £15,000, has been modified and work of the approximate value of £4,000 authorised. On 23rd November, 1922, the Council accepted the tender amounting to £1,100 of Vigor and Company (Poplar), Limited, for painting works at the station.

Western] pumping station.

The engines and pumps at the Western pumping station were installed in 1875. They are in need of overhaul and repair and the Council on 4th May, 1922, authorised expenditure of £1,300 for the work which is being carried out by labour directly employed by the Council.

North Woolwich pumping station and rising mains.

The total cost of the enlargement of North Woolwich pumping station and of the construction of the new 24-inch rising main from the pumping station to the northern outfall has amounted approximately to £27,000, including the cost of machinery, and £45,000 respectively. In consequence of the use of the new main it was possible to relieve the strain on the existing pipes and heavy expenditure on repairs has been obviated.

The experiments in connection with the disposal of screen refuse (*i.e.*, solids intercepted by screens to prevent the clogging of pumps), by burning in a special furnace at North Woolwich pumping station have been concluded. They have shown that the refuse can be so destroyed, but that the method is somewhat offensive, and, as a continuous operation, might be open to objection.

Flood works.

The Council, on 22nd July, 1919, had before it a comprehensive scheme of works to mitigate floodings in various parts of London on both sides of the Thames during times of heavy rainfall. (See Annual Report for 1920, vol. III., p. 121.) Part of this, a storm-relief sewer from Kelvin-road, Highbury, to the Thames at Shadwell, was agreed to before the war, but had to be postponed. The work is the subject of two contracts. Contract No. 1 for the section from Kelvin-road to Bethnal-green-road has been let to the Metropolitan Tunnel and Public Works Company, Limited; contract No. 2, in respect of the remainder, has been let to Scott and Middleton, Ltd. Work under contract No. 1, begun in May, 1921, involves the construction of a brick sewer, about 2½ miles long, circular in section and 8 to 9 feet in diameter. The sewer is being driven from three working shafts and at the end of the year 1922 approximately two miles had been completed. Work under contract No. 2 was begun in June, 1921. This section is designed as a cast-iron tunnel lined with concrete. It is about 1½ miles long, 11 feet 4 inches in diameter, and is being constructed from the Shadwell end, its outlet into the Thames being through the river wall fronting the new King Edward Memorial Park at Shadwell. At the end of 1922 about ¾ mile had been completed.

During 1921 unemployment was rife, and the Council accelerated the work on other portions of the 1919 scheme, particularly those which would provide work suitable for unskilled or partly-skilled labour. The works selected were the improvement of the river Graveney, the Wandle Valley sewer, the Charlton storm relief-sewer, and flood relief works at Hammersmith. Unemployment continued during 1922 and for its relief further portions of the 1919 scheme were undertaken. These comprise the enlargement of the Isle of Dogs and Abbey Mills pumping stations, and the construction of the south-western storm relief sewer. H.M. Government, through the Unemployment Grants Committee, agreed to make a grant towards the cost. Details of all these schemes are given below.

River Graveney.

The improvement of the river Graveney consisted in the formation of a concrete aqueduct, partly open and partly covered, on the line of, or near to, the stream, and the provision of a new aqueduct about half a mile long to form another connection with the river Wandle. These measures should greatly facilitate the discharge of storm water. The estimated cost of the work, including provision for land, compensation and supervision is £230,000. A contract for the work was let to Messrs. John Price and Son. Work was begun in June, 1921, and at the end of 1922 the greater part had been completed at a cost of about £146,500.

Wandle Valley sewer.

The Wandle Valley sewer is designed both as a soil sewer and a storm-water sewer. Sewage will be carried into the intercepting sewers and so to the southern outfall, while the storm water will be discharged by gravitation into the Wandle. The sewer will be about 2⅓ miles in length, and, if necessary, can be extended to the Thames. The cost will be about £219,000. A contract for the work was let to W. G. Tarrant, Ltd., and a start was made in December, 1921. By the end of 1922 about half the work had been completed at an estimated cost of £75,522.

Charlton storm relief sewer.

The Charlton storm relief sewer is designed to afford relief to the southern high-level sewer. It will connect with the high-level sewer at Charlton and will be constructed across Greenwich marshes to discharge storm water direct into the Thames. Owing to the recent development of land for building in Woolwich and Lewisham the construction of this sewer had become urgent. The cost, including the cost of property and incidentals, will be about £160,000. For the construction of the sewer itself the tender amounting to £128,452, upon a fixed price basis of S. Pearson and Son (contracting department), Limited, was accepted by the Council in January, 1922, and work was begun in the following month. The time allowed for the work was one year, but it is probable that this will be exceeded by about four months. At the end of 1922 the estimated value of work executed was £60,865.

Flood relief works at Hammersmith.

The low-level area in west London comprises about 2,500 acres in Fulham, Kensington and Hammersmith. The difficulty of draining this area is very great, even when comparatively moderate rainfall is experienced. The difficulty is accentuated when such rainfall coincides with the period of high water in the river. No discharge by gravitation is then possible, and the storm water flows into the two low-level sewers. The sewage in the low-level sewer No. 2 flows direct to Abbey Mills pumping station, while that in the low-level sewer No. 1 is pumped at the Lots-road and the Western pumping stations. In recent years the rapidity with which the rain water reaches these sewers has increased greatly. Any scheme for relief works must provide for the discharge of storm water by pumping. The relief scheme provides for the construction of a sewer about a mile in length having an outlet to the Thames near Hammersmith Bridge, and the erection of a new pumping station near toe outlet. The sewer itself should be constructed in one year, but the building of the pumping station may take two years, and the construction of the machinery anything from two to three years. This last period may be reduced. The original estimate for the whole work, including the acquisition of the property, etc., was £500,000, but in view of the fall in prices the Council on 25th July, 1922, reduced the estimate to £360,000. A contract was let to Messrs. Kinnear, Moodie and Co., for the construction of the sewer for the sum of £145,220 upon a fixed price basis. Work was begun in December, 1921, and at the end of 1922 work to the value of £112,614 had been completed. The tender of Gwynne's Engineering Company, Ltd., amounting to £58,473 for five sets of engines and pumps was accepted on 17th February, 1922. Permission was given for the company to sublet the main and auxiliary engines to the Premier Gas Engine Company, Ltd. The order to commence work was given on 3rd May, 1922, and at the end of the year work to the value of about £12,000 had been completed. The motive power adopted for the engines is gas and special arrangements for supply were entered into with the Brentford Gas Company. The mains near the station were insufficient to supply the station and a new main is being laid in respect of which the Council has agreed to pay

£4,000. Tenders were also received for the erection of the proposed pumping station at Hammersmith, and that submitted by Leslie and Company, Ltd., and amounting to £56,290 was accepted on 1st March, 1922. Preliminary work had been begun on 6th December, 1921, and up to the end of 1922 work to the value of approximately £9,000 was executed.

Abbey Mills pumping station enlargement.

The work if enlarging the Isle of Dogs pumping station and Abbey Mills pumping station in order to prevent floodings in the low-lying areas in Poplar and the Isle of Dogs was before the Council in 1911 and 1913 respectively. On 7th April, 1914, the Council accepted the tender, amounting to £6,584, of the Premier Gas Engine Company, for two gas engines for the Isle of Dogs pumping station and work was commenced thereon. Owing to the war the work was suspended and it was not until October, 1922, that the matter was resuscitated as a work suitable for the provision of employment. The Company's offer to complete the work upon the basis of a new contract price of £9,829, of which £545 would be provisional, was accepted on 24th November, 1922. On 7th December, 1922, the Council accepted the tender amounting to £29,405 of W. Pattinson and Sons, Ltd., for the enlargement of the Isle of Dogs pumping station. The total estimated cost of the enlargement of the station is £73,000.

The enlargement of Abbey Mills pumping station involves alterations in the Worthington engine house at the station, the installation of new pumping plant there, and the provision of additional boilers in one of the boiler houses and of supplementary plant. The total estimated cost is £95,000. Two boilers have been supplied by Clayton, Son and Company, Limited, and fitted at a cost of £8,872, and the tender amounting to £19,750, of Gwynne's Engineering Compamy, Ltd., for the supply of machinery was accepted on 20th December, 1922. The time occupied in the execution of the enlargement will be about one year.

South-western storm relief sewer.

The south-western storm relief sewer has been designed to assist in the drainage of areas in Clapham, Streatham, Brixton, West Norwood and Dulwich. The scheme anticipated the construction in the first place of a sewer which would tap the Effra sewer at Effra-road, Brixton, and the Balham sewer, the southern high-level sewer and the southern high-level sewer extension near Clapham-road station, and would also be connected with certain local sewers. The new sewer will discharge into the Thames at Nine Elms. The estimated cost including incidental expenses is £315,000. If required at a later date the sewer can be extended southward to relieve the Effra Branch sewer at West Norwood.

The length of sewer from Effra-road to Nine Elms is $2\frac{3}{8}$ miles, and in order to expedite the work for the purpose of affording additional employment the work was made the subject of two contracts of unequal value, approximately 25 per cent. and 75 per cent. Tenders were invited in the first instance for the construction of the smaller portion between Effra-road and Clapham-road, and the Council on 23rd November, 1922, accepted the tender, amounting to £52,454, of Mitchell Brothers, Sons and Company, Limited, and work was begun in December, 1922. Tenders for the construction of the sewer from Clapham-road to the river Thames have been invited.

Out-county drainage.

The annual contribution by the West Ham Corporation in respect of the drainage of the borough into the Council's system was fixed by an arbitrator in 1904 at $2\frac{1}{4}$d. in the £ on the assessable value of the borough (excluding Government property). This contribution fell far below the cost of the service rendered and the Council therefore obtained authority in its General Powers Acts, 1921, for the Minister of Health, after considering representations by the Council and others, to increase such payments or to prescribe the principle upon which such payments are to be determined. Any such order will remain in force for at least twenty years, and it is open to the Council or the Corporation to make further representations within six months after the expiration of any period of twenty years. In accordance with these provisions the Council, on 20th December, 1921, decided to ask the Minister

of Health to increase the payments of the Corporation. The matter has not yet been dealt with by the Minister, but negotiations are taking place between the Council and the Corporation with a view to a settlement by agreement, if possible.

Local sewers.

Section 69 of the Metropolis Management Act, 1855, provides that no local sewer shall be made without the approval of the Council. During 1922, the construction or reconstruction of 72,340 feet of sewers of various sizes has been sanctioned.

The Council when approving the construction of the local sewers across Plumstead marshes made it a condition that no drain connections should be made thereto north of the South-Eastern Railway. Representations were recently made by the Woolwich Metropolitan Borough Council with the object of securing the waiving of this condition, in order that there might be no impediment to the building of factories upon the marshes. The Council decided not to waive the condition, but informed the borough council that the Council would be disposed to consider favourably any scheme for the soil drainage of premises, other than dwelling-houses, situated on the land adjoining the sewers, provided that arrangements were made whereby no drain, manhole cover or trap would have any opening at a lower level than 9 feet above Ordnance datum, that is, about 3 feet higher than the ground level.

Buildings, etc., over sewers.

Under section 204 of the Metropolis Management Act, 1855, and section 68 of the Metropolis Management (Amendment) Act, 1862, no building or any other encroachment may be erected in, over or under any sewer vested in the Council except with the Council's consent. During 1922 the Council gave its consent in 15 such cases.

Redemption tithe.

The tithes on certain main drainage properties has been redeemed at a cost of £7,120.

CHAPTER XXVII.

HOUSING.

Powers and duties of the Council.

The powers of the Council in relation to the housing of the working classes are derived from the Housing Acts, 1890 to 1921. Apart from administrative duties, the main divisions of the work are (*a*) the provision of new dwellings to meet the need for additional accommodation, and (*b*) the improvement or reconstruction of unhealthy areas, including the provision of dwellings for rehousing the persons displaced.

State-assisted housing scheme.

In conformity with section 1 (1) of the Housing, Town Planning, etc., Act, 1919, the Council in July, 1919, submitted for the approval of the Minister of Health a scheme *for the provision of working-class dwellings to meet the needs of London and for the improvement of housing conditions therein. Under the Act any financial loss on the scheme as well as losses on schemes undertaken by metropolitan borough councils, so far as they exceed the produce of a penny rate, are to be borne by the National Exchequer.

Owing to financial stringency, the house-building programme, as agreed by the Minister of Health, was considerably curtailed, and eventually the number of houses to be built by the Council under the scheme, apart from dwellings for rehousing in connection with clearance schemes, was reduced from 29,000 to about 8,810.

Towards the end of 1921 upwards of 10,000 workmen were engaged at the several estates, and the year 1922 produced substantial results, no fewer than 5,186 houses being completed during the year, making a total at 31st December, 1922, of 6,406 houses erected since the war.

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* For details see Annual Report for 1920, vol III., p. 124.

Review of position.

Notwithstanding, however, these and other activities it became increasingly evident that the supply of houses was not overtaking the demand, and in October, 1921, the position was reviewed.* The intentions of the Government had not been disclosed, but it was generally accepted that some modification of the scheme of State financial assistance was inevitable. As a preliminary, therefore, the Council on 19th December, 1922, appointed a deputation to wait upon the Minister of Health to discuss the general housing situation in London.

Unhealthy areas.

During 1922 the clearance of unhealthy areas continued to engage the close attention of the Council, but, owing to the general housing shortage which decreased the possibility of finding accommodation for the displaced persons pending the reconstruction of the areas, progress was difficult. It was understood that the Government was prepared to co-operate with local authorities in this work, and a figure of £200,000 for the whole country was mentioned by the Minister of Health as the amount which might be contributed towards the annual loss involved in clearing slums and in providing rehousing accommodation. Part of this sum would be allocated to London, and the Council contemplates the preparation of comprehensive proposals for dealing with the problem. The Council has, since the war, already made several schemes under Parts I. and II. of the Housing Act of 1890, some of which have been confirmed by the Minister of Health while others are still under consideration; particulars are given later (see pp. 120–1).

Details of the Council's housing operations are as follows :—

Old Oak estate.

The development of the Old Oak estate, Hammersmith (46½ acres), except the carriageways and footways of certain streets, has been completed by the erection of 1,048 houses, of which 724 have been erected since the war under the State assisted scheme, upwards of 300 houses having been completed during 1922. An estate office with superintendent's quarters, stores and workshops has also been provided. The accommodation comprises 235 houses of five rooms, 429 of four rooms, 341 of three rooms, and 17 of two rooms, 10 two-roomed flats and 16 flats of one room with a bed recess. Seven shops with dwelling accommodation are included. Particulars of the rents charged are given in the Annual Report for 1920 (vol. III., p. 125). During the year a further instalment of the work of road finishing was carried out for the Council by the Hammersmith Metropolitan Borough Council at an estimated cost of £20,443, and on 6th December, 1922, the Council sanctioned expenditure not exceeding £17,512 for similar work on the remainder of the estate.

Norbury estate.

The development of the Norbury estate (28½ acres) was also completed during 1922. Since the war 218 houses have been erected under the State-assisted scheme and altogether on the estate there are 716 houses and 4 shops, as well as an estate office and workshops. The houses comprise 90 of five rooms, 257 of four rooms (parlour type), 145 of four rooms (non-parlour type), and 224 of three rooms. Particulars of the rents charged are given in the Annual Report for 1921 (vol. III., p. 73). During the year the Council sanctioned expenditure amounting to £3,621 for the making up and paving by the Croydon Corporation of certain roads on the estate.

White Hart lane estate.

About 56 acres of the White Hart-lane estate, Tottenham, are being developed by the erection of 710 houses under a contract with Messrs. Fred & T. Thorne, on a cost *plus* participating profit basis. At the end of 1922, 540 houses had been completed, of which all but 45 were finished during the year. On 1st August, 1922, the Council entrusted to Messrs. Thorne the work of finishing the roads on the portion of the estate in course of development.

On 23rd May, 1922, the Council leased for 21 years, at a rent of £80 a year, a plot of land about two acres in extent for use as playing fields. It is proposed to lay out the ground for lawn tennis or other games, and any group of the Council's tenants will have the first opportunity of renting any part of it.

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* Housing Scheme—Review f position. Report by the Medical Officer of Health and the Valuer. No. 2140, Price 1s.

Becontree. The Council is acquiring under compulsory orders a large estate, situated partly in the urban districts of Barking Town and Ilford, and partly in the parish of Dagenham, in the rural district of Romford. The total area scheduled is nearly 3,000 acres, but the full extent of the land to be purchased has not yet been determined. In 1920, the Council made a supplementary order for the compulsory acquisition of the "Royal Oak" beerhouse in Green-lane, which had been omitted from the original order. After delay on account of action taken in the High Court, the order was confirmed by the Minister of Health on 20th June, 1922.

Development operations, which have been entrusted to C. J. Wills & Sons, Ltd., on a cost *plus* participating profit basis, have so far been mainly confined to what is known as the Ilford (No. 1) section comprising about 440 acres of which nearly 104 acres lie within the rural district of Romford. Rapid progress has been made with the development of this section, and at the end of 1922, nearly 2,300 out of 2,900 houses to be erected thereon had been completed. Another site, the Dagenham (No. 2) section of about 59 acres in the south-eastern corner of the estate, has been selected for immediate development. About 1,000 houses, for which plans are ready, will be erected there, and arrangements for beginning the work were nearly completed by the end of 1922.

Two sites for the erection of churches, one (two acres) on the Ilford section, and the other (1½ acres) on the Dagenham section, have been sold to the Church of England authorities for £1,300 and £600 respectively. Two sites for elementary schools, about 2¾ and 2¼ acres in extent respectively, have also been sold for £3,300 to the Ilford Urban District Council. A site of about two acres has been let on lease for 21 years at a rent of £15 a year to a lawn tennis club who had been for several years in occupation of a piece of ground acquired and utilised by the Council for the purposes of the housing scheme. Several sites on the Ilford section have been let on building lease for 99 years for the erection of shops, and on 19th December, 1922, the Council decided itself to build, at an estimated cost of £2,650, five small shops (two with living accommodation and three lock-up shops). An offer to take the shops, at a rent which will be sufficient to meet all outgoings including debt charges, has already been accepted, and the question of erecting some further shops is being considered. A site for the erection of some temporary shops has been let on a tenancy for five years at a rent of £24 a year. About one-third of an acre has been surrendered for the widening of part of Longbridge-road, in the Barking Town urban district, the local authority undertaking to bear any tenants' compensation and the cost of any necessary fencing. On both the Ilford and the Dagenham sections the Council is providing allotments to be let to tenants on the estate at a rent of 2s. a rod a year.

Bellingham. About 176½ acres of the Bellingham estate are being developed by the erection of 2,090 houses of which about 2,000 were finished by the end of 1922. It is intended that the remainder of the estate (75 acres) shall be utilised for the erection of other than working class houses. The whole of the work has been undertaken by Sir Robert McAlpine and Sons under a contract on a cost *plus* participating profit basis. On 15th February, 1922, the Council accepted a tender amounting to £3,097 for providing, planting and maintaining for one year trees and shrubs and a quantity of quick and privet hedges.

Two sites have been sold for church purposes, one of one acre to the Church of England authorities for £945 and the other of two-thirds of an acre to the London Congregational Union for £660. Several sites have been let on building lease for 99 years for the erection of shops, and also (on 12th December, 1922) a site at a rent of £150 a year to a firm of brewers for the erection of a building at which refreshments, including alcoholic liquors might be sold, the rent being reducible to £100 in the event of the necessary licence not being obtained.

During 1922 the Council let on lease as playing fields for 7 and 14 years respectively, two areas of land at an annual rent, excluding rates and taxes, for

the first (9½ acres) of £60 and for the other (10 acres) of £6 an acre. Fir Hill Lodge has been let on lease for 30 years at a rent of £50 a year, the lessee adapting it for residential purposes.

Roehampton estate.

The Roehampton estate has an area of about 147 acres of which nearly 100 acres on the northern part are being developed for working class houses. The construction of roads and sewers on this part was completed during 1922. The Minister of Health has authorised altogether the erection of 1,185 houses of which 624 have been completed. On 11th October, 1922, the Council accepted the tender of W. Alban Richards and Co., Ltd., amounting to £62,801 for the erection of 168 houses and on 31st December, 1922, about 60 of these were in various stages of construction. Further expenditure estimated not to exceed £5,260 is involved in respect of professional expenses, the cost of lighting installation, articles to be bought direct and other incidentals, making a total estimated cost for the 168 houses of £68,061. Tenders will be invited at an early date for the erection of a further instalment of 205 houses and subsequently of 158 houses,

Offers have been invited for building leases of the land on the southern part of the estate which has been allocated for the erection of other than working class houses.

Tabard-street, etc. scheme.

The Tabard-street and Grotto-place, Southwark, and the Crosby-row, Bermondsey, scheme* relates to areas of about 17 acres, comprising 875 houses with a population of 4,593. Rehousing accommodation has to be provided on the Tabard-street area for not fewer than 2,580 persons. The area when reconstructed will be known as the Tabard Garden estate. Chaucer House, with accommodation for 620 persons, was completed in 1916; Becket House, containing 90 tenements with accommodation for 500 persons, in 1921; Geoffrey House, comprising 54 tenements with accommodation for 300 persons, early in 1922; and Harbledown House, containing 38 tenements with accommodation for 230 persons, towards the end of the year. A dust shoot has been provided in Geoffrey House and an electric passenger lift has been installed as an experiment with the approval of the Minister of Health. Administrative buildings with a residence for the superintendent, repairs workshops and stores have been erected on the estate.

On 24th May, 1922, the Council accepted the tender of Messrs. Allen Fairhead and Son, amounting to £23,332 for the erection of a fifth block of dwellings (Rochester House) comprising 42 tenements with accommodation for 260 persons and on 11th October, 1922, the Council accepted a tender amounting to £18,117, submitted by J. E. Billings and Co., Ltd., for the erection of the sixth block (Huberd House) comprising 38 tenements with accommodation for 214 persons.

The initial weekly net rents of the tenements in the two blocks of dwellings completed during 1922, which have been fixed by the Council with the approval of the Minister of Health, are as follows:—Geoffrey House: two rooms (living room and one bedroom) 11s. and 12s.; three rooms (living room and two bedrooms) 13s. 6d. and 14s. 6d.; four rooms (living room and three bedrooms) 15s. 6d. and 16s. 6d.; five rooms (living room and four bedrooms) 18s. 6d. Harbledown House: two rooms, 10s. 6d. and 11s.; three rooms, 13s. 6d. and 14s.; four rooms, 15s. 6d. and 16s.; five rooms, 18s.

The centre of the estate will be laid out as a public garden about five acres in extent, but much of the site is still covered with houses of which it is difficult to obtain possession on account of the shortage of accommodation. About one acre is available and the surface of this has been regulated at a cost of about £120 to render it suitable as a playground for children. Land at the rear of Geoffrey House which will form part of the open space has been laid out at a cost of about £135.

During 1922 it was arranged that the Southwark Metropolitan Borough Council

*See Annual Reports for 1915–19 (vol. III., p. 116), and 1920 (vol. III., p. 128).

should construct for the Council a length of the new road on the north-east side of the open space. The work, estimated to cost £4,680, is being carried out on the basis of actual cost. The borough council is also, on the same terms, widening Pardoner-street and a portion of Tabard-street, the estimated cost being £3,436.

Brady street scheme.

On 1st February, 1922, the Minister of Health confirmed with certain modifications the scheme made by the Council under Part II. of the Housing Act, 1890, for dealing with the Brady-street area, Bethnal Green (7 acres) at an estimated cost of £101,000, excluding the cost of new dwellings. About 1,875 persons of the working classes will be displaced and the confirming order requires the provision of accommodation for 1,600 persons on the cleared site and for 265 persons elsewhere. A site at Goldsmith's Row, Shoreditch, had been appropriated for the purpose and the foundations for a block of dwellings to contain 12 tenements with accommodation for 90 persons were commenced in 1921. On 22nd February, 1922, the Council accepted the tender of Messrs. Allen Fairhead and Son, amounting to £8,725 for the erection of the superstructure and by the end of the year the dwellings, which are known as Whiston House, were practically completed. The Shoreditch Metropolitan Borough Council is installing electricity for lighting, cooking and water heating at an initial charge of £15 a tenement. This is the first occasion on which electricity has been adopted for cooking purposes in the Council's dwellings and useful and interesting results are anticipated from the experiment. The initial weekly net rents proposed are :—Three rooms, 12s. to 13s. ; four rooms, 14s. and 14s. 6d. ; and five rooms 15s. 6d. and 16s.

The Minister of Health has approved a plan for the lay out of the rehousing site within the Brady-street area and an exchange of lands has been agreed with Mann, Crossman and Paulin, Ltd., by which an outlying part of the area adjoining their premises will be retained by or transferred to them, and they undertake to provide at Walthamstow not fewer than 35 cottages to be approved by the Council for the accommodation of at least 175 persons, which is the number of those to be displaced from that part.

Arrangements were made for obtaining early possession of the site for the first block of dwellings on the Brady-street area, which is intended to accommodate 274 persons, and on 11th October, 1922, the Council accepted the tender of Messrs. Rowley Bros., amounting to £22,444, for the erection of the building to be known as Bullen House. For the area when reconstructed the name Collingwood estate has been selected.

Ware-street scheme.

On 20th June, 1922, the Minister of Health confirmed, subject to modifications, the scheme made by the Council for dealing under Part I. of the Housing Act of 1890, with the Ware-street area, Hoxton of about 9¼ acres and including some 386 dwelling houses and other buildings. About 2,648 persons of the working classes will be displaced and accommodation has to be provided for that number, not fewer than 2,160 being provided for within the area. The cost, excluding the cost of erecting dwellings, is estimated at £93,500. The property on the site required for the erection of the first block of new dwellings is being acquired, but clearance must proceed gradually owing to the general housing shortage. The clearance of the second section will probably be deferred until the new dwellings on the first section are completed. Included in the scheme are certain licensed premises, and in view of the expenditure involved in the acquisition of such property in the ordinary way the Council, on 12th December, 1922, decided to enter into an arrangement with the owners of the "Crown and Sceptre" in Ware-street, whereby the Council will obtain possession of the site of the premises in exchange for an equivalent site forming part of the surplus lands under the scheme. This arrangement will facilitate the re-development of the area.

Hickman's Folly scheme.

An official representation under Part I. of the Housing Act of 1890, was made to the Council in January, 1920, by the medical officer of health of Bermondsey with reference to an insanitary area known as the Hickman's Folly area of about 15½

acres. The evils existing in some parts of this area were, in the Council's opinion, such as could be remedied only by a complete clearance and reconstruction. Other parts, however, although comprising property which fell considerably short of a reasonable standard of modern sanitation, had a more open development and were not so pressingly in need of attention as certain areas in other parts of London which the Council was considering. These sections the Council felt, could reasonably be dealt with at a later date, and this view was confirmed by the fact that the represented area was physically divisible into a number of smaller areas, each capable of being dealt with separately at successive stages without materially prejudicing the ultimate redevelopment of the whole in accordance with a comprehensive scheme. On 25th July, 1922, the Council decided to make a scheme under Part I. of the Act in respect of the worst portions of the area comprising about 6 acres and containing some 226 dwelling houses, including three beerhouses, in addition to some manufacturing premises, workshops and dwellings used for storage purposes. About 1,645 persons of the working classes will be displaced and it is proposed to provide rehousing accommodation for 1,290 persons, not fewer than 1,080 persons being accommodated on the cleared area. Dwellings for rehousing the remaining 210 persons could be erected on surplus land from the Tabard-street, Southwark, etc., scheme situated less than a mile distant. On the assumption that the whole of the property will be regarded as insanitary and that none of it is placed by the Minister of Health in the category of properties not in themselves insanitary but only included for the purpose of making the scheme efficient, the cost of acquisition is estimated at £60,000, and that of constructing roads, etc., at £6,700, making £66,700 in all. The scheme has been submitted to the Minister of Health and a local inquiry will be held early in 1923.

Prusom-street area.

A scheme for dealing with the Prusom-street area, Wapping, which had been represented to the Council by the medical officer of health of Stepney as an unhealthy area under Part I. of the Housing Act, 1890, was under consideration at the end of the year.

Cost of building.

The question of economy in the lay-out of estates and the erection of dwellings has continued to engage the Council's close attention. A number of economies were effected and revised plans were adopted in 1921 (see Annual Report for 1921, vol. III., p. 76). During 1922 additional economies were decided upon as follows :— (i) omission (where possible) of fencing to minor open spaces, (ii) substitution of tar paving for brick in the majority of front paths, (iii) reduction of roof pitch and substitution of stock bricks in place of red facings, where the prices of red bricks are excessive, (iv) grouping of cottages in longer blocks, (v) reduction in projections in blocks and consequent simplification of roofs, (vi) substitution of concrete lintels for brick arches, etc., over door and window openings on back elevations. (vii) substitution of 3½-inch concrete slabs for 4½-inch brick walls on ground floor and 6-inch concrete slabs for 9-inch division walls in many places, (viii) omission of picture rails in bedrooms, (ix) omission of paths in back gardens, (x) combination of the bathroom and water-closet in the smaller houses and flats.

The accommodation in each revised type of house and the estimated saving in cost as compared with houses of similar type previously erected are as follows :—

Type No.	Accommodation.	Estimated saving in cost.
		£
4A (i) ...	Living room, scullery, bathroom and three bedrooms	—
5B	Living room, scullery, bathroom and three bedrooms	57
6	Parlour, living room, scullery, bathroom and three bedrooms ...	24
7	Parlour, living room, scullery, bathroom and three bedrooms ...	52
7A	Parlour, living room, scullery, bathroom and three bedrooms ...	36
8	Living room, scullery, bath in w.c. and two bedrooms	100
A	Living room, scullery, bath in w.c. and two bedrooms	91
9	Parlour, living room, scullery, bathroom and two bedrooms ...	57
10B... ...	Parlour, living room, scullery, bathroom and four bedrooms ...	85

Lodging houses.

The charges for accommodation in the Council's lodging houses were further revised and fixed as from May, 1922, as follows:—(*a*) sleeping accommodation at Carrington House—Ordinary cubicle, 11d. a night or 6s. a week; special cubicle, 1s. 2d. a night, or 7s. 6d. a week. (*b*) barber's and shoemaker's shops at Bruce House and Carrington House 12s. 6d. a week.

Public Utility Society.

On 11th July, 1922, the Council, in order to assist the Public Utility Society, Ltd., to provide housing accommodation, decided to make an order for the compulsory acquisition of the freehold interest in certain land in St. John's Wood, adjoining Addison House, with a view to selling the same to the society, who accepted liability for the Council's expenses and the compensation involved. The proposal, however, encountered the opposition of those interested in the property and the Minister of Health, after holding a local inquiry, declined to confirm the order.

Publications

The Council has published a fully illustrated account of housing in London up to 1912* and also a detailed account, with seven illustrations, of its present proposals.†

Workmen's trains, etc.

The Council's action with regard to workmen's trains at cheap fares was dealt with in the Annual Report for 1920 (vol. I., p. 77). No special action was taken during 1922.

CHAPTER XXVIII.

ACCOUNTS AND STATISTICS.

Memorandum by the Comptroller of the Council (Mr. C. D. Johnson) relating to the Housing Accounts for the Year 1922–23.

These accounts are prepared in advance of the Annual Accounts of the Council for the year ended 31st March, 1923. In order that they may be ready for presentation to the Council by the time appointed, it has been necessary to insert certain provisional figures which will be subject to adjustment in the final accounts as prepared for audit.

The accounts furnish a comprehensive statement of the financial results of the Council's operations under the Housing of the Working Classes Acts, 1890 to 1919 (Clearance of unhealthy areas and rehousing under Parts I and II, and housing under Part III of the Act of 1890), and of rehousing under various street improvement, etc., Acts.

The "Clearance Schemes" sections of the accounts cover the acquisition and clearance of unhealthy areas. The "Working class dwellings" sections deal with the dwellings. The capital accounts of dwellings erected in pursuance of an obligation to rehouse persons displaced include only the "housing value" of the sites used, the balance of the cost of acquiring and clearing the land being regarded as part of the cost of the clearance or improvement scheme. The capital accounts of the dwellings on estates under Part III of the Act (schemes to provide accommodation for persons of the working classes, apart from displacements), include the whole cost of the sites. The difference in treatment is explained by the desire to set out clearly the financial results of the Council's management of the dwellings apart from any other considerations, and by the fact that dwellings under Parts I and II of the Act and under improvement Acts represent compulsory provision for rehousing on sites which may be unsuitable from a commercial point of view, whereas the Council's action under Part III (until the passing of the 1919 Act) was voluntary.

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* *Housing of the Working Classes*, 1855–1912, No. 1555, price 1s.

† *Housing*, No. 2032, price 1s.

The accounts show the broad division between Schemes assisted by Government subsidy and the earlier "Non-Assisted Schemes." The accounts are arranged as follows—

A.—Non-Assisted Schemes—
1. Clearance Schemes.
2. Working-class dwellings.

B.—Assisted Scheme—
1. Clearance Schemes.
2. Working-class dwellings.
3. Housing Schemes of metropolitan borough councils.
4. Local Bonds (for housing).

The financial results of the whole operations in connection with housing, including clearance schemes, for the year ended 31st March, 1923, may be very shortly summarised as follows, the results for the previous year being also given for comparison.

	1922–23 Surplus (+) Deficiency (—)	1921–22 Surplus (+) Deficiency (—)
Non-Assisted Schemes—	£	£
Dwellings—		
Housing Act	+ 27,760	+ 13,641
Improvement Acts	+ 9,016	+ 3,363
	+ 36,776	+ 17,004
Clearance schemes	— 48,188	— 61,414
Assisted Schemes—		
Council's Dwellings—		
Dwellings in occupation	—199,548	— 33,535
Estates in course of development	—202,808	—280,192
	—402,356	—313,727
Metropolitan borough council's schemes...	—240,914	—208,489
Local Bonds (expenses of issue, management, etc.) ...	— 42,488	— 28,949
Clearance schemes	— 1,562	— 692
Total deficiency on Assisted schemes]	—687,320	—551,857
Government subsidy	511,236	378,661
Charge on rate	176,084	173,196
	687,320	551,857

A.—Non-Assisted Schemes.

This section comprises the accounts of schemes carried out by the Council prior to the enactment of the Housing, Town Planning, etc., Act, 1919.

Clearance Schemes.—The aggregate net capital expenditure to 31st March, 1923, amounted to £2,742,457 –s. 10d. The net debt outstanding on the same date was £975,600 12s. 1d.

The Revenue Account shows a deficiency of £48,188 9s. 4d., attributable mainly to debt charges on the cost of acquisition and clearance works.

Working-class dwellings.—The aggregate net capital expenditure to 31st March, 1923, amounted to £2,995,575 5s. 7d. (Housing Act, £2,252,002 14s. 4d.; Improvement Acts, £743,572 11s. 3d.); the net debt outstanding on the same date after taking into account the accumulated sinking fund was £2,539,666 14s. 3d.

The results of the year's working compared with those of the previous year are as follows :—

		1922–23. £ s. d.		1921–22. £ s. d.
Dwellings under—				
Housing of the Working Classes Act, 1890—				
Part I.	Surplus	13,142 5 2	Surplus	7,951 2 6
Part II.	Surplus	830 11 5	Surplus	502 17 10
Part III.	Surplus	11,962 10 10	Surplus	3,460 5 9
Add—Acquisition of Lands Fund —Part III.	Surplus	1,824 12 11	Surplus	1,726 8 11
	Surplus	27,760 – 4	Surplus	13,640 15 –
Improvement Acts	Surplus	9,015 13 8	Surplus	3,363 2 7
TOTAL—NON-ASSISTED SCHEMES	Surplus	36,775 14 –	Surplus	17,003 17 7

The surplus (£27,760 –s. 4d.) for 1922-23 on the dwellings erected under the Housing Act is carried forward as a reserve towards meeting the losses which will fall upon the Council as a result of operations under the Housing, etc., Bill of 1923, when it becomes law. The surplus (£9,015 13s. 8d.) on dwellings erected in satisfaction of re-housing obligations arising from street improvements, etc., is transferred to the appropriate accounts which bear the cost of the improvements, etc.

The results shown above have been arrived at after charging interest and sinking fund contributions, and after transferring substantial sums to the Repairs and Renewals Fund. The purpose of the latter fund, out of which the actual expenditure on repairs and renewals is met, is to equalise the annual charge and to provide a surplus in the early years to meet the cost of the more extensive works which may be anticipated as the buildings grow older. During the year 1922–23, the actual expenditure out of the Fund has been less by £28,297 19s. 4d. than the amount credited thereto.

The gross rental (including rates, where rates are included in the rental), amounted to £355,794 16s. 7d. in 1922–23, as compared with £364,801 9s. 2d. in 1921–22, a decrease of £9,006 12s. 7d., due mainly to a fall in rates.

The total financial result on all " non-assisted " dwellings and estates taken as a whole from April, 1894 (the date of the opening of the first block), to 31st March, 1923, amounts to a surplus of £54,593 17s. –d. £1,227 5s. 2d. has been contributed from Tramways Account in respect of certain rehousing obligations in connection with the Greenwich Generating Station, and £28,061 1s. 10d. has been transferred in relief of rates. £27,760 –s. 4d. is carried forward as stated above.

B.—HOUSING (ASSISTED SCHEME).

This section comprises the whole of the Council's operations in fulfilment of its statutory obligations under the Housing, Town Planning, etc., Act, 1919, together with the losses incurred by the metropolitan borough councils as the result of their operations under the Act. It also includes the transactions relating to the issue by the Council of local bonds for housing under the Housing (Additional Powers) Act, 1919. The form of the account is generally governed by regulations issued by the Minister of Health under the Housing, Town Planning, etc., Act, 1919. Any deficiency (approved by the Minister of Health) on the Housing (Assisted Scheme) Account in excess of the produce of a penny rate will be met out of moneys voted by Parliament. The account also includes the transactions relating to certain clearance schemes which the Council has undertaken, by arrangement with the Minister of Health, on the assurance that approved expenditure will rank for a contribution

of one-half of the average annual loss incurred. The results for the year 1922-23, compared with those for the previous year, are as follows :—

		1922–23. £ s. d.		1921–22. £ s. d.	
1. Clearance schemes	Deficiency	1,532 6 5	Deficiency	691 17 3	
2. Working-class dwellings	Deficiency	402,355 9 7	Deficiency	313,726 19 1	
3. Housing schemes of metropolitan borough councils (including central office charges)	Deficiency	240,914 1 10	Deficiency	208,488 17 3	
4. Local Bonds (for housing)	Deficiency	42,488 6 10	Deficiency	28,949 8 8	
		687,290 4 8		551,857 2 3	
Chargeable to Special County account—					
Produce of a special county rate of one penny in the £		175,762 – –		173,196 – –	
Proportion of deficiency on limited subsidy clearance schemes		322 – 7			
Exchequer subsidy :—					
Loss on Assisted Scheme (Act of 1919) in excess of the produce of a penny rate... £510,884 3 6					
Proportion of deficiency on clearance schemes (subsidy of 50 per cent.) ... ... 322 – 7					
		511,206 4 1		378,661 2 3	
Total deficiency		687,290 4 8		551,857 2 3	

In explanation of the above allocation of the deficiency it should be observed that the liability of the Ministry under the Act of 1919 is limited to " loss " as defined in the Regulations and as approved by the Minister. Should any part of the deficiency not be approved, the difference will be an additional charge on the county rate. The figure of £175,762 is subject to correction ; the actual produce of a penny rate, for the special purpose of these accounts, is not capable of being ascertained until later.

Clearance Schemes.—The total capital expenditure to 31st March, 1923, amounts to £5,820 6s. 8d., representing preliminary expenditure in respect of the Bell-lane and Ellen-street, Hickman's Folly, Prusom-street, Ware-street and Brady-street areas. The Revenue Account shows a deficiency of £1,562 6s. 5d., mainly administrative expenses. In part, the deficiency falls to be met by Government subsidy under the Assisted Scheme of the 1919 Act, and the remainder will rank for a contribution not exceeding one-half of the average annual loss as provided by the Housing, etc. (No. 2) Bill of the present session.

Working-class dwellings.—The results for the year 1922–23, as compared with those of the previous year, are as follows :—

		1922–23. £ s. d.		1921–22. £ s. d.	
Dwellings—					
Part I.	Deficiency	6,760 17 8	Deficiency	4,997 19 10	
Part II.	Deficiency	329 14 6	Surplus	62 6 4	
Part III.	Deficiency	192,457 6 7	Deficiency	28,599 2 10	
Total—Dwellings	Deficiency	199,547 18 9	Deficiency	33,534 16 4	
Estates in course of development—Part III.	Deficiency	202,807 10 10	Deficiency	280,192 2 9	
Total—Dwellings and estates	Deficiency	402,355 9 7	Deficiency	313,726 19 1	

It will be seen that about half of the deficiency appears under the head of "estates in course of development," the debt and other charges in respect of which,

less receipts in aid, are shown separately in the accounts. This course follows the Council's past practice and is adopted in order to permit a clear view of the results of managing completed dwellings. As the work on each estate proceeds, the proper proportion of capital expenditure and debt charges is allocated to the account of the dwellings available for letting, and, in the end, the total capital expenditure on land and development is entirely absorbed in the cost of the dwellings.

The gross rental of the completed dwellings for 1922–23 is £184,856 17s. –d., as compared with £28,958 16s. –d. in 1921–22, an increase of £155,898 1s. –d.

The aggregate capital expenditure to 31st March, 1923, amounted to £8,842,808 13s. –d.; the net debt, including stock, etc., issue expenses, and after taking into account the accumulated sinking fund was £10,016,284 14s. 10d.

Housing Schemes of metropolitan borough councils.—Under the Act of 1919, the Council has to refund to the borough councils the losses arising in connection with schemes carried out by them under the Act. The Council's Housing Accounts will thus show the financial results of the assisted scheme for the County of London as a whole. A sum of £240,479 1s. 10d. is included to cover the borough councils' losses for the year 1922–23 as compared with £207,575 for the year 1921–22. The amount is subject to revision, but the Council will not be affected by any variation because its liability on the assisted scheme as a whole is limited to the amount of a penny rate.

Local Bonds (for housing).—The issue of these Bonds ceased on 30th July, 1921, the total amount raised to that date being £3,955,605. Deducting £106,373 6s. 2d. for expenses of issue, the net amount raised was £3,849,231 13s. 10d. £3,847,868 of this sum has been advanced on loan to the metropolitan borough councils for housing purposes. No part of the proceeds has been used for the Council's own capital purposes.

The Minister of Health has agreed to the expenses of issue being spread over a period of 5 years, and charged to the assisted scheme. Provision has been made accordingly. The rate of interest charged on the loans to the borough councils is the same as that payable by the Council on the face value of the Bonds, viz., 6 per cent., and the instalments in repayment of the expenses of issue and the annual cost of management, etc., fall wholly on the assisted scheme account. In addition, the assisted scheme bears the large (and growing) deficiency of interest due to the investment of amounts repaid by borough councils not producing as much as the 6 per cent. payable on the Bonds.

Housing Estates—Memorandum by the Valuer (Mr. Frank Hunt).

Extension of Council's Housing Activities.

As has been the case in each year since the war the volume of work connected with the administration of the Council's dwellings has during 1922–23 shown a continuous increase. This is the natural consequence of the extension of the Council's housing activities caused by the provisions of the Housing Town Planning, etc., Act, 1919.

At the end of March, 1922, 2,082 dwellings had been erected under the provisions of the Act, and during the year ended 31st March, 1923, 5,134 additional dwellings were provided, making a total of 7,216 post-war dwellings. Schemes under which nearly 2,000 additional dwellings will be provided at Becontree and Roehampton were also in progress. The pre-war dwellings numbered 9,985, so that the actual number of dwellings in charge at the end of the year was 17,201, or nearly double the number before the war.

The work involved in the management of these dwellings entailing as it has the handling of a great number of applications for tenancies, the investigation of the circumstances of the applicants, the rationing of accommodation according to the applicants' needs, and the numerous other questions inevitably arising in connection with the management of new estates has of course been out of all proportion to that associated with the management of an equal number of pre-war dwellings

The work connected with the management of the pre-war dwellings has also been greatly increased in recent years by the execution of repairs which had to be left in abeyance during the war, and the adjustments of rents necessitated half-yearly under the provisions of the Rent Restrictions Acts. On a moderate estimate, the volume of housing administrative work is now at least three times as heavy as it was before the war.

Demand for accommodation.

There has been no abatement of the great demand for accommodation on the Council's estates. Apart from the large number of applications which had previously been received, 10,151 applications were received during 1920–21, and 10,036 during 1921–22, although, in the main, it had been found necessary to close the waiting lists as early as 1920. During 1922–23 8,740 applicants were registered for certain types of cottages, and it was necessary to inform a great many applicants—so numerous that the pressure of work did not permit of their number being recorded—that their applications could not be entertained. Moreover, as in previous years a very large number of persons made inquiries, both written and verbal, as to the possibility of obtaining accommodation and, being informed of the position, did not make formal applications which in the circumstances would have been futile. It is undoubtedly the case also that many persons refrain from making inquiries owing to its being well known that the Council cannot, in present circumstances, meet the requirements of the numerous applicants already registered. It is indicative of the situation that, at the end of the year, even after taking these factors into consideration, no fewer than approximately 14,600 applications were on the registers awaiting attention, while during the last quarter of the year over 8,000 persons called at the office seeking accommodation and over 2,400 written requests were made. Experience has shown, however, that a considerable proportion—approximately a quarter—do not avail themselves of accommodation when it is offered to them. Of these about half are unable to pay the rents required, while others have obtained accommodation elsewhere in the interval that has elapsed since the receipt of their applications.

The difficulty of obtaining suitable accommodation is most acute in the cases of persons about to get married, newly-married couples, and persons with families so small as to render them ineligible for accommodation in dwellings other than those of the smallest types.

Method of allotting accommodation.

Before the war it was the general practice of the Council, upon the receipt of satisfactory references, to accept tenants in the order in which their applications were received. Preference was given (i.) to persons displaced through the acquisition by the Council of property for clearance or improvement schemes or other public purposes, and (ii.) to persons already residing in London. These preferences still hold good. Since the war the Council has, from time to time, given temporarily further preferences, other circumstanes being equal, to persons who gave up their homes in order to join H.M. Forces or to undertake work of national importance, to firemen required to vacate quarters at fire-stations and to certain other small classes of people.

In order to make the full use of all available accommodation the Council has found it necessary to adopt the following general principles :—(i.) Applicants are to be allotted dwellings not larger than are deemed to be sufficient to meet the reasonable needs of their families, taking into consideration the sex and ages of the children and the bedroom accommodation required ; (ii.) no person residing alone is to be accepted as a tenant ; and (iii.) not more than two rooms are to be allotted to a married couple without children or two single women living together. In some cases the circumstances of the applicants, owing to ill-health, overcrowding or the insanitary state of their homes or to other conditions have been such that it was decided during the year to grant special preference in exceptionally hard cases of this kind.

In a good many cases it has been necessary during the year to decline to entertain applications on the ground that the family income of the applicants was inadequate

to enable the applicants to pay the rents, although these are less than remunerative and entail heavy expenditure out of public funds. Under the tenancy agreements sub-letting is not allowed, and during the year it was decided that tenants should not be allowed to take lodgers.

New dwellings provided during the year.

Of the 5,134 additional dwellings provided during the year, 2,254 are situated at Becontree, 1,773 at Bellingham, 542 on the White Hart Lane estate, 279 at Roehampton, 214 on the Old Oak estate, which was completed during the year, 60 on the Tabard-garden estate, Southwark, and 12 in Whiston House, Shoreditch, the first block on the Collingwood estate, which is being erected to rehouse persons displaced by the Brady-street clearance scheme. The tenements on the Tabard-garden estate and at Whiston House are of the block dwelling type, while all the others are of the cottage or cottage-flat type. On the Council's basis of two persons a room the post-war dwellings occupied at the end of March, 1923, provided accommodation for 55,855 persons.

Total accommodation provided.

The pre-war dwellings comprise 6,543 tenements in block dwellings, 3,148 cottages and 294 cottage-flats, providing accommodation for 56,999 persons on the basis of two persons a room. There are also the three lodging-houses (Bruce House, Carrington House and Parker-street House), with cubicles providing accommodation for 1,878 persons. The pre-war accommodation thus provided was for 58,877 persons. Adding to this figure the accommodation in the post-war dwellings, the Council's dwellings and lodging-houses provided, at the end of March, 1923, accommodation, calculated on the Council's basis of two persons a room, for 114,732 persons. The actual population on that date was approximately 72,000 persons, which is greater than the population of Bath or Lincoln, and almost as great as that of West Bromwich or Barrow-in-Furness.

Rehousing

Owing to war conditions the Council did not during the years 1915–20 carry out any displacements consequent upon street improvement, clearance and education schemes. During the years 1920–22, however, the Council rehoused 298 persons, all of whom had been displaced under the Tabard-street clearance scheme. During 1922–23 223 persons were rehoused, of whom the majority had been displaced by the Tabard-street scheme, most of the remainder, about 30 or 40 in number, having been displaced by the Brady-street, Bethnal Green, clearance scheme. The total number rehoused up to 31st March, 1923, was 2,277.

Transfers.

During the year 609 tenants were transferred to other tenements on the Council's estates. These transfers are sometimes to a different estate, owing to the tenant having changed his place of work, and sometimes to a larger or smaller tenement owing to an increase or decrease in the tenant's family. Whenever possible tenants living in overcrowded conditions are transferred to larger dwellings, but this is specially difficult at the present time owing to the shortage of accommodation and to the unstable economic conditions.

Removals and empties.

During the year 865 tenants left, of whom 49 were given notice to quit, either for non-payment of rent, unsatisfactory conduct or some other cause. The remaining 816 gave notice and left to suit their own convenience; it is difficult to ascertain the causes of removal in most of these cases, but in 111 cases in which it has been possible to obtain definite information on this point, 28 tenants moved because they were leaving London, 23 because they found the rent too high, 25 because of unemployment, illness or domestic reasons, 19 because their dwellings were too far from their place of employment, and 16 because they had purchased a house elsewhere or found accommodation at their place of employment.

Enumeration of tenants and overcrowding.

The annual enumeration of tenants was taken in March, 1923, and, as in previous years, the enumeration returns were carefully examined in order to detect overcrowding. For this purpose the maximum number of persons to be allowed in any tenement in the dwellings has been fixed at two adults a room, children up to the age of five not being taken into account for this purpose, and each child between the age of five and ten being regarded as half an adult. This year the number of

tenements on the pre-war estates not complying with this standard was 236 out of a total of 9,985, while 5 dwellings out of a total of 7,216 on the post-war estates were found to be overcrowded. The overcrowding is due in a measure to the increase with the course of time, of the ages of tenants' children, but mainly, of course, to the continuance of the general shortage of accommodation and the consequent difficulty of obtaining larger tenements. All the cases, however, although not complying with the Council's regulations, fall short of contravening the by-laws made under the Public Health Acts. The overcrowding will be remedied as opportunities occur by transfers to larger tenements.

Rent Restrictions Acts.

Under the Increase of Rent and Mortgage Interest (War Restrictions) Act, 1915, the additional rates which the Council had to pay in respect of the dwellings were added to the rents payable by the tenants while, in accordance with the Increase of Rent and Mortgage Interest (Restrictions) Act, 1920, the rents were further increased as from September, 1920, by 30 per cent. of the net rents of 1914. In July, 1921, the Council, as permitted by the last-mentioned Act, increased the rents by an additional 10 per cent., thus making the full increase, namely, 40 per cent., allowed by the Act. The amount produced by the increase in 1921–22, was about £62,550, and, operating over a complete financial year, the 40 per cent. increase produces about £66,500. These permitted increases have not been made in respect of property forming part of slum clearance areas. The periodical revision of rents consequent upon alterations in the rates involves a great amount of work, the calculations affecting about 11,000 tenements with varying rents and rateable values and situated in the areas of nearly thirty different local rating authorities.

Financial results.

In the Housing Accounts for 1922–23, details are given of the financial results of the Council's housing schemes up to 31st March, 1923, but it may be apposite to repeat here some of the more important figures. In this connection it is necessary to preserve a clear distinction between the *Non-Assisted Schemes* promoted before the Housing, Town Planning, etc., Act, 1919, and the *Assisted Scheme* promoted under that Act, the assistance taking the form of an annual subsidy from the Government sufficient to ensure that the annual deficiency on all Council and metropolitan borough council schemes shall not exceed the produce of a penny rate.

Dealing first with the *Non-Assisted Schemes*, the aggregate capital expenditure on dwellings provided to 31st March, 1923, was £2,995,575. The financial result of the year's working, after providing for interest and sinking fund charges on the capital expenditure, was a surplus of £36,776, as compared with a surplus for the preceding year of £17,004. The interest and sinking fund charges amounted to £111,873, or 31·23 per cent. of the gross rental. Other outgoings amounted to £207,422, or 57·9 per cent. of the gross rental, including £90,949 (25·2 per cent. of the gross rental) for rates and taxes. The balance of the Acquisition of Lands Fund and the difference between totals of debt charges on cash and stock bases have been taken into account in arriving at these results.

As regards the 7,216 dwellings erected under the *Assisted Scheme* and in occupation during the year, the financial result, after providing for interest and sinking fund charges, was a deficiency of £199,548. This deficiency will be included in the amount recoverable from H.M. Government. The interest and sinking fund charges amounted to £342,418, and the expenditure on other outgoings accounted for (excluding rates and taxes) was £42,916. The amount paid in respect of rates, taxes, etc., was £61,647.

Rent irrecoverable.

Some tenants left during the year without paying arrears of rent, but the amount thus irrecoverable amounted only to £265, or about ·05 per cent. of the total rent.

Empties.

The loss by empties during the year was £2,794, or ·51 per cent. of the rent as compared with ·9 per cent in 1921–22. The loss by empties was, as usual, mainly due to Carrington House not being fully occupied by lodgers, £2,502 of the total loss being in respect of Carrington House. Excluding this the loss was only £292.

Repairs.

The necessary repairs to the dwellings are carried out by direct employment of labour. The amount expended on this work in 1913–4 was £23,934. In 1920–21, this expenditure had risen to £68,572, this increase being due to the higher wages, to the heavy rise in the prices of materials, and to the necessity of overtaking the arrears of painting and other work suspended during the war. During 1922–23 the expenditure on non-assisted schemes amounted to £44,398, and to £5,836 on the assisted scheme. It will be seen that there was a substantial decrease in the expenditure under this head during the year, this being attributable partly to the fall in wages and the cost of materials. The work carried out included the external painting of 26 blocks of tenements and 273 cottages, the internal painting of 297 cottages, the touching up and varnishing of the internal woodwork of 16 blocks of tenements and 158 cottages, and the cleansing and distempering of 2,931 tenements, including 21 of the Assisted Scheme and 1,866 cottages, including 631 on the Assisted Scheme.

Outbreaks of fire.

During the year 30 small outbreaks of fire occurred. Five of these occurred at houses on the Assisted Scheme, and the cost of re-instatement was £8 10s. The cost of re-instatement in the cases of the 25 other outbreaks was £37 5s. 6d., and was covered by the Council's Insurance Fund.

Vital statistics.

The number of deaths of residents in the Council's dwellings, including lodging-houses, during the year was 455. The health conditions on all the estates continue to be highly satisfactory, the death-rate being uniformly lower than those of the areas in which the respective estates are situated.

There were only 206 cases of infectious disease reported, 99 of these being cases of scarlet fever, 74 cases of diphtheria, 22 cases of measles, 10 cases of chicken-pox and a case of typhoid fever.

Printed by Odhams Press Ltd., Long Acre, W.C.2.