

**[Report of the Medical Officer of Health for Dagenham].**

**Contributors**

Dagenham (London, England). Urban District Council.

**Publication/Creation**

[1933]

**Persistent URL**

<https://wellcomecollection.org/works/bsrbsmn4>

**License and attribution**

You have permission to make copies of this work under a Creative Commons, Attribution, Non-commercial license.

Non-commercial use includes private study, academic research, teaching, and other activities that are not primarily intended for, or directed towards, commercial advantage or private monetary compensation. See the Legal Code for further information.

Image source should be attributed as specified in the full catalogue record. If no source is given the image should be attributed to Wellcome Collection.



Wellcome Collection  
183 Euston Road  
London NW1 2BE UK  
T +44 (0)20 7611 8722  
E [library@wellcomecollection.org](mailto:library@wellcomecollection.org)  
<https://wellcomecollection.org>

7-2-3  
4411(1) Dagenham  
(later Mun B.)

The  
Urban District Council of Dagenham



1928

# Annual Report

OF THE

MEDICAL OFFICER OF HEALTH

FOR THE YEAR

1932

---

E. W. CARYL THOMAS, M.D., B.Sc., D.P.H.,  
BARRISTER-AT-LAW.



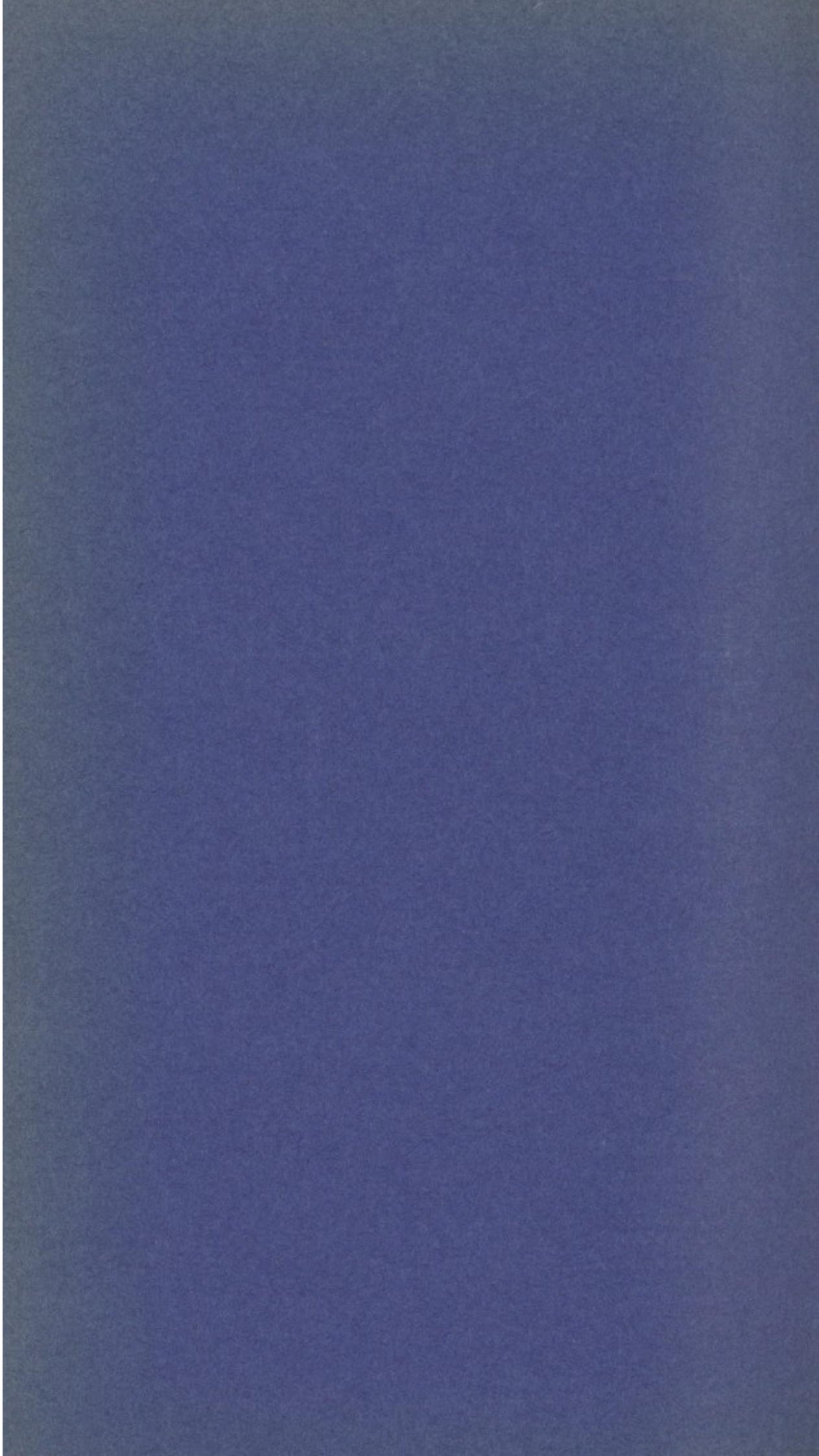


TABLE OF CONTENTS

The  
Urban District Council of Dagenham

DEPARTMENTS OF THE PUBLIC HEALTH SERVICES ... 6

GENERAL STATISTICS ... 8

GENERAL PROVISION OF HEALTH SERVICES FOR THE AREA ... 16

Hospital Provision ... 16

Amphulance ... 18

Chairs ... 18

Nursing in the Home ... 21

Laboratory Facilities ... 22

# Annual Report

HOUSING STATISTICS ... 22

Statistics of Inspection ... 22

Population Density ... 26

## MEDICAL OFFICER OF HEALTH

INSPECTION AND SUPERVISION OF FOOD ... 40

INFECTIOUS AND OTHER DISEASES FOR THE YEAR ... 58

Diphtheria ... 58

Scarlet Fever ... 57

Measles ... 62

Tuberculosis ... 65

Cancer ... 71

1932

MATERNITY AND CHILD WELFARE ... 72

Infant Mortality ... 72

Maternal Mortality ... 76

E. W. CARYL THOMAS, M.D., B.Sc., D.P.H.,  
BARRISTER-AT-LAW.



The  
Urban District Council of Dagenham



1932

# Annual Report

for the

MEDICAL OFFICER OF HEALTH

for the year

1932

THOMAS M. D. B. B. B.

Registered at 1/2

# TABLE OF CONTENTS.

---

	PAGE.
OFFICERS OF THE PUBLIC HEALTH SERVICES ... ..	6
GENERAL STATISTICS ... ..	8
GENERAL PROVISION OF HEALTH SERVICES FOR THE AREA	16
Hospital Provision ... ..	16
Ambulance ... ..	18
Clinics ... ..	18
Nursing in the Home ... ..	21
Laboratory Facilities ... ..	22
SANITARY CIRCUMSTANCES OF THE AREA ... ..	23
Sanitary Inspection ... ..	30
HOUSING STATISTICS ... ..	32
Statistics of Inspections ... ..	32
Population Density ... ..	36
Consideration of Housing Estates ... ..	43
INSPECTION AND SUPERVISION OF FOOD ... ..	49
INFECTIOUS AND OTHER DISEASES ... ..	53
Diphtheria ... ..	53
Scarlet Fever ... ..	57
Measles ... ..	62
Tuberculosis ... ..	65
Cancer ... ..	71
MATERNITY AND CHILD WELFARE ... ..	72
Infant Mortality ... ..	72
Maternal Mortality ... ..	76
Infant Welfare Centres ... ..	80
Ante-Natal Services ... ..	83



## TABLE OF CONTENTS

PAGE	
6	FIGURES OF THE PUBLIC HEALTH SERVICES
8	GENERAL STATISTICS
10	GENERAL PROVISION OF HEALTH SERVICES FOR THE AREA
10	Hospital Provision
18	Ambulance
18	Clinics
21	Nursing in the Home
22	Laboratory Facilities
23	Sanitary CIRCUMSTANCES OF THE AREA
30	Sanitary Inspection
32	HOUSE STATISTICS
32	Statistics of Inspections
36	Population Density
43	Consideration of Housing Estates
49	INSPECTION AND SUPERVISION OF FOOD
52	DISEASES AND OTHER DISEASES
53	Diphtheria
57	Scarlet Fever
62	Measles
63	Tuberculosis
71	Cancer
72	ACTIVITY AND CHILD WELFARE
72	Infant Mortality
75	Maternal Mortality
80	Infant Welfare Centres
88	Anti-Natal Services

To the Chairman and Members of the Urban District  
Council of Dagenham.

Ladies and Gentlemen,

I beg to submit my report on the health and sanitary circumstances of the district for the year 1932.

Apart from an extensive outbreak of measles in the earlier months of the year and the continuance of the epidemic of whooping cough from the preceding year, there were no special circumstances adversely affecting the health of the district.

Much of the information in this report has been drawn from different agencies. Statistics of population have been taken from the Registrar-General's report of the census returns for the County of Essex. For many of the figures relating to the occupation of the inhabitants and the extent of the transfers amongst the population I am indebted to Terence Young, Esq., B.A., Secretary of the Becontree Social Survey. The report of the nutrition of the special class of child referred to is based on particulars obtained by Dr. Ivor Jones, attached to the London School of Hygiene and Tropical Medicine. This information was made accessible by the courtesy of Dr. W. A. Bullough, County School Medical Officer and the help of the Head Teachers of the various schools.

The Registrar's estimate for the mid-year population not being to hand, the local estimate of 94,000 is used throughout as the basis on which the birth, death and infectious disease rates are calculated.

I desire to thank the members of the Council and administrative staff for the help they have given me in the past year.

I have the honour to be,

Ladies and Gentlemen,

Your obedient servant,

E. W. CARYL THOMAS.

Public Health Offices,

Becontree Avenue,

Dagenham.

5th May, 1933.



# OFFICERS of the PUBLIC HEALTH SERVICES.

## Full-Time Staff.

### *Medical Officer of Health :*

E. W. CARYL THOMAS, M.D., B.Sc., D.P.H., Barrister-at-Law.

### *Assistant Medical Officer (Maternity and Child Welfare) :*

ELEANOR HENDERSON, M.B., Ch.B., D.P.H.

### *Senior Sanitary Inspector :*

G. T. CARTER, Certificate of Royal Sanitary Institute ;  
Meat Inspector's Certificate.

### *Sanitary Inspectors :*

R. J. DAW, Certificate of Royal Sanitary Institute ; Meat Inspector's Certificate ;  
First-Class Certificate Practical Sanitary Science.

F. W. S. FOX, Certificate of Royal Sanitary Institute ;  
Meat Inspector's Certificate. (Commenced 29/3/32.)

A. J. JAMES, Certificate of Royal Sanitary Institute.

L. E. PRIOR, Certificate of Royal Sanitary Institute ;  
Meat Inspector's Certificate.

### *Health Visitors :*

D. BRACE, General trained : C.M.B., New H.V.'s Cert.

V. EVERITT, General trained : C.M.B., H.V.'s Cert.

N. MILBURN, General trained : C.M.B., H.V.'s Cert.  
Ex Queen's Nurse.

I. RICHARDSON, General trained : C.M.B., H.V.'s Cert.

H. SHUTT, Nursery trained : C.M.B., New H.V.'s Cert.

M. SMITH, General trained : C.M.B., H.V.'s Cert.

D. WALLER, General trained : C.M.B., H.V.'s Cert.

L. WEALE, General trained : C.M.B., H.V.'s Cert., M. & C.W. Cert.,  
New H.V.'s Cert., Sanitary Inspector's Cert.

*Clerical Staff :*

Three full-time Clerks in the General Office.

Two full-time Clerks—part of time dealing with foodstuffs at the Infant Welfare Centres, remainder of time in General Office.

One full-time Clerk in Sanitary Inspectors' Office.

*Part-Time Staff.**Consultant Gynaecologist :*

H. G. EVERARD WILLIAMS, M.D., M.R.C.P.

*Consultant Orthopaedic Surgeon :*

B. WHITCHURCH HOWELL, F.R.C.S.

*Dentist :*

F. C. RITCHIE, L.D.S., R.C.S. (Edinburgh).

*Medical Officers, Infant Welfare Centres :*

M. TURNER, M.R.C.S., L.R.C.P.

S. GOODWILL, M.B., B.S.

The following is a list of the types of employment on which most are engaged, the figures roughly representing the percentage number of males and females respectively—

	Males	Females
Manufactures of all kinds	87	88
Transport and communication	2	2
Trades and handicrafts	12	8
Commerce, finance and insurance, including	11	11
Shop assistants but excluding clerks	21	21
Personal service	...	...

The building industry is probably that in which locally there is relatively the most unemployment. This would possibly be due to large numbers working there at the time the estate was being created, there being less demand for their services now as a result of the slower rate of development.



## STATISTICS AND SOCIAL CONDITIONS OF THE AREA.

Area (in acres) ... ..	6,556
Local estimate of resident population (mid-year) ...	94,000
Number of inhabited houses (end of 1932) according to Rate Books ... ..	19,952
Rateable value (Dec. 31st, 1932) ... ..	£426,039
Sum represented by a penny rate (estimated 1932-33) ...	£1,660

### Social Conditions of Inhabitants.

At the time of the taking of the Census, the proportion of males who worked within 5 miles of the centre of the estate was just under one-third; of those employed at a distance of 5 to 10 miles, one-third; of those at 10 to 15 miles, just under one-third; and one per cent. worked at a distance of 15 to 20 miles. Of the females employed, 45 per cent. worked at a distance within 5 miles of the centre, the remainder being equally divided between the distances of 5 to 10 miles and 10 to 15 miles. From the distances of the residences of these employees from their places of work, it appeared that one-twelfth would benefit by transfer to some other of the London County Council's housing estates—this is excluding consideration of those persons engaged in trades such as building or roadmaking, where the place of work is naturally subject to rapid change.

The following is a list of the types of employment on which most are engaged, the figures roughly representing the percentage number of males and females so occupied :—

	Male.	Female.
Manufactures of all kinds ... ..	36	37
Transport and communication ... ..	25	2
Clerks and draughtsmen ... ..	8	12
Commerce, finance and insurance, including shop assistants but excluding clerks ...	7	11
Personal service ... ..	3	21

The building industry is probably that in which locally there is relatively the most unemployment. This would possibly be due to large numbers coming here at the time the estate was being erected, there being less demand for their services now as a result of the slower rate of development.



The motor factory and the associated factories in the southern industrial area are employing up to 10,000 workpeople. There appears to be an impression that at these factories there is a demand for unskilled workmen who will be trained. Whether this will be so after the full development of the works, remains to be seen, but at the moment when the work is expanding, those with previous experience at the work are employed in preference to others. This results in there being a comparatively low percentage of places occupied by the original local residents of the estate, many of the employees having transferred from other parts of the country where they had been engaged in work of a similar nature. These are housed partly in, but largely outside, the area. Private enterprise in the district is providing for some of these. Many, however, are crowding into some of the local houses. The extent to which this is possible is limited in the case of the houses owned by the local council and by the London County Council, but there is much sub-letting and taking in of lodgers in the remaining property. In attempting to control this overcrowding, one difficulty confronted is that the same room may be let to day and to night tenants, an arrangement possible when work is carried on in different shifts.

In view of the limitation of employment of local labour; the extent to which the employees live outside the district, where they presumably spend their earnings; the effect of the derating act in reducing the contribution made by the factories to meet local expenditure; and the very large expenditure incurred by the local authority, especially in the matter of drainage rendered necessary by the establishment of the factories, the advantages accruing to the district by the erection of the factories appear somewhat problematical.

#### Extracts from Vital Statistics for the Year.

Live Births :—				
	Total.	Male.	Female.	
Legitimate	1,891	969	922	{ Birth Rate per 1,000 of the estimated resi- dent population, 20.4
Illegitimate	33	17	16	
Stillbirths :—				
Legitimate	56	26	30	{ Rate per 1,000 total (live and still) births, 2.8.
Illegitimate	—	—	—	
Deaths	614	326	288	Death Rate per 1,000 of the estimated resi- dent population, 6.5.



## Deaths from puerperal causes :—

	Deaths.	Rate per 1,000 total (live and still) births.
Puerperal sepsis ...	7	3.53
Other puerperal causes ...	5	2.52
Total ... ..	12	6.06

## Death Rate of Infants under one year of age :—

All infants per 1,000 live births ... ..	59.25
Legitimate infants per 1,000 legitimate live births	58.06
Illegitimate infants per 1,000 illegitimate live births	121.21
Deaths from Measles (all ages) ... ..	23
„ Whooping Cough (all ages) ... ..	12
„ Diarrhoea (under 2 years of age) ... ..	19

The only diseases in which a marked increase of the death rate occurred were measles, of which there was a severe outbreak in the early part of the year, and infantile diarrhoea. The death rate from measles per 1,000 population was 0.23, compared with a figure of 0.08 for the country as a whole ; and the death rate for diarrhoea in those under two years of age, per 1,000 live births, was 9.8, compared with the figure of 6.6 obtaining for England and Wales.

**Population.**

The following items have been taken from the Registrar-General's publication "Census of England and Wales ; County of Essex (Part 1)."

"The most prominent of the intercensal changes is that recorded against the Dagenham Urban District where the increase of 80,235 persons is, numerically and proportionately (879.1 per cent.) the highest recorded in the County . . . ."

"For the county as a whole, it will be seen that the population gain of 19.4 per cent. consists of a gain by natural increase (i.e., the excess of births over deaths) of 7.5 per cent. ; and a net gain by immigration amounting to 11.9 per cent. In nearly all areas there are positive increases in respect of natural increase, the highest being 88.3 per cent. in Dagenham Urban District. In 33 of the areas there are gains, and in 24 areas losses by migration. In 8 of these areas, these gains exceeded 50 per cent., the highest percentage being found in Dagenham Urban District. . ."



## AGE AND SEX DISTRIBUTION OF POPULATION.

			Total.	Male.	Female.
All ages	...	...	89,362	44,870	44,492
0—4	...	...	12,888	6,520	6,368
5—9	...	...	15,530	7,896	7,634
10—14	...	...	10,211	5,242	4,969
15—19	...	...	6,326	3,175	3,151
20—24	...	...	4,095	2,093	2,002
25—29	...	...	5,997	2,723	3,274
30—34	...	...	9,400	4,418	4,982
35—39	...	...	9,092	4,505	4,587
40—44	...	...	6,329	3,397	2,932
45—49	...	...	3,631	1,991	1,640
50—54	...	...	2,076	1,162	914
55—59	...	...	1,269	673	596
60—64	...	...	913	427	486
65—69	...	...	658	282	376
70—74	...	...	504	196	308
75—79	...	...	275	109	166
80—84	...	...	124	46	78
85—89	...	...	40	13	27
90—94	...	...	4	2	2
95 & over	...	...	—	—	—

## LOCAL AGE AND CONDITION DISTRIBUTION.

	Essex County.		Dagenham.	
	Male.	Female.	Male.	Female.
Average age	...	...	...	...
	31.1	32.7	23.3	23.5
Age Distribution.				
0—4	...	...	...	...
	83	75	145	143
5—19	...	...	...	...
	270	246	364	354
20—39	...	...	...	...
	319	325	306	334
40 & over	...	...	...	...
	328	354	185	169
No. of married women under 45 per 1,000 females of all ages...	...	249	...	344
No. of females per 1,000 males	...	1,078	...	992

Prior to the taking of the 1931 Census, the figures of the local total population and the age distribution were unknown. By an indirect method based on the use of the death rates, the hypothetical distribution was made. The following conclusions were arrived at—the population was 90,500; the percentage of the under-15 population was 44 (instead of the normal 26); and the sexes were equally represented. The Census returns showed that



the true state of affairs was that of the population of 89,362, 44,870 were males and 44,492 females and the under-15 population was 41 per cent. of the total. These results agree sufficiently to allow of one accepting that the condition of affairs assumed to exist for each of the past five years was a close enough approximation to the true state as to need no alteration in its presentation.

### Births.

1924 births were registered during the year. The birth rate per 1,000 population was thus 20.4, compared with 15.3 for England and Wales, and with local rates of 24.2, 26.5, 30.6, 23.8 and 23.56 for the last five years.

At the time of the Census, there were 15,300 married women between the ages of 15 and 44 out of a total population of 89,362. In the administrative county of Essex there were 158,769 married women at these ages out of a total population of 1,198,672. The local birth rate for the year 1931 was 23.56 per 1,000 population, the corresponding rate for Essex being 16.1. Were the local distribution of population the same as that obtaining in the entire County of Essex, the birth rate would have been 20.6 per 1,000 population against the actual figure for 1931 of 23.56.

### Death Rate.

Total Deaths in district	...	...	315
Outward transfers	...	...	74
Inward transfers	...	...	369
Deaths of residents	...	...	614

Of the 74 deaths of non-residents occurring in the district, 50 took place at the West Ham Sanatorium and 8 at the Isolation Hospital.

Of the 369 deaths of local residents taking place outside this area, most occurred in institutions. Of these, 248 occurred at Oldchurch Hospital, 24 at King George Hospital, Ilford, 7 at Severalls Mental Hospital, 6 at East Ham Memorial Hospital, 5 at London Hospital, 5 at the London Fever Hospital, 5 at Queen Mary's Hospital, Stratford, and 4 at St. Mary's Hospital, Plaistow.

614 deaths in a population of 94,000 represents a death rate of 6.5, compared with 12.0 for England and Wales, and figures of 7.0, 7.3, 8.3, 6.6 and 7.19 for the last five years.

Hitherto, owing to the fact that the age distribution of the population was unknown, in fact, the hypothetical figure being obtained by making use of the deaths in each age group, it has been impossible to standardise the death rate.



The following table shows the death rate at various ages divided into the two sexes for each of the three years 1930-32 separately. For each year, the population in the separate groups has been taken as that existing at the time of the Census in April, 1931, no correction being made to obtain the mid-year figure, and no allowance made for the slight alteration in population from year to year.

	MALES.				FEMALES.			
	1930	1931	1932	Average 1930-32	1930	1931	1932	Average. 1930-32
0—4	18.5	17.9	14.4	16.9	13.5	12.8	12.4	12.9
5—14	2.0	1.6	2.0	1.9	1.3	1.6	1.1	1.3
15—24	3.2	3.9	6.0	4.4	1.4	2.7	2.9	2.3
25—34	3.8	5.2	2.5	3.8	4.0	5.0	2.9	4.0
35—44	5.2	5.7	3.8	4.9	4.7	3.8	5.2	4.6
45—54	10.8	11.4	10.0	10.7	4.0	10.5	9.8	8.1
55—64	19.1	25.4	16.6	20.4	10.1	18.5	18.5	15.7
65—74	50.2	37.6	69.8	54.7	36.5	42.4	52.6	43.8

The following table shows the death rate per thousand population of each sex in various age groups obtaining in three Metropolitan Boroughs and in London as a whole for the year 1931, the rate obtaining in England and Wales for the year 1930, and the average of the local rates for the three years 1930-32.

	Sex	Three Metropolitan Boroughs			London	England and Wales 1930	Average local 1930-32
0-4	M	21.5	15.0	19.2	17.4	20.5	16.9
	F	19.3	10.9	17.2	21.9	16.0	12.9
5-14	M	1.4	1.8	1.2	1.6	2.0	1.9
	F	1.8	1.2	1.4	1.7	1.8	1.3
15-24	M	3.0	2.3	3.4	2.5	2.8	4.4
	F	2.3	2.2	3.2	2.8	2.5	2.3
25-34	M	3.0	2.5	3.9	3.0	3.6	3.8
	F	3.8	2.5	3.1	3.4	3.2	4.0
35-44	M	6.4	4.0	6.3	4.3	5.7	4.9
	F	5.1	4.4	2.9	6.1	4.3	4.6
45-54	M	14.4	9.1	11.5	8.3	11.2	10.7
	F	8.3	8.0	7.5	13.3	7.8	8.1
55-64	M	25.8	20.4	20.3	17.4	23.0	20.4
	F	17.3	16.3	14.5	27.6	16.6	15.7
65-74	M	61.3	48.3	58.0	44.9	56.7	54.7
	F	40.7	37.7	45.8	62.5	42.6	43.8



It will be noted that in most cases there is no very large departure in the local rates, the figure in almost all cases falling within the range of variability of the corresponding figures for the other localities. The only exceptions appear to be the rate for males of ages 15-24, which is higher than the corresponding rate in the other districts, and the rate for females of 25-34. The high figure for the males of 15-24, is due to a high death rate in 1932, in which year tuberculosis and violence caused, between them, more than half the deaths.

The following table shows the death rate per thousand population of each sex in various age groups occurring in three Metropolitan Boroughs and in London as a whole for the year 1931, the rate obtained in England and Wales for the year 1930, and the average of the local rates for the three years 1930-32. The rates are given in the following table:

Deaths in 1931		Deaths in 1930		Deaths in 1929	
Sex	Age Group	Metropolitan Boroughs	London	England and Wales	Local Average
M	0-4	10.8	10.0	10.0	10.0
M	5-14	10.8	10.0	10.0	10.0
M	15-24	10.8	10.0	10.0	10.0
M	25-34	10.8	10.0	10.0	10.0
M	35-44	10.8	10.0	10.0	10.0
M	45-54	10.8	10.0	10.0	10.0
M	55-64	10.8	10.0	10.0	10.0
M	65-74	10.8	10.0	10.0	10.0
M	75-84	10.8	10.0	10.0	10.0
M	85-94	10.8	10.0	10.0	10.0
M	95-104	10.8	10.0	10.0	10.0
M	105-114	10.8	10.0	10.0	10.0
M	115-124	10.8	10.0	10.0	10.0
M	125-134	10.8	10.0	10.0	10.0
M	135-144	10.8	10.0	10.0	10.0
M	145-154	10.8	10.0	10.0	10.0
M	155-164	10.8	10.0	10.0	10.0
M	165-174	10.8	10.0	10.0	10.0
M	175-184	10.8	10.0	10.0	10.0
M	185-194	10.8	10.0	10.0	10.0
M	195-204	10.8	10.0	10.0	10.0
M	205-214	10.8	10.0	10.0	10.0
M	215-224	10.8	10.0	10.0	10.0
M	225-234	10.8	10.0	10.0	10.0
M	235-244	10.8	10.0	10.0	10.0
M	245-254	10.8	10.0	10.0	10.0
M	255-264	10.8	10.0	10.0	10.0
M	265-274	10.8	10.0	10.0	10.0
M	275-284	10.8	10.0	10.0	10.0
M	285-294	10.8	10.0	10.0	10.0
M	295-304	10.8	10.0	10.0	10.0
M	305-314	10.8	10.0	10.0	10.0
M	315-324	10.8	10.0	10.0	10.0
M	325-334	10.8	10.0	10.0	10.0
M	335-344	10.8	10.0	10.0	10.0
M	345-354	10.8	10.0	10.0	10.0
M	355-364	10.8	10.0	10.0	10.0
M	365-374	10.8	10.0	10.0	10.0
M	375-384	10.8	10.0	10.0	10.0
M	385-394	10.8	10.0	10.0	10.0
M	395-404	10.8	10.0	10.0	10.0
M	405-414	10.8	10.0	10.0	10.0
M	415-424	10.8	10.0	10.0	10.0
M	425-434	10.8	10.0	10.0	10.0
M	435-444	10.8	10.0	10.0	10.0
M	445-454	10.8	10.0	10.0	10.0
M	455-464	10.8	10.0	10.0	10.0
M	465-474	10.8	10.0	10.0	10.0
M	475-484	10.8	10.0	10.0	10.0
M	485-494	10.8	10.0	10.0	10.0
M	495-504	10.8	10.0	10.0	10.0
M	505-514	10.8	10.0	10.0	10.0
M	515-524	10.8	10.0	10.0	10.0
M	525-534	10.8	10.0	10.0	10.0
M	535-544	10.8	10.0	10.0	10.0
M	545-554	10.8	10.0	10.0	10.0
M	555-564	10.8	10.0	10.0	10.0
M	565-574	10.8	10.0	10.0	10.0
M	575-584	10.8	10.0	10.0	10.0
M	585-594	10.8	10.0	10.0	10.0
M	595-604	10.8	10.0	10.0	10.0
M	605-614	10.8	10.0	10.0	10.0
M	615-624	10.8	10.0	10.0	10.0
M	625-634	10.8	10.0	10.0	10.0
M	635-644	10.8	10.0	10.0	10.0
M	645-654	10.8	10.0	10.0	10.0
M	655-664	10.8	10.0	10.0	10.0
M	665-674	10.8	10.0	10.0	10.0
M	675-684	10.8	10.0	10.0	10.0
M	685-694	10.8	10.0	10.0	10.0
M	695-704	10.8	10.0	10.0	10.0
M	705-714	10.8	10.0	10.0	10.0
M	715-724	10.8	10.0	10.0	10.0
M	725-734	10.8	10.0	10.0	10.0
M	735-744	10.8	10.0	10.0	10.0
M	745-754	10.8	10.0	10.0	10.0
M	755-764	10.8	10.0	10.0	10.0
M	765-774	10.8	10.0	10.0	10.0
M	775-784	10.8	10.0	10.0	10.0
M	785-794	10.8	10.0	10.0	10.0
M	795-804	10.8	10.0	10.0	10.0
M	805-814	10.8	10.0	10.0	10.0
M	815-824	10.8	10.0	10.0	10.0
M	825-834	10.8	10.0	10.0	10.0
M	835-844	10.8	10.0	10.0	10.0
M	845-854	10.8	10.0	10.0	10.0
M	855-864	10.8	10.0	10.0	10.0
M	865-874	10.8	10.0	10.0	10.0
M	875-884	10.8	10.0	10.0	10.0
M	885-894	10.8	10.0	10.0	10.0
M	895-904	10.8	10.0	10.0	10.0
M	905-914	10.8	10.0	10.0	10.0
M	915-924	10.8	10.0	10.0	10.0
M	925-934	10.8	10.0	10.0	10.0
M	935-944	10.8	10.0	10.0	10.0
M	945-954	10.8	10.0	10.0	10.0
M	955-964	10.8	10.0	10.0	10.0
M	965-974	10.8	10.0	10.0	10.0
M	975-984	10.8	10.0	10.0	10.0
M	985-994	10.8	10.0	10.0	10.0
M	995-1004	10.8	10.0	10.0	10.0
M	1005-1014	10.8	10.0	10.0	10.0
M	1015-1024	10.8	10.0	10.0	10.0
M	1025-1034	10.8	10.0	10.0	10.0
M	1035-1044	10.8	10.0	10.0	10.0
M	1045-1054	10.8	10.0	10.0	10.0
M	1055-1064	10.8	10.0	10.0	10.0
M	1065-1074	10.8	10.0	10.0	10.0
M	1075-1084	10.8	10.0	10.0	10.0
M	1085-1094	10.8	10.0	10.0	10.0
M	1095-1104	10.8	10.0	10.0	10.0
M	1105-1114	10.8	10.0	10.0	10.0
M	1115-1124	10.8	10.0	10.0	10.0
M	1125-1134	10.8	10.0	10.0	10.0
M	1135-1144	10.8	10.0	10.0	10.0
M	1145-1154	10.8	10.0	10.0	10.0
M	1155-1164	10.8	10.0	10.0	10.0
M	1165-1174	10.8	10.0	10.0	10.0
M	1175-1184	10.8	10.0	10.0	10.0
M	1185-1194	10.8	10.0	10.0	10.0
M	1195-1204	10.8	10.0	10.0	10.0
M	1205-1214	10.8	10.0	10.0	10.0
M	1215-1224	10.8	10.0	10.0	10.0
M	1225-1234	10.8	10.0	10.0	10.0
M	1235-1244	10.8	10.0	10.0	10.0
M	1245-1254	10.8	10.0	10.0	10.0
M	1255-1264	10.8	10.0	10.0	10.0
M	1265-1274	10.8	10.0	10.0	10.0
M	1275-1284	10.8	10.0	10.0	10.0
M	1285-1294	10.8	10.0	10.0	10.0
M	1295-1304	10.8	10.0	10.0	10.0
M	1305-1314	10.8	10.0	10.0	10.0
M	1315-1324	10.8	10.0	10.0	10.0
M	1325-1334	10.8	10.0	10.0	10.0
M	1335-1344	10.8	10.0	10.0	10.0
M	1345-1354	10.8	10.0	10.0	10.0
M	1355-1364	10.8	10.0	10.0	10.0
M	1365-1374	10.8	10.0	10.0	10.0
M	1375-1384	10.8	10.0	10.0	10.0
M	1385-1394	10.8	10.0	10.0	10.0
M	1395-1404	10.8	10.0	10.0	10.0
M	1405-1414	10.8	10.0	10.0	10.0
M	1415-1424	10.8	10.0	10.0	10.0
M	1425-1434	10.8	10.0	10.0	10.0
M	1435-1444	10.8	10.0	10.0	10.0
M	1445-1454	10.8	10.0	10.0	10.0
M	1455-1464	10.8	10.0	10.0	10.0
M	1465-1474	10.8	10.0	10.0	10.0
M	1475-1484	10.8	10.0	10.0	10.0
M	1485-1494	10.8	10.0	10.0	10.0
M	1495-1504	10.8	10.0	10.0	10.0
M	1505-1514	10.8	10.0	10.0	10.0
M	1515-1524	10.8	10.0	10.0	10.0
M	1525-1534	10.8	10.0	10.0	10.0
M	1535-1544	10.8	10.0	10.0	10.0
M	1545-1554	10.8	10.0	10.0	10.0
M	1555-1564	10.8	10.0	10.0	10.0
M	1565-1574	10.8	10.0	10.0	10.0
M	1575-1584	10.8	10.0	10.0	10.0
M	1585-1594	10.8	10.0	10.0	10.0
M	1595-1604	10.8	10.0	10.0	10.0
M	1605-1614	10.8	10.0	10.0	10.0
M	1615-1624	10.8	10.0	10.0	10.0
M	1625-1634	10.8	10.0	10.0	10.0
M	1635-1644	10.8	10.0	10.0	10.0
M	1645-1654	10.8	10.0	10.0	10.0
M	1655-1664	10.8	10.0	10.0	10.0
M	1665-1674	10.8	10.0	10.0	10.0
M	1675-1684	10.8	10.0	10.0	10.0
M	1685-1694	10.8	10.0	10.0	10.0
M	1695-1704	10.8	10.0	10.0	10.0
M	1705-1714	10.8	10.0	10.0	10.0
M	1715-1724	10.8	10.0	10.0	10.0
M	1725-1734	10.8	10.0	10.0	10.0
M	1735-1744	10.8	10.0	10.0	10.0
M	1745-1754	10.8	10.0	10.0	10.0
M	1755-1764	10.8	10.0	10.0	10.0
M	1765-1774	10.8	10.0	10.0	10.0
M	1775-1784	10.8	10.0	10.0	10.0
M	1785-1794	10.8	10.0	10.0	10.0
M	1795-1804	10.8	10.0	10.0	10.0
M	1805-1814	10.8	10.0	10.0	10.0
M	1815-1824	10.8	10.0	10.0	10.0
M	1825-1834	10.8	10.0	10.0	10.0
M	1835-1844	10.8	10.0	10.0	10.0
M	1845-1854	10.8	10.0	10.0	10.0
M	1855-1864	10.8	10.0	10.0	10.0
M	1865-1874	10.8	10.0	10.0	10.0
M	1875-1884	10.8	10.0	10.0	10.0
M	1885-1894	10.8	10.0	10.0	10.0
M	1895-1904	10.8	10.0	10.0	10.0
M	1905-1914	10.8	10.0	10.0	10.0
M	1915-1924	10.8	10.0	10.0	10.0
M	1925-1934	10.8	10.0	10.0	10.0
M	1935-1944	10.8	10.0	10.0	10.0
M	1945-1954	10.8	10.0	10.0	10.0
M	1955-1964	10.87			

TABLE I

CAUSES OF DEATH.	Under 1 year	Over 1 and under 2	Over 2 and under 5	Over 5 and under 15	Over 15 and under 25	Over 25 and under 35	Over 35 and under 45	Over 45 and under 55	Over 55 and under 65	Over 65 and under 75	Over 75	Male	Female	TOTAL	Registrar- General's Allocations.	
															Male.	Female
1. Typhoid and paratyphoid fevers ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2. Measles ...	4	10	5	3	—	—	—	—	—	—	—	12	10	22	12	11
3. Scarlet fever ...	—	1	—	1	—	—	—	—	—	—	—	—	2	2	—	2
4. Whooping cough ...	6	1	2	2	—	—	—	—	—	—	—	5	6	11	6	6
5. Diphtheria ...	—	—	2	1	—	—	—	—	—	—	—	2	1	3	2	1
6. Influenza ...	—	—	1	—	1	—	1	2	3	3	1	4	8	12	4	9
7. Encephalitis lethargica ...	—	—	—	1	—	—	—	—	—	—	—	1	—	1	1	—
8. Cerebro-spinal fever ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
9. Tuberculosis of respiratory system	—	—	—	—	13	12	18	10	3	1	—	36	21	57	37	21
10. Other tuberculous diseases ...	3	2	7	2	4	1	1	—	—	—	—	13	7	20	12	7
11. Syphilis ...	1	—	—	—	—	—	—	2	—	—	—	3	—	3	3	—
12. General paralysis of the insane, tabes dorsalis ...	—	—	—	—	—	—	—	1	1	—	—	1	1	2	1	1
13. Cancer, malignant disease ...	1	—	—	1	1	2	4	7	11	15	5	20	27	47	20	30
14. Diabetes ...	—	—	—	1	1	—	—	—	—	1	1	3	1	4	3	1
15. Cerebral haemorrhage, etc. ...	—	—	—	—	—	—	1	—	3	10	7	11	10	21	10	8
16. Heart disease ...	—	—	—	5	6	7	10	9	13	12	19	36	45	81	46	51
17. Aneurysm ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
18. Other circulatory diseases ...	—	—	—	—	—	—	—	2	2	—	3	3	4	7	1	10
19. Bronchitis ...	3	1	—	—	—	1	3	3	1	6	12	13	17	30	9	10
20. Pneumonia (all forms) ...	22	9	2	4	2	3	6	5	2	5	3	29	34	63	27	28
21. Other respiratory diseases ...	—	—	—	—	—	—	1	1	—	—	—	2	—	2	3	—
22. Peptic ulcer ...	—	—	—	—	—	—	—	1	2	—	—	2	1	3	2	1
23. Diarrhoea, etc. (under 2 years) ...	15	3	—	—	—	—	—	—	—	—	—	6	12	18	4	15
24. Appendicitis ...	—	—	1	2	—	2	1	1	—	—	—	3	5	8	3	6
25. Cirrhosis of liver ...	—	—	—	—	—	—	—	—	—	1	—	1	—	1	1	—
26. Other diseases of liver, etc. ...	—	—	—	—	—	—	1	1	—	2	—	2	2	4	2	2
27. Other digestive diseases ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7	—
28. Acute and chronic nephritis ...	—	—	—	—	1	2	2	—	3	1	—	5	4	9	5	6
29. Puerperal sepsis ...	—	—	—	—	1	2	3	—	—	—	—	—	6	6	—	7
30. Other puerperal causes ...	—	—	—	—	—	3	5	—	—	—	—	—	8	8	—	5
31. Congenital debility, premature birth, malformations, etc. ...	51	—	—	—	—	—	—	—	—	—	—	38	13	51	36	12
32. Senility ...	—	—	—	—	—	—	—	—	—	6	11	10	7	17	5	4
33. Suicide ...	—	—	—	—	2	1	1	—	—	1	—	5	1	6	5	1
34. Other violence ...	1	1	3	8	9	2	3	3	1	2	—	27	6	33	28	5
35. Other defined diseases ...	10	2	5	9	6	4	8	7	3	3	5	33	29	62	30	26
36. Causes ill-defined or unknown ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—
	117	30	28	40	47	42	69	56	49	69	67	326	288	614	326	288



## GENERAL PROVISION OF HEALTH SERVICES FOR THE AREA.

**Hospitals provided or subsidised by the Local Authority or  
by the County Council.**

### **a. (1) Fever.**

Rush Green Isolation Hospital is maintained by the Romford Joint Hospital Board, which consists of representatives of the Urban District Councils of Dagenham, Hornchurch, and Romford, and the Rural District Council of Romford.

The accommodation proved more than sufficient to meet the demands made on it this year in respect of the more usual diseases admitted so that cases of many other types of disease were sent in, including, from this area, cases of puerperal infection, erysipelas, complicated cases of whooping cough and measles, and ophthalmia neonatorum.

Although the cubicles comprised only 20 per cent. of the total beds, they had to cope with 33 per cent. of the total admissions, while a number of cases requiring isolation had to be treated as barrier patients in the ordinary wards or side wards.

### **(2) Smallpox.**

The agreement which existed between the Joint Hospital Board and the West Ham Corporation covering the admission of local cases of Smallpox to Orsett Hospital terminated in the early part of the year. Since then, the Joint Board has entered directly into an agreement with the Authorities of the Orsett Hospital.

### **b. Tuberculosis.**

For the table of hospitals and institutions into which local cases might, through the Essex County Council, be admitted, see page 13 of Annual Report, 1931.

The following are the numbers of persons admitted from this district during the year:—



	Pulmonary.		Non-Pulmonary.		Total.
	Male.	Female.	Male.	Female.	
Adult ...	46	23	3	4	76
Children ...	2	5	23	23	53

### Hospitals for General Cases.

#### (1) Hospitals for Medical and Surgical Cases.

Oldchurch Hospital, Romford.—See page 13 of 1930 Annual Report.

King George Hospital, Ilford.—See page 15 of 1930 and page 14 of 1931 Annual Reports.

The extent to which use is made of this hospital is shown by the fact that whereas the bed complement is 142, the average number of beds occupied daily was, for the year, 147.2; the average stay in hospital was 18.63 days. The total number of out-patient attendances at the Ilford Hospital was 39,618 and at the Five Elms Out-Patient Department 50,644, these attendances being made by 7,696 patients. During the year, the services provided at the local out-patient department were increased by the provision of a massage clinic, at which 160 patients made 4,023 attendances. Negotiations are in progress for the provision of a clinic for operative treatment of Tonsils and Adenoids.

#### (2) Hospitals for Maternity Cases.

The arrangements which covered the admission of maternity cases to Oldchurch Hospital and Queen Mary's Hospital, Stratford, have been extended to provide for those cases admitted under the care of the Consultant Gynaecologist to Charing Cross Hospital. Cases of puerperal infection are admitted to Oldchurch Hospital or to Rush Green Isolation Hospital.

#### (3) Hospitals for Children.

Most cases requiring operative treatment for Tonsils and Adenoids are now treated as in-patients at King George Hospital, though a small number are, at the parents' election, treated as out-patients. Other hospitals with which agreements are in force for the treatment of this condition include Oldchurch and Queen Mary's Hospital, Stratford. Cases of ophthalmia neonatorum are admitted to St. Margaret's Hospital, Hampstead, and to the Isolation Hospital; and cases of pemphigus either to Oldchurch Hospital or to the Isolation Hospital.



#### (4) Orthopaedic Hospitals.

Orthopaedic cases are admitted to the Royal National Orthopaedic Hospital, Queen's Hospital, Hackney, or Cheyne Hospital.

#### Institutional provision for unmarried mothers, illegitimate infants and homeless children.

See page 15, 1931 Annual Report.

#### Ambulance Facilities.

##### (a) For Infectious Cases.

A motor ambulance, provided by the Joint Hospital Board, is stationed at the Isolation Hospital at Rush Green.

##### (b) For Non-Infectious Cases and Accidents.

For details of the working of the two ambulances and of the rules and charges made, see page 15 of 1931 Annual Report.

The following are the details of the work done by the ambulances during the year, with the 1931 figures for the purposes of comparison :—

	1932.	1931.
No. of accident cases conveyed	351	363
No. of other cases conveyed ...	664	885
No. of journeys made ... ..	1,443	1,248
No. of miles run ... ..	16,246	11,981

##### (c) Maternity Cases.

See page 17 of 1931 Annual Report.

#### Clinics and Treatment Centres.

The following table shows the times at which the various Infant Welfare Centres and Ante-natal Clinics are held in the different buildings throughout the district and also the average attendances per session :—

## Infant Welfare Centres.

CENTRE.	Sessions held.	Times Sessions held.	Average Attendances.	Average New Cases.
Wesleyan Chapel, High Road, Chadwell Heath.	Weekly	Monday, p.m.	45	3
Becontree Clinic, Becontree Avenue, Chadwell Heath.	Thrice weekly	Monday, p.m.	53	4
		Thursday, p.m.	79	6
		Friday, p.m.	46	3
Ford Road Clinic, Ford Road, Dagenham.	Thrice weekly	Tuesday, p.m.	59	5
		Wednesday, p.m.	78	6
		Friday, p.m.	45	4
Out-Patient Department, King George Hospital, Five Elms, Dagenham.	Twice weekly	Tuesday, p.m.	73	6
		Wednesday, p.m.	57	5

## Ante-Natal Clinics.

CENTRE.	Sessions held.	Times Sessions held.	Average Attendances.	Average New Cases.
Wesleyan Chapel, High Road, Chadwell Heath.	Fortnightly Jan. 1-Mar. 31 Monthly Apr. 1-Dec. 31	Thursday, p.m.	10	4
Becontree Clinic, Becontree Avenue, Chadwell Heath.	Twice weekly	Monday, a.m.	7	2
		Friday, a.m.	11	3
Ford Road Clinic, Ford Road, Dagenham.	Twice weekly	Tuesday, a.m.	12	3
		Thursday a.m.	14	3
Out-Patient Department, King George Hospital, Five Elms, Dagenham.	Weekly	Wednesday, a.m.	16	4



The following is a summary of the various other clinics held in the district :—

### **School Clinics.**

A Minor Ailment Clinic is held each morning from 9 to 10 a.m. at the Dagenham and the Becontree Clinics and at King George Out-Patient Department. In addition, an Inspection Clinic is held on Monday mornings at the Dagenham Clinic, on Wednesdays at the Becontree Clinic and at the Out-Patient Department on Friday mornings.

Refraction Clinics and Dental Sessions are held as required at the Dagenham and the Becontree Clinics.

### **Tuberculosis Clinic.**

A Tuberculosis Clinic is held every Monday and Thursday morning at the King George Out-Patient Department.

### **Venereal Diseases.**

There is no local treatment provided for persons suffering from Venereal Diseases. Provision is made under the London and Home Counties Scheme, the nearest treatment centre being the London Hospital.

### **Orthopaedic Clinics.**

The Consultant Orthopaedic Surgeon attends about four times a year to see cases referred by the School and by the Maternity and Child Welfare Authorities.

### **Remedial Exercises and Massage Clinic.**

During the year the necessary apparatus has been fitted up at the Becontree Clinic to enable this work to be carried out. At the end of the year two sessions a week were held at the Ford Road Clinic, namely on Monday and Thursday mornings, and a weekly session held on Wednesday mornings at the Becontree Clinic.

### **Light Clinic.**

During the winter months, for two sessions a week, a Light Clinic is held both at the Becontree and at the Dagenham Clinics. Treatment is carried out for children of under school age and of school age referred from the various clinics.



## Professional Nursing in the Home.

### (a) General.

For particulars of the Dagenham District Nursing Association which is the only local service for providing general nursing, see page 20 of the 1931 Annual Report.

A total of 481 general nursing cases were treated during the year, involving 5,282 visits to the homes, the number of visits per month for these surgical and medical cases ranging from 262 to 709. 251 midwifery cases and 84 maternity cases were nursed, these patients receiving a total of 5,620 visits during the year, the number of visits per month varying from 339 to 671. In addition, these patients paid a total of 1,243 visits to the antenatal clinic held at York House. Altogether then, the number of persons attended to during the year was 816, to whom 10,902 visits were paid.

The closest co-operation exists between the Local Authority and the Nursing Association in that for the past few years two or three members of the Maternity and Child Welfare Committee including the Chairman, have served on the Committee of the Nursing Association, and the Medical Officer of Health has been Chairman.

Nursing in the home can legitimately take its place in the field of preventive medicine. Just as tonsils are removed as a preventive measure to ward off serious disease, so skilled home nursing is preventive in saving life or preventing the occurrence of severe complications. From another aspect, the advantages of a good nursing service can be seen—several cases, in default of this provision, would require hospital treatment. This was particularly marked in the recent influenza epidemic, when many patients were satisfactorily treated at home, who, in the absence of skilled nursing, would have had to be admitted to hospital.

### (b) Nursing of Cases of Infectious Diseases.

Most of the notifiable infectious cases are removed to the Isolation Hospital. In the case of the non-notifiable infections, nursing is provided by special nurses of the District Nursing Association.

### Midwives.

There are no midwives in the district employed by the Local Authority. At the end of the year there were 18 midwives living in the district whose practices were confined almost entirely to this area. In addition, 3 midwives living on the boundaries of the district attend some confinements in this area.



## Laboratory Facilities.

Examination of clinical material is undertaken at the Essex County Public Health Laboratory, Queen Victoria Street, London. During the year, 361 swabs were examined for diphtheria bacillus, 317 samples of sputum for tuberculosis bacillus, 3 samples for typhoid organism, and 56 samples of hair for ringworm.

The same laboratory also undertakes the bacteriological examination of milk, of which 124 samples were submitted during the year.

194 swabs were examined for the diphtheria bacillus at the Public Health Offices.

## Legislation in Force.

See pages 23 and 24 of the Annual Report of 1930, and page 21 of the 1931 Report.

Byelaws governing Houses Let in Lodgings (revised) confirmed 27th April, 1932.



## SANITARY CIRCUMSTANCES OF THE AREA.

### Water.

See Annual Report, 1930.

Since April, 1932, the water supply, previously obtained from the chalk wells in Ilford and in this locality, has been supplemented by that obtained from the River Stour. This, after being abstracted from the river at an intake near Langham Mill, is pumped by the Langham Low Lift Pumping Station to a reservoir which allows for 3 days sedimentation. It then flows by gravity to the Primary Filters, where it is subjected to rapid filtration. Before entering these filters, it may have automatically added to it aluminoferric as a precipitant. By gravity it flows then to one of six slow filter beds and, after subsequent chlorination, passes into a reservoir. From here it is pumped by the Langham High Lift Pumping Station through a main about 14 miles to a closed reservoir at Tiptree, from where the Tiptree pumping plant transfers it a distance of some 10 miles to the Danbury Reservoir. The level of this being about 358 O.D. the water flows by gravity to the Herongate Reservoir, some 13 miles distant, for local distribution.

This source of supply at present provides some 9 million gallons daily, an amount which will probably be increased. The water provided in this locality is now a mixture of the new Stour water and that obtained from the older source. The allowance is roughly 20 gallons per head per day for domestic use, plus some 8 gallons per head daily for other purposes including the supply to institutions.

A small number of complaints have been received of tastes in the water. These apparently were due to an amount of chlorine with which the water was dosed, and since a reduction has been made no further complaints have been received.

### Drainage and Sewerage.

See reports of 1927 and 1928.

No new soil sewers have been laid during 1932. In Rainham Road a new surface water drain, 12" and 15" diameter, has been laid along the section of the road from Sterling Works to Dagenham Railway Bridge. A surface water drain, 12" and 15" diameter, has also been laid along Whalebone Lane from Eastern Avenue to High Road, Chadwell Heath.



## Sewage Works Extensions.

See page 22 of 1931 Annual Report.

During 1932 the Ministry of Health sanctioned the raising of loans amounting to £123,258 for this work. This amount covers the construction of the first part of the scheme, of which about 25 per cent is now completed. It is anticipated that the whole of this section will be put into operation in August, 1933.

Plans are now in preparation for the second part of the scheme, comprising sludge digesters, sludge lagoons, and road works. This section will bring the total estimated cost of the scheme up to £164,168. The general development of the works is following the lines outlined in the report for 1931, with the exception that the sludge digestion capacity is being increased, so as to provide complete digestion for the sludge from a population of 100,000.

## Rivers and Streams.

See 1930 report.

In August, a complaint was received that a number of ducks at a local farm, on going to the brook first thing in the morning, shortly after entering the water, expired. Post-mortem examination disclosed that the deaths were due to cyanide poisoning. Further up the stream a local factory was in the process of closing down. Samples of the stream above these works proved to be free from cyanide, but below, heavily polluted. In one of the processes carried out at the works, cyanide in large quantities was used. It appears that some of the vats that contained a strong solution of cyanide had been emptied into the surface drain that passed through a cesspool. Ordinarily the contents of this cesspool leaked into the surrounding soil. Owing to the large volume of water used for flushing on this occasion, the level of the contents of the cesspool rose to a height sufficient to allow it to reach a branch outlet placed high up connecting it to the surface drains which ran into the brook. The contents of the remaining vats were otherwise disposed of; the open spaces through which the brook flowed were closed to prevent children playing in the water; the system of surface drainage at the works was well flushed; and aluminoferric deposited in the brook just below the inlet of the surface drainage of the factory. The brook water was analysed at frequent intervals and very soon was proved to contain only the merest trace of cyanide.



The condition of the Seven Kings Stream which has been previously reported on, has improved. Cesspools have now been provided at two premises which previously acted as sources of pollution, and other irregular drainage is now being traced preparatory to its being disconnected.

A brook running through Goresbrook Park was polluted by drainage from an adjoining area. The origin of the pollution was apparently the disposal of household waste water down the surface water drain. Up to its emptying into the brook, this flow was piped. During wet weather, the small flow would then be carried by the larger flow of the brook. In dry weather, however, the small volume of the brook permitted stagnation and decomposition, with production of smells. It is proposed that this portion of the brook shall be piped in.

### Closet Accommodation.

See 1930 report.

### Scavenging.

#### Collection and Disposal of House and Trade Refuse.

The following figures relate to the cost of this service for the financial year ended 31st March, 1932 :—

	Collection	Disposal	Total
Net cost ... ..	£9,462	£3,405	£12,867
Net cost per ton ...	8s. 10·5d.	3s. 2·33d.	12s. 0·83d.
Net cost per 1,000 population ...	£105 17 8	£38 2 0	£143 19 8
Net cost per 1,000 premises ...	£480 13 5	£172 19 6	£653 12 11
Total refuse collected ... ..	...	...	... 21,323 tons
Weight per 1,000 population per day ... ..	...	...	... 13·1 cwts.
No. of houses and premises ... ..	...	...	... 19,685

All refuse collected by 7 mechanical vehicles.

#### Present Method of Disposal.

See page 24, 1931 Annual Report.



## Refuse Separation and Incineration Plant.

Work was started in September, 1932, on the construction of a Refuse Separation and Incineration Plant at an estimated cost of £19,305. A contract for the plant and buildings to house the plant has been let to Messrs. Heenan & Froude, Ltd., of Worcester, for the sum of £12,635 5s. 0d. The remainder of the incidental works, comprising offices, roads, sewers and other services, and boundary wall, is being carried out by direct labour.

The plant is being erected on a site at the south-west corner of the public open space known as Central Park. The nearest estate development to the north-east is 1,340 yards. South-east, at about 540 yards distant, is the Council's housing estate. The London County Council Becontree Estate lies to the west, the nearest point being 620 yards. Development cannot take place on the north or east sides for considerable distances, as the adjoining lands in these directions are scheduled as open spaces.

The plant has a capacity of 100 tons of refuse per working day of 8 hours. The incoming refuse is tipped into a receiving hopper, whence an inclined belt conveyor feeds continuously to a rotary screen of  $\frac{1}{2}$ " mesh, situated at the top of the main building. The dust extracted by this screen falls into an elevated hopper, under which vehicles can stand for loading to remove the dust to tips. The refuse leaving the screen passes through a magnetic separator, thence on to a combined picking and feed conveyor, from the first part of which tins, bags, paper and other saleable materials are salvaged by hand. The tins and paper are pressed into bales by power- and hand-operated balers respectively, ready for sale. The "tailings" are then fed by a movable tripper to any one of a set of six top-feed incinerator cells, which are provided with forced draught from a fan. The products of combustion are removed by a brick chimney 100 feet high, any dust, unburnt paper, etc., being removed by a water dust-trap in the flue leading to the chimney. It is anticipated that the plant will be ready to be set in operation about the 1st August, 1933.

The following are details of analyses of samples of refuse:—

					June	Nov/32
Dust (passing $\frac{3}{8}$ " mesh)	...	...	...	...	25.4	32.2
Glass	...	...	...	...	7.7	4.1
Tins	...	...	...	...	4.6	4.3
Paper	...	...	...	...	13.0	6.0
Rags	...	...	...	...	3.0	2.6
Non-ferrous	...	...	...	...	—	0.3
Bones	...	...	...	...	—	0.8
Tailings	...	...	...	...	46.3	49.7



The average quantity of refuse to be dealt with daily is 64 tons, the average weight per cubic yard being 7 cwt.

### Earth Closets.

The night soil from the earth closets in the northern part of the district is collected in a tumbler cart and deposited on fields.

### Cesspools.

Most of the cesspools of the district are emptied by the Council's gully emptier at intervals of a month. Emptying at more frequent intervals can be carried out at the expense of the occupier of the premises. Complaints are still received from the occupants of premises near the manholes of the sewers down which the contents are deposited.

A number of houses receive habitation certificates in which the drainage passes to cesspools which must be emptied by the occupier, the applicant at the same time giving an undertaking to connect up to the sewer, when laid. While this arrangement is less objectionable now that a piped water supply has replaced the wells previously used as a source of water, it cannot be maintained that the practice is hygienic when carried out in respect of a number of premises, most in close proximity one to another and with little land available for disposing of the contents of the cesspools.

### Disinfection and Disinfestation.

For arrangements made for disinfection, see page 27 of Annual Report, 1930.

Early in the current year terminal fumigation was abolished. In its stead, reliance is placed on the steps taken by the householder to deal in a satisfactory manner with those articles especially liable to infection. Under the previously existing arrangement, householders can have their bedding removed and stoved at the Isolation Hospital at their own expense.

To meet the need for some provision to be made for helping persons to eradicate scabies and also to have available arrangements for the stoving of bedding after infection, proposals have been made for incorporating in the new separation plant, where steam would be available, a small cleansing station.



Difficulties are at times experienced in dealing with bug infestation of some of the premises. The London County Council as the landlords have used various solutions and at the present moment are successfully using a method of cyanide fumigation. This they are applying only to empty premises, as a precautionary measure in the first place seeing that the adjacent houses are emptied for the few hours necessary for exposure. After the sealing of all apertures in the building, cyanide solution is sprinkled on the floors upstairs and down. The concentration of gas used is about 3 per cent., and is allowed to act for 6 hours. At the end of this period of time, the house is opened up, and well ventilated. Copper benzdine acetate solution turns blue in the presence of hydrogen cyanide. If filter papers moistened in this solution are turned blue, the indication is the presence of cyanide concentration exceeding 0.01 per cent. This test has to be passed before the house is declared ready for occupation. The results of this method of fumigation are very encouraging.

To reduce the risk of transference of vermin infestation by the tenants from their old premises to the new, some authorities have adopted a comprehensive scheme of disinfection, dealing with the tenants themselves, with their clothing by stoving, and with their furniture by fumigation in the removal vans.

Sometimes it appears that the new tenants moving into a clean home, who previously had never suffered from infestation, find vermin in the house shortly after transfer. As the authorities were satisfied of the cleanliness both of the transferring tenants and of the premises, it was suggested that possibly the furniture was infested in course of transit by infected vans. The furniture removers who are chiefly engaged in removals to this estate were circularised for information as to the steps they take to eliminate this risk. Most asserted it was their practice periodically to wash out the vans with antiseptics.

### Smoke Abatement.

The only important source of smoke nuisance was that reported last year. A total of 40 observations showed that there was from this factory no smoke for  $247\frac{1}{2}$  minutes, moderate smoke for  $605\frac{1}{2}$ , and black smoke for 488 minutes. In this factory there was a large amount of wood dust and shavings to be disposed of, and the only method of disposal was by burning. Part of the difficulty of disposing of it in this manner was due to the different physical states of the wood and to the different types of wood used. The method employed of cremating it in the furnaces



resulted in a very serious smoke nuisance due to the very limited extent of combustion which occurred at times. As, however, the offenders appeared to be taking all possible practicable steps to reduce the nuisance—as they naturally would from a financial point of view, as the smoke represented loss of power and therefore money to them—and as no alternative suggestion could be made for abating the nuisance, proceedings for the abatement of this nuisance failed. In the latter part of the year, however, the problem was apparently solved by the installation of a device for effecting more complete combustion.

6 observations on other premises showed no smoke for  $81\frac{1}{2}$  minutes, moderate smoke for  $117\frac{1}{2}$ , and no black smoke.

### **Premises and Occupations which can be controlled by Bye-Laws.**

#### **Offensive Trades—Fried-Fish Shops.**

There are 8 fried-fish shops in the district. The use of one shop for this purpose was discontinued and consent was given to the establishment of two new shops. All consents to the opening of fried-fish shops are now limited to a period of one year.

Early in the year two mobile vans toured the district, making and selling fried-fish and chips. As the trade of fish frying is, in this area, one of the offensive trades, the offenders were warned that action would be taken in that they had established the offensive trade within the Urban District without the consent of the Authority. The offenders however, discontinued the practice.

#### **Rag and Bone Dealers.**

Under Section 73 of the Public Health Act, 1925, legal proceedings were taken against, and fines imposed upon, two persons for exchanging toys for rags.

#### **Houses Let in Lodgings.**

The revised bye-laws in respect of Houses Let in Lodgings were confirmed on April 27th, 1932. Under the previous bye-laws, lodging houses in which the rent exceeded 8s. 0d. per week when let unfurnished, or 15s. 0d. when let furnished, were exempt from the provisions of the bye-laws. This condition is now removed. The other important alteration is in the manner of assessing the permitted number of occupants. Previously the standard was a minimum of 300 c. ft. per adult, and 150 c. ft. for a child under 10 years of age. This has been altered to a minimum standard of 40 sq. ft. floor space per person over 5 years of age, or 30 sq. ft. for each person of an age not exceeding 5 years. There are 4 registered Houses Let in Lodgings, to which 42 visits were paid.



### Underground Sleeping Rooms.

There are no underground sleeping rooms in the district.

### Rag Flock Acts, 1911 and 1928.

There are no premises in the district in which rag flock is manufactured, used or sold.

### Mortuary and Disposal of the Dead.

See 1930 report.

### Schools.

The sanitary accommodation and water supply of the schools, most of which are modern buildings, are satisfactory. Schools have again played very little part in the dissemination of infection. Their slight influence is referred to under the various infectious diseases. No school has been closed or disinfected during the year on account of infectious disease.

### Sanitary Inspection of the District.

#### Report of the Sanitary Inspectors.

##### (a) Nature and Number of Inspections of :—

Houses	...	...	...	...	5,097
Bakehouses	...	...	...	...	12
Slaughterhouses	...	...	...	...	696
Milkshops and Dairies	...	...	...	...	39
Cowsheds	...	...	...	...	31
Foodshops	...	...	...	...	215
Infectious diseases enquiries	...	...	...	...	2,503
Rooms disinfected	...	...	...	...	461
Food poisoning enquiries	...	...	...	...	24
Visits to foster mothers' premises	...	...	...	...	21
Smoke observations	...	...	...	...	46
No. of nuisances investigated	...	...	...	...	685

##### (b) Notices served. Complied with.

Statutory...	62	...	...	41
Informal ...	721	...	...	600

### On the Administration of the Factory and Workshop Act, 1901.

In this district there are 37 factories, 39 workshops and 45 workplaces.

## 1. Inspection.

PREMISES.	Number of		
	Inspections.	Written Notices.	Prosecutions.
Factories ... ..	56	1	—
Workshops ... ..	45	—	—
Workplaces ... ..	61	2	—

## 2. Defects.

Nuisances under the Public Health Acts :—

	Found.	Remedied.
Defective Sanitary Accommodation	—	—
" Other Nuisances " ... ..	3	3

A temporary building was being used for the manufacture of the woodwork required for a housing estate. Complaints were received about rat infestation, and the sanitary arrangements provided for the workmen were insufficient. As however the structure was a temporary building, for the construction of which the owners had received no authority, the premises ceased to be used.

## 3. Outwork in Unwholesome Premises—Section 108.

There was no outwork conducted in unwholesome premises.

There were 34 premises in which outwork was carried on. At 23 the work done was the making up of wearing apparel.

## Shops Acts, 1912—1930.

The inspection for the purposes of these Acts is at present being carried out by the sanitary inspectors. 232 shops were registered and 369 revisited. A number of infringements of the laws relating to the closing hours were reported, and 12 offenders cautioned.

## Quarry Fencing Act, 1887.

Notice was served under this Act requesting the fencing of a gravel pit "dangerous to the public in open or unenclosed land, within 50 yards of a highway."



## HOUSING.

## HOUSING STATISTICS FOR THE YEAR 1932.

## Number of New Houses erected during the Year :—

Total	...	...	...	...	...	...	697
(1) By the Local Authority	...	...	...	...	...	...	137
(2) By other Local Authorities	...	...	...	...	...	...	Nil
(3) By other bodies and persons	...	...	...	...	...	...	560

## 1. Inspection of Dwelling-Houses during the year :—

(1) (a) Total number of dwelling-houses inspected for housing defects (under Public Health or Housing Acts)	...	...	...	...	2,147
(b) Number of inspections made for the purpose	...	...	...	...	5,097
(2) (a) Number of dwelling-houses (included under sub-head (1) above) which were inspected and recorded under the Housing Consolidated Regulations, 1925	...	...	...	...	1,523
(b) Number of inspections made for the purpose	...	...	...	...	3,667
(3) Number of dwelling-houses found to be in a state so dangerous or injurious to health as to be unfit for human habitation	...	...	...	...	17
(4) Number of dwelling-houses (exclusive of those referred to under the preceding sub-head) found not to be in all respects reasonably fit for human habitation	...	...	...	...	564

## 2. Remedy of Defects during the Year without Service of formal Notices :—

Number of defective dwelling-houses rendered fit in consequence of informal action by the Local Authority or their Officers	...	...	...	299
---	-----	-----	-----	-----

### 3. Action under Statutory Powers during the Year :—

#### A. Proceedings under Sections 17, 18 and 23 of the Housing Act, 1930 :—

(1) Number of dwelling-houses in respect of which notices were served requiring repairs ...	60
(2) Number of dwelling-houses which were rendered fit after service of formal notices :—	
(a) By owners ... ..	38
(b) By local authority in default of owners ... ..	Nil

#### B. Proceedings under Public Health Acts :—

(1) Number of dwelling-houses in respect of which notices were served requiring defects to be remedied ... ..	386
(2) Number of dwelling-houses in which defects were remedied after service of formal notices :—	
(a) By owners ... ..	304
(b) By local authority in default of owners ... ..	Nil

#### C. Proceedings under Sections 19 and 21 of the Housing Act, 1930 :—

(1) Number of dwelling-houses in respect of which Demolition Orders were made ...	15
(2) Number of dwelling-houses demolished in pursuance of Demolition Orders ...	19

#### D. Proceedings under Section 20 of the Housing Act, 1930 :—

(1) Number of separate tenements or underground rooms in respect of which Closing Orders were made ... ..	8
---	---



- |   |     |
|---|-----|
| (2) Number of separate tenements or under-ground rooms in respect of which Closing Orders were determined, the tenement or room having been rendered fit ... .. | Nil |
|---|-----|

E. Proceedings under Section 3 of the Housing Act, 1925 :—

- |  |     |
|--|-----|
| (1) Number of dwelling-houses in respect of which notices were served requiring repair | Nil |
|--|-----|

- |  |  |
|--|--|
| (2) Number of dwelling-houses which were rendered fit after service of formal notices :— |  |
|--|--|

(a) By owners ... ..	Nil
----------------------	-----

(b) By local authority in default of owners ... ..	Nil
--	-----

- |   |     |
|---|-----|
| (3) Number of dwelling-houses in respect of which Closing Orders became operative in pursuance of declarations by owners of intention to close ... .. | Nil |
|---|-----|

F. Proceedings under Sections 11, 14 and 15 of the Housing Act, 1925 :—

- |  |     |
|--|-----|
| (1) Number of dwelling-houses in respect of which Closing Orders were made ... | Nil |
|--|-----|

- |   |     |
|---|-----|
| (2) Number of dwelling-houses in respect of which Closing Orders were determined, the dwelling-houses having been rendered fit ... .. | Nil |
|---|-----|

- |   |     |
|---|-----|
| (3) Number of dwelling-houses in respect of which Demolition Orders were made ... | Nil |
|---|-----|

- |  |     |
|--|-----|
| (4) Number of dwelling-houses demolished in pursuance of Demolition Orders ... | Nil |
|--|-----|

The Closing Orders referred to in paragraph D (1) were made in respect of houses attached to shops, where it was not desired to interfere with trade carried on in the shop premises as would have been the case had a demolition order been made.

One case under the Housing Act, 1930, reached the County Court. The premises were two semi-detached cottages, probably a hundred or more years old in which the walls were damp, the windows small and, more important, the height of the ceiling of the lower rooms was only some  $6\frac{1}{2}$  feet. As the houses were "unfit for human habitation and not capable at a reasonable expense of being rendered so fit," regard in determining this point "being paid to the extent to which by reason of disrepair or sanitary defects the houses fell short of the provisions of bye-laws in operation in the district or of the general standard of housing accommodation for the working classes in the district," the owner was served with a notice under Section 19 of the 1930 Housing Act. At the interview the fact that the very little amount of work which the owner stated he was prepared to do would not remedy the main defects, left the Council with no alternative but to make a demolition order. Against this the owner appealed. The judgment of the Court was that the owner was to carry out the work deemed necessary by the owner's surveyor and the Council's surveyor or, failing agreement between them, by an independent surveyor. Up to the present the case has not returned to the Court.

Housing and Population				
Year	Population	Number of Houses	Number of Cottages	Number of Flats
1901	10,000	1,000	500	500
1911	12,000	1,200	600	600
1921	15,000	1,500	750	750
1931	18,000	1,800	900	900
1941	20,000	2,000	1,000	1,000
1951	22,000	2,200	1,100	1,100
1961	25,000	2,500	1,250	1,250
1971	28,000	2,800	1,400	1,400
1981	30,000	3,000	1,500	1,500
1991	32,000	3,200	1,600	1,600
2001	35,000	3,500	1,750	1,750
2011	38,000	3,800	1,900	1,900
2021	40,000	4,000	2,000	2,000
2031	42,000	4,200	2,100	2,100
2041	45,000	4,500	2,250	2,250
2051	48,000	4,800	2,400	2,400
2061	50,000	5,000	2,500	2,500
2071	52,000	5,200	2,600	2,600
2081	55,000	5,500	2,750	2,750
2091	58,000	5,800	2,900	2,900
2101	60,000	6,000	3,000	3,000



### Housing and Population.

The following particulars were extracted from the Registrar-General's report on the Census returns for the County of Essex :—

#### Acreage and Population.

Ward	Acreage	Population		Private families and dwellings.				
		Total	Per acre	Private families	Population in private families	Structurally separate dwellings occupied	Rooms occupied	Persons per room
Total ... ..	6,554	89,362	13·6	19,082	88,720	18,753	74,677	1·19
Becontree ... ..	1,412	31,324	22·2	6,604	31,118	6,583	25,234	1·23
Chadwell Heath ... ..	2,179	8,092	3·7	2,185	8,058	2,000	10,029	0·80
Dagenham ... ..	2,963	49,946	16·9	10,293	49,549	10,170	39,414	1·26

**Private Families.**

No. of persons in family	No. of private families occupying following No. of rooms								Total private families	Population in private families	Rooms occupied	Average No. of persons per room	Density of occupation			
	1	2	3	4	5	6-7	8-9	10 or over					Persons per room			
													Over 3	3 and over 2	2 and over 1½	1½ and over 1
1	35	34	63	53	31	8	—	1	225	225	721	0.31	—	—	—	—
2	15	308	313	386	301	93	11	3	1430	2860	5326	0.54	—	—	30	—
3	18	177	1417	1402	541	105	13	1	3674	11022	13701	0.80	—	54	—	531
4	5	72	1792	2074	727	95	8	4	4777	19108	18158	1.05	20	—	288	7168
5	2	27	1208	1681	701	104	9	6	3738	18690	14716	1.27	10	135	6040	8405
6	1	9	585	1187	542	59	10	6	2399	14394	9748	1.48	6	54	3510	10374
7	—	2	236	767	397	36	7	5	1450	10150	6110	1.66	14	1652	5369	2954
8			64	401	222	19	3	—	709	5672	3054	1.86	—	512	4984	152
9			22	178	167	13	—	1	381	3429	1721	1.99	—	1800	1503	117
10			5	81	86	6	—		178	1780	806	2.21	50	810	910	10
11			2	16	52	7	1		78	858	381	2.25	22	748	77	11
12				8	17	6			31	372	154	2.42	—	300	72	—
13				1	6	2			9	117	46	2.54	13	104	—	—
14					2				2	28	10	2.80	—	28	—	—
15 and over					1				1	15	5	3.00	—	15	—	—
2 Persons and over	41	595	5644	8182	3762	545	62	26	18857	88495	73936	1.20	135	6212	22783	29722
Total private families	76	629	5707	8235	3793	553	62	27								
Population in private families	155	1672	24092	40128	19736	2519	282	136								
Rooms Occupied	76	1258	17121	32940	18965	3455	516	326								



### Transfer of Residents.

The following tables give the number of removals on the estate expressed as a percentage of the average number of dwellings in occupation each year. The year considered is April 1st to March 31st, and the figures exclude transfers, namely, removals of occupants to other houses on this, or on any other, L.C.C. estate.

The first table shows the number of removals as a result of notices served by the L.C.C., the second the number who removed as result of the tenant's notice, and the third, the total number of removals. The lines under the first part of the horizontal rows of figures indicate the approximate period of development of that particular section. The number of houses in each section is given in Table 3.

Table 1. Council's Notice.

[illegible]

Table 2. Tenant's Notice.

[illegible]

Table 3. Total Removals.

[illegible]



From consideration of these tables two points emerge. The first is the very heavy turnover in the occupation of the houses. Many sections have, at one time or another, touched the 20 per cent figure, so that one in five of the occupants of the houses on that particular section changed their residence in the year. The other point is that there is no indication of stability of the district. If a 10 per cent annual turnover on the entire estate during its period of growth were due to a very heavy return flow from those portions recently occupied, although this would represent a tremendous waste of effort and of money, it would not possess the serious significance as does the actual state of affairs. Turning to section No. 1, a section completed by 1927, apart from the first year 1921-22 when very few houses had been built, the turnover figure for every year ranges from 7·80 to 13·44. For sections numbers 2 and 3 the turnover has each year been greater since the completion of the section than during its period of development. Due consideration must of course be given to the altered financial circumstances of many since 1929.

### **Housing Estates.**

The following is extracted from a paper given on the subject "Problems in Public Health encountered in a New Area." These problems fall into one of two classes, namely, those which arise through the rapid growth of the district without preliminary preparation, and those which might have been avoided.

(I) Those arising through rapid growth without preliminary preparation. So far as relates to the Dagenham portion of the estate, for four years development took place in a portion of a rural district, the town containing a population of 30,000 before it was severed. This rapid development without preliminary preparation led to difficulties in connection with:—

(a) **Transport.**—For years there was available only the previously existing means of communication up to London, and there were no facilities for intercommunication.

(b) **General sanitation.**—The same method is being used to-day for the disposal of house refuse as was previously in operation, and the same plant for the disposal of sewage. The water supply, on occasion, was found to be insufficient in amount, and it was only early in 1932 that a fresh source of supply was secured.

(c) **Educational facilities.**—In the early days of development schools were put up very gradually, with a result that for hundreds of children there was no school accommodation. Some children were here two years before there was a vacancy for them and many children who were 12 or so when their families came here never attended school after leaving London. The basis of 1·5



school places per house, though high, was not sufficient, so that many schools have, since their erection, had their limited playground accommodation depleted for the erection of further buildings to accommodate the extra children.

(d) **General health services.**—(1) **Isolation hospital.**—The Romford Rural District Council was one of the constituent authorities of the Romford Joint Hospital Board, which at the time that the building of the estate began maintained a hospital of 54 beds. The number of beds remained the same until early in 1931. This resulted in the enforced treatment of some hundreds of cases of infectious disease in their homes. In 1929 there were 501 cases of scarlet fever notified; of these, 317 were treated entirely at home. At the time that the beds were free, approximately one-half the notified cases were admitted, but over a period of three months only one case in six was sent in. This necessitated selection of cases to be admitted, the order of selection being clinical grounds, difficulty in nursing case at home, exclusion of the wage-earner from work if the case remained at home, and overcrowding with much scope for spread of infection. In 1930, out of 513 cases of scarlet fever, 161 were admitted to the local Isolation Hospital, and 52 to others, leaving 300 treated at home.

(2) **General hospital.**—The absence of a general hospital in the neighbourhood necessitated the use of the Poor Law Hospital as an emergency general hospital. More recently the local Ilford Emergency Hospital has developed and has been converted into a general hospital, but it was only in 1931 that any additional beds were available.

(3) **Nursing in the home.**—In 1927, there were two nurse midwives who formed the only general nursing service in the district. The service has expanded and to-day the nurses of the local association are housed in their own home with twelve or more resident.

(e) This is a group of problems which are due chiefly to a rapid development occurring in a rural district. For some years, some rural characters of the district offended the susceptibilities of an urban population—this applies more particularly to such details as proximity of cowsheds, surfacing of roads and the like.

Shop property, being erected by private enterprise, appeared later than the occupation of the houses. This delay provided a fruitful field for itinerant salesmen, the place being flooded with vendors, very difficult to control, selling goods of doubtful quality. Open spaces lying adjacent to populated districts provided a happy hunting ground for fairs. In many cases the sanitary arrangements



left much to be desired. Owing to the absence of prior information as to their coming, and owing also to their short period of stay, control was a matter of difficulty.

(II) There are some defects of this estate which might have been avoided by the developers. Most of these are concerned with the health only indirectly as affecting the happiness or well-being of the populace.

There is no shopping centre in the district. Shops are placed at the intersections of main roads in aggregations about half a mile or more apart.

While it is admitted that the estate houses were erected primarily for the benefit of those previously unsuitably housed, it is unfortunate that no consideration was paid to the future of the town that was being erected, and that no facilities or encouragement were given to others than the transferred tenants to reside here.

A broader view might have been taken by the developers of their responsibilities. Shops, etc., might have been built and provision made for playgrounds within easy reach of all children. One of the most striking features of the district to the newcomer is the width of the pavements. Presumably this was determined by consideration of such matters as the density of the erection of the houses, the maximum size of garden which the average occupant will attend to, and the optimum width of the road, consideration being paid to the cost of upkeep. It would appear, however, that with some alteration in planning, numerous small playgrounds could have been constructed so that no child would need to cross a main road to reach the ground, nor have to go more than a few hundred yards. The open spaces provided are too far distant for most of the toddlers who therefore play in the roads, sometimes the main roads. A palliative measure which could be applied is the putting into operation of a practice apparently successfully carried out in some places, of barring some of the side roads to fast traffic and using these as playgrounds. The objection of the local occupants to the disadvantages they would be subjected to would possibly be tempered by consideration of the fact that they were ensuring the safety of their own children.

Little allowance has been made for the growth of the family, but the family increases in number and the increasing age of the occupants leads to difficulties. Further difficulties arise when the children reach marriageable age. The present position on this estate is that sons of tenants are eligible for houses and so are married daughters of tenants whose husbands either reside in, or are employed in, the County of London. This practice will create



extreme hardship for the local Council in having to provide accommodation. The position, too, has an adverse effect on the stability of the population, as it opposes the residence here of those who work in the district, while entitling to the accommodation those who, because of their place of work, will tend to leave.

Sufficient care was not taken in the selection of the tenants, some being unemployed when they came here, others finding that they cannot afford the extra rent and transport charges. This results in the transfer of large volumes of population, for some years the transfer figure being as high as 12 per cent. At the date of the census, one-twelfth of the population could, in relation to the place of employment of the wage-earner, have been more suitably housed in one of the other estates of the Council.

### General Consideration of Housing Estates.

Apart from consideration of the benefits to health of residence here, there is another side to the question of developing estates of this magnitude. It is not sufficient to build a town of this size and leave it to chance as to what future development there will be. On the financial side, there is the tremendous expenditure involved not only in the erection of houses, including laying of roads and drainage, but the expenditure of such sums as a quarter of a million pounds for the erection of a plant for sewage disposal, the provision of schools and hospital accommodation, etc. While to the new district the provision of these services involves expenditure of fresh money, the reduction in the total population in the original areas of habitation does little or nothing towards diminishing the costs of providing the similar services for the remaining population. To justify the expenditure, it is essential to be certain that the money is being spent on something that will be used for a long period of time.

With regard to this estate, at the moment, it is very doubtful whether anyone can substantiate the contention that such will be the case. The future of the estate is unknown. One assumes that houses such as these, within easy reach of London, will always find occupants—but is this surmise correct? The natural amenities of the district are not sufficient of themselves to attract a population to live here, while on the other hand, the district is not conveniently situated with regard to the centres of occupation—that is to say, that those working out of the district will probably remove from the area. If there is no increase in the proportion of local labour employed in the local factories, the employees will be housed partly by private enterprise in the area but largely by private enterprise in adjoining areas. There will then be no



local attraction in the way of proximity to the place of employment to retain the residents here. If this be so then for years it can be expected there will be a repetition of the continuous stream of persons and families coming and going. This will certainly keep the houses in occupation and in due course might even possibly end the waiting list of applicants for the London County Council houses.

But in what way are the houses to be occupied in the future—not merely of this generation to-day who have transferred, but the future occupants who must be there to justify this colossal expenditure. At one time it was the practice of the London County Council to accept no responsibility for the housing of the children of the tenants. Presumably if they wanted to get married, they had to fend for themselves and to find, while they were here, accommodation, when their parents before them failed so much that these houses had to be built for them. Probably most families solve this problem by the young married couple living with the family until the overcrowded conditions became a nuisance. The present position, so far as concerns this estate, is that consideration is now given to the sons of tenants and to the married daughters whose husbands either reside in or are employed in the County of London. The limitation imposed by the latter part of this policy is disruptive to the stability of the district, in that those persons who might be housed here and who are working elsewhere will tend to leave the neighbourhood. Presumably matters will solve themselves by the older members of the younger generation on first marrying living with their parents, and then as their family grows, finding alternative accommodation. Meanwhile their younger brothers and sisters are marrying and repeat the process until in due course there remains only one child, who on marrying, remains and carries on the occupation of the house—the original tenants meantime having become aged and being taken care of by the younger adults who have their own family growing up. By this means, the population will have become more normal in its age distribution, as by then there will be the ordinary proportion of older-aged persons.

There is however, another side to this problem. The population of the country as a whole will, in the course of a few years, reach its maximum, after which there will be a gradual decline. Coupled with this is the alteration occurring in the age distribution of the population due to the declining birth rate and to the reduction in the death rate, the effect of which will be to increase the numbers of the older, at the expense of the younger age groups. This will mean a diminished demand for houses and a lessened inclination to transfer, populations becoming less mobile. The 1931 census showed, compared with that of 1921, a reduction in the average size of families and an increase in the number of families. This



resulted in the fact that in spite of the erection of large numbers of houses there was no improvement in the matter of crowding. The increase in the number of families was due to there being in this country at that time a greater number than before of women of ages 15 to 30. The position, however, by 1941, will have altered. In 1926, there were in the country more females of ages 15 to 30 than of ages 0 to 15. This means that by 1941 there will be far fewer women of ages 15 to 30 than there were at these ages in 1931, so that in consequence 1941 will see a reduction in the number of families. Incidentally, women of ages 15 to 30 provide about 50 per cent. of the births so that a few years after 1941 should see a reduction in the average size of the family for this apart from other reasons. These considerations support the suggestion of the possibility of a falling demand for houses. Extensive undertakings carried out to-day, based on the present-day demand, might prove in a short time to be very extravagant and uneconomic. The Haweswater undertaking which was abandoned after the outlay of a considerable sum had been expended, is an instance of failure to appreciate the fact that although the population of the country as a whole is still increasing, it is growing at a diminishing rate and a very few years will see its peak. If one could be assured that there will be a continuous demand for what is provided by the expenditure of the outlay involved in a creation of an estate like this, there might be less objection to development taking place on this scale, but without this assurance these considerations only strengthen the contention that re-housing should be carried out in much smaller units, such units being adjacent to and forming parts of ordinary stable, though not necessarily stationary, areas of population.

Possibly there are none to be found who claim to-day that this estate is a success. As a remedy for the housing conditions in which the tenants previously found themselves, it might be maintained that the experiment has resulted in the provision of satisfactory alternative accommodation. But can this contention be upheld in view of the extensive turnover, much of which is a return flow. As a venture in making a large town, the scheme at the moment fails—fails for the reason that few residents look on the place as their permanent home. Some are content to remain—they would also be content to remain in the slums. Many frankly intend to move at the first favourable opportunity. Others are satisfied to remain for the sake of their children, promising themselves that when these children are off their hands, they will leave. Others insist on removing now for the sake of the children—not for their health but for the future, as some parents see for them little scope for their development. But for one reason or another few look on this place as their permanent



home and the wish is there, disclosed or unrevealed and possibly not even admitted, that they might one day leave Dagenham.

The causes of failure are two—the size of the district and the uniformity of the population. Neither of these two factors alone would necessitate failure, but coupled, court it. A smaller area, adjacent to a stable community, would be merged and become part of the town and in time would lose its identity in that of the town. The fact that this town provides in the main for the one standard of population is the other chief factor against its success. The layout, more particularly in depriving the district of a shopping centre round which the chief activities of the town would be centred, so providing a heart to the town, is not the least important factor contributing to the instability of the district.

As matters stand, are there any steps which might be taken in improving the situation and to brighten the hope of the future?

The main objective must be to maintain a stable community—and to achieve this, to keep the residents here. One of the chief means to this end is to establish the family entity. If the children, on growing up, leave the district, there will be little left to keep their parents here. On the other hand, to have their children here will be a powerful factor in keeping the parents in the district. Already this estate is favoured over some of the others in the concessions made toward accommodating the children of the tenants. A further step should be for the London County Council to offer accommodation to the daughters of their tenants who marry men employed in the district. The accessibility of his occupation will keep the worker here—the older people will remain because of the daughter. Another step towards obtaining stability would be an endeavour to house locally those employed locally. For the sake of the new town created, a large number of houses should be offered to the employees of the local factories who have come here after doing work of a similar nature elsewhere. The effects of housing some 3,000 of these in the estate houses would prove of immense value. Firstly, it would tend to diminish the general feeling of instability and to do this alone would effect some security. It would result in those wages earned being spent in the district. If the houses offered were those previously occupied by tenants who, on financial grounds could not afford to remain, it would raise the general standard of wealth. There would be fewer defaults of payment of rents which, as presumably the finances of the housing estates are dealt with separately now, fall on the backs of the remaining tenants.

A third step should be the building of a shopping centre to make the heart to the town. Preferably, but not of necessity, this should be central for the area. At the present moment,



there is a vicious circle—the relative poverty of the district results in a low standard of shopping—this low standard drives money away to other shopping centres outside the district and depresses the earnings of the existing shops, so that they fail and close, and there is a further loss on the rates. Were more of those employed at the local factories to live locally, especially if they replaced those in receipt of low incomes, shopping would react to it, and by obtaining the added money in local circulation, would be able to expand so that ultimately the district would obtain a shopping centre which would meet all local needs. Round this centre the local activities would be drawn—cinemas, libraries, etc. These by attracting the population, would benefit the shops in their turn.

Another necessary line of development is the provision of facilities for education. Although this district has an elementary school population of some 27,000, there is no secondary or technical school. To enable their growing children to obtain the advantages of this advanced education, parents at present are transferring to other districts. These facilities should be provided locally.

The suggestion above, that some of these houses might be allotted to workers coming from areas other than London is made only in view of the situation that has developed as the result of this large scale enterprise. As it has been stated in reference to London County Council housing estates, that each person removed costs about £7 per year for a period of 40 years, there would ordinarily be a natural reluctance to incur this expenditure unless as a result of it conditions in London benefited. How far a local authority should embark on housing schemes to provide accommodation for the £4 per week man is debatable. In many cases the rents of the municipal houses are such that they can be paid only by the persons whose earnings would ordinarily have placed them outside the class for which it was originally anticipated that help would be required to properly house them. It seems that one reaches the position that for those who can afford to live in these houses, no municipal action was necessary, while for those who need such assistance, the rent charge makes occupation of the premises prohibitive. The family man earning £2 10s. 0d. a week or less living and working in London cannot afford to occupy these houses. If he does so and finds the rent and the railway fares, it must be at the expense of necessities. Good housing can be bought at too high a price. There is too great a tendency to stress the baneful effects of bad housing on health, and, by implication, to overstress the advantages of good housing. The relationship between bad housing or overcrowding and disease is often taken to be cause and effect, whereas more frequently both arise from a common cause. Those who interpret the relationship as being a direct one will be disappointed to find that the removal of un-



satisfactory housing conditions will be productive of little improvement in health, more especially if such improvement is at the cost of more important factors, amongst which the foremost is probably food. Living in a good dry house with plenty of fresh air cannot greatly improve the lot of an underfed family. For such a worker then, who is at the moment unsatisfactorily housed, what can be done? He cannot come here, partly because of the high rent, partly because of the transport charges. What chance is there of eliminating the latter, that is, to rehouse in London near the place of employment or near the original habitation of the worker. In block dwellings up to 300 persons could be accommodated to the acre. This figure in many instances would exceed the density of occupation of an overcrowded insanitary area. There are admitted objections to block dwellings, but many that have been voiced are due not to the dwellings themselves, but to the fact that they have been occupied by the poorer and in many cases by the less healthy classes of the community, so that for example, a higher rate of tuberculosis which might be found to occur is not necessarily the result of residence in the dwellings, but occurs because, by reason of poverty, the tuberculous person inhabits the premises or the undernourished inhabitants living there contract the disease. Apart from the case of those persons living in London who cannot afford to pay the rent here plus the transport, there is that class of person whose occupation necessitates his living locally. Amongst these are the dock labourers, who in times of slackness of trade are sadly handicapped by living some distance away—they cannot afford to pay the fare to the docks when there is no certainty that they can get work and wages as a result of the expenditure on the fares.



## INSPECTION AND SUPERVISION OF FOOD.

### (a) Milk Supply.

There are 44 retailers of milk in the district, the following being the number of premises from which the various classes of milk are retailed :—

Ungraded Milk ... ..	36
Grade A T.T. Milk ... ..	3
Grade A Pasteurized Milk ... ..	1
Certified Milk ... ..	1
Pasteurized Milk ... ..	9
Sterilized Milk or Carton Milk ... ..	20

This milk is distributed by 44 local retailers, 9 distributing centres and one wholesale. There are 9 cowkeepers in the district.

15 retailers of ordinary milk were registered during the year, in addition to which there were 20 applications for the registration of premises for the sale of carton or of sterilized milk. One retailer discontinued business and one business changed hands. Three applications for registration of premises were abandoned.

It appears to be a growing practice for a dairyman, instead of employing men as his agents to distribute the milk, to sell each day a certain quantity to a number of roundsmen who then proceed to distribute independently of the original owner of the milk. In such cases, registration of these distributors is called for as retail purveyors of milk. The practice is an unsatisfactory one from the point of view of retaining control over the milk, as the owner of the dairy accepts no responsibility for any misdeeds on the part of the distributors, and these are apt to change their rounds with an embarrassing frequency.

Legal proceedings were taken against eight retailers working from the same unregistered premises, when fines and costs totalling £12 18s. 0d. were imposed. Another distributor using unregistered premises discontinued after being cautioned. Two roundsmen detected bottling in the streets were cautioned.

### Milk Sampling.

During the year, 124 samples of milk were analysed ; the same system of sampling was continued. The following table shows the results of these analyses, divided into those produced on a small scale and those distributed by large companies :—



No. of Bacteria per c.c. in thousands.	SMALL DEALERS				LARGE SCALE	
	Local producer.		Not local.			
	Satis- factory.	NOT	Satis- factory.	NOT	Satis- factory.	NOT
Under 30 ...	5	—	24	1	16	—
30—100 ...	9	—	23	1	7	2
100—2000 ...	2	3	7	7	1	—
200—500 ...	—	2	2	11	—	—
Over 500 ...	—	—	—	1	—	—
	16	5	56	21	24	2

The samples of milk from the large firms show the same satisfactory state of affairs as was recorded last year. In the quality of the milk of the small dealers, however, there was a falling off. In milk distribution there is apparently the opportunity of obtaining large profits. This has two unfortunate results—the one is that the small inexperienced man turns to milk distribution as a means of making a living and frequently, to obtain custom, undercuts his competitors, sometimes being enabled to do so by selling an inferior milk. The other disadvantage is that the producer who turns to distribution, if at all successful, apparently is soon driven to purchasing other milk, and on more than one occasion a producer of satisfactory milk has changed into a retailer of unsatisfactory milk produced by others. Four samples of the milk from one retailer gave unsatisfactory counts, on three occasions cells being present; this retailer, when dealing only with his own milk, never failed to attain a high standard of purity. Then again there are constant changes in the producers from whom a supply is obtained. If an unsatisfactory count is obtained, it may take many weeks before the fault is remedied, and by that time the six months contract is up and the retailer once more changes his source. In one case where a small dealer obtained his milk outside the locality, the reason for his unsatisfactory count was ultimately traced to contamination of the milk utensils and the milking machine.

#### (b) Meat and Other Foods.

##### Meat Inspection.

There are four slaughter-houses in the district, one licensed and three registered. To these, a total of 696 visits was paid during the year. The carcasses inspected numbered 2,723. The following numbers of lbs. of meat of various classes of animals were condemned and surrendered:—

Beasts ...	4,386	Pigs ...	1,301
Sheep ...	153	Calves ...	37



### Bakehouses.

There are two factory and two retail bakehouses in the district; to these, 12 visits were paid in the course of the year.

### Ice-Cream.

Section 99 of the Dagenham Urban District Council Act, 1931, calls for the registration of (a) any person being a manufacturer or vendor of or merchant or dealer in ice-cream or other similar commodity within the district, and (b) any premises within the district used or proposed to be used for the manufacture or sale of ice-cream or other similar commodity.

During the year 5 visits were paid to premises at which this class of goods was manufactured.

### Shops.

215 visits were paid to foodshops, 385 to butchers shops, 97 to fish shops, and 39 to dairies and milk shops.

The following amounts of foodstuffs were condemned:—

Food ... ..	1200 lbs.
Rabbits ... ..	45 lbs.
Fish ... ..	569 lbs.

### Food Poisoning.

Under Section 105 (1) of the Dagenham Urban District Council Act, 1931, which calls for the notification of cases of food poisoning, 18 notifications were received of which 13 were localised to the practice of one medical practitioner and 4 to that of another. The frequency of the various symptoms complained of were as follows:—abdominal pain in 4, vomiting in 11, diarrhoea in 13, fever in 9, and a rash in 4. No notified cases were associated one with another, and in only two instances was a history obtained of any other member of the family suffering at the same time from similar symptoms. The cases occurred mostly, though not exclusively, in the summer months. The commonest distribution in age and sex was of females, aged 15 to 20, the next most frequently affected being males of ages 25 to 35 and 35 to 45. Many of the cases appeared to be illnesses due to some pathological condition, others apparently being cases of hypersensitiveness of the patient to the particular foodstuff ingested.

### (c) Adulteration, etc.

#### Sale of Food and Drugs.

These Acts are administered by the Essex County Council. During the year 305 samples were analysed, of which 57 were



milk. Seven prosecutions resulted in the imposition of fines to a total of £16 12s. 0d., three in respect of lard, two of vinegar, and one each of cheese and beef suet.

#### (d) Chemical and Bacteriological Examination of Food.

Bacteriological examination of milk, etc., is carried out at the Essex County Public Health Laboratories, 91, Queen Victoria Street, London, E.C.4. Chemical analyses are performed by Dr. Bernard Dyer at 17, Great Tower Street, E.C.3.



# PREVALENCE OF, AND CONTROL OVER, INFECTIOUS AND OTHER DISEASES.

## NOTIFIABLE DISEASES (other than Tuberculosis).

	Under 1 year.	1	2	3	4	5	10	15	20	25	35	45	55	65	Total.
Diphtheria ...	2	4	7	10	13	41	20	3	3	1	—	—	—	—	104
Scarlet Fever ...	—	14	18	26	34	170	82	7	2	9	2	—	—	—	364
Puerperal Fever ...	—	—	—	—	—	—	—	—	—	3	2	—	—	—	5
Puerperal Pyrexia...	—	—	—	—	—	—	—	—	2	6	5	—	—	—	13
Pneumonia (Primary)	10	14	5	4	3	10	8	6	4	7	8	3	6	3	91
„ (Influenzal)	—	—	—	1	—	2	3	2	3	1	1	1	—	1	15
Erysipelas ...	1	1	—	1	—	—	3	2	—	5	10	3	—	—	26
Smallpox ...	—	—	—	—	—	—	—	1	—	—	1	—	—	—	2
Typhoid Fever ...	—	—	—	—	—	1	1	—	—	—	—	—	—	—	2
Food Poisoning ...	—	—	—	—	—	1	1	4	—	4	5	3	—	—	18
Cerebro-Spinal Fever	—	—	—	1	—	1	—	—	—	—	—	—	—	—	2
Enceph. Lethargica	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Poliomyelitis ...	—	2	—	—	2	1	—	—	—	—	—	—	—	—	5
Polioencephalitis ...	—	—	—	—	—	1	—	—	—	—	—	—	—	—	1
Continued Fever ...	—	—	—	—	—	—	1	—	—	—	—	—	—	—	1

	Cases Notified.	Admitted to Isolation Hospital, Rush Green	Admitted to other Isol. Hosp.	Admitted to other Hospitals.	Deaths Registered.
Diphtheria ...	104	99	2	—	3
Scarlet Fever ...	364	304	—	—	2
Puerperal Fever ...	5	—	—	—	2
Puerperal Pyrexia ...	13	—	—	—	3
Pneumonia (Primary)	91	—	—	—	63
„ (Influenzal)	15	2	—	6	
Erysipelas ...	26	2	—	6	1
Smallpox ...	2	—	2	—	—
Typhoid Fever ...	2	1	—	1	—
Food Poisoning ...	18	—	—	—	—
Cerebro-Spinal Fever	2	1	—	—	1
Encephalitis Lethargica	—	—	—	—	1
Poliomyelitis ...	5	1	—	2	—
Polioencephalitis ...	1	—	—	1	—
Continued Fever ...	1	—	—	—	—
Pemphigus ...	19	1	—	1	—
Ophthalmia Neonatorum	13	1	—	2	—

### Diphtheria.

The incidence of diphtheria during 1932 was very low, the number of notifications received being only 104 per thousand population. This is an incidence rate of 1·10, compared with 2·28



in the previous year, or a rate per thousand under 15 of 2.63. The rate per thousand population in England and Wales was 1.08 or per thousand under 15, 4.15. The incidence of diphtheria in the district compared with that of the country as a whole was, for all ages 1.02, but for the population under 15 years of age 0.63.

There were no return cases and only 4 secondary cases. In each instance the onset of the secondary occurred before the removal of the primary case—in fact, in all four cases the primary and the secondary were both removed together. The alleged origin of the secondary was on the 2nd day of the illness of the primary in two cases, the 4th in one and the 5th in the remaining case.

There was no difficulty in admitting the cases to hospital. Only one case was treated at home, that being at the election of the parent.

A few cases of diphtheria were associated with measles, of which there was an outbreak in the early months of the year; four cases were of pure laryngeal involvement.

### **Death Rate.**

There were only 3 deaths (2 male and 1 female) recorded during the year, this giving a case mortality of 2.9 per cent. Not one of these cases was removed to hospital within the 4th day from the alleged onset.

### **Bacteriological Examination.**

361 diphtheria swabs were examined during the year at the Essex County Public Health Laboratories, and 194 at the Public Health Offices.

### **Schools and Diphtheria.**

In no instance did a patient suffering from diphtheria appear to have contracted the disease at school. Out of the 104 cases, 66 occurred amongst children who were not at the time they were infected attending school. There were during the year no suspicious groupings of infection, there being only one instance in which two children attending the same department of a school succumbed to infection in consecutive weeks.

No schools were closed during the year on account of this disease, and no schools or school rooms fumigated.



### Schick Testing and Immunization.

31 sessions were held during the year in four different centres in the district. There were fewer new cases dealt with than in the previous year, but a certain amount of re-testing of those who had received three doses was carried out. The average attendance per session was 123.

Schick reactions were read one week after the test. The spacing between the doses had been extended to fortnightly intervals. More recently, in view of the recommendations of the Conference of the Health Organisation of the League of Nations on Immunization against Diphtheria, the interval between the first two doses is now three weeks and mostly the same interval separates the second and third doses.

The following is a summary of the work carried out during the year :—

No. Immunized without preliminary testing	...	233
No. Schick Tested	... ..	621
Of these 233 were negative.		
Of the Schick-positives, no. who received 3 doses		353
No. of Re-Schick Tests	... ..	634
Of these 502 were negative.		
Of the Schick-positives, no. who received 3 doses		112

The following notes relate to the only cases this year in which diphtheria occurred in a child who had received three doses of toxoid anti-toxin. In June, a boy aged 7 contracted diphtheria. When tested on 4/6/31, he was Schick-positive and received 1 c.c. toxoid anti-toxin on 11/6/31, 17/7/31 and 24/7/31. When re-Schicked on 1/6/32, he gave a positive reaction, and 8/6/32 received a further 1 c.c. of toxoid anti-toxin. The onset of his illness was 15/6/32. Another boy of 5 years of age received three 1 c.c. doses at weekly intervals in February. Following his admission to hospital in October on account of scarlet fever, he succumbed to a very sharp attack of diphtheria. His Schick reaction tested in January of this year was faintly positive. A girl of 5 after two doses contracted diphtheria.

The following figures are those of children dealt with from the time immunization was first started in September, 1930, up to December 31st, 1932.

No. subjected to Schick Test (Primary)	{	Positive 1071.
		Negative 563.
No. subjected to Re-Schick Test	{	Positive 132.
(after having undergone one course of injections).		Negative 502.



Number of children immunized without having been Schick tested (under 6 years).

724.

The following table shows the proportion of children of various ages who reacted Schick-positively :—

Age.	Total.	No. of Positives.	Percentage Positive.
UNDER 6	14	9	64.3
" 7	367	278	75.6
" 8	339	238	70.2
" 9	286	185	64.6
" 10	273	172	63.0
" 11	208	127	61.0
" 12	195	117	60.0
" 13	104	58	55.8
" 14	55	20	36.4
" 15	10	3	30.0
Over 15	15	8	53.3

The following table shows the relation of the number of immunes in the household to the Schick-reactions of the children of various ages.

No. of Immunes in family.	Under 7	7 and 8.	9 and 10.	11 and over.
6	62.5 (8)	61.5 (13)	50.0 (18)	33.3 (21)
5	61.5 (13)	52.0 (25)	33.3 (27)	16.6 (18)
4	41.4 (29)	43.5 (62)	33.9 (59)	27.4 (51)
3	57.8 (57)	49.2 (128)	46.8 (111)	43.9 (91)
2	83.2 (215)	77.7 (319)	78.1 (229)	69.6 (135)

(The numbers in brackets are the total number of children dealt with in the group.)

The following table shows the influence of a case of diphtheria occurring in the home on the Schick-reactions of the remaining occupants :—

Age.	Positive.	Negative.	Total.	Percentage Positive.	Percentage Positive in general local population.
Under 8 ...	36	24	60	60.0	75.3
8 to 12 ...	52	47	99	52.5	65.3
12 and over	8	11	19	42.1	54.3



The following table shows the analysis of the Schick-reactions of the children tested, according to their period of residence here.

Period of Residence.	Under 8 Percentage Positive.	8 to 12 Percentage Positive.	12 and over Percentage Positive.	Total Percentage Positive.
Under 6 months ...	75.0 (20)	57.1 (21)	57.1 (7)	64.6 (48)
6 to 12 months ...	91.0 (11)	57.9 (19)	100.0 (2)	71.9 (32)
1 year ...	87.5 (16)	57.7 (26)	55.5 (9)	66.6 (51)
2 years ...	87.3 (55)	67.1 (82)	50.0 (14)	72.8 (151)
3 " ...	74.4 (86)	66.6 (141)	45.8 (24)	67.3 (251)
4 " ...	75.3 (85)	88.0 (75)	36.3 (22)	75.8 (182)
5 " ...	69.1 (42)	50.9 (55)	30.0 (10)	56.1 (107)
6 " ...	71.9 (32)	63.8 (58)	50.0 (14)	64.4 (104)
7 " ...	46.1 (13)	73.8 (42)	66.6 (6)	67.2 (61)
8 " ...	100.0 (1)	65.2 (23)	14.3 (7)	54.8 (31)
9 and over ...		89.9 (29)	66.6 (6)	85.7 (35)

The following table shows the percentage of re-Schick positives at various ages :—

Age.	Negative.	Positive.	Total.	Percentage Positive.
Under 2 ...	22	3	25	12.0
" 3 ...	43	15	58	25.9
" 4 ...	36	11	47	23.4
" 5 ...	44	11	55	20.0
" 6 ...	49	19	68	27.9
" 7 ...	78	29	107	27.0
" 8 ...	91	31	122	25.4
" 9 ...	74	18	92	19.6
" 10 ...	62	19	81	23.4
" 11 ...	63	17	80	21.2
" 12 ...	30	12	42	28.6
" 13 ...	30	6	36	16.9
" 14 ...	9	4	13	30.7

### Scarlet Fever.

364 cases of scarlet fever were notified during the year. This is an incidence rate of 3.87 per thousand population, or 9.21 per thousand population under 15 years of age. The corresponding figures for England and Wales were 2.12 and 8.14. The comparative incidence rates of the two groups were therefore 1.82 and 1.13.

The distribution was fairly even throughout the year, there being no periods of very heavy incidence, the weekly average ranging between 6 and under 9 for all months except September, which was a light month. There was no autumnal rise in the rate of infection.



Most of the cases were removed to the local Isolation Hospital, though a number remained at home at the election of the parent. Although one would not wish to have repeated the previous experience of shortage of accommodation for isolation of cases of scarlet fever, the enforced home treatment which had previously to be carried out demonstrated that wholesale removal to hospital of the present-day type of scarlet fever is unnecessary. It was concluded at that time that half of the cases could well be treated at home. It is unfortunate that the lessons are so soon forgotten, and that, in response to a public demand, valuable hospital space is occupied by cases which could be dealt with quite satisfactorily at home. Actually, out of the 364 cases notified, 304 were admitted to hospital. No cases who commenced home treatment had later to be admitted on account of the clinical condition.

Of the cases notified, 294 were cases of primary infection, 47 secondary and one recovery case. There were 17 return cases, plus 7 others in which the cases were either return or secondary, in that a third case occurring in the house after the return home of the infecting case might be either a second return case or might be secondary to the return case.

### Secondary Infection.

Of the 47 secondary cases (excluding those who might have been return cases), 33 were single infections; in three instances there were 2 secondaries; in two instances 3, and in one instance 4. In four instances the primary case was retained at home; in two of these the onset of the disease in the secondary occurred before the disease was recognised in the primary. Both other cases occurred in the mothers of the original patient. The interval separating the onset of the illness in the two patients in one case was 30 days, and in the other 18 days. Excluding the cases following on missed primary cases or those possibly following the first of the secondary cases occurring in a home, the onset of the secondary case occurred on the 2nd day of illness of the primary in 4 instances, on the 3rd day in 6, and on the next consecutive days in 8, 2, 4 and 3 instances. In 6 cases the onset of the secondary was in the second week of illness of the primary, in 3 cases in the third week, and in one case in the fourth week. In 9 cases the onset of the secondary was before the removal to hospital of the primary case, and in 5 the onset was on the day of removal. In 5 instances the onset was on the day after removal, in 3 the third day, 3 the 4th and 3 on the 7th. In 6 cases an interval of at least one week elapsed between the removal of the infecting primary case and the onset of the illness of the secondary case.



### Return Cases.

There were 12 instances of one return case occurring in a house after the return home of a scarlet fever patient after a period of detention in hospital. In 3 other instances there occurred a subsequent case in the home, the patient having been infected either by the patient who returned from hospital, or as a secondary to the return case infected from that source—and in 2 instances two such subsequent infections occurred, in each case there being three patients infected after the return home of the original case. 60 per cent of these patients contracted their infections in the months April to July. The intervals between the time of the return of the infecting patient and the onset of the return case was under one week in 7 cases, one to two weeks in 5, and two to three weeks in 4 cases. In nearly one-half of the infecting cases there was a history of a nasal discharge appearing subsequent to the return home of the patient, and in one case a history of otorrhoea.

The infecting cases had been home varying periods of time before removal to hospital in the first instance. No case was apparently removed before the second day; 4 were removed on the second, one on the 3rd and four on the 4th day. Two cases had been at home a period of 2 to 3 weeks as missed cases before being removed to hospital, without apparently giving rise during this period to any infection. In one instance the return home of the child was followed by one, and in the other by two cases. Another child who was not removed until the 5th day of his illness had caused no infection before removal, but his return was followed by the occurrence of three cases, the same thing happening in another instance where the child was removed on the second day.

### Serum Treatment.

The following notes are abstracted from the report of Dr. E. James, Medical Superintendent to Rush Green Isolation Hospital :—

“Scarlet fever anti-toxin was given intra-muscularly to most of the cases admitted during the second half of the year; approximately 75 per cent received 30 c.c. and most of the remainder 20 c.c. A few had 40 or 50 c.c.

The following is a percentage list of the complication rates in 274 serum treated and 226 non-serum treated cases, the latter being admitted during the first half of the year :—



	Serum.	Non-Serum.
Complications ... ..	31	45
Adenitis ... ..	11.5	12.4
Otitis media or mastoid disease ...	7.5	12.8
Albuminuria and nephritis ...	6.3	13.4
Carditis ... ..	1.1	0.9
Rhinitis ... ..	10.9	6.2
Arthritis ... ..	4.6	4.0

While the two groups are comparable in regard to age incidence they are not so in point of time. The lower incidence of aural and renal complications in serum-treated cases therefore may not be entirely due to the use of the specific anti-toxin. There can be no doubt as to the rapid improvement effected by serum when given early enough; and this is particularly marked in adults and older children.

Serum sickness was troublesome, occurring in no fewer than 45 per cent; considerable fever with giant urticaria or circinate erythema was not uncommon."

### Deaths.

Two deaths were certified during the year as being due to Scarlet Fever, both of girls, one being due to endocarditis, and the other to septicaemia following mastoiditis.

### Dick Test.

No children were Dick tested during the year.

### Schools.

Out of the cases notified, only 173 were of children who, at the time they fell ill, were attending school. There was once more no evidence of school attendance having been a means of spread of this infection. In 6 instances, a single case occurred in a department in two consecutive weeks, and in 4 instances two cases occurred in a department in the same week. Twice a single case was notified from a department in each of three consecutive weeks, and on two occasions one case in one week was followed by two cases in the following week. The only other groupings were of 2, 1 and 2 cases occurring in consecutive weeks in the same department, and the following numbers notified in consecutive weeks from the infants' department of another school, 2, 2, 0, 0, 2, 0, 0, 1, 1.

No schools were closed on account of the disease and no schools or rooms fumigated.



### Enteric Fever.

Four notifications of typhoid fever were received. Subsequently two were withdrawn, one in favour of pneumonia and the other of tuberculosis. The two cases were of brothers, aged 10 and 9, who fell ill together of paratyphoid fever. Both were removed to hospital and made an uninterrupted recovery. A boy of 11 was notified as suffering from "continued fever."

### Erysipelas.

26 cases of erysipelas were notified, 16 male and 10 female, of whom 8 were admitted to hospital, 6 being to Oldchurch Hospital and 2 to the Isolation Hospital. In a boy of 3 the illness proved fatal. The face was affected in practically all instances, the head alone being affected in one, and a leg in another case. 19 out of the 26 cases occurred in the six months November to April.

### Cerebro-Spinal Meningitis.

Three children were notified as suffering from cerebro-spinal meningitis, one certificate being subsequently withdrawn in favour of pneumococcal meningitis. A male of 6 was notified in July and another boy of 2 in September; both cases recovered. A fatal case occurred in February of a child who had not been notified during life as suffering from the illness.

### Acute Anterior Poliomyelitis.

Six children succumbed during the year to poliomyelitis and another to polioencephalitis. In March a boy of 4 suffered from a mild attack, in which the paralysis cleared up almost completely. In the same month a girl of 3 was admitted to hospital with the complaint and after a period of in-patient treatment, was discharged with some residual paralysis which necessitated the wearing of a splint.

In the three months August to October, five cases were notified, this being the period when the disease was fairly widespread. A girl of 8 succumbed in August to an acute attack, and a few days later a boy of 18 months. In September a boy of 5 was notified as suffering from polioencephalitis and in October a girl of 18 months from poliomyelitis. All these children were, at the end of the year, still in hospital. A boy of 4, notified in October, after a short stay in hospital was discharged with a slight disability for which massage was required.



## Encephalitis Lethargica.

A child of 9 died from encephalitis lethargica which he had contracted  $4\frac{1}{2}$  years previously. For this period, mental symptoms had been in evidence, and he had suffered from an inverted sleep rhythm.

## Smallpox.

Only two cases of smallpox were notified in the course of the year. The origin of one was unknown but the other was secondary to a case which had been diagnosed as one of chickenpox.

A total of 511 visits were paid to the homes of smallpox contacts by the Sanitary Inspectors. Visiting is continued to the 19th day from the last exposure to infection.

The following table shows the position of vaccination for the last year :—

1. Successfully vaccinated	...	...	485
2. Insusceptible	...	...	2
3. Conscientious Objectors	...	...	870
4. Died before Vaccination	...	...	29
5. Postponed by Medical Certificate	...	...	61
6. Removed ...	...	...	78
7. Unaccounted for at present	...	...	148

No vaccinations were performed during the year by the Medical Officer of Health under the Public Health (Smallpox Prevention) Regulations, 1917.

## Measles.

In the early months of the year, the district was visited by an extensive outbreak of measles. During the months February to April, the disease accounted for nine deaths of children, of whom was one under 12 months of age, two were 1 year, three were 2 years of age, two were 5 years and one was 6 years of age. A number of cases suffering from complications were removed to the Isolation Hospital.

The following figures were obtained during this outbreak of measles. As the disease is not notifiable locally, the fact that the information was obtained largely from the school authorities renders it probable that the returns are not absolutely accurate and that not all the cases believed to be such were actually measles; nor do these figures necessarily include all cases affected during this time.



There were 368 families possessing one to six susceptibles in which all the susceptibles succumbed; ignoring the case of the only child, there were 253 families with 635 children who all contracted measles. There were 208 families, in whom the number of susceptibles varied from one to five, in which all those who had not previously suffered an attack succumbed, the total number of children affected being 431. Exclusion of those cases where there was only one susceptible child leaves 105 families with 328 children. Combined, these figures read that in 358 families, when measles was introduced by one member, it spread to all the remaining non-immune members, namely 963 children.

No. of families in which all children succumbed ...	115	149	79	16	8	1
No. of families in which all susceptibles succumbed ...	103	64	33	6	2	—
No. of children in family who succumbed this time ...	1	2	3	4	5	6

Against these cases demonstrating the infectivity without production of immunity are the following, in which children, apparently susceptible, did not develop the disease. The number of those not attacked this time after exposure to an illness alleged to be measles was 135, of whom 53 were infants under nine months of age. The number of children who suffered this time from an alleged attack of measles after being supposed to have been previously exposed was 51. An analysis of these cases which might be interpreted as being cases of measles occurring to-day in children who had been temporarily immunised by a previous exposure, shows that:—

(1) In some cases the child suffering to-day was alleged to have had a previous attack of measles. In most instances the presumption is warranted that one or other of these attacks was not measles.

(2) The condition to which the child was previously exposed was, in many instances, probably not measles. Out of the 51 cases, in 37 instances the previous case occurring in the house was the only child to go down with measles, although there were other susceptibles in the home. In the case of the remaining 14, two children were attacked at the same time in 11 instances and three in 3. But of these children who were not attacked when what was apparently measles was present in the home, 3 were under one year of age and another 4 were one year old.



(3) In some instances the child who succumbed this time for the first time, although others in the family had previously suffered, was not at that time exposed to home infection by reason of his being temporarily away from home.

(4) In 6 instances the child previously unaffected was under one year of age at the time of exposure to infection, and in 18 instances was supposed to be one year old. The correct age of the child at the time of exposure was unknown, and was obtained by deducting from the age at the time of this attack the difference between the ages of the previously attacked child to-day and his age at the time of his attack. This could in any case give an error approaching 2 years, so that probably in many of these cases of children who were not infected at the time of the previous exposure, when they were supposed to be one year old, they would at that time actually have been under this age. Of children 8 months of age, 80 per cent. remained unaffected on exposure; of those 9 months, 70 per cent.; and of those under 1 year of age, 50 per cent.

(5) In a number of instances the diagnosis of measles as the condition from which the patient was suffering was probably an error, in that out of the 135 susceptibles who failed to succumb to infection by home contact, in 69 instances, although there were 1, 2, 3 or 4 susceptible contacts, only the one child succumbed. This could occur from the parents' tendency to diagnose all cases of illness occurring during a measles epidemic as that disease, in many cases a diagnosis being made that the child was "sickening for measles," and this would be reported to the school as the reason for the child's non-attendance.

These figures suggest that, in this area, exposure to measles does not give partial immunity to the susceptibles.

**Progress through the family.**—Where only two members of the family were attacked, out of 272 cases, the children fell ill on the same day in 26 instances and within two days of each other in another 22. The commonest number of days separating the alleged onset of the illness was 8 days, the next being 15. The number of cases where the interval was 4 days was 15, and the following numbers represent the numbers of cases where the interval was 5 and subsequent days:—15, 11, 12, 21, 32, 12, 11, 14, 10, 18, 12, 20, 15, 5, 5, 2, 4, 1, 2, 2. These figures are subject to the inaccuracies of the parents' memories, and possibly in many cases represent the time interval between the occurrence of the eruption of the first and the onset of the illness of the second.

118 instances occurred where three members of the family were attacked. In 20 cases the first two children succumbed



within 2 days of each other, and the commonest interval between the first and second cases was again 8 days. The following figures give the number of times the interval between the onset of the first and second cases was 4 and subsequent days :—8, 8, 6, 6, 25, 11, 3, 6, 3, 11, 2, 1, 1, 4. In 72 instances the second and third cases fell ill within 2 days of each other, the following numbers being the number of times the interval between the onset was 4 or more days :—6, 2, 6, 4, 10, 4, 13 and 3 cases over 11 days.

There were 29 instances in which four members succumbed to infection. In 3 of these, all four fell ill within two days of each other. In 10 the disease, introduced by the first child, attacked the remaining three at one time, after an interval of 8 to 14 days. In 6 instances, two fell ill together and the other two together after an interval of 8 to 12 days ; and in one case two children fell ill simultaneously, but the onset of the illness of the others was separated by an interval. In 5 cases the order was 1, 2, 1 ; in 2 it was 1, 1, 2 ; in one 2, 1, 1 ; in one 1, 1, 1, 1 ; and in one 3 and 1.

Of the 9 cases where five members were affected, the order was 1, 2, 2 in three instances ; 1, 3, 1 in three ; 1 and 4 in two ; and 2, 2, 1 in one.

In the single instance where six members were attacked, the order was 1, 2, 3.

### Tuberculosis.

	New Cases.								Deaths.			
	Primary Notification.				Brought to notice other than by Form A.							
	Pulmonary		Non-Pulmonary		Pulmonary		Non-Pulmonary		Pulmonary		Non-Pulmonary	
	M	F	M	F	M	F	M	F	M	F	M	F
Under 1	—	—	—	—	—	—	—	—	—	—	2	1
1—	—	—	3	2	—	—	—	—	—	—	5	4
5—	2	1	6	4	—	1	1	—	—	—	1	—
10—	—	1	4	5	1	1	—	1	—	—	1	—
15—	6	3	—	1	2	1	—	—	5	2	3	1
20—	4	9	2	—	1	6	—	1	3	3	—	—
25—	12	19	3	1	2	11	1	1	7	5	1	—
35—	15	11	2	2	3	3	—	—	11	7	—	1
45—	7	1	2	—	1	2	—	—	7	3	—	—
55—	1	1	—	—	—	—	—	—	2	1	—	—
65 & upwards	—	—	—	—	2	—	—	—	1	—	—	—
	47	46	22	15	12	25	2	3	36	21	13	7



## Register.

	Pulmonary		Non-Pulmonary	
	Male.	Female.	Male.	Female.
No. on register 1st Jan., 1932...	399	352	192	159
During the year :—				
New notifications ...	47	46	22	15
Deaths ... ..	36	21	13	7
Transfers into area ...	12	25	2	3
Transfers out of area ...	146	146	66	58
No. on register Dec. 31st, 1932	276	256	137	112

In this table the large number of transfers out of the district is due to the fact that this year is the first in which it has been found possible to check all cases on the register. These numbers represent losses, not in this year but over a number of years.

During the year there were notified 93 cases of pulmonary tuberculosis and 37 of non-pulmonary tuberculosis. In addition, there were brought to notice other than by primary notification 37 pulmonary cases and 5 non-pulmonary cases. These latter were mostly cases who had transferred to the district while suffering from the disease.

Of the 156 pulmonary cases about whom information was received in the course of the year (including those cases first learned of from death certificates), 50 per cent. contracted the disease here, and 50 per cent. transferred while suffering from it. Of the cases who contracted the disease whilst living here, 90 per cent. were residents of the estate houses, practically all the remainder living in the older property. Of the transferred cases, the percentage of persons living in the estate houses was 80, in the older 13 and in the newer houses 7. In classifying the patient as a transfer or as an original case, a period of residence of 6 months is taken as the dividing line. Excluding those cases who were notified within 6 months of living in the district, there was only one pulmonary case notified of a person who had lived here under 1 year; 5 had lived here over 1 but under 2 years, 16 were notified in the 3rd year of residence, 8 in their 4th and the same number in the 5th, 3 in the 6th, 10 in the 7th, 7 in the 8th and 3 in the 9th year, 3 other persons had lived here for longer periods.



In 8 male and 13 female original pulmonary cases a close family history of tuberculosis was obtained, being given by 3 males in the age-groups 35-44 and by 9 females in the age-groups 25-44.

Of the 55 non-pulmonary cases first heard of during the year, 70 per cent. were original cases and 30 per cent. transfers. Of the original cases, 80 per cent. lived in estate houses, 15 in the older property and 5 per cent. in the newer houses. Of the transfers, 80 per cent. lived in estate houses, the other cases occurring amongst residents of the newer property.

Of the non-pulmonary cases, 2 had lived here less than 1 year; 4 were notified in each of the years of residence from the 2nd to the 7th; and 2 persons had been resident here 8 years. Of these 28 cases, 20 were infections of cervical lymph glands; the meninges were affected in 4, mesenteric glands and skin in one each, and bones and joints in 2 cases. A family history of infection was elicited in 7 cases of infected neck glands, and in one case of meningitis. The cases giving the family history were mostly children of school age, only 2 being under the age of 5. There were few households in which the milk supply was not pasteurized.

Great difficulties confront one in attempting to assess the extent of tuberculosis occurring in the estate; and yet, apart possibly from the standardized death-rate, this is the most important index of the general standard of health of a district as, concerned in the aetiology of this disease are, on the positive side, the presumed advantages of satisfactory housing, and on the negative side, the disadvantages of high rents, resulting possibly in deficient nutrition.

To demonstrate the difficulties, the possible comparisons which might be made will be dealt with:—

The notification rate—the local to be compared with the national or some other rate. The defects are:—(1) no notification rates are perfect and even including posthumous information are still unreliable. (2) Owing to the transfer of large volumes of population, a large number of cases may be on the register for some years before a primary notification is received. (3) With regard to notifications received in respect of transferred persons, 8 pulmonary cases represent the incidence of infection in a transferred population of some 1,000 persons, the disease being notified over a period of years and is added to the ordinary notifications which had an incidence of say, of one per thousand population, in which the illness was contracted generally within a short period prior to notification. (4) A case may be notified at so short a time after his coming to reside locally that it is highly improbable that infection was caught here and the patient was probably already suffering before transfer. (5) A number of cases



might have succumbed to infection locally but, before diagnosis is made, have removed from the district. (6) The age incidence of the population is abnormal and influences the crude notification rates. Standardization would eliminate this, were there no other deficiencies in notification rates in general.

The number on the register.—This as a measure of comparison is subject to most, though not to all, of the deficiencies of the notification rate.

Standardizing the death rate or making a comparison of deaths per thousand in different age-groups removes the variations due to abnormal age distribution. This method however is still subject to the disadvantages that the deaths were not necessarily those of persons who contracted the disease locally. Merely to ignore those cases who are diagnosed as tuberculous before transfer is not sufficient; many cases have been notified for the first time within a few weeks of coming to reside here, most of these obviously having been infected elsewhere. To take the time as dating from the onset of symptoms and not from the date of notification is still not sufficient; some gave the date of onset of symptoms within a few weeks of residence in this locality. The problem is, what period of time to allow for the effect of residence elsewhere. If residence on the estate is beneficial, up to what period of time does one assume that the previous adverse influence is operative. On the other hand, if residence here is baneful, how long a period must one assume local residence is necessary to overcome the previously healthy state of the body. Another fallacy of comparison of death rates is that found to occur in the case of notifications, namely, that tuberculosis might be contracted here but the person removes from the district before death.

These then, are some of the difficulties which prevent an answer being given at the moment from consideration of this estate to any question as to the influence of housing on the tuberculous.

Certain of these difficulties have been overcome in various ways, and the following figures are given as an indication of the trend of the course of the disease:—

**Notification Rate.**—To remove any question of transferred population or of the disease having been acquired before transfer, only those cases are considered in which the onset of symptoms occurred over 6 months from the time the patient first resided here. Six months is an arbitrary figure and a longer period could be defended. On the other hand, it did form a convenient line of demarkation as most of those who did not fall within the 6 months gave a period of over 12 months, there being very few



cases occurring in the interval. The notification rate for all forms of tuberculosis in the standard million (1901) in 1931 was 1,672; this compares with a rate of 1,406 for the administrative County of Essex and 2,165 for a large nearby County Borough. An analysis of the notifications by age-groups shows that for both sexes there was a high rate at ages 0-4, and a low rate at 5-9. Both sexes had a high incidence in age-groups 15-19, but whereas males showed a high figure for group 20-24, the female figure was low. The rates for males were fairly high at ages 25-34 and for females 35-54. The only conclusion which can be drawn from these notification figures is that they are high—particularly so, considering the facts—firstly, that the period of 6 months, coupled with the large transference of population, reduces the volume of population on which the figures are based—and secondly, that no allowance can be made for those who might have contracted the disease here, but who have removed from and are not notified in the district. The high figure occurring at age group 0-4, although few of them were amongst family contacts, suggests that improved housing conditions did not materially reduce the infection at this age, whereas on general grounds one would have expected an improvement to be demonstrable. The high rate is not to be explained on the grounds of excessive incidence of tuberculosis giving increased opportunities for infection at these ages, as comparison of the number of cases on the register shows that there is no greater proportion of houses containing a tuberculous patient than ordinarily obtains. The actual value of these notification figures however lies not so much in their indicating a certain incidence for any particular year, but over a term of years they should become of real importance.

**Death Rates.**—The standardized death rates (taking the Census figures as the population for each year) were, for males, in the years 1930 and 1931, 920 and 1,133 and for females 956 and 1,142, compared with the standardized rates for England and Wales in 1929 of 1,097 and 932. Analysis of tuberculosis deaths for the years 1927 to 1931 shows that approximately the same number of deaths occur each year amongst persons who contracted the disease outside the district. The numbers of deaths amongst persons who are supposed to have contracted the disease locally over these years are erratic from year to year and show little trend, apart from a rise which is probably due to the increase in population over this period of time. For these four years, deaths occurring in children up to 10 years of age were all due to disease contracted while resident in this district. From ages 10-20, part of the disease was contracted while resident outside the area, but rather more and an increasing proportion is locally contracted. Of deaths of males 20-34, the disease was either original or contracted elsewhere in about equal proportions but tending more to be locally contracted. Whereas to start with, deaths of males 35-54 were due to disease



contracted outside the district, the changes occurring in these ages result in most deaths being now due to disease contracted locally. This contrasts with deaths of females 25-44 in whom in two-thirds of the cases the disease was acquired before the patient resided in the area. Probably the most valuable indication of the trend of tuberculosis will be the determination of the standardized death rate worked out on the residence of cases contracted locally, ignoring the transferred cases. This information will be of value only after a period of years, when the effect of residence elsewhere will presumably have passed off.

### **Deaths.**

57 persons died from pulmonary tuberculosis, of whom 36 were males and 21 females. Of the 52 cases in respect of whom particulars were obtainable, 33 cases were first notified as suffering from tuberculosis when living in this district, 28, namely, 16 males and 12 females, occurring in estate houses, and 4 males and one female in the older property. Of the transfers, 14, namely, 8 male and 6 female, were occupants of estate houses, 2 males lived in the older property, and 1 male and 2 females in the new property.

7 cases of pulmonary tuberculosis were not notified before death. One was resident in a mental hospital and two had been admitted to other institutions, being sent in for conditions other than tuberculosis. One unnotified case was a person here on a visit of a few days, and another was a person who had transferred here some 4 weeks previously.

Of the 20 deaths from non-pulmonary tuberculosis, 13 were of males and 7 of females. 12 of these occurred in children under 5, of whom 10 were born here. Meningitis was the cause of death in 13, miliary tuberculosis 2, kidney disease 2 and spine, hip and peritoneum 1 each. 10 of these deaths were un-notified, of which miliary tuberculosis or meningitis was the cause in 7. All but one of the deaths occurred amongst the residents of estate houses.

### **Sputum Analysis.**

317 samples of sputa were submitted for analysis during the year at the Essex County Public Health Laboratories.

### **Public Health Act, 1925, Section 62.**

No action was taken during the year for compulsory removal to hospital of any infectious tuberculous person.

### **Tuberculosis After-Care Association.**

This Association has held many meetings throughout the year, giving grants to necessitous cases.



## Prevention of Blindness.

No special action was taken under Section 66 of the Public Health Act, 1925, for the prevention of blindness or for the treatment of persons suffering from any disease or injury to the eye.

## Cancer.

Owing to the peculiar age distribution of the population, resulting in a relatively low rate of the old age persons, the cancer rate for the district is low, there being, during the year, only 47 deaths from this cause, 20 of these being of males and 27 of females. Out of this number, 26 occurred amongst residents of the estate houses, 15 amongst the residents in the older property, and 6 in the newer houses.

The following table shows the age and sex distribution of the deaths from cancer of different sites :—

	MALES.					FEMALES.				
	Under 35	35/44	45/54	55/64	Over 65	Under 35	35/44	45/54	55/64	Over 65
Tongue ...	—	—	—	1	1	—	—	—	—	—
Oesophagus ...	—	—	—	—	—	—	—	—	—	1
Stomach ...	—	—	—	2	1	—	1	1	—	—
Large intestines including rectum	—	—	—	1	5	2	1	1	1	4
Larynx ...	—	—	—	—	1	—	—	—	1	—
Lung ...	1	—	—	—	—	—	—	1	—	2
Liver ...	—	—	—	1	—	—	—	1	1	—
Prostate ...	—	1	—	1	—	—	—	—	—	—
Breast ...	—	—	—	—	—	—	—	—	1	1
Ovary ...	—	—	—	—	—	—	—	—	2	—
Uterus ...	—	—	—	—	—	1	—	1	—	1
Other sites ...	—	—	—	—	2	—	—	—	—	—
Sarcoma and hypernephroma	—	—	—	1	1	1	—	—	—	1



## MATERNITY AND CHILD WELFARE.

### Notification of Births.

1,622 notifications of live births were received during the year (male 805, female 817).

302 notifications (including stillbirths) were received from medical practitioners and parents, and 1,363 from midwives.

In addition, information was received of 246 births outside this area. The following list shows where these births occurred:—Oldchurch Hospital 140, East End Maternity Hospital 27, Plaistow Maternity Hospital 19, Queen Mary's Hospital, Stratford, 19, Upney Hospital, Barking, 7, Charing Cross Hospital 5, Mothers' Hospital, Clapton, 5, Royal Free Hospital 3, Other institutions 21.

### Stillbirths.

43 stillbirths were notified (21 male, 22 female), the corresponding figures for registration being 26 and 30. The rate per 1,000 of total population registered was 0.59, the rate for England and Wales being 0.66.

Out of 42 cases the infant was dead before the onset of labour in 15. Of these, two were cases of developmental abnormality. In four instances, the death of the infant followed accident or shock to the mother. In three cases there was the history of the mother having suffered from albuminuria; in one from persistent vomiting; ante-partum haemorrhage in one, and an attack of influenza in the previous week in one case. In the remaining cases there was no evidence of maceration and presumably the child was alive up to the onset of labour. Difficult confinement at term occurred in five cases. In one instance both, and in two other cases one, of twin births occurring at the 7th month died. In five cases a difficult confinement, mostly due to abnormal presentation, occurred before full term. In four cases a normal confinement occurred before term. In most of these cases there appeared to be no reason for the onset of premature labour, the only history obtained being that of an accident in two cases and an ante-partum haemorrhage in one. In 10 instances a stillbirth in which there was no evidence of maceration was delivered after an apparently normal labour taking place at term.

### Infant Mortality.

115 infants under one year of age died during the year, giving an infant mortality rate of 59.25.



Neo-natal deaths : there were 47 deaths of infants under one month of age, this being a neo-natal mortality rate of 23.7 and constituting 40 per cent. of the total infant mortality rate. Of these deaths, 20 occurred within 24 hours of birth. In 13 of these the infant was premature ; in 4 the death was due to injuries received at birth ; two deaths were due to congenital abnormalities, and one infant died from want of attention at birth. Of the remaining 16 infants who died within one week of birth, 7 died because of congenital abnormality (including 3 from haemorrhage neonatorum and 2 from congenital heart lesions) ; in 5 cases the birth was premature and in 2 cases the infant, though born at full time, was feeble. 2 deaths were attributable to birth injuries, prematurity accounted for 3 deaths and debility for one of the infants who survived one week but died before the end of the first month. The commonest cause of death at this age was bronchitis or pneumonia, which, between them, were the reputed causes of 6 out of the 13 deaths at these ages.

13 infants died between the first and third months. Developmental and congenital abnormalities accounted for four of these deaths and marasmus for two ; but most deaths were due to infections, chest conditions in two, gastro-enteritis in three and meningitis in two.

21 infants survived three, but died before they were six months old. Gastro-enteritis caused the death of 12 of these and tubercular meningitis 3. Chest conditions and debility accounted for two each, and developmental causes, malnutrition and cellulitis one each.

28 deaths occurred in infants between 6 and 12 months of age. Measles accounted for 5, whooping cough 6, pneumonia 9 and gastro-enteritis 4 of these cases.

### Deaths of Older Children.

28 children died in their second year. Of these the primary cause of death was measles in 10 instances, and whooping cough in 2. Six deaths, certified as being due to pneumonia, occurred at the time that measles was prevalent, but no history of measles could be obtained. Apart from these cases, pneumonia or bronchitis accounted for three other deaths and gastro-enteritis resulted in the same number. Tubercular meningitis caused the death of one child.

Of 10 deaths of children in their third year, measles accounted for 5, whooping cough, erysipelas and tubercular meningitis for one each.



Tuberculosis accounted for most of the 9 deaths amongst children of 3 years of age, a certificate of tubercular meningitis being given in 5 cases and miliary tuberculosis in one. One death followed an attack of whooping cough, and one was due to a road accident.

9 children died in their 4th year, diphtheria accounting for 2 deaths and accidents for a like number. One death followed a mastoiditis, subsequent to scarlet fever, and one was due to an attack of influenza.

### Ophthalmia Neonatorum.

Notified.	Treated at Home.	Treated in Hospital.	Vision Unimpaired.	Vision Impaired.	Total Blindness.	Deaths.
13	10	3	—	—	—	—

There were 82 cases in which a medical aid notice was sent by a midwife to a medical practitioner on account of some eye condition. In 12 of these, the doctor notified the case as being one of ophthalmia neonatorum. Apparently no case of ophthalmia occurred where the doctor had been in attendance at birth, though one notification was received in respect of a child who had been born in hospital.

All cases are investigated by the Health Visitors on receipt of information and are visited regularly until the eyes are clear.

Most cases cleared up in the course of a few days, with no resulting disability.

No cases were treated under the arrangements for home treatment by the local district nurses. Two infants, one with the mother, were admitted to St. Margaret's Hospital for treatment, both being there 27 days at a total cost of £48 13s. 11d. One child was admitted to Rush Green Isolation Hospital.

### Pemphigus.

During the year, 19 notifications of pemphigus were received. Apart from the cases mentioned below, they occurred irregularly throughout the year, none being associated, and all occurring in the practice of different attendants. One child was admitted to Rush Green Isolation Hospital.

A number of notifications of pemphigus were received in the latter part of January and early February. These cases occurred



in the same locality and had been attended by different midwives resident in a Home. Two other cases attended by the same midwives occurred about the same time in the same locality but actually under the jurisdiction of a neighbouring authority.

The first cases occurred in the practice of midwife A, who took over the nursing of an infant. At this time this midwife suffered from a septic infection of one finger. In the course of a few days, two infants delivered by her developed pemphigus, so she ceased attending midwifery cases. A few days later, midwife B, also resident in the same house, who had not been in contact with these patients, had two cases. She thereupon ceased taking any more midwifery cases, but continued to treat the infected infants. The following day, a third nurse, midwife C, had two cases in which the eruption appeared the same day.

The house was fumigated, instruments, etc., boiled and each nurse took a few days holiday away from the Home. There were no subsequent cases.

The source of the infection was ascribed to the septic condition of the finger of midwife A. With regard to the spread of infection, the fact that each nurse had her own bag, etc., and apparently carefully treated all her appliances, suggests that conveyance of infection is personal, possibly by droplet infection, and not by means of fomites. The organism is presumably short lived outside the body, otherwise one would assume outbreaks would be of far commoner occurrence.

These conclusions agree with those arrived at as a result of an extensive infection in this district in 1929. The association of two cases together was repetition of what was noticed in the 1929 outbreak when it was suggested that this meant that the second child was infected before the recognition of the disease in the first. As the eruption usually did not occur on the same day in both cases, the suggestion is that the first child was infectious before the onset of the eruption and that there is a period of incubation, thus bringing the disease into line with the systemic infections. An alternative explanation of the association of the two cases is, of course, that the second infant was not indirectly infected from the first but that both were, at different times, infected by the infectious attendant.

Whereas in 1929 the cases were widely distributed throughout the district, occurring in the practice of unassociated midwives, in this limited outbreak, during the time the cases were occurring in this locality, there was only one other case notified in the district.



### Maternal Mortality.

There were 14 deaths due to pregnancy, of which 6 were due to sepsis, giving a maternal mortality rate for sepsis of 3.12, and for other accidents and diseases of pregnancy and parturition a rate of 4.15, being a total rate of 7.27. Per 1,000 live births the rates for England and Wales were 1.61, 2.63 and 4.24.

Of the fatal cases of septicaemia, two followed abortions. In one case the patient, after miscarriage, was three weeks without obtaining medical attention. The other patient was admitted to hospital on account of abortion, suffering at the time from heart disease and bronchitis; manual removal of the placenta was performed, but the patient developed broncho-pneumonia of which she died one month after admission. She was, however, a notified case of pulmonary tuberculosis. Three of the other cases followed a straightforward confinement. In one, a woman of 38, pregnant for the first time, a raised temperature was noticed at the 7th day, for which she was immediately admitted to hospital. No gross lesions were found post-mortem, but a haemolytic streptococcus was grown from the cervix. Another case was, before labour, admitted to hospital on account of domestic circumstances; she was in good condition at the onset of labour and had a normal confinement; the source of the trouble was apparently an infected perineal tear. The third case, after a straightforward confinement at home, developed mental symptoms for which she was subsequently admitted to a mental hospital where she died one month after confinement. The remaining case of sepsis was one in which difficult labour was followed by the development of pelvic thrombosis.

Of the remaining fatal cases, one followed an incomplete miscarriage, the patient having aborted at 20 weeks, obtained no medical attention for one month and then summoned a doctor on account of haemorrhage; she was immediately admitted to hospital where the placenta was removed, but she died a few hours later. Two fatal cases were due to damage to the kidneys. In one of these the patient had chronic interstitial nephritis and cystic tumours of both kidneys, and in the other, a patient who had every ante-natal care, an acute pyelonephritis developed rapidly. This patient, who gave no past history of renal trouble, showed for the first time at her fifth attendance on 13/7/32, a cloud of albumin for which she was advised rest in bed and diet. On the 16th, on account of haemorrhage, she was admitted to hospital, where she was delivered shortly after admission, but died in a few hours. post-mortem examination showing extensive pyelonephritis. In two cases, on failure to deliver, the patients were sent in to hospital, one dying of obstetric shock and the other following peritonitis subsequent to hysterectomy. One patient died from "acidosis,



persistent vomiting and acute nephritis." This patient had every ante-natal care, being an in-patient in a nursing home for weeks before the confinement and having all skilled advice. Following an induction of labour at which twins were born, she succumbed. Another fatal case was one passed immediately to the care of the hospital authorities, as she had a slight contraction of the pelvis. After a total of eight ante-natal attendances and the advantages of X-ray examination, an attempt was made to induce labour. This failing, a caesarean section was performed, subsequent to which the patient died of pneumonia. The remaining fatal case was admitted to hospital two days before her confinement on account of persistent vomiting. The vomiting soon ceased and a normal labour followed, the patient, however, not recovering from the shock. The death certificate read "puerperium, Raynauds disease, pregnancy." Possibly fuller ante-natal supervision would have helped in this case.

The Departmental Committee on Maternal Mortality and Morbidity found that in nearly one-half of the cases of maternal death there was a "primary avoidable factor" which fell into one of four groups, namely, (1) omission or inadequacy of ante-natal examination; (2) error of judgment in management of the case; (3) lack of reasonable facilities; (4) negligence of the patient or her friends.

How far were these 14 cases preventable?—and here it is necessary to protest against too literal an interpretation being made of the Committee's findings that one-half the deaths are preventable. Granted that in 50 per cent. of the fatal cases there was a "primary avoidable factor," it does not necessarily follow that removal of that factor would have avoided the death. For instance, a case has been mentioned of the patient whose urine, although clear four times, showed one day a trace of albumin; three days later this patient was dead of pyelonephritis. Had she been admitted to hospital without any ante-natal examination, her death would no doubt have been classed amongst those preventable, the "primary avoidable factor" being the omission or inadequacy of ante-natal examination. To take another case, a patient is admitted to hospital and on account of her small pelvis she has a caesarean section performed; she subsequently develops pneumonia and dies. This death was obviously preventable in that careful ante-natal supervision would have detected a small pelvis and an induction would have been performed, this being another case where the primary avoidable factor was omission or inadequacy of ante-natal examination. But the case recorded above attended for ante-natal examination eight times, X-ray photographs were taken to assist in determining the relative size of the foetus and the pelvis, and an induction was attempted but did not come off.



Disappointment is expressed at the failure of the ante-natal services provided by local authorities to affect any reduction in the maternal mortality rate, and many objectors are prepared to advocate the abolition of the existing services. Their arguments are apparently based on the assumption that other proposals must be alternative to the existing ones—as though the present services act as a stumbling block to the inception of a better state of affairs, and that the first step must be the elimination of present activities before the alternative arrangements can fructify.

To those who hold these views, it should be pointed out, firstly, that the credit, not of recognising the necessity of ante-natal care, but at least of educating the mothers of its advisability, lies with the local authorities, and has been made possible only by providing the services; and secondly, that in providing the service, the local authority wishes only to supplement existing arrangements, providing facilities for those who cannot otherwise obtain them. It is in no sense acting in antagonism to other services—for instance, expectant mothers who are already under the care of their own doctors can still obtain auxiliary help provided, such as milk or dental treatment, without attending the ante-natal clinic, provided one is satisfied that ante-natal supervision in her particular case is being carried out.

The main grievance voiced against the ante-natal service as at present run is that it is not in sufficiently close touch with those who have to carry out the confinement. In last year's report are outlined the existing arrangements for this area, and the association effected between the municipal ante-natal clinics and other agencies. Under the new arrangements for paying the midwives' fees in necessitous cases, it is hoped that contact with this body of persons will be brought still closer. The chief defect of the present local service, as has been pointed out on several occasions, is that no provision is made for financial assistance for the slightly abnormal case, who does not desire to be admitted to hospital, to obtain the care of the doctor who is to attend the confinement.

How far did the deficiencies of the service contribute towards the deaths of these 14 women? Three of them had attended the clinics and all three were admitted to hospital. The first was admitted on account of domestic circumstances and had a normal confinement; the second was immediately transferred to the care of the hospital authorities on account of contracted pelvis; the third attended the ante-natal clinic four times with normal urine, but died three days after the appearance of a trace of albumin. Three cases were of women who had not treated with sufficient respect the occurrence of an abortion or miscarriage. One patient, a midwife's case, developed mental symptoms after a normal confinement. One case was already under the care of a



hospital. One case failed to obtain ante-natal advice until too late, and four cases were under the care of their own doctors for ante-natal supervision.

These deaths emphasise once more the importance of educating women as to the necessity of obtaining medical care in cases of abortion or miscarriage; and the necessity of pregnant women to obtain ante-natal advice; but they do not suggest that the time is yet ripe for abolishing the existing services.

There were three other deaths in which pregnancy or confinement contributed in some degree to the fatal termination, though no mention was made of the fact on the death certificate. A woman started an attack of influenza on the 29th, commenced labour on the 31st, had a retained placenta and died on the 2nd of the next month of pneumonia. Another woman who had a rheumatic heart was delivered on the 31st and died on the 4th of the next month from "mitral stenosis and secondary anaemia." In the third case death was possibly hastened; the woman was confined on the 4th and died on the 8th of the month of "toxaemia, acute intestinal obstruction, carcinoma of colon."

### **Puerperal Fever and Pyrexia.**

18 notifications were received, 13 being of puerperal pyrexia and 5 of puerperal fever. Per 1,000 total births (i.e., live and stillbirths), the rates for these conditions were 6.6 and 2.5, the corresponding figures for the country as a whole being 8.5 and 3.3.

Of the cases notified as puerperal pyrexia, three died, one from "puerperal septicaemia," another from "puerperal fever," and the third from "pyelonephritis." Of the 10 remaining cases, six followed an apparently normal confinement, one was a forceps delivery and one was a case of perineal suture. Of these, two were admitted to Oldchurch Hospital and one to Rush Green. One case of puerperal pyrexia was of a patient who had had a caesarean section performed in hospital, and in another the raised temperature followed on an incomplete abortion, the case having been admitted to hospital.

Of the 5 cases notified as suffering from puerperal fever, two died, in both cases the sepsis having followed an abortion. In two other cases, the infant was delivered by the aid of forceps and the perineum sutured. The other case notified as suffering from puerperal fever was a woman who aborted and recovered after hospital treatment. These five cases were all admitted to hospital, three being to Oldchurch, one to Rush Green and one to one of the London hospitals.



### Work of the Health Visitors.

Routine visits are paid to infants as soon as possible after the tenth day and special visits are paid to cases of ophthalmia neonatorum, puerperal fever, stillbirths, infant deaths, etc., and subsequent to operative treatment of tonsils and adenoids. Each Health Visitor was appointed Infant Protection Visitor for her own area. The Health Visitors also attend the various clinics. In the case of Infant Welfare Centres and Ante-Natal Clinics, the Health Visitor is, as far as possible, in charge of the session at which the mothers from her district attend.

The following table shows the number of visits paid by Health Visitors during the year :—

(a) To expectant mothers	...	...	First visits	641
			Total visits	1,565
(b) To children under 1 year of age	...		First visits	2,227
			Total visits	6,519
(c) To children between the ages of 1 and 5 years	...	...	Total visits	6,988

### Infant Welfare Centres.

There were 9 weekly Infant Welfare Centres held during the year. All the Centres are maintained by the Local Authority, there being at each, in addition to the Medical Officer and the two Health Visitors, a clerk for dealing with the distribution of foodstuffs. At some of the Centres a number of voluntary workers have kindly assisted.

The following table shows the work done at the Infant Welfare Centres during the year :—

Total attendances at all Centres during the year :—				
(1) By children under 1 year of age	...	...		16,455
(2) By children between the ages of 1 and 5	...	...		10,583
Average attendances of children per session at all Centres during the year				60
Total number of children who attended at the Centres for the first time during the year :—				
(1) Children under 1 year of age	...	...		1,395
(2) Children between the ages of 1 and 5 years	...	...		662
Percentage of total notified births represented by the number of children under 1 year who attended for the first time				86



## Treatment.

### Adenoids and Enlarged Tonsils.

The same arrangements continue in operation for the treatment of these conditions, namely, agreements with the following hospitals:—King George Hospital, Ilford; Queen Mary's Hospital, Stratford; St. Mary's Hospital, Plaistow; and Oldchurch Hospital. Most cases, however, are treated at King George Hospital, the majority being detained overnight. During the year a total of 16 cases were treated at a cost of £14 5s. 0d.

### Orthopaedic Treatment.

(a) Ascertainment Clinic. The Consultant Orthopaedic Surgeon paid four visits to the district during the year, when 82 children made 107 attendances at a cost to the Local Authority of £9 3s. 0d. Most children attended once only, 18 attended twice, 3 three times, and 4 four times. The main condition for which 19 children were referred was genu-valgum; 15 were referred for bowing of the tibiae and 11 for flat foot. Of the cases of genu-valgum, 10 were ordered wedges, 4 splints and 2 required hospital treatment. Of the cases referred suffering from bowed tibiae, wedges were ordered for 4, splints for 5 and hospital treatment for 2. 10 cases of torticollis were seen, and of those requiring treatment, 4 were subsequently discharged cured as the result of massage. 4 cases were suffering from Erbs palsy, 4 from spinal curvature and 2 from poliomyelitis. 12 cases were discharged cured as the result of treatment.

(b) Massage Clinic. The massage and remedial exercises clinic was held twice weekly at the Ford Road Clinic and once weekly at the Becontree Clinic. During the year, 105 children under school age received treatment at a cost of £51 10s. 0d., making a total of 515 attendances. Most cases were referred on account of flat foot, knock knee or bowed legs.

(c) Provision of Appliances. A member of the staff of a firm of instrument makers attends, usually at the same time as the Orthopaedic Surgeon, to take measurements of those children requiring surgical appliances. The Local Authority assists in payment of these according to the financial circumstances of the family. During the year such assistance was given in three cases at a cost of 18s. 6d.

(d) Hospital Treatment. Two children were admitted to Queens Hospital, Hackney Road, at a cost of £18 15s. 0d., and one was admitted to Brookfield Hospital at a cost of £15 15s. 5d.



## Ultra Violet Therapy.

Light treatment is carried out at the Becontree and at the Dagenham Clinics, two sessions being held weekly. The cases treated are referred from the Infant Welfare Centres and all children are seen by the Medical Officer every fortnight. A few children of school age are referred by the School Medical Officer.

A course of treatment commences with a two minutes exposure back and front working up to a 6 minutes double exposure, being 12 exposures in all. Many children had two courses of exposures. The Clinics closed down from May to September.

279 children commenced treatment, of whom 180 completed the course. One-half of the cases were referred on account of rickets. Of those under 2 years of age, most showed a definite improvement, though a number required two courses. Another 10 per cent. of cases were treated on account of flabbiness, and a further 25 per cent. for malnutrition or debility. Some of the younger infants showed some improvement, but the percentage of cases in respect of whom no improvement was noted was much greater in those over 2 years of age.

## Dental Treatment.

9 extraction sessions were held, at which 65 children were treated and 171 mothers, making a total of 291 attendances. In addition a few patients had conservative treatment. A charge is made for each case (not per attendance), the amount depending upon the financial circumstances of the family. The amount received was £3 4s. 6d. and the net cost of this service was £19 0s. 0d.

Dentures are provided, usually only to those cases referred from the ante-natal clinic. The amount recovered as patients' contributions was £30 14s. 9d., leaving a sum of £170 5s. 3d. as the cost of the Council.

## Convalescent Home.

Six mothers with their babies, and one child, were admitted to Convalescent Homes at a cost of £33 16s. 10d.

## Other Provisions.

Three children under 5 years of age were supplied with spectacles at a cost of 15s. 0d.

One child is being maintained at the Royal Deaf and Dumb School, Margate, the cost for 1932 being £71 15s. 0d.



One child suffering from ringworm of the scalp was treated by X-ray at Queens Hospital at a cost of one guinea.

### Ante-Natal Clinic.

During the year two weekly ante-natal sessions were held at the Becontree Clinic, two at the Dagenham Clinic and one at the Five Elms Out-Patient Department. In addition, one monthly session was held in the Chadwell Heath Ward.

At the Five Elms Out-Patients Department the Consultant Gynaecologist paid fortnightly visits throughout the year, seeing a total of 133 women who made 182 attendances.

Of the 101 cases requiring institutional treatment, 90 were admitted to Oldchurch Hospital, 2 to Queen Mary's Hospital, Stratford, and 9 to Charing Cross Hospital, under the care of the Consultant Gynaecologist. For the 101 women admitted under the Council's scheme, the Local Authority paid £550.

Amongst the women attending the clinic were 43 who attended for post-natal examination, mostly on account of sub-involution or cystocele. In addition, 34 on attending were found not to be pregnant.

36 per cent. of the cases attended of their own accord, 31 per cent. were referred by the midwives, 30 per cent. on the advice of a Health Visitor and 8 per cent. on the recommendation of a neighbour. Last year, 35 per cent. of 733 cases were referred by midwives. As it was suggested that failure of some midwives to refer their cases was due to a fear of their losing the case by its being referred to hospital, a system of paying 10s. compensation to a midwife who lost a case in this way was inaugurated. In spite of this, this year only 31 per cent. of 752 cases were referred by midwives.

The number of patients who paid only one visit was much less this year than last, being 90 against 176. The number who attended twice was 96; three, four and six times, 68, 82 and 64; and 215 paid six visits or over, compared with a figure of 82 last year. These figures are exclusive of those patients who had a miscarriage or who removed from the district before their confinement, and includes the attendances made at the hospital ante-natal clinics of those patients referred to hospital for confinement. The reduction in the number who paid only one visit as compared with last year's figures is a great improvement, as single attendances, particularly if paid early in pregnancy, are of relatively little value. Of the 90 cases who paid only one visit, 28 and 22 attended in the 8th and 9th months of pregnancy, which is possibly the best time



for the medical examination to take place, if only one examination is carried out.

The 7th month of pregnancy was the commonest time for the first attendances, 120 persons attending at this stage ; 96 attended first in their 8th month and 89 in their 6th ; 22 attended before they were 2 months pregnant. Whilst some of these no doubt came primarily to determine the fact as to whether or not they were pregnant, most continued to attend regularly, 15 of them paying six or more visits. 50 attended in the third month of pregnancy, 74 and 61 in the 4th and 5th months, and 45 in the 9th month.

**Confinements at Home.** To the women who attended the ante-natal clinics, an abortion or miscarriage occurred in 31 instances, 342 confinements were normal and in a further 7 cases the labour was normal, but puerperium complicated by phlebitis, puerperal pyrexia, etc. In 36 cases there was some abnormality in the confinement ; amongst these cases there was a forceps delivery in 19 instances, a breech delivery in another 5, and a long labour in a further 7. The fact that forceps were applied does not of course necessarily indicate the presence of any abnormal condition. One patient had intrapartum fits ; in another case the infant died during delivery ; another child died on the 2nd day, and there were two cases of severe perineal tear.

**Hospital Cases.** 110 women were referred to hospital for confinement. In many cases there was more than one reason for recommendation that confinement should take place in an institution. Where there was only one reason the commonest was economic circumstances, 26 being referred solely on this account. The use of a hospital for confinement for this reason is extravagant. As it was considered that possibly many of these patients, could they have afforded it, would have preferred their confinements at home, alternative arrangements have now been made in that such cases can now receive financial assistance by payment of the midwives' fees. The next commonest sole reason for referring cases to hospital was the patient suffering from a small pelvis or other obstruction, 20 cases being admitted on this account. Other medical reasons accounted for the admission of 15 cases, of which albuminuria was the cause in 6, bad obstetric history in 4, and raised blood pressure 4. 8 patients were admitted because it was their first confinement.

Of the 26 cases admitted solely or partly because of anticipated obstruction, 5 had normal confinements ; 11 were induced, in one of which the infant was stillborn ; 7 had caesarean section, in one of which the infant died and in one the mother died, and in two the mother was at her own request sterilized, in one case because of the abnormal size of the pelvis and the other because



of cardiac abnormality. One case was delivered by forceps, and one infant delivered as a breech was stillborn. Of the other medical cases, 3 with damaged hearts were normally confined, as were 7 with raised blood pressure, and one admitted for vomiting. One post-mature case had a normal delivery following induction. Of 12 cases admitted solely or partly because of albuminuria, 10 had normal deliveries, but in two a stillbirth occurred. 26 women were admitted solely and 18 partly on account of economic circumstances; 42 of these were normally delivered, one had a stillbirth, and one had a caesarean section. 20 cases of first pregnancy were admitted, of whom 18 had normal confinements, the other two being the two of those admitted on economic grounds and had complications.

Out of the 110 cases referred to hospital, 86 had normal confinements, 12 were induced and 8 delivered by caesarean section. There were 7 stillbirths and one infant delivered by caesarean section died.

Consultant Ante-Natal Clinic. The 133 women seen by the Consultant paid a total of 182 visits. 24 were referred on account of a contracted and 14 of a flat pelvis; of these a number were referred to hospital for their confinements, in some cases induction and in others caesarean section being necessary. 12 cases were referred on account of their heart condition; a number of these were examined by the electro-cardiograph and, in some, confinement in hospital was advised. 11 cases were referred on account of cervicitis, erosion or vaginal discharge, 5 because of raised blood pressure and 4 were post-mature. Amongst the other causes for the patient being referred, posterior and breech presentations accounted for 3 each, mole for 2, hydramnios 2, miscarriage 3, possible twin pregnancy 7, and possible absence of pregnancy 7.

### Foster Children.

The following tables show the number of foster children and foster mothers in the district:—

#### FOSTER CHILDREN.

Number on register, December 31st, 1931 ...	51
Number added to register ... ..	32
Number deducted owing to refusal, removal, death, or reaching age of seven ...	39
Number on register, December 31st, 1932 ...	44



### FOSTER MOTHERS.

(1) Number on register, 31st December, 1931	39
(2) Number of additions during year ...	11
(3) Number taken off during year ...	12
(4) Number on register, 31st December, 1932	38

### Maternity Homes.

There are no Nursing or Maternity Homes in the district.

### Assisted Milk Scheme.

The expenditure incurred by the Council under the assisted milk scheme for the year was :—

	£	s.	d.
(a) For ordinary milk ...	1,970	17	4
(b) For dried milk ...	373	9	3

The alteration for the worse in the financial circumstances of the local residents is shown by the increased expenditure under this scheme, the total cost for 1932 being £1,276. This increase occurred in spite of the scale on which assistance is granted not being changed, and there being no very large increase in the numbers of the clinic attendances.

### Education.

A number of educational pamphlets are handed out individually from the Infant Welfare Centres and the Medical Officer of Health has given a number of lectures and talks during the year to various guilds and leagues. A grant of £5 was made towards the expenses of a series of lectures on hygiene. At the Becontree Clinic a showcase has been fitted up to contain model garments, and a series of leaflets prepared containing instructions for the making of similar articles.

### A Study of the Nutrition of the Becontree Child.

This investigation was carried out to determine how the Becontree-born child compares physically with the comparable London child. The figures made use of in the study are those heights and weights abstracted from the records of the children at the time of the routine school medical examination. As there were



very few returns available for the Becontree eight-year-old child, the investigation was confined to the data in respect of the five-year-olds. As there were comparatively few children of 5 or more years of age who were born here and as, of course, the control London children had lived here for some period of time, it was necessary to decide exactly which children should be included in the categories. Owing to the very extensive changes that have occurred in the occupation of the houses, it was found not sufficient to accept that the five-year-old children attending a school in a section which had been erected over 5 years were necessarily Becontree born children. As an indication of this may be recorded the fact that in one infants' department of some 400 school places, open for 5 years, the register contained a total of 2,000 names. It was therefore necessary to ascertain in each particular case the length of residence here of the child. The procedure followed was that all the school cards which contained data relating to children of 5 years of age were sorted out and a slip was issued to each of these children for completion by the parents, the information required being the date the family transferred here. These slips were collated with the appropriate record cards and divided into three categories. A child was classed as a Becontree child if he had lived not more than one year elsewhere, and as a London child if he had lived here not more than one year. The three categories therefore, were the Becontree child, the London child and the other, far and away the largest, group comprising those children who did not fall into either of the other two classes. The information obtained from these last cards was of no value.

These two groups, namely, the Becontree and the London child, are comparable in many respects. They consist of children of the same age whose measurements were taken over the same period of time, so that the results are not overshadowed by any possible difference in the nutrition of the child before or after 1929. Epidemic outbreaks of measles and whooping cough have invaded this district at the same time as they affected London, so that both sets of children ran the same risks and were probably equally affected. The effects of the personal equation of the observer are eliminated to a great degree, as the observation of both classes of child will have been made by the same persons. In one respect possibly, the children are not strictly comparable. The Becontree child is one who has lived here 5 years. For the family to have managed to pay its rent for this length of time implies, for most cases, the receipt of minimum family income for this period. The London child is one who has lived here less than one year. Many of these children would be members of families which, because of inability to pay the rent, will return to London. To this extent then, the figures are not strictly comparable, in that the London child is the average of all the children who come here, whereas the Becontree child is the average of those whose financial circumstances



are such as enable them to stay. In one case it is a random measurement, in the other the measurement of a selected child.

The limitations of the results of the investigation are two—the paucity of the data, and any inaccuracies in the actual observation. These two items are to a certain extent bound together in that with a large number of figures the second consideration would be of relatively less importance. With regard to this second point, the measurements appear to have been taken by a number of different observers who apparently have not followed the same rules. There is no consistency about the conditions under which the observations were taken in regard to the amount of clothing worn by the child at the time of examination. The defects arising from this are to a certain extent negated by the fact that any particular observer would follow the same practice with all the children examined at that time, so that when Becontree and London children were examined in equal numbers by the same person the results would still be comparable. When however, as would more often occur, there would be some disproportion in the numbers of each class examined at that time, this source of inaccuracy is important. Another point is the range within which measurements were taken. The final comparisons of the average heights and weights will be of figures varying by some fraction of an inch or a pound. The actual measurements do not appear to have been taken within a range of  $\frac{1}{2}$  an inch or of 1 lb. A very large number of these children of 5 years of age weighed 42 lbs. and measured 42 inches, this figure preponderating to such an extent as to suggest that the measurement of these particular children were not taken even with that degree of accuracy given to the measurements of the other children. The effect of these figures will be to diminish the real differences occurring in the two classes of children and actually any differences found to exist between any two groups should have been more than the amount recorded. In parenthesis, one might question the utility of the routine taking of these measurements of heights and weights. From the point of view of the individual child they are of no value. For the purpose of comparison or as records, they apparently carry little weight, as when accurate data are required for an anthropometric survey, other measurements are taken. It would seem that they could without loss be omitted, and be replaced by a system under which any particular child who requires observation is weighed at much more frequent intervals.

The following tables give the average heights and weights of the London children and of the Becontree children of 5 years of age of each sex, divided into various groups, namely, monthly intervals, two monthly, 3 monthly and 5 monthly periods.



## BOYS.

Mean Heights for each month : With mean of 2( $\times$ 1) months ; 3( $\times$ 1) months ; 5( $\times$ 1) months.

	1/12		2/12		3/12		5/12	
	London	Becon-tree	London	Becon-tree	London	Becon-tree	London	Becon-tree
4 6/12 ...	42.5	41.3						
7/12 ...		40.0		40.7				
8/12 ...		41.2						
9/12 ...		41.4		41.3		41.4		41.1
10/12 ...	41.8	41.7						
11/12 ...	39.5	41.1	40.7	41.4				
5 1/12 ...	41.1	41.9			40.8	41.5		
2/12 ...	41.7	41.4	41.4	41.7			41.3	41.4
3/12 ...	41.9	41.6						
4/12 ...	42.2	41.0	42.1	41.3	42.2	41.4		
5/12 ...	42.6	41.5						
6/12 ...	41.6	42.1	42.1	41.8				
7/12 ...	41.8	41.9			42.0	42.4	42.3	42.3
8/12 ...	42.7	43.2	42.3	42.6				
9/12 ...	42.9	42.7						
10/12 ...	42.2	42.5	42.6	42.6	42.8	42.9		
11/12 ...	43.2	43.4						
6 1/12 ...	43.1	43.8	43.2	43.6			43.4	43.3
2/12 ...	44.5	43.7			43.9	43.5		
3/12 ...	44.0	43.1	44.3	43.4				

## GIRLS.

4 6/12 ...	—	—						
7/12 ...	—	—						
8/12 ...	41.5	40.1						
9/12 ...	44.0	40.5	42.8	40.3	41.9	40.1		
10/12 ...	40.3	39.8						
11/12 ...	41.2	40.6	40.8	40.2				
5 1/12 ...	41.2	40.0			41.2	40.4		
2/12 ...	41.1	40.7	41.2	40.4			42.2	40.8
3/12 ...	41.2	41.6						
4/12 ...	41.3	41.1	41.3	40.4	41.2	41.2		
5/12 ...	41.0	41.0						
6/12 ...	42.0	40.8	41.5	40.9				
7/12 ...	42.2	42.4			42.2	41.6	42.0	41.6
8/12 ...	42.3	41.5	42.3	42.0				
9/12 ...	42.4	42.5						
10/12 ...	42.4	42.7	42.4	42.6	42.5	42.6		
11/12 ...	42.8	42.6						
6 1/12 ...	42.8	42.8	42.8	42.7			42.8	42.9
2/12 ...	42.9	43.2			43.0	43.1		
3/12 ...	43.8	43.3	43.1	43.3				



## BOYS.

Mean Weights for each month : With mean of 2( $\times$ 1) months ; 3( $\times$ 1) months ; 5( $\times$ 1) months.

		1/12		2/12		3/12		5/12	
		London	Becon-tree	London	Becon-tree	London	Becon-tree	London	Becon-tree
4	6/12 ...	—	39.0						
	7/12 ...	—	42.0						
	8/12 ...	—	38.8						
	9/12 ...	—	39.3						
	10/12 ...	42.3	39.4	39.4	39.9	39.9	40.4	40.8	40.4
	11/12 ...	36.5	40.3						
5	...	41.6	39.8	41.6	40.4	42.4	40.4	42.0	42.0
	1/12 ...	41.5	41.0						
	2/12 ...	42.1	41.8	42.2	40.5	41.3	42.6	44.2	43.6
	3/12 ...	42.3	39.2						
	4/12 ...	42.9	40.1	41.7	40.7	43.4	42.7	44.7	44.0
	5/12 ...	40.4	41.3						
	6/12 ...	41.5	42.0	41.8	43.3	43.4	42.7	44.2	44.0
	7/12 ...	42.0	44.5						
	8/12 ...	43.3	42.2	43.3	42.3	44.7	44.0	44.2	44.0
	9/12 ...	43.2	42.4						
	10/12 ...	43.7	43.4	43.2	43.8	44.7	44.0	44.2	44.0
	11/12 ...	42.7	44.1						
6	...	45.5	44.4	45.7	43.9	44.7	44.0	44.2	44.0
	1/12 ...	45.9	43.5						

## GIRLS.

4	6/12 ...	—	39.0						
	7/12 ...	—	—						
	8/12 ...	38.0	40.1	40.0	38.1	39.0	38.9	39.6	39.2
	9/12 ...	42.0	36.0						
	10/12 ...	37.0	40.5	37.9	40.2	39.8	39.1	40.8	40.4
	11/12 ...	38.7	39.9						
5	...	40.5	38.7	40.3	38.8	39.1	39.4	41.1	40.1
	1/12 ...	40.1	38.8						
	2/12 ...	39.1	40.2	39.3	39.2	41.1	40.9	42.8	42.3
	3/12 ...	39.4	38.2						
	4/12 ...	38.8	39.7	39.8	39.1	41.3	40.9	42.1	41.5
	5/12 ...	40.7	38.5						
	6/12 ...	41.4	41.6	41.3	40.9	42.8	42.3	42.1	41.5
	7/12 ...	41.2	40.2						
	8/12 ...	41.7	41.8	41.3	41.1	42.8	42.3	42.1	41.5
	9/12 ...	40.8	40.4						
	10/12 ...	41.3	40.4	42.2	40.4	42.8	42.3	42.1	41.5
	11/12 ...	43.0	40.4						
6	...	42.8	43.7	42.7	43.3	42.8	42.3	42.1	41.5
	1/12 ...	42.6	42.8						

It will be noted that in general, there is little difference in the measurements of the various comparable groups.



To determine whether such differences as exist have any statistical significance, use is made of the relationship between these differences, the probable error, and the standard deviation. The following table shows the mean weights of children of each sex at three monthly periods, the standard deviation and probable error.

Mean Weights, Standard Deviations, Probable Errors, 3 month periods.

Age. 3/12 periods inclusive.		London Boys.	Becontree Boys.	London Girls.	Becontree Girls.
4 11/12— 5 1/12	Mean	* (50) 41.1 lbs.	* (47) 40.5 lbs.	* (33) 40.15 lbs.	* (45) 39.0 lbs.
	Weight				
	Standard	4.21	4.1	4.15	4.63
	Deviation				
5 2/12— 5 4/12	Probable	.40	.40	.487	.465
	Error				
	Mean	* (93) 42.5 lbs.	* (94) 40.2 lbs.	* (119) 39.1 lbs.	* (94) 39.5 lbs.
	Weight				
5 5/12— 5 7/12	Standard	4.12	4.29	4.789	4.522
	Deviation	.288	.298	.296	.314
	Probable				
	Error				
5 8/12— 5 10/12	Mean	* (109) 41.3 lbs.	* (103) 42.5 lbs.	* (122) 41.0 lbs.	* (104) 40.2 lbs.
	Weight				
	Standard	4.04	5.28	5.36	4.497
	Deviation	.26	.35	.327	.297
5 11/12— 6 1/12	Probable				
	Error				
	Mean	* (118) 43.3 lbs.	* (83) 42.7 lbs.	* (132) 41.3 lbs.	* (112) 41.0 lbs.
	Weight				
5 11/12— 6 1/12	Standard	4.72	4.658	4.49	4.421
	Deviation	.29	.345	.26	.28
	Probable				
	Error				
5 11/12— 6 1/12	Mean	* (129) 44.4 lbs.	* (72) 44.0 lbs.	* (126) 42.8 lbs.	* (87) 42.5 lbs.
	Weight				
	Standard	5.128	3.966	4.858	4.97
	Deviation	.302	.315	.29	.359
5 11/12— 6 1/12	Probable				
	Error				

\*The numbers in brackets are the numbers of children in each group.

It will be seen that in none of the groups is the difference of the mean more than 3 times the square root of the sums of the probable errors, so that any differences occurring between the two groups are no more than might have been produced by mere chance.

The conclusion is, therefore, that this investigation fails to show that any appreciable difference exists in the heights and the weights of the child of 5 years of age who has lived the bulk of his time in London and the child of the same age who was born and has been brought up on the Becontree Estate.



To determine whether such differences as exist have any statistical significance, use is made of the relationship between these means, the probable error, and the standard deviation. The table shows the mean weights of children of each sex at monthly periods, the standard deviation and probable error.

Mean Weights, Standard Deviations, Probable Errors, 3 month periods.

Age	Sex	Mean Weight	Standard Deviation	Probable Error
1	Male	11.1	0.44	0.14
1	Female	10.5	0.41	0.13
2	Male	14.1	0.51	0.16
2	Female	13.5	0.48	0.15
3	Male	17.1	0.61	0.19
3	Female	16.5	0.58	0.18
4	Male	20.1	0.71	0.23
4	Female	19.5	0.68	0.22
5	Male	23.1	0.81	0.26
5	Female	22.5	0.78	0.25
6	Male	26.1	0.91	0.30
6	Female	25.5	0.88	0.29
7	Male	29.1	1.01	0.34
7	Female	28.5	0.98	0.33
8	Male	32.1	1.11	0.38
8	Female	31.5	1.08	0.37
9	Male	35.1	1.21	0.43
9	Female	34.5	1.18	0.42
10	Male	38.1	1.31	0.48
10	Female	37.5	1.28	0.47
11	Male	41.1	1.41	0.54
11	Female	40.5	1.38	0.53
12	Male	44.1	1.51	0.60
12	Female	43.5	1.48	0.59
13	Male	47.1	1.61	0.66
13	Female	46.5	1.58	0.65
14	Male	50.1	1.71	0.72
14	Female	49.5	1.68	0.71
15	Male	53.1	1.81	0.79
15	Female	52.5	1.78	0.78
16	Male	56.1	1.91	0.86
16	Female	55.5	1.88	0.85
17	Male	59.1	2.01	0.94
17	Female	58.5	1.98	0.93
18	Male	62.1	2.11	1.02
18	Female	61.5	2.08	1.01
19	Male	65.1	2.21	1.11
19	Female	64.5	2.18	1.10
20	Male	68.1	2.31	1.20
20	Female	67.5	2.28	1.19
21	Male	71.1	2.41	1.30
21	Female	70.5	2.38	1.29
22	Male	74.1	2.51	1.40
22	Female	73.5	2.48	1.39
23	Male	77.1	2.61	1.50
23	Female	76.5	2.58	1.49
24	Male	80.1	2.71	1.61
24	Female	79.5	2.68	1.60
25	Male	83.1	2.81	1.72
25	Female	82.5	2.78	1.71
26	Male	86.1	2.91	1.84
26	Female	85.5	2.88	1.83
27	Male	89.1	3.01	1.96
27	Female	88.5	2.98	1.95
28	Male	92.1	3.11	2.09
28	Female	91.5	3.08	2.08
29	Male	95.1	3.21	2.22
29	Female	94.5	3.18	2.21
30	Male	98.1	3.31	2.36
30	Female	97.5	3.28	2.35
31	Male	101.1	3.41	2.51
31	Female	100.5	3.38	2.50
32	Male	104.1	3.51	2.66
32	Female	103.5	3.48	2.65
33	Male	107.1	3.61	2.82
33	Female	106.5	3.58	2.81
34	Male	110.1	3.71	2.98
34	Female	109.5	3.68	2.97
35	Male	113.1	3.81	3.14
35	Female	112.5	3.78	3.13
36	Male	116.1	3.91	3.31
36	Female	115.5	3.88	3.30
37	Male	119.1	4.01	3.48
37	Female	118.5	3.98	3.47
38	Male	122.1	4.11	3.66
38	Female	121.5	4.08	3.65
39	Male	125.1	4.21	3.84
39	Female	124.5	4.18	3.83
40	Male	128.1	4.31	4.03
40	Female	127.5	4.28	4.02
41	Male	131.1	4.41	4.23
41	Female	130.5	4.38	4.22
42	Male	134.1	4.51	4.43
42	Female	133.5	4.48	4.42
43	Male	137.1	4.61	4.64
43	Female	136.5	4.58	4.63
44	Male	140.1	4.71	4.85
44	Female	139.5	4.68	4.84
45	Male	143.1	4.81	5.07
45	Female	142.5	4.78	5.06
46	Male	146.1	4.91	5.29
46	Female	145.5	4.88	5.28
47	Male	149.1	5.01	5.52
47	Female	148.5	4.98	5.51
48	Male	152.1	5.11	5.76
48	Female	151.5	5.08	5.75
49	Male	155.1	5.21	6.01
49	Female	154.5	5.18	6.00
50	Male	158.1	5.31	6.27
50	Female	157.5	5.28	6.26
51	Male	161.1	5.41	6.54
51	Female	160.5	5.38	6.53
52	Male	164.1	5.51	6.82
52	Female	163.5	5.48	6.81
53	Male	167.1	5.61	7.11
53	Female	166.5	5.58	7.10
54	Male	170.1	5.71	7.41
54	Female	169.5	5.68	7.40
55	Male	173.1	5.81	7.72
55	Female	172.5	5.78	7.71
56	Male	176.1	5.91	8.04
56	Female	175.5	5.88	8.03
57	Male	179.1	6.01	8.37
57	Female	178.5	5.98	8.36
58	Male	182.1	6.11	8.72
58	Female	181.5	6.08	8.71
59	Male	185.1	6.21	9.08
59	Female	184.5	6.18	9.07
60	Male	188.1	6.31	9.45
60	Female	187.5	6.28	9.44
61	Male	191.1	6.41	9.84
61	Female	190.5	6.38	9.83
62	Male	194.1	6.51	10.24
62	Female	193.5	6.48	10.23
63	Male	197.1	6.61	10.65
63	Female	196.5	6.58	10.64
64	Male	200.1	6.71	11.07
64	Female	199.5	6.68	11.06
65	Male	203.1	6.81	11.50
65	Female	202.5	6.78	11.49
66	Male	206.1	6.91	11.94
66	Female	205.5	6.88	11.93
67	Male	209.1	7.01	12.40
67	Female	208.5	6.98	12.39
68	Male	212.1	7.11	12.87
68	Female	211.5	7.08	12.86
69	Male	215.1	7.21	13.36
69	Female	214.5	7.18	13.35
70	Male	218.1	7.31	13.87
70	Female	217.5	7.28	13.86
71	Male	221.1	7.41	14.39
71	Female	220.5	7.38	14.38
72	Male	224.1	7.51	14.92
72	Female	223.5	7.48	14.91
73	Male	227.1	7.61	15.47
73	Female	226.5	7.58	15.46
74	Male	230.1	7.71	16.03
74	Female	229.5	7.68	16.02
75	Male	233.1	7.81	16.61
75	Female	232.5	7.78	16.60
76	Male	236.1	7.91	17.20
76	Female	235.5	7.88	17.19
77	Male	239.1	8.01	17.81
77	Female	238.5	7.98	17.80
78	Male	242.1	8.11	18.44
78	Female	241.5	8.08	18.43
79	Male	245.1	8.21	19.09
79	Female	244.5	8.18	19.08
80	Male	248.1	8.31	19.76
80	Female	247.5	8.28	19.75
81	Male	251.1	8.41	20.45
81	Female	250.5	8.38	20.44
82	Male	254.1	8.51	21.16
82	Female	253.5	8.48	21.15
83	Male	257.1	8.61	21.88
83	Female	256.5	8.58	21.87
84	Male	260.1	8.71	22.62
84	Female	259.5	8.68	22.61
85	Male	263.1	8.81	23.38
85	Female	262.5	8.78	23.37
86	Male	266.1	8.91	24.16
86	Female	265.5	8.88	24.15
87	Male	269.1	9.01	24.96
87	Female	268.5	8.98	24.95
88	Male	272.1	9.11	25.78
88	Female	271.5	9.08	25.77
89	Male	275.1	9.21	26.62
89	Female	274.5	9.18	26.61
90	Male	278.1	9.31	27.48
90	Female	277.5	9.28	27.47
91	Male	281.1	9.41	28.36
91	Female	280.5	9.38	28.35
92	Male	284.1	9.51	29.26
92	Female	283.5	9.48	29.25
93	Male	287.1	9.61	30.18
93	Female	286.5	9.58	30.17
94	Male	290.1	9.71	31.12
94	Female	289.5	9.68	31.11
95	Male	293.1	9.81	32.08
95	Female	292.5	9.78	32.07
96	Male	296.1	9.91	33.06
96	Female	295.5	9.88	33.05
97	Male	299.1	10.01	34.07
97	Female	298.5	9.98	34.06
98	Male	302.1	10.11	35.10
98	Female	301.5	10.08	35.09
99	Male	305.1	10.21	36.15
99	Female	304.5	10.18	36.14
100	Male	308.1	10.31	37.23
100	Female	307.5	10.28	37.22

The numbers in brackets are the numbers of children in each group. It will be seen that in none of the groups is the difference of more than 3 times the square root of the sum of the squares of the two groups, so that any difference occurring between the two groups is more than might have been produced by mere chance. The conclusion is, therefore, that this investigation fails to show that an appreciable difference exists in the heights and the weights of the child of 5 years of age who has lived the bulk of his time in the city and the child of the same age who was born and has been brought up on the Beacon Hill estate.

It is generally held that the child of 5 years of age who has lived the bulk of his time in the city and the child of the same age who was born and has been brought up on the Beacon Hill estate are of the same height and weight.