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REPORT

UPON THE

**Sanitary Condition & Public Health**

OF THE

ADMINISTRATIVE COUNTY OF BEDFORD

*FOR THE YEAR*

1921,

BY

**HENRY KENWOOD, C.M.G., M.B., F.R.S.E. D.P.H.**

MEDICAL OFFICER OF HEALTH.

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## To the Chairman and Members of the Bedfordshire County Council.

MY LORDS AND GENTLEMEN,

I have the honour to present herewith the Annual Report upon the Public Health and Sanitary Circumstances of the County of Bedfordshire for the year 1921.

The statistics of mortality and of sickness from communicable disease during the year in review are for the most part above the remarkably low figures of the preceding year, but notwithstanding this they furnish another most satisfactory health record for the County.

In Bedfordshire the year was not marked by any specially noteworthy event from the public health standpoint, although it was a remarkable circumstance that epidemic diarrhoea amongst infants was not more in evidence, having regard to the fact that a hot dry Summer had hitherto invariably led to much mortality from this disease.

In this somewhat abbreviated Report certain details as to conditions which do not vary from year to year have been omitted, in accordance with the suggestion made by the Minister of Health in Circular 269 of December 28th, 1921. It is suggested in this Circular that though the intervening Annual Reports are to be of a more simple character in order to expedite their appearance and to lessen the cost of printing, a comprehensive and detailed Report is to be presented at intervals of not more than five years, when Medical Officers of Health will be expected to deal retrospectively and prospectively with matters relating to public health policy and administration, and to offer suggestions and advice upon desirable modifications or extensions. I am of opinion that the suggestion is a good one, as there will be no reduction in the value of Annual Reports as records, whereas the conclusions arrived at and the recommendations made in the fuller five-yearly Reports, should be of greater value than the usual Annual Reports.

The various public health services provided by the County Council have been efficiently maintained throughout the year.

I am glad to take this opportunity of expressing to Dr. Herdman and Dr. Welch my appreciation of their capable co-operation; to the District Medical Officers of Health my thanks for information and help always freely given; to the Clerk of the Council my appreciation of his willing advice and assistance; and to the Health Visitors my congratulations upon the good work achieved by them.

I have the honour to be, my Lords and Gentlemen,

Your obedient Servant,

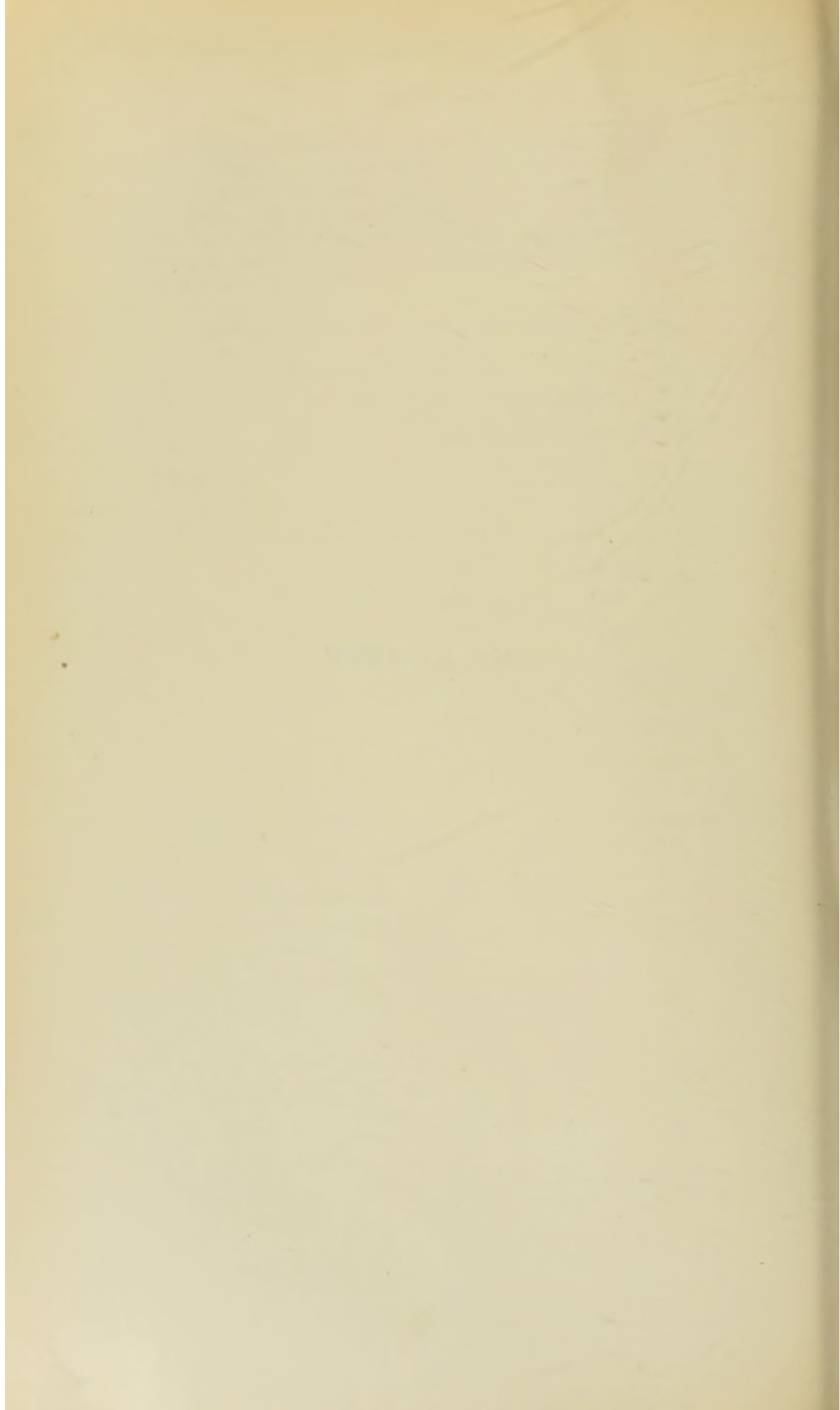
HENRY KENWOOD.

*County Medical Officer of Health.*

*July, 1922.*

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THE COUNTY.



## THE 1921 CENSUS.

The Preliminary Report upon the census taken in June, 1921 the population of England and Wales shows an increase upon that taken in April, 1911 of 1,814,750 persons—the lowest rate of increase yet recorded, and less than one-half that of the previous decennium. The war was, of course, mainly responsible for this great reduction in the rate of increase, although the declining birth-rate has had an effect. The distribution of the population does not differ in broad categories from that of ten years since. In 1911, 78·1 per cent. were enumerated in urban and 21·9 per cent. in rural districts; in 1921 the figures are 79·3 and 20·7. The report says that “the present rural district population is slightly less numerically than the similar 1911 population. The increase within the existing rural areas, however, is not seriously below the mean for the whole country, and indicates that the actual diminution is due merely to the normal growth of urban centres and not to any serious migration from country to town, such as that which took place during the latter half of the last century and which is reflected in the intercensal changes shown for the decennia between 1881 and 1901.” This statement may ultimately need qualification if we give to the word “country” a less technical meaning. For instance, in the Administrative County of Bedfordshire the rural districts which return an increase of population are, within the spheres of influence of large centres of population.

The Census returns for the County of Bedfordshire are as follows:—

BEDFORDSHIRE, Administrative County	Census of 1911.			Census of 1921.		
	TOTAL.	Males.	Females	TOTAL.	Males.	Females
	194,588	93,006	101,582	206,478	98,259	108,219
<b>Municipal Boroughs and Urban Districts</b>	116,994	54,262	62,732	125,897	58,184	67,713
Ampthill ... ..	2,270	1,081	1,189	2,269	1,032	1,237
Bedford M.B. ... ..	39,183	17,327	21,856	40,247	17,939	22,308
Biggleswade ... ..	5,375	2,672	2,703	5,396	2,662	2,734
Dunstable M.B. ... ..	8,057	3,676	4,381	8,894	4,083	4,811
Kempston ... ..	5,349	2,800	2,549	5,219	2,607	2,612
Leighton Buzzard ... ..	6,782	3,184	3,598	6,795	3,120	3,675
Luton M.B. ... ..	49,978	23,522	26,456	57,077	26,741	30,336
<b>Rural Districts</b> ... ..	77,594	38,744	38,850	80,581	40,075	40,506
Ampthill ... ..	19,540	9,614	9,926	19,333	9,218	10,115
Bedford ... ..	19,213	9,695	9,518	20,235	10,242	9,993
Biggleswade ... ..	21,933	10,952	10,981	23,019	11,775	11,244
Eaton Bray ... ..	3,892	1,943	1,949	3,746	1,819	1,927
Eaton Socon ... ..	3,542	1,787	1,755	3,348	1,626	1,722
Luton ... ..	9,474	4,753	4,721	10,900	5,395	5,505

It will be seen that, as compared with the 1911 Census figures there is an increase of population in the Municipal Borough and Urban Districts amounting to 8,903, and that this increase is almost entirely accounted for by the increases of 7,099 in Luton, 1,064 in Bedford, and 837 in Dunstable; and that there is an increase of 2,987 in the Rural Districts, which is entirely made up of the increases of 1,426 in the Luton Rural District, 1,086 in the Biggleswade Rural District, and 1,022 in the Bedford Rural District. On the other hand, the populations of the Kempston Urban District and the Ampthill, Eaton Bray, and Eaton Socon Rural Districts show a slight decrease.

In the Luton Urban District the rate of increase is the highest among the Non-County Boroughs of England and Wales.

## VITAL STATISTICS.

The Administrative County includes three municipal boroughs and 139 civil parishes. The acreage of the County is 302,942.

The Urban Districts within the County are (including the Boroughs) seven in number, and the Rural Districts are six, making 13 in all.

### Population.

For the purpose of estimating the Death Rates, the aggregate civil population of the Urban and Rural Districts, as estimated for the middle of 1921 by the Registrar General, was as follows:—

Urban Districts ...	...	...	...	...	126,316
Rural Districts ...	...	...	...	...	79,256
					205,572
The County ...	...	...	...	...	205,572

The Census of 1921, originally planned for the 24th April, was unavoidably postponed until the 19th June; and it is now clear that, while the latter date avoided the recognised programme of industrial holidays, some holiday movement was, largely owing to the abnormally fine weather, already then in progress. This is reflected in the Census returns by the inclusion in the case of the more popular holiday areas of varying and sometimes substantial proportions of visitors.

The use of local population figures which depart materially from the figures of normal resident populations would, of course, be unsuitable in connection with statistics of births and deaths classified according to area of residence; and it has been deemed necessary to make an adjustment for these purposes by measuring the extent of the non-resident population in certain areas and by effecting its re-distribution throughout the country.

Such an adjustment has accordingly been made by means of the best data available in the preparation of the estimated mid-yearly populations for 1921. Any substantial difference between the population quoted and the corresponding Census figure should be attributed to this process of adjustment, although its effect has been negligible in the majority of areas.

The numbers of births and deaths are those registered during the calendar year and are corrected for inward and outward transfers; they may differ therefore from uncorrected figures compiled locally.

### Births.

3944 Births were registered in the County, 171 of which were illegitimate. The birth-rates per 1,000 of the County, the Urban and Rural Districts and of England and Wales, are given below :

LOCALITIES.	BIRTH-RATE FOR 1919.	BIRTH-RATE FOR 1920.	BIRTH-RATE FOR 1921.
Urban Districts	15.9	21.7	19.0
Rural Districts	17.4	23.7	19.0
Administrative County	16.5	22.4	19.0
England and Wales	18.5	25.4	22.4

The County birth-rate was well below that for the preceding year. The birth rates of 15.6 for 1917 and 1918 were the lowest on record for the County of Bedford.

When a diminishing birth-rate is accompanied by a diminishing death-rate, a fairly satisfactory annual natural increase in the population (by excess of births over deaths), may still be maintained.

But in Bedfordshire the excess of the birth-rate over the death-rate for the year 1921 was only 7.4 per 1000; as against 10.3 for England and Wales.

171 births were illegitimate, a proportion which is now approximately the pre-war standard.

## Deaths.

The classification of some deaths is modified in the light of fuller information obtained from the certifying practitioner in response to special inquiries. The principal subjects of these enquiries are indicated in a table published in the annual reports of the Registrar General ; and this possible source of discrepancy between the returns of the Registrar General and those compiled locally should be borne in mind particularly in regard to the causes of death dealt with in Tables I and II.

The death-rates per 1,000 for the Administrative County and the Urban and Rural Districts thereof, and for England and Wales, were as follows :—

LOCALITIES.	GENERAL DEATH-RATE FOR 1919.	GENERAL DEATH-RATE FOR 1920.	GENERAL DEATH-RATE FOR 1921.
Urban Districts	11·0	10·3	11·3
Rural Districts	14·6	11·7	12·2
Administrative County	12·3	10·6	11·6
England and Wales	13·8	12·4	12·1

The highest death-rate, 17·4 per 1000, was recorded in the Ampthill Urban District ; the lowest, 8·8 per 1000, in the Kempston Urban District.

It will be observed that the death-rate for the rural districts continues to exceed that for the urban districts, a circumstance which doubtless is sufficiently explained by the considerable exodus from the rural districts of persons from 15 to 30 years of age, among whom the death-rate is exceptionally low.

The ordinary death-rate, cannot be taken as a *true* index of the healthiness of a district, nor can it be justly compared with the rates of other sanitary areas, unless some allowance is made for the relative proportions of males and females at different ages in the districts compared.

Death-rates vary very much in different districts according to the natures of the population of these districts ; for instance, in a district containing a large number of very young or very old people, the rate would be considerably higher than in a district consisting almost entirely of people of middle age.

There is, therefore, a calculated corrective factor for each district which varies according to the sex and age distribution of the population of that district ; the multiplication of the recorded death-rate of the district by this factor gives the death-rate which

would obtain in that district if the sex and age distribution of the population of the district were in the same proportion as it is in the country as a whole—thus eliminating the accidental differences due to sex and age and affording a fair means of comparison, and a truer test of the healthiness of the district. The death-rate so ascertained is known as the *corrected* death-rate.

The corrective factor for the whole County is 0·9064. So that in order to strictly compare the Death-rate for the County with that of England and Wales the recorded Death-rate must be multiplied by 0·9064. *The result is a corrected Death-rate for the County of 10·5, to compare with the Death-rate of England and Wales of 12·1.*

In comparing the causes of death in 1921 with the corresponding groups of 1920, it is seen that the increased death-rate of 1921 is due to an increase in the deaths from Diseases of the Respiratory Organs (Bronchitis, Pneumonia), Cancer, Diarrhoea, Pulmonary Tuberculosis (Phthisis), Influenza and Diphtheria.

### Infantile Mortality.

This may be calculated as a percentage of deaths under one year to total deaths, or as the proportion of deaths of children under one year to every 1,000 births. The latter is the method usually adopted, and forms the record known as *the rate of infantile mortality*.

The infantile mortality per 1,000 births in the Urban and Rural Districts of the County, as well as that of England and Wales, are given below :—

LOCALITIES.	INFANTILE MORTALITY FOR 1919.	INFANTILE MORTALITY FOR 1920.	INFANTILE MORTALITY FOR 1921.
Urban Districts ...	79·1	59·6	75·9
Rural Districts ...	83·2	49·2	63·2
Administrative County	80·7	55·5	71·0
England and Wales ...	89·0	80·0	83·0

The highest infantile mortality, 115·9 per 1,000 births, was recorded in the Eaton Socon Rural District. The lowest, 46·7 per 1,000, occurred in the Kempston Urban District.

The total number of deaths of infants is 11·7 per cent. of the total number of deaths at all ages, as against 11·8 in the preceding year.

The increased rate of 1921, as compared with that of the preceding year, is accounted for by the greater number of deaths from Whooping Cough, Diarrhoea, and Diseases of the Respiratory Organs.

The causes contributing to a high rate of mortality have been discussed in previous Reports, and it will suffice to call attention to the fact that of 280 children who died under the age of one year, 123 deaths were ascribed to prematurity, wasting, and congenital defects, and 54 to bronchitis and pneumonia, a total of 177 deaths resulting from these two groups.

Twenty-six of the deaths were of illegitimate children, which furnished a rate of infantile mortality amounting to 152.

### The County Child-Welfare Work.

As in past years, Maternity and Child Welfare Work has taken a prominent place in the public health activities of the Council, and I have pleasure in testifying to the fact that all those employed upon it have rendered good services.

During the year, 17228 visits were paid by the five Health Visitors, of which 2217 were primary visits and 8141 following-up visits; 638 visits were paid to expectant mothers; and 6332 were visits to children 1 to 5 years of age.

At each of the Centres one of the Council's Health Visitors is an active worker. All the expenses of these Centres are defrayed by the County Council. In all cases the Ministry of Health pays an annual grant amounting to half the total expenditure.

Arrangements have been made for the supply of dried milk preparations (Glaxo, &c.) at wholesale rates for distribution at the Centres, and Virol Ltd. have supplied Virol at a greatly-reduced rate for this purpose.

There is still an insufficient provision as regards Maternity Hospitals and Homes.

During 1921 the Maternity and Child-Welfare Committee resolved—

“That subject to the approval of the Ministry of Health, a grant of £125 be made to the Bedford Branch of the St. Albans' Diocesan Union for Preventive, Rescue and Penitentiary Work in respect of the work in connection with maternity and child welfare carried on by them at the Shelter, 97, Ashburnham Road, on condition that the Committee are granted representation on the Committee of Management; that the Deputy

County Medical Officer of Health be requested to report to a future meeting of this Committee as to what further equipment is needed at The Shelter, and that the Chairman of this Committee and Dr. G. Butters be appointed representatives of this Committee on the Committee of Management."

No dental work is undertaken in connection with Infant Welfare.

In of the Maternity and Child Welfare Circular of the Local Government Board of the 9th August, 1918, the Board states that "a dental clinic should, whenever practicable, be available for expectant and nursing mothers, and for children under five."

As to the need for dental work in connection with health services this is greatly felt by those who have to deal with nursing mothers and their children. There is a vast amount of handicapping and unnecessary suffering, malnutrition and disease, resulting from the neglect of dental advice and treatment; and many Health Authorities are now providing for the services of Dental Clinics in connection with all the above-mentioned branches of public health work.

In this County the most economical method would appear to be either by combining with the Education Authority and establishing a joint clinic, or by making special arrangements with a local dentist, by which he would treat at his own consulting room patients sent by the Medical Officer of the Infant Welfare Centre.

In my last Annual Report I expressed the opinion that, suitably trained, the mid-wife would become the ideal *Ante-Natal* Health Visitor. She delivers quite 90 per cent. of the poorer mothers, and *ante-natal* care falls properly within her province. She possesses a special influence over expectant mothers; and by calling for her assistance in this most important branch of maternity and child-welfare work (for the latter work must commence before the child is born) we avoid overlapping and interference by others. To this desirable end the Bedfordshire Scheme is working and with gratifying results. Efforts have been, and are still being, made to fully inform midwives upon *Ante-natal* Hygiene and to impress them with their full responsibilities to the expectant mothers who engage them, and the County Council offers 5/- for every case in respect to which they undertake and discharge certain well-defined duties. The scheme received the sanction of the Ministry of Health in 1921, and from June 1st to the end of that year 22 midwives took part in the scheme and 147 mothers benefitted from it

## Senile Mortality.

The following Table shows the senile mortality in the Urban and Rural Districts, as indicated by the percentage of deaths over 65 years of age to total deaths:—

LOCALITIES.	PERCENTAGE OF TOTAL DEATHS, 1919.	PERCENTAGE OF TOTAL DEATHS, 1920.	PERCENTAGE OF TOTAL DEATHS, 1921.
Urban Districts	42·0	41·7	42·3
Rural Districts	50·2	53·6	52·3
The County	45·6	46·3	46·3

The number of persons dying at over 65 years of age is evidence of the fact that a high proportion of the population reaches old age. The proportion in England and Wales is about 39·9.

## Cancer.

In the administrative County 296 deaths were certified in 1921 as due to cancer or other malignant disease, as against 252 in 1920.

The returns during the last 20 years have been as follows:—

DISTRICTS.	MEAN OF 5 YEARS, 1902-1906.	MEAN OF 5 YEARS, 1907-1911.	MEAN OF 5 YEARS, 1912-1916.	MEAN OF 5 YEARS, 1917-1921.
<b>URBAN DISTRICTS.</b>				
Amphill ... ..	4	5	3	5
Bedford ... ..	31	40	41	52
Biggleswade ... ..	4	6	10	8
Dunstable ... ..	5	7	11	14
Kempston ... ..	3	5	5	6
Leighton Buzzard	6	7	11	9
Luton ... ..	35	42	48	52
Totals ... ..	88	113	129	146
<b>RURAL.</b>				
Amphill... ..	22	26	29	30
Bedford ... ..	25	19	29	26
Biggleswade ... ..	22	21	20	33
Eaton Bray ... ..	4	5	5	7
Eaton Socon ... ..	2	5	4	7
Luton ... ..	7	9	9	13
Totals ... ..	82	85	105	116
Grand Totals ... ..	170	198	234	262

The returns for the whole country maintain the increase, as compared with former years, in the mortality from malignant disease. The tendency to exceptional increase in the mortality of males has been noteworthy in the records of the last few years.

For the purpose of enabling the true comparative incidence of cancer on the several populations of the sanitary areas to be precisely stated, it is necessary to know the differences in the age and sex constitution of the several populations concerned. I propose to make this comparison when the census returns are available.

The crude cancer death-rates for the County of Bedfordshire for 1921 were as follows:—

For Urban Districts	1,330	per million living.
For Rural Districts	1,615	„ „
For Whole County	1,440	„ „
For England and Wales (1920)	1,161	per million living.

Despite much research for many years by a considerable band of devoted workers, the real cause of Cancer remains a mystery; although certain conditions which favour the disease have been known for many years. Meanwhile the disease, like those of nephritis, diseases of the heart and blood-vessels and diabetes, are increasing in our midst, while there is a steady reduction in mortality from other causes.

Surely the reduction of the death-rate from Cancer becomes a foremost problem in public health, when the following facts are stated:—

#### Statistical Facts.

The death-rates from Cancer in England and Wales during recent years have been as follows:—

ENGLAND AND WALES.		
Year		Rate per thousand of population
1913	...	1.064
1914	...	1.069
1915	...	1.121
1916	..	1.166
1917	...	1.210
1918	...	1.218
1919	...	1.145
1920	...	1.161

Cancer nowadays contributes one to every 12 deaths registered. It is now as destructive as that other great scourge: Pulmonary Tuberculosis or Phthisis. Cancer is most prevalent among those of 40 years of age and upwards. An excess of cancer in the female sex is accounted for by the prevalence of cancer of the female breasts and generative organs.

The increase in cancer mortality is world-wide ; and better diagnosis, improved statistics and the increase in the mean duration of life will explain much of this increase. Taking an equal number of persons living above the age of 15 years, approximately the same proportion is destined to die from cancer whether the individuals live in a rural district, an urban district, or in a county borough.

The problem is to get the case into the hands of a competent medical adviser while it is still in the early and curable stage, or better still, while the patient exhibits merely those conditions which are now widely recognised as predisposing factors in the causation of cancer.

The evidence of the relationship of cancer to irritation and local injury is overwhelming. The prolonged irritation caused by smoking clay pipes which stick to the lips, by broken jagged teeth which irritate the tongue, by gall-stones and stones in the kidney ; and the scratching of moles and warts and their irritation by clothing or the application of irritating liquids, ointments and pastes to innocent growths, may all cause cancer. Chimney sweeps' cancer is now almost unknown, tar boilers' cancer is rare, cancer of the lips is much rarer since clay pipes went out of fashion. Many cases of breast cancer were clearly due to mid-Victorian taste in corsets. Cancer of the liver was very often due to habits of constipation.

### The Danger Signs of Cancer.

What may be the danger signs of cancer ?

It must be emphasised that none of these signs necessarily signify cancer. They *may be* due to cancer ; and all middle-aged individuals must realise this and act accordingly.

In middle-aged women, any irritating, malodorous or blood-streaked discharge needs to be investigated ; it must not be simply ascribed to the "change of life." Any marked increase of menstruation setting in during middle-life, or bleeding during the periods or an increased flow at change of life, or recurrence after it has stopped, are also to be suspected. A "lump" in the breast is a serious symptom. In either sex, in middle-aged persons, the following symptoms call for action : any bleeding from the back passage, or blood in the urine, or recurrent bleeding from the nose or throat. Any formerly innocent growth which begins to rapidly enlarge and become harder ; any wart, mole, old scar which changes in appearance, or any slight ulceration on the face, or a persistent crack or scaly patch on the lips which do not heal. Loss of weight and anæmia.

Cancer is generally painless for many months. Pain is a late symptom. To wait until pain occurs is to make cure almost hopeless. It always begins as a local disease and while still localised any case can be cured by surgical, X-rays, radium, or other treatment. When the disease has spread and involved outlying parts the prospect of cure is remote.

If people will only pay attention to these danger signals and early seek medical advice thousands of premature deaths can be prevented. Popular education as to these matters is a serious need, and for this and other reasons it is a question whether cancer clinics in large towns would not fulfil a very useful purpose.

It is calculated that there is an average loss of about one year before submitting to skilled treatment, and that not one person in ten comes sufficiently early for effective treatment.

It is recorded that 40 per cent. of all cases of cancer of the rectum are quite incurable by the time appropriate treatment is submitted to. Hundreds every year pay the penalty of death for shrinking from surgical interference. The money that is made every year by capitalizing the hopes and fears of cancer sufferers is without doubt very great. These quacks, large in pretence and promise, encourage the patient to expect relief till his money is exhausted and his disease too far advanced for cure by operation or other recognised methods. Bottles of medicine, and the application of ointments and paste cannot cure cancer.

### **Some Further Facts.**

There is no clear evidence that cancer is inherited. The disease is so frequent that by the very law of chance more than one case may occur in some families. Life insurance companies do not regard cancer in the family as a reason even for increasing premiums. It is no more frequently found in married couples than chance may account for. The disease is not contagious to others. There are probably no true "cancer houses" or "cancer villages." The circumstance that the disease has been unusually prevalent in a house or village is sufficiently explained by coincidence or the exceptional favourable ages of the dwellers. A village from which the younger people have gone to obtain work elsewhere would naturally furnish a larger number of cases of cancer than another village of equal population with the usual proportion of young people.

The strong and healthy are often attacked. There are grounds for believing that some protection is conveyed by attention to personal hygiene, by being cheerful, interested and free from anxiety, and by partaking of a simple and moderate diet, with plenty of fruit and vegetables.

Cancer then is a disease which can often be prevented, if the predisposing factors are recognised and removed.

Cancer is a disease which if dealt with in time can often be cured.

### Chief Death-Rates in Bedfordshire, and England and Wales compared.

ANNUAL DEATH-RATE PER 1000 FROM ALL CAUSES AND FROM CERTAIN DISEASES IN 1921.

	All causes.	Small-pox.	Measles.	Scarlet Fever.	Diphtheria.	Whooping Cough.	Enteric Fever.	Diarrhoea. (under 2 yrs) to 1000births	Deaths and r 1 year to 1000 births.
	1	3	4	5	6	7	8	9	10
England and Wales...	12.1	0.00	0.06	0.03	0.12	0.12	0.02	15.5	83
Bedfordshire ...	11.6	0.00	0.00	0.02	0.18	0.08	0.02	12.7	71

### A Comparison of Certain Rates for the Sanitary Districts of Bedfordshire, 1921.

	SANITARY DISTRICTS. URBAN.							SANITARY DISTRICTS. RURAL.					
	Amphill	Bedford	Biggleswade	Dunstable	Kempston	Leighton Buzzard	Luton	Amphill	Bedford	Biggleswade	Eaton Bray	Eaton Socon	Luton
Birth-rates ...	13.3	17.0	20.4	18.7	20.4	22.7	20.1	18.4	20.0	17.7	20.6	20.7	20.3
General Death-rates...	17.4	11.2	12.4	12.9	8.8	13.5	10.6	15.3	9.5	11.4	14.4	13.2	10.6
Infant Mortality rates ...	100.0	73.5	54.5	71.9	46.7	77.4	94.8	85.0	49.4	53.9	90.9	115.9	94.6
* Infectious Disease rates	18.7	4.0	1.7	4.6	5.7	4.8	4.0	5.6	4.8	2.2	3.5	0.0	3.5

\* These rates are compiled from the notified diseases set out on p. 36.

It will be seen from the above Table that the Kempston Urban and the Bedford Rural Districts have provided the best records for the year.

## INFECTIOUS DISEASES.

### Influenza.

Towards the end of the year there was a recrudescence of Influenza which it was anticipated would last only a few weeks in conformity with the usual minor waves which occur in inter-pandemic years in this country. Altogether the disease during 1921 furnished a death-rate in Bedfordshire of 0·12 as compared with a death-rate of 0·23 for the country generally.

### Variola and Vaccination.

No cases of small-pox were notified in Bedfordshire in 1921 but many cases were notified in England and Wales.

During recent years there has been a continuous increase in the percentage of children born who have been exempted from vaccination, with the disquieting result that the proportion of the population which is not protected against small-pox by vaccination is greatly increasing.

This extraordinary reduction in vaccination against small-pox is a serious and disquieting circumstance, and attention may be drawn to the fact that in an official publication of the Ministry of Health the public is reminded that the greatest diminution in small-pox since vaccination was introduced has been in the early years of life, in which there is most vaccination; that in countries in which there is most vaccination and re-vaccination there is little small-pox; that in places where small-pox prevails it attacks a much greater proportion of the un-vaccinated than of the vaccinated; that in houses invaded by small-pox not nearly so many of the vaccinated inmates are attacked as of the unvaccinated, in proportion to their numbers; that the fatality rate amongst persons attacked by small-pox is much greater, age for age, among the unvaccinated than among the vaccinated; and that improved sanitation, however beneficial in itself, cannot account for these facts.

### Diphtheria.

During 1921, the death-rate from Diphtheria for the County failed to maintain the satisfactory figures of the two preceding years.

DISTRICTS.	DEATH RATE, 1918.	DEATH RATE, 1919.	DEATH RATE, 1920.	DEATH RATE, 1921.
Urban Districts ... ..	0·22	0·10	0·12	0·22
Rural Districts ... ..	0·14	0·11	0·09	0·13
The County ... ..	0·19	0·11	0·11	0·18

The death-rate for England and Wales for 1921 was 0·12.

The considerable and progressive decline in the death-rate from diphtheria which has occurred in England and Wales for many years is to be mainly attributable to the use of antitoxin, as the virulence of diphtheria remains much as it has always been.

In most districts Antitoxin is provided free of cost in necessitous cases. This wise and inexpensive provision should be developed in all districts.

So far as the prevention of this disease is concerned it is certain that the isolation of patients in a fever hospital is of little or no value if the infectious "contacts" are ignored.

### Scarlet Fever.

The death-rates from scarlet fever in the County in 1921, were as follows :—

	DEATH RATE, 1918.	DEATH RATE, 1919.	DEATH RATE, 1920.	DEATH RATE 1921.
Urban Districts ... ..	0·04	0·05	0·01	0·016
Rural Districts ... ..	0·01	0·00	0·03	0·025
The County ... ..	0·03	0·03	0·01	0·02

The death rate for England and Wales in 1921 was 0·03.

Like Diphtheria the infection of this disease is in all probability most frequently spread by personal contact with mild unrecognised cases, and the circumstance that so many of the cases are very mild accounts for most of the spread of Scarlet Fever which is in evidence throughout the country.

### Enteric Fever.

The death-rates from typhoid fever in the county, and the Urban and Rural Districts thereof, are shown below :—

	DEATH RATE, 1918.	DEATH RATE, 1919.	DEATH RATE, 1920.	DEATH RATE, 1921.
Urban Districts	0·00	0·01	0·01	0·01
Rural Districts .	0·00	0·01	0·01	0·04
The County ... ..	0·00	0·01	0·01	0·02

The death rate for England and Wales in 1921 was 0·02.

## Puerperal Fever.

For practical purposes this term may properly be regarded as a general one, including the various communicable septic affections liable to occur as the direct result of childbirth. It should be noted that the term "puerperal fever" has now been removed from the "Nomenclature of Diseases," issued by the College of Physicians (1907). Pyæmia, Septicæmia, or Septic Intoxication, occurring in puerperal women, is now described in these terms with the word "puerperal" prefixed, *e.g.*, "puerperal pyæmia," etc.

There was one death from this disease registered during the year. The death-rate, expressed as a rate per 1,000 registered births, was only 0·26 as compared with 1·3 for the preceding year.

## Measles.

Measles caused no deaths in Bedfordshire during 1921 (as compared with 10 in 1920).

	Death-rate, 1918.	Death-rate, 1919.	Death-rate, 1920.	Death-rate, 1921.
Urban Districts ...	0·19	0·00	0·07	0·00
Rural Districts... ..	0·04	0·03	0·01	0·00
The County ...	0·13	0·01	0·05	0·00

The death-rate for England and Wales in 1921 was 0·06.

Arrangements made for securing the services of a visiting nurse in connection with cases of measles, whooping cough, summer diarrhoea and ophthalmia, occurring amongst infants and young children, will inevitably lead to a reduced mortality from these causes by ensuring nursing advice and attention for selected cases.

## Acute Polio-Myelitis and Cerebro-Spinal Fever.

These two diseases, which had previously been made compulsorily notifiable by many Local Authorities, were required to be generally notified by a General Order of the Local Government Board, which took effect on September 1st, 1912. The reasons for making these diseases compulsorily notifiable were discussed at length in my Annual Report for 1911. Cerebro-Spinal Fever is by far the more fatal of the two. There was

one notification of this disease in Bedfordshire during 1921. A small supply of serum of value in connection with this disease is stored at the Shire Hall, and arrangements have been made for the examination of swabs from sufferers and contacts.

### Dysentery.

A few cases of this disease were notified during the year.

### Whooping Cough.

The number of deaths registered during the year was 16 ; 13 of these deaths occurred in children under two years of age.

	DEATH-RATE 1918	DEATH-RATE 1919	DEATH-RATE 1920	DEATH-RATE 1921
Urban Districts ... ..	0·12	0·04	0·05	0·09
Rural Districts ... ..	0·08	0·18	0·03	0·05
The County ... ..	0·10	0·09	0·04	0·08

The death rate for England and Wales in 1921 was 0·12.

### Diarrhœa and Enteritis.

There were 50 deaths from this disease among children under two years of age. The death-rate is best expressed as the proportion which the deaths under two years of age from this disease form to a thousand births. For the County the rate is 12·7, which compares favourably with 15·5, the rate for England and Wales. In 1921 meteorological conditions favoured a high rate.

The protection of food from flies and dust ; cleanliness in the home and of feeding utensils ; the covering and frequent removal of household rubbish, would save most of the lives lost from this complaint.

### Phthisis and Other Tubercular Diseases.

There was no noteworthy difference in the number of deaths registered from this cause in the County, as compared with the previous year.

From the number of deaths it is safe to compute that there were at least 550 sufferers from Phthisis within the county during 1921.

The following table shows the death-rates per 1,000 from Phthisis for the County and the Urban and Rural Districts :—

LOCALITIES.	Phthisis Death Rate per Thousand				
	1917	1918	1919	1920	1921
Urban Districts ... ..	0·99	1·12	0·68	0·70	0·80
Rural Districts ... ..	0·81	1·12	1·04	0·69	0·81
Administrative County ...	0·92	1·12	0·81	0·70	0·80

From the Report of the Registrar-General it appears that the Phthisis death-rate for England and Wales in 1919 was 0·978.

Our direct and special measures for dealing with tuberculosis, useful and necessary as they are, are quite subordinate in their value to the general hygienic improvements which have taken place in the past, and which are destined for a considerable extension in the near future in respect of dwellings.

The lack of proper housing accommodation has proved a great drawback in the domiciliary treatment of many cases, as under present conditions overcrowding inevitably occurs.

Reliance is being placed more on preventive measures and instruction of the patient in general hygiene, dietetics, &c., than upon treatment by drugs. Dry and well-ventilated and lighted dwellings and working premises are essential.

There is still scope for further measures in open-air school treatment, especially for pre-tubercular children.

Dr. Welch, the Medical Officer (Tuberculosis) of the County Council, has drawn up the following statement, for the purpose of this Report :—

On 18th November, 1921, the County Sanatorium at Mogerhanger Park was opened for the reception of male patients, but it was not possible to open the female side during the year under review, owing to lack of nursing staff.

By the establishment of a combined institution within the County for the residential treatment of cases of pulmonary tuberculosis in its varying stages, the Council have completed their scheme for dealing with this disease.

The provision of accommodation for advanced cases has hitherto been one of the most pressing needs for combating the spread of tuberculosis, and it is gratifying to be able to record that suitable patients are readily accepting the offer afforded to

them of receiving care and attention in an institution which not only makes for their own bodily comfort, but frees them from the fear that they may be infecting with tuberculosis those with whom they have been in intimate contact at home, often under conditions favouring the spread of tuberculosis.

Prior to the opening of the County Sanatorium, the arrangements made in previous years for the institutional treatment of both insured and non-insured tuberculous persons were continued, viz. :—accommodation was secured in various institutions outside the County, in many cases only after great difficulty, delay in admission being the inevitable result.

Home-visitation of tuberculous patients has been carried out at Luton by the nurse attached to the Dispensary there, and in other parts of the County by the Council's Health Visitors. 949 visits were paid to the homes of ex-service men, and 1,264 to those of other patients.

The provision of extra nourishment to ex-service men has been made by the Local War Pensions Committees on the recommendation of the County Tuberculosis Officer ; during the early part of the year it was not possible for the County Council to make any grant of extra nourishment to other tuberculous persons.

On 31st March, 1921, authority was given by the Ministry of Health for the County Council to provide extra nourishment, on the advice of the Tuberculosis Officer, to members of the general population suffering from tuberculosis, subject to the total expenditure not being in excess of £2 per thousand of the population, the method of procedure to be approved by the Minister of Health.

As in previous years the Ministry of Pensions have made use of my services as tuberculosis referee for the Bedfordshire area. Cases have been referred to me for examination and report by the Medical Pensions Board and the Local War Pensions Committees have received reports from me as to the condition, progress, etc., of pensioners suffering from tuberculosis, and recommendations as to the form of treatment most appropriate in each case.

Whenever possible convalescent tuberculous pensioners have been afforded training under the scheme of the Ministry of Pensions in some suitable occupation.

Shelters have been extensively used, especially in the country districts, and have proved of great service, especially to patients who have become used to sleeping in plenty of fresh air whilst in sanatoria.

## Summary of Cases dealt with in 1921.

### BEDFORD AREA.

Particulars as to the Diagnosis and Treatment of New Cases examined during the year, 1921 :—

	Insured.	Non-insured.	Total.
Number of cases examined ... ..	97	114	211
Pulmonary Tuberculosis ... ..	56	32	88
Surgical Tuberculosis ... ..	2	10	12
Under Observation ... ..	1	5	6
Not Tuberculous ... ..	38	67	105
Dispensary Treatment ... ..	3	15	18
Domiciliary Treatment ... ..	26	—	26
Institutional Treatment ... ..	18	3	21
Under own Doctor ... ..	5	26	31
Left the County ... ..	4	1	5
Dispensary Supervision ... ..	3	2	5

The number of attendances of patients at the Bedford Dispensary during the year was 1,995.

Visits were also paid to the homes of patients living in the surrounding districts.

### BIGGLESWADE AREA.

Particulars as to the Diagnosis and Treatment of New Cases examined during the year 1921 :—

	Insured.	Non-insured.	Total.
Number of cases examined ... ..	39	47	86
Pulmonary Tuberculosis ... ..	20	18	38
Surgical Tuberculosis ... ..	2	2	4
Under Observation ... ..	—	—	—
Not Tuberculous ... ..	17	27	44
Dispensary Treatment ... ..	2	2	4
Domiciliary Treatment ... ..	10	—	10
Institutional Treatment ... ..	7	1	8
Under own Doctor ... ..	2	14	16
Left the County ... ..	—	2	2
Dispensary Supervision ... ..	1	1	2

The number of attendances of patients at the Biggleswade Dispensary during the year was 1268.

Visits were also paid to the homes of patients living in the surrounding districts.

## LUTON AREA.

Particulars as to the Diagnosis and Treatment of New Cases examined during the year 1921 :—

	Insured.	Non-insured.	Total.
Number of cases examined ...	147	105	252
Pulmonary Tuberculosis ...	52	21	73
Surgical Tuberculosis ...	3	4	7
Under Observation ...	1	1	2
Not Tuberculous ...	91	79	170
Dispensary Treatment ..	1	2	3
Domiciliary Treatment ...	27	—	27
Institutional Treatment ..	15	6	21
Under own Doctor ..	6	15	21
Left the County ...	3	1	4
Dispensary Supervision ...	4	2	6

The number of attendances of patients at the Luton Dispensary during the year was 3,692.

Visits were also paid to the homes of patients living in the surrounding districts.

# PUBLIC HEALTH (TUBERCULOSIS) REGULATIONS, 1912.

## Summary of Notifications during 1921.

### COUNTY OF BEDFORD.

AGE—PERIODS.	Number of Primary Notifications.*											Total Notifications on Form A.		
	0 to 1	1 to 5	5 to 10	10 to 15	15 to 20	20 to 25	25 to 35	35 to 45	45 to 55	55 to 65	65 and upwards		Total Primary Notifications.	
Pulmonary Males ...	...	1	4	6	18	18	38	19	18	4	4	5	131	137
"    Females ...	...	...	3	5	15	22	38	12	7	4	4	2	108	111
Non-pulmonary Males...	...	6	2	3	5	...	...	4	...	...	...	...	20	20
"    Females ...	...	5	6	4	2	8	5	2	2	...	...	...	34	36

## Venereal Diseases.

The Propaganda Committee met on two occasions during the year 1921, and the following measures were authorised for the purpose of disseminating knowledge with reference to these diseases:—

(1) An advertisement was inserted each week in one or other of the journals circulating within the County, pointing out the consequences of Venereal Diseases, and of the neglect of early skilled treatment; the days, hours and places where treatment can be obtained free of charge and with every regard to privacy. (This practice has been in operation ever since the County scheme was started.)

(2) The handbill entitled "What Every Man Should Know" has been freely distributed among male workers in factories, offices, etc.

(3) Posters of advice and information as to arrangement made for treatment were maintained in public urinals and w.c.'s and in the lavatories for both sexes in factories and workshops throughout the County. A few were posted on notice-boards.

(4) There was a commercial display in Bedford of a propaganda film dealing with venereal disease. An effort was made to secure the loan of a Cinema film entitled "The End of the Road," so that it might be displayed during Health Week for three days in both Bedford and Luton. This is a most impressive film of considerable value for educational purposes. But it was found that the cost of hiring the film, of securing suitable Halls, etc., exceeded the amount voted by the Venereal Disease Propaganda Committee and approved of by the County Council. Fortunately a commercial display of the film was provided in each of the towns later on, and the County Council was only put to the expense of providing an experienced speaker to make short introductory addresses to the audience prior to each showing.

During the year the Council contributed to the cost of the institutional treatment of two Bedfordshire women suffering from venereal disease in hostels outside the County.

The Council also authorised the expenditure of the sum of £70 per annum upon provisions for the intermediate treatment of Venereal Diseases.

I am indebted to Dr. R. Herdman for the following particulars of the Venereal Disease work for the year 1921.

The work of the Clinics at Bedford and Luton has continued to run smoothly and satisfactory during the year.

Arrangements were made towards the end of the year for the intermediate treatment of Gonorrhœa cases, both male and female; this is carried out at the clinics on other days of the week besides those on which the clinics are held.

As was mentioned last year, patients are now more and more realising the dangers not only to their own health but also to that of other members of the community that result from not obtaining sufficient treatment for these diseases, for the necessity that there is for them to continue attending at the clinic until it is considered that they have had adequate treatment, and after that to attend periodically for inspection and observation. The necessity for this is impressed on all patients, who are told that if their work is likely to take them to other towns they will be given transfer books and the name and hours of attendance of the nearest clinic to their new home. Most patients leaving the clinics before completion of treatment now ask for transfers, while others have written for them after leaving.

About half the patients who are classified as non-venereal cases are ones who have had venereal disease at some time and have had treatment, and now come to the clinic to be tested to find out whether there is any sign of their still having disease.

Attendances at the Venereal Diseases Clinics during 1921:—

	BEDFORD				LUTON				82 cases other than Venereal also attended the Clinics for the purpose of diagnosis in 1921, with a total number of 173 attendances  25 Patients came from outside the County with a total of 202 attendances  214 specimens of blood were taken for the purpose of Wassermann Reactions.
	Syphilis		Gonorrhœa		Syphilis		Gonorrhœa		
	M	F	M	F	M	F	M	F	
Number of Patients who were under treatment on 1st Jan., 1921	26	18	20	8	41	31	35	8	
Number of New Patients in 1921 found to be suffering from ... ..	19	8	26	9	22	12	41	5	
Number of New Patients in 1921 found to be suffering from both diseases	6	—	—	—	6	1	—	—	
Number of Patients under treatment on Dec. 30th, 1921 ... ..	28	15	22	11	45	27	30	5	
Total Attendances in 1921 of all patients suffering from ... ..	432	203	550	292	610	372	676	149	

Over 20 medical practitioners sent cases to the clinics either for diagnosis or treatment during 1921, and 13 requests were made by them for Wassermann outfits to take specimens of blood from private patients.

During the year under review the experiment of providing two "ablution centres" where those who had exposed themselves to the risks of contracting venereal disease could obtain early preventive treatment by night and day, were established in the City of Manchester. The centres were established in two of the public urinals and individuals were informed that preventive treatment should be sought as soon as possible after the risk had been run.

The Bedfordshire V.D. Propaganda Committee reported that while some prevention of disease may thus be secured, they were strongly of opinion that such a provision does imply to the mind of the general public that the Local Sanitary Authority recognises that a considerable amount of promiscuous sexual intercourse is inevitable and that they condone with it in the sense that they endeavour to relieve those who indulge from the physical consequences of their action. They were disposed to question the net gain to the well being of the community from the adoption of such measures.

(These Manchester centres were closed, in response to a strong local opposition to their continuance, in May, 1922.)

The reduction of the number of patients under treatment in 1921, as compared with the previous year, must be mainly attributed to the fact that with the cessation of the war and a complete demobilisation of the troops, we have probably reached a prevalence of venereal diseases which approximates to a normal (pre-war) rate, which is always much lower than during a war period and the subsequent year or two.

The number of General Practitioners of medicine within the county who are qualified to receive Salvarsan, etc., for the treatment of Syphilis free of cost, in accordance with the directions of the Ministry of Health, is now six.

The modified form of advertisements now inserted in the local newspapers is as follows :—

The Government recognising the grave consequences to health which are involved in the neglect to obtain the most prompt and skilled treatment of Syphilis and Gonorrhœa, have called upon the Bedfordshire County Council to provide this treatment to both sexes, free of cost and under the seal of the strictest secrecy.

Days lost in self treatment and improper treatment may be paid for in years of suffering and much subsequent unhappiness in married life ; whereas if those with any suspicious sore or discharge will go at once to a doctor or hospital and remain under treatment as long as necessary, they can be completely cured. Free hospital treatment under conditions of strict secrecy may be obtained at (here full particulars are set out).

## THE MEDICAL INSPECTION OF SCHOOL CHILDREN.

Dr. Herdman reports that "during the year all the Schools in the County were visited for medical inspection at least once, and a large number of them were visited on two or more occasions, as it has been found that it is more satisfactory to do the inspection twice in the year, with an interval of six months between the two visits, whenever the size of the school warrants it. In this way those children who were found to have defects at the first visit are able to be re-inspected on the second visit, to see whether the treatment obtained has been satisfactory, and also a number of fresh children have, by the time of the second visit, reached the age period for routine examination. There are also always a certain number of children whom the teachers wish to have examined on account of some defect that has shown itself since the school was last visited. In the case of the smaller schools where there are only enough children to justify a routine examination once a year, a second visit is paid, if possible, when other schools in the same district are being examined, to see whether there is any child who requires special examination."

The effect of the work of Mr. Cooper, the School Dentist, is now beginning to be seen in the cleaner state of the mouths of many of the younger children examined, but it will take years of treatment and talking to parents and children before the condition of the teeth of school children is in a satisfactory state. Still the condition of children's mouths is now better than it used to be, and a steady improvement should be noticed from year to year.

It has also been found that since Mr. Cooper has been going round the County and talking to teachers and children about the teeth, a considerable increase in the use of tooth brushes has taken place.

Teachers and parents have commented upon the improvement in the general health of the children who have had their

mouths put in order, and there is obviously not the same amount of enforced absence from school due to toothache and allied troubles.

During 1921, 1,639 school children received the great benefit of dental treatment under the Education Authority's scheme.

"A very important part of the school medical work is the discussing with mothers as to their children's health and what general lines must be worked on to improve it. The aim of the work should be to find out the first signs of disease and point out to the parent what should be done to prevent it rather than have the child treated when the condition has become more advanced. In this way a great deal of unnecessary suffering and disease may be prevented, but it at the same time entails much work of which no evidence can be given in statistics. As examples it is much more useful that children should be taught how to preserve their teeth rather than have them stopped or extracted after they have become decayed, and the same may be said in regard to slight cases of adenoids, where it is much more important to teach the mother what to do to make the growths disappear rather than let them go on until removal is necessary, by which time more or less damage has probably been done to the hearing."

"As it is during school age that the seeds of many diseases get a root in the system, if the children are got into a good state of health at that time the best chance is obtained of having a healthy nation in the future, and so the aim of the school medical service is to have as many children as possible leaving school with sound physique. That this is gradually taking place is shown by fewer of the "leavers" requiring treatment than formerly. The percentage of children of poor physique is also much smaller now than it was in pre-war days."

It should also be added that by raising the general standard of health among school children their response to educational methods of teaching and training is also raised.

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## THE PREVENTION OF INFECTIOUS DISEASES.

The methods adopted in the County by way of preventing epidemics group themselves under the following heads:—

1. EARLY DIAGNOSIS.—This is promoted by making arrangements whereby medical practitioners may obtain the examination of discharges for specific micro-organisms, free of cost.

2. NOTIFICATION.—Only thus can the medical officer know of the occurrence of infectious diseases.

3. ISOLATION.—In houses where it is practicable, isolation need mean no more than the separation of the diseased from the healthy in a separate room. Suitable methods for preventing the spread of infection may then be readily adopted. Where such separation is not convenient, practicable, or efficient, then isolation should mean removal to an infectious diseases isolation hospital.

4. DISINFECTION of rooms, bedding, clothing, &c., used by the isolated patient, in order to prevent infection from spreading after isolation.

5. INVESTIGATION OF POSSIBLE SOURCES OR FAVOURING CONDITIONS OF INFECTION.—It is now generally recognised that the most important branch of investigation relates to efforts to detect unrecognised cases of the disease, &c.

6. CONTROLLING THE CHANNELS OF INFECTION.—Children belonging to infected households are prohibited from attending school and occasionally adults from continuing work ; and the closure of local schools may be resorted to in the event of outbreaks of scarlet fever, diphtheria, measles, and whooping-cough.

7. IN THE CASE OF SMALL POX.—Vaccination and Re-Vaccination ; in addition to the above measures.

## NOTIFIED DISEASES during the Year 1921.

DISEASES NOTIFIED	SANITARY DISTRICTS—UREAN.						SANITARY DISTRICTS—RURAL.						TOTAL.	
	Amphill [2,260]	Bedford [40,247]	Biggles- wade [5,396]	Dunstable [8,894]	Kempston [5,219]	Leighton Buzzard [6,795]	Luton [57,077]	Amphill [19,333]	Bedford [20,235]	Biggles- wade [23,019]	Eaton Bray [3,746]	Eaton Socon [3,348]		Luton [10,900]
Scarlet Fever ...	2	97	1	8	26	24	85	53	81	30	5	...	7	419
Diphtheria ..	38	53	7	32	4	5	134	50	13	12	8	...	26	382
Enteric Fever ...	...	1	...	1	...	2	2	...	1	5	...	...	1	13
Puerperal Fever ...	...	1	...	...	...	...	1	1	...	...	...	...	1	4
Ophthalmia Neonatorum }	...	7	1	...	...	1	6	1	1	3	...	...	1	21
E. Lethargica ...	2	1	...	...	...	1	3	3	1	...	...	...	2	13
A. Polio-myelitis..	...	1	...	...	...	...	...	...	...	...	...	...	...	1
Cerebro-Spinal Meningitis }	...	...	...	...	...	..	1	...	...	...	...	...	...	1
TOTALS... ..	42	161	9	41	30	33	232	108	97	50	13	...	38	854

From the table of notified diseases it will be seen that the record is a good one, although the notifications of scarlet fever were high in the Bedford Urban and Rural Districts and in the Kempston and Leighton Buzzard Urban Districts, and those of diphtheria were high in the Ampthill, Dunstable and Luton Urban Districts and in the Ampthill and Luton Rural Districts. In the Ampthill Rural District 28 cases of diphtheria occurred in the parish of Flitwick ; and the Medical Officer of Health (Dr. Kilham Roberts) reports that " there the outbreak probably derived its origin from Ampthill, where the disease had been prevalent for some considerable time. Fresh cases cropped up continually until the end of the year, when the epidemic was still in progress. Every effort was made to stop the progress of the disease, each case being removed to the isolation hospital as soon as it was detected. The schools were also closed for a short period in December. All the cases, with the exception of two which were too ill to be removed, were sent to the isolation hospital. Three cases proved fatal."

The County notification rate from the above diseases is 4·15 per thousand of population, which is a fairly low rate.

### **Bacteriological Diagnoses.**

There is no gainsaying the advantages which bacteriological examination affords for the purposes of judging the purity of drinking-water, for facilitating that prompt diagnosis of certain communicable diseases which enables the earliest adoption of the necessary precautionary measures, and for ascertaining when children and others who have been exposed to the infection of, or who have suffered from, diphtheria may safely be allowed to mix with others.

This provision is now a general one throughout the County—to the extent of affording facilities to general practitioners for the diagnosis of diphtheria, enteric fever and consumption.

We have no County Laboratory for Bedfordshire, but the Medical Officers of Health of the two large towns, Luton and Bedford, are both supplied with Laboratories and undertake the necessary bacteriological work. In three other cases the Medical Officer of Health has made his own provisions and performs such examinations for a special remuneration from his District Council.

In other cases the material is forwarded to one of the existing Institutions prepared to undertake such work. The Institutions so acting are:—The Lister Institute, Chelsea Gardens, S.W., and the Clinical Research Association, Watergate House, Adelphi, London, W.C.

The County Medical Officer (Tuberculosis) is prepared to undertake this work so far as Tuberculosis is concerned.

### Notification of Infectious Diseases.

The table on p. 36 shows the prevalence of infectious diseases in the County, and in the County Areas in 1921.

The rate for Bedfordshire in 1921 was 4.15.

### Hospitals for Infectious Diseases.

In the County of Bedfordshire, with a population of 205,572, the number of beds now available for the isolation and treatment of persons suffering from infectious diseases (other than Small-pox) is at least 290, which is slightly under 1.4 beds per 1,000 of population. The number of hospital beds provided for Small-pox is 66. This provision is sufficient to meet contingencies; and I am of opinion that the existing provision, made available to all the Local Sanitary Authorities in the County, should suffice. Dunstable, Kempston and Eaton Bray would make arrangements for the use of the Small-pox hospital in adjoining districts. It is necessary that each of these districts should have a working agreement to this end, so that the matter is adjusted before any Small-pox outbreak occurs.

No fever hospital can be regarded as satisfactory without some "observation" and "discharge" ward provisions.

### DISINFECTION.

While all the facts appear to demonstrate very conclusively that in the large proportion of cases the individual becomes infected by direct contact with other individuals, and that the infective material on textile articles, floor surfaces, etc., plays a small part in the dissemination of infectious disease, the relatively small part is one which we cannot afford to neglect, and it is capable of considerable reduction by making proper provision on the right lines.

Of all the provisions for disinfection which a sanitary authority can make there is no doubt that a steam disinfecting apparatus for bedding, clothing, etc., and the distribution of a suitable liquid disinfectant (where it would not otherwise be provided) for the prompt disinfection of discharges and dejecta of patients nursed at home, are the most important.

## School Closure on account of Infectious Disease.

The number of schools closed during the year 1921 owing to outbreaks of infectious diseases among the scholars was 20, the total number of days of closure being 247.

Full details of closures are as follows :—

	Number of Schools Closed.	Number of days closed.	Average Number of days Closed.
Whooping Cough ...	8	101	12.62
Measles ... ..	3	36	9
Chicken Pox ... ..	2	24	12
Mumps ... ..	2	20	10
Diphtheria ... ..	2	36	18
Influenza ... ..	2	15	7.5
Scarlet Fever ... ..	1	15	15
	20	247	12.35

## Adoptive Acts, Byelaws & Regulations.

The Infectious Diseases (Prevention) Act, 1890, and the Public Health Acts (Amendment) Act, 1890, both optional, have been generally adopted by the Local Authorities throughout the county.

The following Bye-Laws or Regulations are also generally in force, Slaughter-houses, Offensive Trades, Common Lodging-houses, Removal of House Refuse, Cleansing of Privies, etc., Prevention of Nuisances, Keeping of Animals, New Streets and Buildings (Structure and Drainage), Cleansing of Footways, Dairies, Cowsheds and Milk-shops.

There are no Bye-Laws relating to houses-let-in-lodgings in several Districts.

## MATTERS OF GENERAL SANITATION.

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### Water Supplies.

The long dry summer led to a considerable shortage in water supplies. Village supplies running very short, many wells were cleaned out and deepened, and several new ones were sunk. The shallow wells generally yielded insufficient supplies, and in some instances a water cart had to be employed to bring water from outside.

The amount of water in the headings of the Bedford Water Works ran short, and in order to maintain the supply it became necessary to take water from the river.

The subject of shortage received much consideration, which led to several developments of water-supplies and schemes within the County. Fortunately the "chlorination" of water affords a ready means of bringing into safe use even river and pond water, to meet emergencies. It is a method which may be applied to small supplies without great expense. A Circular from the Ministry of Health points out that the measures which the Authority should consider for the purpose of conserving their supplies include those for preventing waste and the excessive consumption of water, and wherever practicable, the utilisation, for trade and other non-domestic supplies, of water which is not fit for domestic purposes, in place of potable water.

### The Pollution of Streams.

During the year this subject has received consideration; but the times are not favourable to effective action calling for a considerable monetary outlay, and so I postponed the general survey which I had proposed to make.

### Drainage, Domestic Refuse and Scavenging.

The wider adoption of scavenging schemes is desirable in rural districts.

If, moreover, householders would keep their dustbins covered and place therein only what cannot be burnt at the house, they would render their home surroundings more healthy and at the same time reduce the expenses of the scavenging provisions of Local Authorities.

The privy vault is fairly prevalent still in the rural districts ; but there is a gradual conversion to pails in general operation.

There are many pail closets in use throughout the County but it is comparatively seldom that one finds earth employed in them. An earth-closet is certainly the most sanitary arrangement next to a water-closet ; and so where suitable earth is available, a pail closet should be used as an earth-closet by the simple device of keeping a box of dry earth near the seat and sprinkling a scoopful of this into the pail whenever the closet is used. This effectually keeps down effluvia and flies and provides a compost of considerable value in gardens. This compost should be *lightly* buried when the pail fills, lightly because it is only in the surface soil that the microbes which break up refuse matter and render it inodorous and harmless exist in large numbers.

Such disposal should be kept as far away as possible from any shallow water.

The dry household refuse should be burnt whenever possible ; and where there is a fair sized garden the remainder may be dealt with on or in the soil ; but where the garden is small it is always wise to get permission, if possible, for the disposal of this material (together with some at least of the slop waters) on neighbouring ground more distant from the dwelling.

### **Dairies, Cow-sheds, and Milk-shops.**

One of the most important functions that Sanitary Officers can perform is to do what is possible to stimulate the local producers and retailers to a higher standard of cleanliness in the collection and distribution of milk.

Two Cowsheds were closed, as unsuitable, in the Leighton Buzzard Urban District.

## Slaughter-houses and Food Inspection.

The work of food inspection within the County has considerably improved in recent years, but it still varies considerably in different districts, and in some cases the inspector is prevented by other duties from devoting sufficient time and attention to it—otherwise it is to be expected that in most districts some unsound food would be either seized or surrendered for destruction in each year.

But in most Districts good work is being performed in connection with food inspection. Especially is this the case in the Bedford, Luton and Dunstable Urban Districts and in the Ampthill and Biggleswade Urban and Rural Districts. In each of these Districts a considerable amount of unsound food was either surrendered or seized during 1921.

## Housing.

The year 1921 witnessed some very welcome relief to the insanitary conditions and hardship which have resulted from the shortage of houses in most parts of the country. But while a useful instalment of new dwellings was made, most District Medical Officers of Health still find it impracticable to cope with the unhealthy and demoralising circumstances for which overcrowding is responsible, to a satisfactory extent. With the greatly reduced cost of building and the evidence of private enterprise commencing to afford some relief, it is to be hoped that the prime public health necessity of the people for sufficient and satisfactory homes will be more fully met in the near future. This provision still remains the most urgent concern of Local Sanitary Authorities.

The dearth of homes makes it impossible to dispossess the occupants of many unfit dwellings within the County, and the most that can be done in the meantime is to keep such premises under regular and frequent inspection, with the object of securing that they are maintained as well as can reasonably be demanded, and to provide the benefits of frequent scavenging. If this were done the next few years may possibly be tided over without the occupants of these dwellings suffering in their health, especially if they would assist in keeping their homes as sanitary as possible. Unfortunately, this assistance cannot be counted upon. It is doubtless true that even when the structure of the home is most faulty from the sanitary standpoint, ill-health results quite as much from the acts or defaults of the tenants themselves as from the faulty structure.

From the facts kindly furnished to me by the District Medical Officers of Health of the County, I find that during 1921, 837 new houses were completed by the Local Sanitary Authority and 63 by private enterprise. Moreover 41 existing dwellings were reconstructed. Many of the dwellings erected were let at rentals which come within the means of many of those who most need them, namely, at about 7/- per week—the range of rentals demanded being from 6/6 to 12/6, exclusive of rates.

It also appears that at the end of the year approximately 400 new houses were in course of erection. Especially is the Biggleswade Rural District Council to be commended upon the enterprise shown in this connection.

The Local Authorities in the County have generally, and very wisely, decided not to provide new houses with less than three bedrooms.

During the year it was possible to close 77 insanitary dwellings within the County. Many more should be closed as soon as possible.

One is frequently impressed with the fact that the filthy and insanitary conditions of many of the poorer-class homes result from the neglect and default of the dirty tenants and from the misuse and wanton destruction at their hands of the sanitary provisions made by the landlord.

The tenant of insanitary dwellings is not always the innocent victim of a neglectful and rapacious landlord, and I have long been of opinion that additional powers in bye-laws are needed whereby tenants themselves should be made more responsible for maintaining cleanliness and the efficiency and proper use of sanitary provisions..

### **Factories and Workshops.**

The workshops and workplaces within the County appear to be adequately inspected, and reasonably well maintained.

### **Schools.**

It appears that the sanitary condition of the schools has received due attention. This supervision supplements in a valuable way the inspections made by the School Medical Officer.

## Sanitary Inspections.

In all the circumstances a fair amount of sanitary inspection is undertaken in the different sanitary areas of the County.

During the year I was called upon to advise with reference to several matters of sanitation, and I had occasion to make two inspections of Houghton Regis. The Report of my first inspection, in which I was assisted by the Medical Officer of Health (Dr. J. W. Rollings), was submitted to him and appropriate action was taken.

### The Rats and Mice (Destruction) Act, 1919.

Mr. J. C. E. Robinson has reported that from July—December, 1921, 47 premises have been inspected, of this number no action has been taken in respect of 35 and in 12 cases it was found necessary to keep the premises under observation, and some 27 inspections have been made in the latter cases.

Where necessary the occupiers have been given the names of the local rat catcher, and suggestions have been made as to the destruction of the vermin.

In several cases where adjoining premises were infested, co-operative action was arranged between adjoining tenants.

In two instances it was found necessary to ask the Clerk of the Council to write to the occupier warning him that unless immediate steps were taken to destroy the vermin on his premises proceedings would be taken against him under the Rats and Mice Destruction Act, 1919; and in each of these cases immediate action was taken by the tenant, after the warning, with satisfactory results.

All Local Authorities were asked to assist by reporting cases.

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## Food and Drugs.

The following table is a summary of the number, nature, and results of analysis, of the samples submitted to the County Analyst during 1921.

Article Submitted for Analysis. (580)	No. of Genuine Samples.(556)	No. of Adulter- ated Samples. (24)	Remarks as to Adulteration.
Almonds (Ground) ...	1		
Ammon. Tinc. of Quinine ...	2		
Apricot Preserve ...	1		
Arrowroot ...	5		
Baking Powder ...	13		
Beef (Corned) ...	5		
Beef Suet (Shredded)	1		
Bisto ...	3		
Blanc Mange Powder	2		
Bloater Paste ...	3		
Bun Powder ...	2		
Butter ...	45		
Cakeoma ...	6		
Cake Flour ...	1		
Cheese...	23		
Chicken and Ham Paste ...	2		
Carbonate of Magnesia	2		
Chocolate Powder ...	1		
Cocoa ...	21		
Coffee ...	14		
Cornflour ...	1	1	Rice Starch, 100%.
Cream ...	5		
Currants ...	13		
Curry Powder ...	1		
Custard Powder ...	15		
Egg Substitute ...	4		
Flour ...	1		
Flour (Self Raising) ...	8		
Ginger (Ground) ...	13		
Glycerine ...	5		
Gravy Salt ..	1		
Jam ...	8		
Kipper Paste ..	1		
Lard ...	51		
Margarine ...	42		
Marmalade ...	4	1	Salicylic Acid 0.7 grains per lb.
Meat Paste ...	2		
Milk ...	128	1	Deficient in fat 20.0 % fined £5
		1	Deficient in fat 19.6 % case dismissed
		1	Deficient in fat 8.6 %
		1	Deficient in fat 4.0 %
		1	Deficient in fat 31.0 % fined £10
		1	Deficient in fat 4.0 %
		1	Added water 5.8%
		1	Added water 51.1 % fined £10

TABLE OF SUMMARY.—*continued.*

Articles Submitted for Analysis. (580)	No. of Genuine Samples. (556)	No. of Adulterated Samples. (24)	Remarks as to Adulteration.
Milk— <i>continued.</i>		1	Deficient in fat 3·6%
		1	Deficient in fat 27·3% fined £5 (On appeal conviction quashed)
		1	Deficient in fat 15·0% case dismissed
		1	Deficient in fat 5·0%
		1	Deficient in fat 10·6% case dismissed
		1	Deficient in fat 13·0 case dismissed
		1	Deficient in fat 7·6
		1	Deficient in fat 2·0
		1	Deficient in fat 18·3 fined £2
Mincemeat ... ..	1		
Mustard ... ..	9		
Paregoric ... ..	5		
Peaches ... ..	1		
Pepper ... ..	15		
Peppermint ... ..	1		
Pineapple ... ..	1		
Raisin Wine ... ..	1		
Rice ... ..	6		
Salmon & Shrimp Paste	1		
Sausages ... ..	9	1	Boric Acid 15·61 grs. per lb
		1	Deficient in fat 16·1
		1	Deficient in fat 8·68
		1	Sulphur Dioxide 3·43 grs. per lb.
		1	Boric Acid 44·24 grs. per lb fined £15, costs £10/2/6
Saveloy ... ..	1		
Soup (Ox-tail) ... ..	3		
Sodium Bicarbonate ...	1		
Spice (mixed) ... ..	1		
Sugar ... ..	17		
Sweets ... ..	9		
Sweet Spirit of Nitre...	4		
Tapioca ... ..	2		
Toffee ... ..	1		
Vinegar ... ..	11		

The following Report has been furnished by Mr. Kear Colwell, F.I.C., the Public Analyst for the County :—

“During the year 1921 575 samples of food and drugs, covering a wide range of articles, were submitted to me for analysis in accordance with the provisions of the Sale of Food and Drugs Act, 502 of these having been purchased with the usual formalities and 73 obtained informally.

Of all these samples 24 (4·2 per cent.) were certified to be adulterated.

In the year 1920 3·7 per cent. were so certified, and in 1919 2·7 per cent.

The adulterated samples consisted of corn flour, marmalade, milk and sausages.

The sample of corn flour certified to be adulterated consisted entirely of rice flour and not maize flour. In this connection attention may again be called to the extreme desirability of full and accurate labelling, so that the purchaser may know exactly what he is getting.

The adulterated sample of marmalade was found to contain a small quantity of salicylic acid (0·7 grains per pound).

No less than 17 (11·9 per cent.) of the 145 samples of milk proved to be below the Board of Agricultural limits for genuine milk of the poorest quality: 15 were deficient in fat to the extent of from at least 2·0 to 31·0 per cent., and the other two contained at least 5·8 and 51·1 per cent. of water respectively. Preservatives were not found in any sample of milk.

The adulteration of milk is increasing, as the percentage of adulterated samples during 1910 was 5·3, in 1920 8·4, and in the year under review 11·9.

One of the samples of sausages was found to be preserved with sulphite, the amount used being equal to 3·43 grains per pound of sulphur dioxide. Four others were preserved with boric acid, the quantity added varying from 8·68 to 44·24 grains per pound. This last case was the worst yet certified in the County, and represents practically three maximum doses (B.P) of boric acid per pound. It again indicates the great necessity of exercising rigid control over the addition of preservatives to food. The haphazard manner in which some manufacturers obviously use these agents must lead to very serious injury to the health of some of the consumers.

The remaining samples were all genuine and call for no special comment.”

## The Administration of the Food and Drugs Acts in the Borough of Luton.

183 samples were submitted to the Public Analyst for examination, as follows:—

97 samples of new milk; 14 of jams, marmalade, &c.; 10 of butter; 7 of lard; 7 of whiskey; 6 of pork sausages; 5 of gin; 4 each of self-raising flour, malt vinegar, beef sausages; 25 miscellaneous samples.

Of these, 14 samples (9 of Milk) were reported by the Analyst as adulterated. In 8 cases no legal action was taken; but in the remainder the Vendor was convicted and fined.

## The Administration of the Food and Drugs Acts in the Borough of Bedford.

76 samples of food and drugs were purchased during the year and submitted to the Public Analyst for examination.

<i>Articles.</i>	<i>No. of Samples.</i>	<i>Result.</i>
Milk ... ..	59	7 Adulterated.
Cream ... ..	6 (4 informal)	1 „
Preserved Cream ...	1	—
Strawberry Jam ...	2	2 Adulterated.
Cocoa ... ..	2	—
Margarine ... ..	1	—
Lard ... ..	1	—
Butter ... ..	4	—

Proceedings were taken under these Acts in four instances against three dealers.

One case in which fat had been abstracted to the extent of 14·3 per cent. was dismissed; in another where the abstraction amounted to 18 per cent. the case was also dismissed, and in consequence a second summons against the same dealer was withdrawn, as was also the fourth case in which the abstraction amounted to 15·6 per cent.

It is practically impossible to obtain a conviction at the present time owing to the ruling in *Hunt v. Richardson*.

## The Public Health (Milk and Cream) Regulations, 1912 & 1917.

It will be recalled that by these Regulations a definite restriction has been placed on the use of preservatives by producers, retailers and others concerned in the milk and cream trade; no preservative is to be added to milk in any case, and no preservative is to be added to cream which is not sold as preserved cream.

The addition to cream of any other preservative substances than those mentioned is prohibited.

The object of the Regulations in regard to cream is to secure that preserved cream sold in compliance with the Regulations shall be distinguished at all stages of sale from cream to which no preservative has been added; this distinction is important in the interests of the public generally, and particularly in the interests of infants and invalids.

5 samples of Cream were submitted to the Public Analyst of the County Council during the year 1921, not one of which contained a preservative or any thickening substance.

The number of Milks submitted was 145, and all were examined for preservatives but nothing was found in any of them.

LUTON.—Two samples of cream submitted. No declaration, and no preservative found in either.

BEDFORD.—Five samples of cream submitted; no declaration in any case. Preservatives not found in four. One sample contained 0·235 per cent. of boric acid, fat 46·0 per cent.

Two samples of preserved cream contained 0·26 and 0·037 per cent. of boric acid and 65 and 45 per cent. of fat, respectively.

Proceedings were taken in one case under the Milk and Cream Regulations for selling without the prescribed label Cream preserved with boric acid. A conviction was obtained.

### The Administration of the Midwives' Act in 1921

During the year 1921, 71 notifications were received of intention to practice midwifery within the County; as against 77 in the preceding year, 74 in 1919, 73 in 1918, and 68 in the year 1917.

The Still Birth Notifications were as follows :—

Legitimate	40					
Illegitimate	3					
Full Time	...	...	...	...	...	24

Enquiries were made into all these Still Births.

All the mothers did domestic work excepting three.

I. Visits paid by the Inspectors of Midwives :

	1917.	1918.	1919.	1920.	1921.
Routine visits of inspection	402	380	300	264	233
Visits paid but midwives not at home ... ..	102	98	90	87	73
Special inquiry visits arising from notifications ...	285	298	320	423	371
Other special visits and enquiries ... ..	409	302	285	274	222
	<u>1198</u>	<u>1078</u>	<u>995</u>	<u>1048</u>	<u>899</u>

*The following special visits have been paid :*

1. In illnesses heard of in cases after Midwife had ceased attending, to ascertain if Midwife had been negligent.
2. Enquiries in towns and villages about Uncertified Midwives practising.
3. To Secretaries of County Nursing Associations (local branches) relative to midwifery in villages, principally to suggest additions being made to bags.
4. To the Secretary of the County Nursing Association relative to the work of Nurses and Midwives in the County.
5. To the cases at which Midwives were in attendance, to superintend their work.
6. To women wishing to be trained for Midwifery.

7. To houses where there are new-born babies and where medical help has not been required.
8. To secretaries of Insurance Companies regarding maternity benefit being paid where a Midwife was in attendance.

#### II. Notifications received from Midwives :

	1917	1918	1919	1920	1921
Of intention to practice .....	68	73	74	77	71
Of change of address .....	3	4	3	14	7
Of change of name .....	—	—	—	1	1
Of sending for medical help .....	144	151	173	245	248
Of still births occurring in their practice .....	68	45	41	53	43
Of deaths occurring in their practice before the arrival of a medical practitioner.....	5	7	9	6	6
Of laying out the dead.....	3	2	2	—	—
	<u>291</u>	<u>282</u>	<u>302</u>	<u>396</u>	<u>376</u>

#### III. Defaults of the Central Midwives Board's Rules :

	1917	1918	1919	1920	1921
Failure to notify the sending for medical help .....	—	—	—	5	3
Midwife wrongly describing herself in an advertisement.....	—	1	—	—	—

#### IV. Defects discovered by the Inspector of Midwives, when visiting Midwives: State of bag or basket of appliances: Unsatisfactory .....

*Puerperal Fever* occurring in midwives practice, 1914, 4; 1915, 1; 1916, 2; 1917, 2; 1918, 2; 1919, 0; 1920, 0; 1921, 0.

*Ophthalmia*—Inflammation or discharge from the eyes, however slight, Rule E. 20 (5). During 1921 there were 18 cases reported.

*Ophthalmia Neonatorum*—3 cases were reported during 1921, which made a good recovery under treatment.

Each midwife is supplied with a leaflet giving instructions as to the care of Infant's eyes, and prompt enquiries are made into every case occurring in a midwife's practice.

Leaflets upon Venereal Diseases are also supplied.

*Number of cases in the County attended by Midwives :*

Each midwife who has given notice of her intention to practice has been asked to make a return of the number of cases she has attended during the year (*a*) as a midwife, and (*b*) as a maternity nurse (*i.e.*, acting under a medical practitioner).

Returns were made by 65 midwives, showing that during 1921 1,817 cases were attended by 55 midwives. In addition 271 cases were attended by 47 midwives acting in the capacity of maternity nurses.

	As Midwives ( <i>i.e.</i> , acting alone).	As Maternity Nurse ( <i>i.e.</i> , acting under a Doctor.)
Attended no cases ... ..	10	19
Attended less than 5 ... ..	12	19
Attended between 5 and 10 ... ..	8	17
Attended between 10 and 25 ... ..	14	9
Attended between 25 and 50 ... ..	9	—
Attended between 50 and 100 ... ..	5	—
Attended between 100 and 200 ... ..	5	—
Attended over 200 .. ..	—	—

Ten Bedfordshire candidates were trained in Midwifery during 1921.

On December 31st, 1921, there were in the County 70 midwives. Of these, 29 are nurse midwives working under Committees affiliated to the Bedfordshire County Nursing Association, and 5 are nurse midwives employed by independent Local Nursing Associations; 30 are trained midwives in private practice, and the remaining 6 are untrained *bonâ fide* midwives who take very few cases during the year.

The Education Committee make an annual grant of £150 for the purpose of training individuals as nurse midwives for service under the Bedfordshire County Nursing Association. Owing to the greatly-increased cost of training, this grant would be insufficient, if sufficient candidates were forthcoming.

The Midwives Committee have agreed to pay two-thirds of any deficiency under conditions proposed by the County Nursing Association, provided that the Association employ a Nurse

Inspector to report upon and assure this Committee of the efficiency of the Nurses ; that every reasonable effort is made by the Nursing Districts to raise the necessary funds ; and that it rests within the discretion of the Committee to decide whether every reasonable effort has been made. The Committee further agreed that the fees and expenses of such inspection be paid by this Committee, provided that the scale of salaries of Nurse-Midwives working in the districts affiliated to the County Nursing Association, be as follows :—

				£
1st year	...	...	...	90
2nd "	...	...	...	100
3rd "	...	...	...	110
4th "	...	...	...	120
5th "	...	...	...	125
6th "	...	...	...	130

and that nurses in receipt of the above-mentioned salaries receive in addition their uniform, boots and shoes ; that all Nurses having completed 10 years satisfactory service receive the maximum of £135 per annum ; and that such scale of salaries take effect as from 1st January, 1921.

During the year under review the Secretary of State issued to Certified Midwives who have notified their intentions to practice, an authority under the Dangerous Drugs Act, 1920, to be in possession of and to administer preparations containing opium, so far as is necessary in their practice. This authority is subject to the condition that the Midwives shall at once enter in a book (which is to be kept for this sole purpose) particulars of all supplies obtained, including the date, quantity and name and address of the person from whom they are obtained. All the certified midwives were duly informed of this. I am given to understand that it is now very seldom that opium is given by any of the midwives of Bedfordshire.

The Midwives' Committee received a communication from the Ministry of Health stating that they are prepared to approve the payment of 5s. per case to Midwives carrying out ante-natal work to the satisfaction of the Medical Officer of Health, and to pay a grant in respect of such expenditure. The Committee have therefore decided to make such payment to Midwives.

The County Midwives' Association (of which I am the President and Dr. Welch a Vice-President) held several very successful meetings in 1921. The County Council makes a grant of 2 guineas per annum to the Association.

TABLE I.—Causes of Death at Different Periods of Life in the Administrative County of Bedfordshire, 1921.

CAUSES OF DEATH.	AGGREGATE OF URBAN DISTRICT.						AGGREGATE OF RURAL DISTRICT.													
	At all ages.	1 under year.	2 and under	5 and under	15 and under	25 and under	45 and under	65 and under	At all ages.	1 under year.	2 and under	5 and under	15 and under	25 and under	45 and under	65 and under				
			5	15	25	45	65		5	15	25	45	65		5	15	25	45	65	
Enteric Fever	1	—	—	1	—	—	—	3	—	—	—	—	—	—	—	—	—	—	—	—
Scarlet Fever	2	—	—	1	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—
Whooping Cough	12	4	1	1	—	—	—	4	3	—	—	—	—	—	—	—	—	—	—	—
Diphtheria	28	—	8	19	—	—	—	10	—	2	—	—	—	—	—	—	—	—	—	—
Influenza	16	—	—	—	1	3	6	9	—	—	—	—	—	—	—	—	—	—	—	—
Encephalitis Lethargica	4	—	—	2	—	—	1	4	—	1	—	—	—	—	—	—	—	—	—	—
Tuberculosis of Respiratory System	102	—	—	1	28	51	15	64	—	—	—	—	—	—	—	—	—	—	—	—
Other Tuberculous Diseases	31	3	1	3	5	8	5	21	1	—	—	—	—	—	—	—	—	—	—	—
Cancer, Malignant Disease	168	1	—	—	—	13	72	128	—	—	—	—	—	—	—	—	—	—	—	—
Rheumatic Fever	2	—	—	—	—	—	—	5	—	—	—	—	—	—	—	—	—	—	—	—
Diabetes	18	—	—	—	—	—	—	12	—	—	—	—	—	—	—	—	—	—	—	—
Cerebral Hæmorrhage, &c.	108	—	—	—	—	—	—	87	—	—	—	—	—	—	—	—	—	—	—	—
Heart Disease	150	—	—	—	—	—	—	93	—	—	—	—	—	—	—	—	—	—	—	—
Arterio-sclerosis	37	—	—	—	—	—	—	22	—	—	—	—	—	—	—	—	—	—	—	—
Bronchitis	126	24	3	1	—	—	—	56	8	—	—	—	—	—	—	—	—	—	—	—
Pneumonia (all forms)	89	18	6	4	2	14	23	34	4	—	—	—	—	—	—	—	—	—	—	—
Other Respiratory Diseases	14	—	—	—	—	—	—	9	—	—	—	—	—	—	—	—	—	—	—	—
Ulcer of Stomach or Duodenum	9	—	—	—	—	—	—	3	—	—	—	—	—	—	—	—	—	—	—	—
Diarrhoea, &c.	39	30	3	—	—	—	—	29	15	2	—	—	—	—	—	—	—	—	—	—
Appendicitis and Typhlitis	10	—	—	—	—	—	—	5	—	—	—	—	—	—	—	—	—	—	—	—
Cirrhosis of Liver	4	—	—	—	—	—	—	4	—	—	—	—	—	—	—	—	—	—	—	—
Acute and Chronic Nephritis	31	—	—	—	—	—	—	21	—	—	—	—	—	—	—	—	—	—	—	—
Periperal Sepsis	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—
Other Accidents and Diseases of Pregnancy and Parturition	5	—	—	—	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—
Congenital Debility, &c.	76	76	—	—	—	—	—	47	47	—	—	—	—	—	—	—	—	—	—	—
Suicide	10	—	—	—	—	—	—	8	—	—	—	—	—	—	—	—	—	—	—	—
Violence, apart from Suicide	29	—	2	2	2	6	8	36	—	—	—	—	—	—	—	—	—	—	—	—
Other defined Diseases	289	24	7	1	7	28	47	237	16	2	3	5	1	12	25	173	—	—	—	—
Causes ill-defined or unknown	13	1	—	—	—	—	—	8	—	—	—	—	—	—	—	—	—	—	—	—
TOTALS: ALL CAUSES	1423	183	26	22	48	63	162	964	97	12	15	36	40	75	185	504	—	—	—	—

TABLE II.  
THE COUNTY OF BEDFORD.  
CAUSES OF DEATH IN ADMINISTRATIVE AREAS, 1921.

CAUSES OF DEATH.	ADMINISTRATIVE AREAS.													TOTALS.	
	Amphill		Bedford		Biggleswade		Dunstable.	Eaton Bray.	Eaton Secon.	Kempston.	Leighton Buzzard.	Luton Borough,	Luton Rural.	U.D's., 1921.	R.D's., 1921.
	Urban	Rural	Urban	Rural	Urban	Rural									
Civilians Only.															
Enteric Fever ... ..	—	—	—	—	—	1	1	—	1	—	—	—	1	1	3
Small-pox ... ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Measles ... ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Scarlet fever ... ..	—	—	1	2	—	—	—	—	—	—	—	1	—	2	2
Whooping-cough ... ..	—	2	2	1	1	—	—	1	—	1	1	7	—	12	4
Diphtheria and Croup... ..	1	3	1	1	1	1	5	2	—	—	—	20	3	28	10
Influenza ... ..	1	—	7	8	1	1	2	—	—	—	—	5	—	16	9
Erysipelas ... ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Phthisis (pulmonary tuberculosis) ... ..	1	17	25	14	7	17	5	1	3	3	4	57	12	102	64
Tubercular Meningitis ... ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other tubercular diseases ... ..	—	7	9	4	4	7	4	1	—	2	—	12	2	31	21
Cancer, malignant disease ... ..	5	40	61	24	7	33	19	10	8	6	10	60	13	168	128
Rheumatic Fever ... ..	—	2	—	1	—	1	—	—	—	—	—	2	1	2	5
Meningitis ... ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Organic Heart Disease ... ..	4	29	46	19	4	24	9	4	4	5	21	61	13	150	93
Bronchitis ... ..	3	20	26	7	4	20	14	—	3	5	11	63	6	126	56
Pneumonia (all forms) ... ..	1	9	26	6	5	13	10	1	1	1	6	40	4	89	34
Other diseases of Respiratory organs ... ..	—	3	5	4	1	2	2	—	—	—	1	5	—	14	9
Diarrhoea, &c. (under 2 years) ... ..	—	5	8	2	—	2	1	3	1	—	2	22	4	33	17
Appendicitis and Typhlitis ... ..	—	1	3	—	2	3	1	—	—	—	—	4	1	10	5
Cirrhosis of Liver ... ..	—	—	—	1	1	2	—	—	1	—	—	3	—	4	4
Alcoholism ... ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Nephritis and Bright's Disease ... ..	2	6	10	2	—	8	2	—	1	—	1	16	4	31	21
Puerperal fever ... ..	—	1	—	—	—	—	—	—	—	—	—	—	—	—	1
Parturition, apart from Puerperal Fever ... ..	—	1	2	—	—	—	—	—	—	—	1	2	1	5	2
Congenital Debility and Malformation including Premature Birth ... ..	2	10	21	10	2	8	1	3	5	3	5	42	11	76	47
Violent deaths, excluding Suicide ... ..	1	10	21	12	4	10	3	2	—	2	2	6	2	29	36
Suicides ... ..	—	1	3	—	1	5	—	—	2	—	—	6	—	10	8
Other Defined Diseases* ... ..	17	121	178	72	21	104	34	26	14	17	27	173	36	467	373
Diseases ill-defined or unknown ... ..	—	2	4	2	1	2	2	—	—	1	—	5	2	13	8
*Special Causes (included above).															
Cerebro-spinal Fever ... ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Poliomyelitis ... ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Encephalitis Lethargica ... ..	1	3	1	1	—	—	—	—	—	—	—	2	—	4	4
TOTALS : ALL CAUSES ... ..	39	293	460	193	67	264	115	54	44	46	92	614	116	1423	964

Table II

THE EFFECT OF TEMPERATURE

ON THE RATE OF REACTION

Temperature (°C)	Rate of Reaction	Time (min)	Concentration (M)
10	0.001	100	0.1
20	0.002	50	0.1
30	0.004	25	0.1
40	0.008	12.5	0.1
50	0.016	6.25	0.1
60	0.032	3.125	0.1
70	0.064	1.5625	0.1
80	0.128	0.78125	0.1
90	0.256	0.390625	0.1
100	0.512	0.1953125	0.1