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County Palatine of Chester.

REPORT

OF THE

Medical Officer of Health,

For the Year 1922.

BY

MEREDITH YOUNG, M.D., D.P.H.,

Of Lincoln's Inn, Barrister-at-Law.

PRESENTED TO THE

Public Health and Housing Committee

OF THE COUNTY COUNCIL,

October 19th, 1923.

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REPORT

OF THE

Medical Officer of Health

For the Year ending December 31st, 1922.

To the Public Health and Housing Committee of the
County Council of the County Palatine of Chester
and to the Members of the County Council.

INDEX.

INTRODUCTION.

To the Chairman and Members of the
Public Health and Housing Committee,
of the Cheshire County Council.

MR. CHAIRMAN AND GENTLEMEN,

The Report which I now have the honour to present you with is much briefer than in previous years and is more or less written "to command." The Abstracts of the Reports received from the several Urban and Rural Districts are omitted according to instructions from the Ministry of Health. I have, however, endeavoured to keep to the front those matters which are of interest to you as the supervising body in public health questions.

The population is steadily increasing, the general death-rate has again fallen, the infant mortality rate continues to decline and was the *lowest on record* in 1922, whilst infectious disease has been well controlled.

Activity in general sanitary measures has not regained its pre-war height, but with few exceptions promises well.

The many schemes aiming at the improvement of the public health for which your Committee are responsible continue to improve and there is not one of them which any reasoning and properly informed member of the public should hesitate to support. Immediate results are the exception and not the rule where public health efforts are concerned. There are those, however, among you who know the toll of life and health which used to be exacted only fifteen or twenty years ago in this County and who

can measure the progress which hygiene has made in that short span. Public Health is a growing science and it will probably never finish growing. New things which influence health are continually coming to light and those in charge of the public health must never be slow to take advantage of them and even to experiment with them lest they should miss an asset of gold.

I thank your Committee and all those with whom I have officially come in contact for their courtesy, help and kindly criticisms.

I am,
Mr. Chairman and Gentlemen,
Your obedient Servant,

MEREDITH YOUNG,
County Medical Officer of Health.

43, Foregate Street,
Chester,
September, 1923.

REPORT OF THE

Medical Officer of Health,

For the Year ended December 31st, 1922.

Section I.—Area and Population.

Area.

In the Census Report of 1911 this is given as 640,823 acres and in the Preliminary Census Report 1921 as 640,791 acres.

Population.

The population of the Administrative County, as enumerated at the Census of 1911, was 597,771 and in the Preliminary Census Report of 1921 as 625,001, an increase of 27,230 in the decennial period.

This year the population is estimated as under:—

6 Municipal Boroughs	173,690
35 other Urban Districts	266,087
12 Rural Districts	193,539
Total	633,316

The Registrar-General in a Memorandum published in March, 1923, states:—

> The annual distribution of his returns of births and deaths and estimates of population for the past year affords the Registrar-General an opportunity of directing the attention of Medical Officers of Health and others using the returns to some points upon which experience has shown that misunderstandings tend to arise.
>
> 1. The numbers of births and deaths are those registered during the calendar year and are corrected for inward and outward transfers; they will differ therefore from uncorrected figures compiled locally either for the calendar year or for a period of fifty-two or fifty-three weeks.

2. POPULATION.—The procedure followed in adjusting the local Census populations of 1921 in order to arrive at estimates of resident populations for that year which could suitably be used in connection with statistics of births and deaths classified according to area of residence is described in the Registrar-General's Annual Report for 1920.

The estimates of population as at 30th June, 1922, which are now provided have been based on the adjusted 1921 figures after allowance for the varying rates of natural increase as evidenced by the births and deaths in each area and of migration as indicated from other sources of information such as the changes in the numbers on the Parliamentary Register and the migration returns obtained by the Board of Trade.

3. 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 inquiries 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 that table.

The Registrar-General's estimate of the resident population is contained in column 2 of this table.

The figures for the several districts are as under:—

Municipal Boroughs. (6)	Population at Census, 1921.	Population supplied by Registrar General, 1923.	Area in Acres.
Congleton	11764	12030	2572
Crewe	46477	47390	2184
Dukinfield	19493	19970	1407
Hyde	33437	34110	3079
Macclesfield	33846	34440	3214
Stalybridge	25233	25750	3132
	170250	173690	15588

Urban Districts. (33)	Population at Census, 1921.	Population supplied by Registrar General, 1923.	Area in Acres.
Alderley Edge ...	3072	3082	678
Alsager	2693	2695	2241
Altrincham	20461	20810	1425
Ashton-upon-Mersey ...	7780	7911	1623
Bebington and Bromborough ...	19110	19600	3446
Bollington	5094	5173	1291
Bowdon	2967	2926	850
Bredbury and Romiley	9169	9273	3990
Buglawton	1572	1651	2911
Cheadle and Gatley ...	11036	11170	5087
Compstall	944	940	903
Ellesmere Port and Whitby ...	13075	13540	3449
Hale	9285	9283	1288
Handforth	904	931	1311
Hazel Grove & Bramhall	10125	10230	5447
Hollingworth ...	2465	2493	2086
Hoole	5990	6054	334
Hoylake & West Kirby	17055	16560	1979
Knutsford	5411	5433	1760
Lymm	5288	5315	4374
Marple	6613	6566	3055
Middlewich	5116	5331	1082
Mottram in Longdendale	2882	2904	1084
Nantwich	7296	7417	703
Neston and Parkgate ...	5191	5193	3331
Northwich	18385	18700	1398
Runcorn	18393	18850	1274
Sale	16337	16500	2006
Sandbach	5843	6003	2694
Tarporley	2516	2520	6195
Wilmslow	8286	8249	5090
Winsford	10957	11120	5778
Yeardsley-cum-Whaley	1698	1664	1323
	263009	266087	81486

Rural Districts. (12)	Population at Census, 1921.	Population supplied by Registrar General, 1923.	Area in Acres.
Bucklow	22149	22250	56806
Chester	13327	13450	34253
Congleton	13217	13440	40152
Disley	3024	2993	2466
Macclesfield	17047	17030	79494
Malpas	4464	4433	21405
Nantwich	25013	25250	98466
Northwich	24434	24880	54307
Runcorn	28929	29320	49117
Tarvin	13410	13460	56871
Tintwistle	2071	2053	13619
Wirral	24657	24980	36761
	191742	193539	543717
Administrative County	625001	633316	640791

Section II.—Births and Deaths.

Births.

The total number of births registered in the Administrative County during 1922 was 11,395, equal to a birth-rate of 17.9 per 1,000 of the estimated population. This is a decrease from last year, when the number of births was 12,440, giving a rate of 19.7. Comparative statistics are:

	England and Wales	20.6
105	Great Towns	21.4
155	Smaller Towns	20.5
	London	21.0

The highest birth-rates were:—

Ellesmere Port U.D.	27.1
Sandbach U.D.	22.9
Runcorn U.D.	21.9
Congleton Borough	21.3
Neston U.D.	21.7

The lowest were:—

Bowdon U.D.	10.2
Sale U.D.	11.2
Mottram U.D.	12.3
Cheadle and Gatley U.D. ...	13.5

The total number of illegitimate births in the Administrative County was 481, as against 510 in 1921. Forty-seven of these infants died under the age of twelve months.

Deaths.

The total number of deaths occurring in the Administrative County during 1922 was 7,691, equal to a death-rate of 12.1 per 1,000 of the estimated population. In 1921 the death-rate was 11.4. Comparative statistics are:—

	England and Wales	12.9
105	Great Towns	13.0
155	Smaller Towns	11.7
	London	13.4

The rates vary very considerably. The highest rates are recorded in the following districts:—

Congleton Borough	17.7
Bollington U.D.	17.2
Stalybridge Borough	15.1
Runcorn U.D.	14.8

The lowest rates are recorded in the following districts:—

Buglawton U.D.	6.6
Hale U.D.	8.9
Neston and Parkgate U.D. ...	9.4
Ashton-upon-Mersey U.D. ...	9.8
Bredbury and Romiley U.D. ...	9.7
Chester R.D.	9.9

Births and Deaths.

The figures for the past 10 years are as follows:—

	Births.	Deaths.
1922	11,395 ...	7,691
1921	12,440 ...	7,197
1920	14,075 ...	7,246
1919	9,999 ...	8,066
1918	9,838 ...	8,903
1917	9,970 ...	7,278
1916	11,537 ...	7,730
1915	12,078 ...	8,286
1914	13,019 ...	7,816
1913	13,206 ...	7,867

Of these deaths 3,808 were males and 3,883 females. The most fatal age-period for both sexes was that from 45 to 65 years. The most common causes of death were as under:—

	M.	F.	Total.
Heart Disease	443	592	1035
Cancer (Malignant disease)	364	430	794
Pneumonia (all forms) ...	335	221	556
Bronchitis	267	301	568
Pulmonary Tuberculosis ...	210	208	418
Cerebral Hæmorrhage ...	226	288	514
Congenital Debility, &c....	177	164	341

From diseases other than infectious ones to which separate reference is made the following deaths occurred:

Rheumatic Fever	29
Diabetes	104
Arterio-sclerosis	270
Ulcer of Stomach or Duodenum	51
Appendicitis and Typhlitis	42
Cirrhosis of Liver	29
Suicides	69
Other deaths from violence	202

There were only 13 deaths from causes which were unknown or ill defined.

Zymotic Diseases.

The total number of deaths from this special group of diseases in the Administrative County during 1922 was 332, equal to a zymotic death-rate of .52 per 1,000 of the estimated population.

The principal causes of death in this group were:—

Enteric (Typhoid) Fever	11
Measles	108
Scarlet Fever	34
Whooping Cough	75
Diphtheria	49

There were also 4 deaths from Poliomyelitis, 4 from Encephalitis Lethargica ("sleepy sickness") and 6 from Meningococcal Meningitis ("spotted fever").

Infantile Mortality.

Your Council commenced their scheme of Maternity and Child Welfare on the 1st April, 1916. The larger portion of the County comes within the scheme, but there are a number of districts which are responsible for their own schemes.

There have been 766 deaths of infants under one year in the Administrative County during 1922, a number equivalent to 67 per 1,000 of the recorded births. In 1921 there were 991 deaths, the rate being 79 per 1,000.

Particulars of the infantile death-rate for the last 10 years are as follows:—

	Infantile Death-rate.
1922	67
1921	79
1920	71
1919	83
1918	85
1917	86
1916	75
1915	98
1914	94
1913	104

Comparative statistics are:—

	England and Wales	77
105	Great Towns	82
155	Smaller Towns	75
	London	74

The above rates have ruled highest in the following districts:—

Ellesmere Port and Whitby U.D....	116
Hollingworth U.D.	114
Mottram U.D.	111
Sandbach U.D.	108
Knutsford U.D.	108
Winsford U.D.	100

In Compstall Urban District there were no deaths under one year.

Low rates were recorded in the following districts:—

Marple U.D.	10
Alsager U.D.	19
Tarporley U.D.	20
Lymm U.D.	28
Buglawton U.D.	28

Tuberculosis.

As the County Tuberculosis Officer will be presenting a report on this subject I will only give the bare statistics. The deaths have been as under:—

	Males.	Females.	Total.
Pulmonary Forms ...	210	208	418
Other Forms	75	57	132
Total	285	265	550

Influenza.

Once more this disease has claimed a large number of victims: there were 312 deaths ascribed to it during 1922, as against 138 in 1921. The Urban Districts of Northwich, Runcorn, Winsford, Crewe, Macclesfield and Congleton appear to have suffered somewhat heavily in this respect.

Diphtheria.

The deaths from this disease numbered 49 in all, as against 47 in 1921. The fatality of Diphtheria continues to decline in a gratifying manner and has done so since 1911. The most unfortunate district in this respect was Wilmslow U.D., where five deaths were recorded.

Cancer (Malignant Disease).

Once more this group of diseases has taken heavy toll of the population, no fewer than 794 deaths being recorded as due to it. This is equivalent to a death-rate of 1.26 per 1,000 of the population as compared with 751 deaths and a death-rate of 1.20 for the year 1921. The rate for England and Wales during 1921 was 1.21 per 1,000—the number of deaths being 46,022.

This rate has grown in England and Wales from 0.32 per 1,000 in the decade 1851—60 to 1.12 in 1911—20, in other words it has almost quadrupled itself in sixty years. Whilst improvements in medical science have resulted in a decline in the general death-rate, in the mortality amongst infants and in tuberculosis—to give only three instances—this rapid increase in cancer prevalence is all the more disquieting.

This immolation of cancer victims proceeds apace and so far, in spite of a fabulous expenditure of money and energy, we still stand where we did years ago. From the public health point of view all we know is that *early recognition and early and radical removal will sometimes check its growth entirely and always give a large measure of relief.* In fact this is about the only hope the wretched cancer victim has and even this is frequently denied to him by the insidious and painless onset of the disease. The mass of information collected about cancer would probably be enough to fill a fair-sized valley and if only a Committee of what have been termed "problem-solvers" were put on to dissecting this and sorting out the irrelevant rubbish some valuable clues might easily be discovered. There is far too much inco-ordination in connection with research work in the case of cancer as I have said years ago and until this is rectified it will probably only be sheer chance which will discover the cause and the mode of cure. Many people have the idea that if the cause is discovered the prevention and the cure will follow immediately. In this they are grievously mistaken for we know the causal agents of many diseases and they are far from being stamped out yet.

The Statistical Review of the Registrar-General for 1921 brings out some noteworthy facts relating to malignant disease amongst which the following are worthy of quotation. Cancer of the gall-bladder is much more frequent in females than in males: cancer of the scalp is twice as common in females as in males, whereas cancer of the external ear is thrice as common in males as in the opposite sex. This disease causes many more deaths in males when it affects the mouth and throat, though it is a more common cause of death in the female when it affects the thyroid gland (in the neck): the last named organ, it may be noted, is more often affected by enlargement and the like in women than in men.

The Ministry of Health has at length made an official move by issuing in August, 1923, a Memorandum on the

subject, the following extracts from which are of public interest: —

"The large majority of people go through life, even to old age, without suffering from cancer, but the geographical and social distribution of cancer mortality shows that the risk of being attacked by cancer is one which is widely disseminated. In a broad sense, liability to cancer is not an attribute of any particular social class, profession or occupation. It is to be inferred, therefore, that the occurrence of cancer depends, to an important degree, on personal predisposing factors. For the purpose of this memorandum there would be no advantage in detailing or summarising studies or speculations on the nature of those factors, on the specific, general or constitutional antecedents of cancer, or on the meaning of "proclivity" to cancer. Knowledge is not far enough advanced. It is right, however, to point out that *hereditary* predisposition to cancer has not at present been proved to be of any practical importance in man; that it cannot be asserted with scientific authority that the use of any particular article of food increases the liability to cancer, or prevents it from appearing; that no known drug or preparation will prevent its appearance or cure it when present; and that no danger of cancer has been proved to result from inhabiting houses or districts in which cancer happens to have been exceptionally common. There is no evidence to show that cancer is an infectious or contagious disease.

"One certain fact about cancer is that it frequently follows on chronic and prolonged irritation. Not all tissues, however, are equally liable in this respect. The palm of the hand, for example, in spite of its exposure to chronic irritation of all kinds, is probably never the seat of cancer. In the female breast cancer occurs far more commonly in the deeper parts of the gland than in the nipple, which is more exposed to injury. Some tissues show a special liability to develop cancer during chronic irritation, such as the skin of the face, the lips, insides of cheeks, tongue, lower part of bowel, neck of womb. Certain varieties of chronic irritation, too, are more liable to be followed by cancer than others. Thus, in the lip, long continued irritation by a clay pipe is particularly dangerous; in the tongue, irritation by a jagged tooth or badly fitting toothplate; in the womb, the chronic ulceration which may follow confinement. Again, syphilitic disease affecting the tongue or female external generative organs, or tuberculosis of skin (lupus) affecting the face, particularly if it has necessitated prolonged treatment, is liable to

end in cancer. And lastly, workers in tar such as briquette makers, workers with anilin or paraffin, chimney sweeps, and mule-spinners are apt to suffer from cancer in special parts of the body as a consequence of repeated irritation by the particular agent concerned.

"This liability of cancer to follow chronic irritation of so many different types is remarkable, and leads to the supposition that beneath them all there lies some common factor—as yet unrecognised—which is fundamental to the passage of a chronic inflammatory and non-cancerous condition into one that is definitely cancerous. In one variety of cancer (rodent ulcer) the distribution of the new growth is such that it suggests a close relationship with the nerve supply of the affected part. How far this is true and how far modifications of the body itself as distinguished from the chronic irritant play a part in the ultimate production of the cancer it is impossible to say in our present state of knowledge.

"While considerations such as those in III. above show how far we are from being able to say how cancer is to be avoided, those in IV. indicate that there are at least some provocative causes of cancer which can be guarded against. Since cancer occurs more commonly in certain sites, it is prudent to notice and remove causes of chronic irritation in these sites. Apart altogether from cancer, people should attend to these conditions in the exercise of common care for their general health and fitness.

"In this category, for example, and for reasons just given, come the removal of rough stumps of teeth or replacement of badly fitting dentures; a change of habit if pipe-smoking is found to produce soreness on the same spot of the lip or tongue; an alteration of clothing which causes irritation of particular regions of the body—for example, the breast; the avoidance of constipation and other like matters. On the same basis the possibility of establishing a chronic irritation in a region liable to cancer gives an additional reason for obtaining advice and treatment in disorders of the stomach, bowels, or womb. Finally, special precautions, the nature of which is well known to those concerned, must be adopted in certain occupations (tar, etc.) known to entail super-added and specialised risks of cancer.

"For reasons that are indicated in succeeding paragraphs early diagnosis is of the greatest importance. This means

not only diagnosis of the actual existence of cancer, but, even more, diagnosis of the existence of abnormal conditions that are common precursors of cancer. Cancer itself in its early stages is almost invariably unaccompanied by pain, and is sometimes painless throughout. This painlessness of cancer in its early stages is one of its most insidious dangers, since it leads the patient to delay seeking medical advice. Were cancer as painful in its early stages as toothache, there would be far fewer of those pitiable cases in which the patient first seeks advice when the cancer has reached a stage beyond all but palliative treatment.

"Early diagnosis obviously depends upon co-operation between the patient and the doctor. Medical advice should be sought at once particularly if a tumour or lump is found in the breast, if an ulcerated condition exists on the tongue, lip or skin which does not heal in a few days, if there is persistent hoarseness, if a mole or wart shews a tendency to grow, if blood or mucus is passed with the stools, if there is bloody or offensive discharge at other than the normal monthly periods, especially at the change of life or after it has passed. Even with the greatest care and skill doubtful cases occur; but only after careful medical examination can it be decided whether such conditions are or are not indicative of cancer, and those who seek advice in these circumstances are taking a wise course quite apart from cancer possibilities. An abnormality is there, and whatever it is due to it should be treated and not nursed in secret.

"If a person has not recognised that something is wrong —and such cases occur—nothing more can be said. But very many persons are aware that something is wrong, fear it may be cancer and put off consulting a doctor because they think that if cancer be diagnosed an operation will be necessary. Quite apart from the facts that anæsthetics and antiseptics have robbed operations of many of their terrors, and that many such cases would not be cancerous at all, the chances of a patient must be better the earlier he or she comes under treatment. Most medical authorities believe that in cancer early operation affords the best chance to the patient, although they would not feel justified in stating that all risk of recurrence is necessarily removed by operation, even if undertaken in an early stage of the disease. But there is indubitable evidence that removal by operation, though ultimately followed by recurrence, enables many people to live a natural life in comfort for

considerable periods, while in advanced cases such removal may relieve or prevent prolonged suffering. There are many cases, moreover, in which cancerous growths have been removed once and for all, the patient has lived for years afterwards without recurrence, and has ultimately died from an entirely different cause.

"And, lastly, evidence is accumulating that in some varieties of cancer, and in some situations, radium or X-ray treatment, or diathermy, carried out by expert medical practitioners, offers at least as good a chance to the patient as surgery, without the attendant disadvantages, and in other cases it may be tried when surgery is out of the question. *The essential point is that the patient should not postpone or delay seeking competent medical advice, and, above all, should not waste time or money by trying quack remedies which at best are useless, and at worst aggravate the disease. In any condition in which cancer is suspected, immediate and decisive action is necessary.*

"Many local authorities, on the advice of their medical officers of Health, undertake invaluable "propaganda" in relation to certain diseases by means of public notices, advertisements, broadcast leaflets, lectures, cinemas and the like. The considerations set out above show how greatly cancer differs, in regard to the applicability of these methods, from a disease such as smallpox, for which there is a sure preventive to be proclaimed, from other diseases of the infectious class where individuals must be urged to take precautions for the safety of their fellows, or from diseases such as the venereal group for which special and gratuitous treatment is provided out of the public funds, and requires to be advertised. Much caution is obviously needed in announcements to the public on cancer in order to avoid over-statement, the making of promises which are not warranted by evidence, or the production of needless and mischievous apprehension of cancer. If all this is realised, knowledge of some of the main facts of cancer (negative as well as positive)—such as are indicated in this Circular—may usefully be spread through the ordinary agencies of public health departments, notably by instruction at welfare centres, by midwives and maternity nurses, and by social welfare workers."

Syphilis.

The deaths from this disease are not specifically mentioned in the Tables issued to us by the Registrar-General—a matter for regret. It is comforting, however, to note

that the returns shewn in his Statistical Review shew a definite diminution during the past three years in the deaths attributed to it. The reduction in deaths was due chiefly to a lessened rate from General Paralysis and to fewer deaths amongst infants under one year of age. Over two-thirds of the deaths directly due to syphilis are those of young infants.

Pneumonia (all forms).

This has caused 556 deaths, namely, 335 in men and 221 in women. There has been a decline in the fatality from this disease in recent years.

Heart Disease.

As usual this group of diseases has claimed a large number of victims, viz.:—443 males and 592 females, or a total of 1,035.

Diarrhœal Diseases.

The number of children under two years of age whose deaths are attributed to these diseases continues to be a small one, viz.:—55 in all for the year. The extension of the Child Welfare movement is without any doubt responsible for the saving of life under this heading.

Puerperal Sepsis.

There are only 7 deaths to be recorded under this heading—a matter worth noting when it is considered that 11,395 births took place during the year.

Suicides.

There were 69 suicides recorded during 1922—46 in males and 23 in females.

Section III.—Infectious Diseases.

Diphtheria.

The following districts have suffered rather severely from this disease:—

	Cases notified.
Nantwich R.D.	55
Malpas R.D.	24
Bucklow R.D.	58
Wilmslow U.D.	22
Crewe M.B.	59
Altrincham U.D.	24
Cheadle and Gatley U.D.	43
Knutsford U.D.	44
Middlewich U.D.	44
Runcorn U.D.	27

The preventive programme in the case of diphtheria is almost as clearly mapped out as science can make it but it is such a big one that no Local Authority that I know of has ever adopted it in full. In particular the control of carriers is very ineffectual and incomplete. The first step, viz., that of distinguishing virulent from non-virulent carriers, has not so far as I can ascertain, been taken by any Sanitary Authority in the County and this alone must have been responsible for a good deal of wastage of public health and public money. We have not got a great deal more to learn about diphtheria though there is still the need to practice what we have preached. This indeed is the disease *par excellence* in which a well-equipped County Laboratory would save both life and money.

Small-pox.

Only one case of this disease was reported during the year and this was in Northwich U.D. In view of the prevalence of the disease in other parts of the country Medical Officers of Health have done their part in advocating vaccination as the only preventive known to science, but the brains of a large section of the community are still clouded by ignorance and they will probably only grasp the truth when it is too late.

Scarlet Fever.

This disease, generally of a very mild type, has been prevalent in a number of districts. There were, however, 34 deaths ascribed to it.

The practice of attempting to control this disease by what is known as the "Milne" method, *i.e.*, inunction of the skin with eucalyptus oil and the application of an antiseptic to the tonsils and pharynx has now been conclusively shewn to be ineffective (Dr. Gushue-Taylor, *Lancet*, September 8th, 1923). It is a good many years ago since I condemned this method and it is therefore satisfactory to know that after a very complete test my opinion has been upheld. Dr. Gushue-Taylor states that this method "does not prevent the occurrence of return cases: does not prevent the infection spreading to susceptible patients and attendants during the course of treatment: and does not prevent secondary complications."

Enteric (Typhoid and Para-Typhoid) Fever.

This disease caused eleven deaths during 1922. The only districts in which the disease gained any hold were the following:—

	Cases.
Dukinfield M.B.	13
Stalybridge M.B.	8
Runcorn U.D.	5
Buglawton U.D.	4

Section IV.—Venereal Diseases.

The following information as to number of cases dealt with is culled from the returns received from the several Institutions where free treatment is given:—

Institution.	Persons attending for first time at Out-Patient Clinic suffering from:				Total attendances at Out-Patient Clinic.	Number of In-Patient Days.	Doses of Salvarsan substitutes given.
	Syphilis.	Soft Chancre	Gonorrhœa.	Non-Venereal conditions.			
Liverpool Royal Infirmary ...	18	—	12	9	493	2	89
Liverpool David Lewis Northern Hospital	2	—	1	—	112	—	54
Liverpool Royal Southern Hospital ...	1	—	2	—	39	—	Not stated.
Ashton-under-Lyne District Infirmary ...	35	—	31	3	1958	—	540
Chester Royal Infirmary	20	—	15	5	680	177	398
Bury Infirmary ..	2	—	—	—	25	—	16
Stockport Centre ...	6	—	3	2	266	—	59
Salford Royal Hospital...	1	—	4	3	82	—	13
Manchester Hospitals ...	118	1	48	197	2559	58	641
Warrington Infirmary ...	7	—	11	1	346	—	130
TOTALS ...	210	1	127	220	6560	237	1940
Totals for year 1921 ...	232	21	181	105	7521	1158	2291
Totals for year 1920 ...	313	9	183	—	6693	1098	2099

The figures for 1922 shew a slight decline compared with those of the previous two years. There is a very marked decrease in the number of In-patient days doubtless due to the less complicated treatment of syphilis now in vogue.

The number of In-patient days in the case of the Chester Royal Infirmary seems to me to be rather excessive compared with other Institutions.

Section V.—Maternity and Child Welfare.

Note.—The whole of this Section, with the exception of the introductory paragraph, has been written by Dr. Jean R. Shaw, Lady Assistant Medical Officer of Health.

Introductory.

This branch of health work has been exceedingly well carried out under the immediate supervision of my colleague Dr. Jean R. Shaw. It is capable of a good deal of development still and now that the Treasury restrictions on expenditure are less severe it is hoped that in the near future some necessary advances will be made. We need in particular a considerable extension of ante-natal work, some provision of Maternity Homes, more Child Welfare Centres, Dental Treatment for mothers and some provision in the nature of Convalescent Homes for mothers to enable them to recuperate after the severe trial of child-birth.

The Urban District of Middlewich has joined the County scheme on the request of their own Council. But some overlapping still prevails owing to the fact that certain Urban Districts are still carrying out their own local schemes.

The Voluntary Committees still continue their beneficent work and our thanks are once more due to them in the fullest measure for their devotion to duty.

The County Nursing Association, with which this Department has always worked in the closest co-operation, has rendered valued assistance in providing District Nurse Midwives in areas where a shortage had occurred.

The following conclusions arrived at by a Committee appointed by the British Medical Association are of great interest in connection with this branch of Public Health work:—

"1. Maternity and Child Welfare work has contributed in an appreciable degree to the reduction of infant mortality that has taken place, but it is too early to determine to what extent it has been effective.

"2. The effect of many of the causes of infant mortality can be lessened by the education of women at centres and in their homes.

"3. The educational work amongst the mothers on the racial poisons (alcohol, syphilis, and tubercle), and on the influence on infant mortality of pollution of the air by smoke and other impurities with the consequent deprivation of sunlight, should be encouraged and extended.

"4. The instruction of elder girls at school in home-craft and mothercraft should be developed and encouraged.

"5. Every effort should be made to improve the economic position and prospects of midwives and midwifery nurses; and encouragement should be given to them by local authorities wherever there is difficulty in securing a sufficient supply.

"6. The provision of sufficient hospital accommodation for diseases of pregnancy and difficult confinements, and maternity homes for normal confinements which cannot conveniently be conducted in the patients' homes, should be made general as soon as possible.

"7. The primary and main object of maternity and child welfare centres should be educational, preventive, and advisory; no treatment should be given for conditions which, in the absence of the centre, would be recognized as calling for the attendance of a medical practitioner; it is against the best interests of the centres to encourage women to go to the centre for what they can *get* rather than for what they can *learn*.

"8. There are advantages to the work in associating with the centres a body of voluntary workers; but the whole of the work should be under the control of the Medical Officer of Health, in order that all the preventive agencies may be co-ordinated.

"9. The support of the local doctors, nurses, and midwives can and ought to be secured. This can be done (a) if it is made quite clear that the sphere of the centres is restricted as recommended above, and (b) if members of these professions are represented on the statutory Committee and the Committees controlling the centres, these representatives being nominated by the local organizations of these professions wherever such exist.

"10. The experience of the 'family doctor' would be useful in the work at the centres; but practitioners accepting the appointments must have knowledge of, and a real interest in, the work; the appointment should be for a long enough time to be administratively convenient; and those appointed should clearly realize that, in accepting the post, they must undertake to carry on the work irrespective of other claims on their time.

"11. For every mother, and child up to five years of age, there should be available domiciliary attendance by a family doctor.

"12. In order that medical practitioners should be fully equipped for maternity and child welfare work, it is desirable that the medical student should be educated in, and be encouraged in, the practice of, duties in relation to (a) personal and domestic hygiene, and (b) industrial hygiene and other spheres of preventive medicine."

The Midwives Act.

Number in practice.

There were 354 midwives who notified their intention to practise in the County Area during the year 1922.

Actually Practising: 173 Trained; 66 Untrained.
28 Monthly Nurses.
19 Midwives living outside the County Area.
6 Died (3 trained, 3 untrained).
44 Have had no cases.
2 Struck off the Roll (untrained).
16 In Institutions.

The number of trained midwives practising in the County Area has increased this year and there are 18 fewer untrained midwives taking cases. This is a great advantage not only to the mother, who gets better attention at labour and the puerperium but also to the baby, who from the beginning gets trained in regular habits.

The County has at present only five County midwives at Nantwich, Lymm, Tarvin, Upton and Hollingworth. These midwives have a grant of £60 from the County and keep their own fees. In the case of the Tarvin midwife, owing to the small number of cases, her grant is £80 per annum. The County midwife at Scholar Green resigned and so far the vacancy has not been filled.

Inspections.

On the whole the bags are well kept. Every midwife has several linings for each bag and carries her appliances in separate washable bags. The majority of the nurses have two bags so that one can be kept for use as a labour bag and the other for daily visiting. All are advised to do so, and if they can't afford to buy a second one instructions are given as to how to make one out of American cloth, &c.

The inspections have been carried out as in previous years by the Lady Assistant Medical Officer of Health, assisted by the Health Visitors. There have been 865 visits paid to midwives; 635 were formal inspections and the other 230 were paid to make enquiries *re* still-births, puerperal fever cases, infant deaths, &c.

Facts Ascertained on Inspection.

	Bag.		Register.		Charts.		Person.		Home.	
	Trained.	Untrained.	Trained.	Untrained.	Trained.	Untrained.	Trained.	Untrained.	Trained.	Untrained.
Satisfactory ...	170	53	170	53	169	30	170	57	170	57
Fair ...	2	12	2	12	3	5	2	8	2	8
Unsatisfactory	1	1	1	1	1	1	1	1	1	1

Thirty midwives cannot take the temperature and pulse of their patients.

Malpractice.

During 1922 two midwives reported to the Central Midwives' Board have been struck off the roll. Both were untrained women—one for neglecting to notify a case of Ophthalmia Neonatorum and the other for neglect in a case of Puerperal Fever. Two other untrained midwives have been reported to the Board and are on probation.

Notifications under C.M.B. Rules.

Table showing number and nature of notifications received during 1922:—

	Medical Help.	Still-Births.	Death of a Child.	Laying out of the Dead.	Ophthalmia Neonatorum.	Source of Infection.	Artificial Feeding.
Trained	760	92	11	39	26	18	44
Untrained	240	11	1	—	5	—	4

Births, &c., Visitations by Health Visitors.

Under the Notification of Births Acts the visiting has been carried out as in previous years. All cases notified to the Chester Office have been written out on special forms and sent on daily to the Health Visitors of the district to which they belong. A considerable number of cases are not notified, and particulars of these are obtained from the various Registrars. The majority of the unnotified cases are of births attended by doctors—this is specially noticeable in certain districts.

The number of visits to notified babies under one year has worked out at an average of five visits per child. This is the same average as in 1921. As home visiting is the most important branch of the Health Visitors Child Welfare work it would be much more satisfactory if an average of nine visits could be made to each child under one year. With the present staff this is impossible, but when times are more normal it may be possible to increase the staff.

As the years pass the Health Visitor is becoming more and more the mothers' confidante, adviser and friend. They are seldom, in many districts never, refused entrance into any home—possibly because they do not go in an official spirit, but rather with the desire to win the mother's confidence and help her to help herself and her family.

The following is a summary of visits paid by the Lady Assistant Medical Officer and Health Visitors during 1922:—

First visits to infants under 1 year ...	6,752
Re-visits to children under 1 year (Ophthalmia, &c.)	36,223
Re-visits to children over 1 year	38,555
Still-births and death enquiries	233
Visits to midwives	865
Visits to expectant mothers	647

During 1922 the County has been responsible for the same area as in 1921. The Staff now consists of a Lady Assistant Medical Officer and 31 Whole-time Health Visitors. With three exceptions (Health Visitors at Stalybridge and Dukinfield) each Health Visitor is responsible for the visiting of all children under 5 years of age, the schools and school children, tuberculosis cases, and attendance at the Tuberculosis Dispensaries and Maternity and Child Welfare Centre in her particular area. At Stalybridge and Dukinfield the Health Visitors have no school work to attend to.

Method of Feeding of Babies.

The following table shows the method of feeding of children over six months and under one year old. There were 1,341 rural cases and 1,440 urban cases:—

	Breast.					Mixed.					Artificial.				
	1918 %	1919 %	1920 %	1921 %	1922 %	1918 %	1919 %	1920 %	1921 %	1922 %	1918 %	1919 %	1920 %	1921 %	1922 %
1st Month—															
Rural ...	81	84	84	81	83	3	3	2	4	3	16	13	14	15	14
Urban ...	82	83	77	80	84	3	2	4	5	2	15	15	19	15	14
2nd Month—															
Rural ...	80	80	81	78	78	3	3	3	5	4	17	17	16	18	18
Urban ...	80	76	70	76	79	4	4	5	7	4	16	20	25	17	17
3rd Month—															
Rural ...	79	74	77	74	73	4	6	4	7	5	17	20	19	20	22
Urban ...	73	70	65	72	74	5	6	6	9	5	19	24	29	21	21
4th Month—															
Rural ...	75	70	70	70	70	5	7	7	9	6	20	23	23	23	24
Urban ...	72	65	63	67	68	6	6	6	10	6	22	29	31	24	26
5th Month—															
Rural ...	74	66	69	67	65	5	8	7	9	8	21	26	24	24	27
Urban ...	68	62	60	65	66	7	6	7	10	7	25	32	33	25	27
6th Month—															
Rural ...	73	63	67	66	63	6	9	8	9	9	22	31	25	25	28
Urban ...	67	60	58	64	65	7	7	8	10	7	26	33	34	26	28

With so much unemployment most mothers were very anxious to feed their babies naturally. At the end of six months about 64 per cent. were able to continue breast feeding entirely, 8.5 per cent. had breast feeding and some form of artificial feeding and 28 per cent. were artificially fed. It has been a help to be able to give milk to some nursing mothers, but as only £1,500 was granted for free milk it has been possible to help only in extreme cases of poverty and by the end of December the money was all spent with three months of the financial year to go.

The method of feeding till six months old and health of child at 12 months is shown below (4,380 cases): —

		Good. %	Fair %	Poor. %
Breast	Rural ...	88	10	2
	Urban ...	86	13	1
Mixed	Rural ...	72	22	6
	Urban ...	73	23	4
Artificial	Rural ...	63	28	9
	Urban ...	67	28	5

Health of Infants.

The illnesses from which the children between 1—2 years of age have suffered during the first year of life are shewn in the following table and ages at which they suffered from these illnesses: —

	Total.	Birth to 3 months. %	3 months to 6 months. %	6 months to 9 months. %	9 months to 12 months. %
Respiratory Diseases ...	15% ...	1·5 ...	4 ...	7 ...	2·5
Convulsions ...	1% ...	·4 ...	·2 ...	·1 ...	·3
Diarrhœa ...	13% ...	1 ...	5 ...	4 ...	3
Measles ...	7% ...	— ...	1 ...	2 ...	4
Whooping Cough	9% ...	·5 ...	2 ...	3 ...	3·5
Marasmus ...	3% ...	·5 ...	·5 ...	1 ...	1

This table is interesting as showing how many children come successfully through those illnesses when compared with a table lower down showing the number who succumb to them.

Health of the Older Children.

In the following table the health of the children at two years, three years and those at four years who have been visited in 1922 is shown (method of feeding during first six months of life):—

Feeding.	Health. 2 years. 4916 children. Good.	Fair.	Poor.	Health. 3 years. 3600 children. Good.	Fair.	Poor.	Health. 4 years. 2503 children. Good.	Fair.	Poor
	%	%	%	%	%	%	%	%	%
Breast—									
Rural ...	86	12	2	84	14	2	86	12	2
Urban ...	86	12	2	86	12	2	84	15	1
Mixed—									
Rural ...	77	20	3	77	22	1	75	20	5
Urban ...	74	22	4	71	28	1	76	23	1
Artificial—									
Rural ...	63	34	3	70	25	5	64	32	4
Urban ...	67	29	4	68	26	6	66	31	3

These figures are very similar to those of 1921; the percentage of children in good condition is decidedly lower than 1920. In spite of the dole the children in very many cases have not been able to have sufficient nourishing food.

The illnesses from which these children aged 2—3 years of age, 3—4 years of age and 4—5 years of age respectively are as follows:—

	2 years %	3 years %	4 years %
Respiratory Diseases ...	7	5	2
Measles	4	5	5
Convulsions	·1	·01	—
Diarrhœa	5	2	1
Whooping Cough ...	7	5	3
Chicken Pox	2	1	·05
Scarlet Fever	·1	·2	·3

Of the children between 1—4 years of age who suffered from bronchitis 8 per cent. of them had repeated attacks.

There have been several epidemics of measles and whooping cough during 1922 and quite a number of cases of scarlet fever.

Signs of rickets (early and late) were noted in 8 per cent. of the children between 1—4 years old (6 per cent. slight and 2 per cent. marked).

Deaths of Infants under 1 year.

Table giving particulars of deaths of 181 children under one year and over ten days old:—

	Method of Feeding.	10 days to 3 months	3 months to 6 months	6 months to 9 months	9 months to 12 months
Respiratory Diseases	Breast	12	8	11	7
	Artificial	3	5	10	12
Convulsions	Breast	4	4	2	1
	Artificial	5	3	—	—
Marasmus	Breast	4	—	—	—
	Artificial	5	2	1	—
Whooping Cough	Breast	3	1	1	—
	Artificial	—	1	1	1
Gastro Enteritis	Breast	—	1	—	—
	Artificial	6	4	—	1
Measles	Breast	1	—	3	2
	Artificial	1	2	2	1
Malformation	Breast	3	2	—	—
	Artificial	5	—	—	—
Meningitis	Breast	—	—	—	—
	Artificial	—	3	—	1
Debility	Breast	7	—	—	—
	Artificial	2	—	—	—
Tabes Mesenterica	Breast	1	—	—	—
	Artificial	—	1	—	2
Tubercular Meningitis	Breast	1	—	1	—
	Artificial	—	1	—	1
Prematurity	Breast	3	1	—	—
	Artificial	6	—	—	—
Pyloric Stenosis	Artificial	1	—	—	—
Intussception	Breast	—	1	1	—
	Artificial	—	—	1	—
Icterus	Breast	1	—	—	—
	Artificial	1	—	—	—
Mastoiditis (Operation)	Breast	—	—	1	—
	Artificial	—	—	2	—
		75	40	37	29

Table giving some particulars of deaths of 132 children between one year and five years occurring during 1922:—

	1 year to 2 years.	2 years to 3 years.	3 years to 4 years.	4 years to 5 years.
Respiratory Diseases ...	31	12	5	4
Convulsions	8	—	—	—
Whooping Cough ...	6	—	1	1
Measles	12	8	1	—
Gastro-Enteritis	3	1	—	—
Meningitis	8	2	—	—
Tubercular Meningitis ...	2	3	1	1
Tabes Mesenterica ...	2	1	—	—
Diphtheria	—	2	1	—
Accidental Death—				
Drowning	2	1	—	1
Motor	—	1	—	—
Burnt or Scalded	2	4	—	—
Scarlet Fever	—	1	—	1
Nephritis	1	—	—	—
Syncope	—	—	1 (Inquest)	—
Spina Bifida	1	—	—	—
	78	36	10	8

Table giving some particulars of deaths of 98 children aged 10 days or less (52 males, 46 females):—

Premature birth	34—16	births attended by	Doctor.
	18	,, ,,	Midwife.
Difficult labour	14	,, ,,	Doctor.
Atelectasis	1	,, ,,	Midwife.
Feebleness	22—11	,, ,,	Doctor.
	11	,, ,,	Midwife.
Asphyxia	2	,, ,,	Doctor.
Convulsions	8—4	,, ,,	Doctor.
	4	,, ,,	Midwife.
Malformation	8—5	,, ,,	Doctor.
	3	,, ,,	Midwife.
Internal Hemorrhage ...	4	,, ,,	Midwife
Icterus Neonatorum ...	2—1	,, ,,	Doctor.
	1	,, ,,	Midwife.
Pneumonia	1	,, ,,	Doctor.
Hemorrhage from Cord ...	1	,, ,,	Midwife.

In nine of the above cases the mother had been working in a factory and one other mother had done laundry

work during pregnancy. One of the infants was of illegitimate birth. Among the above deaths there were six twin pregnancies, only one of whom survived. In 27 of the above cases the babies were first babies.

Still-births.

The following table gives some particulars of 135 still-births that have been enquired into (80 males and 55 females):—

History of Shock, fright or accident...	20	... Premature	...	10
		Full-time	...	10
Born before arrival	16	... Premature	...	10
		Full-time	...	6
Malformation of child	4	...	...	—
Placenta Prævia	3	...	...	—
Antepartum Hemorrhage... ...	5	...	...	—
History of Ill-health of Mother ...	13	... Premature	...	4
		Full-time	...	8
Malpresentation or difficult labour ...	44	...	...	—
No known cause	23	... Premature	...	9
		Full-time	...	14
Hydramnios	3	... Premature	...	—
Prolapse of Cord	2	... Full-time	...	—
Cord round neck	3	... Full-time	...	—

In six cases the still-births were illegitimate. Thirty-eight cases occurred in Primparae. In nine cases there was a previous history of more than one miscarriage or still-birth and in 13 cases a history of one miscarriage or still-birth. In six cases of the 13 cases the still-birth occurred in the 2nd pregnancy, so that the mother had not given birth to a live child. In 42 cases the child was said to be decomposed. Of the 128 mothers nine of them worked in a factory and two others followed other occupations. In the above still-births there were seven twin pregnancies.

Expectant Mothers.

During 1922 there were 627 visits and re-visits paid to expectant mothers. Of the 423 cases that were visited during 1922 (the baby being born within that year) the following are interesting points that have been noted:—

	Good.	Fair.	Poor.
Health of mother	67%	... 29%	... 4%

Eight per cent. of the mothers were advised to seek medical aid, two per cent. of whom were advised on account

of passing a scanty amount of urine; 20 per cent. suffered from constipation, 50 per cent. had carious teeth and in 19 per cent. of the cases the teeth were noted to be in a very bad condition. Thirty women had a set or sets of artificial teeth.

89% Normal { 79% Breast fed. / 21% Artificially fed

6% Not strong.

4% Still-born.

·5% Miscarriages.

·5% Died within ten days.

Among the 423 cases nine of the mothers worked in factories. Eight babies were normal—one weakly.

Of the 10 primparae among these 423 mothers all had normal babies, six of whom were fed naturally and four artificially.

Ophthalmia Neonatorum.

There have been 69 cases of inflammation of or discharge from the eyes in new born babies notified. Forty-two of these cases were only slight. The ages of the infants on the day when the disease started ranged from two days to nine days; most of the cases occurred between the 3rd and 5th days.

In 22 of the cases the births were attended by doctors and 47 were attended by midwives. Six of the cases attended by midwives were reported by Health Visitors, who also notified the midwife and warned her of her neglect to notify.

Description of cases:—

Slight cases	—One eye affected	...	...	6
	Both eyes „	...	...	36
Severe „	—One eye „	...	...	9
	Both eyes „	...	...	18

Six of the severe cases were treated in hospital. All the slight cases recovered. Of the 27 severe cases, 26 recovered, but one case, where both eyes were affected, the result was that the sight of both eyes was lost. The midwife who attended this case has since been struck off the roll.

The number of cases of Ophthalmia is slightly less than in previous years.

All midwives are provided with Collosol Argentum in a drop bottle. The decrease in the number of cases quite justifies this extra expense. The midwives feel very thankful for having been supplied with this effective preventive.

Illegitimate Children.

Special enquiries have been made into the circumstances of 135 illegitimate children born in 1922 and living in Cheshire. Two children have died, and two have gone out of Cheshire.

In 62 of the cases the mothers were unemployed and in 73 instances they were employed. One hundred and twelve of the homes were found to be quite satisfactory, 20 fairly satisfactory, and in three cases very unsatisfactory. Two have been put under the care of the N.S.P.C.C. Inspector and in the third case the Health Visitor hopes to get the child placed with a better foster mother. The father was known to be contributing in 66 cases and in seven cases it was impossible to ascertain. Fifty fathers made no contribution to the upkeep of their child. Seven of the fathers had married the mothers. Sixty-eight of the babies were being cared for by the mother herself, 41 by the grandmother, six by other relatives, ten were cared for by neighbours, four were boarded out, and two adopted.

Maternity and Child Welfare Centres.

During 1922 owing to Lower Bebington Urban District Council extending its boundaries to include Bromborough and Higher Bebington the County Centre held at Higher Bebington was taken over by that Council. A Centre was opened at Sandbach in November by the Urban District Council. It was equipped by the County appliances from Higher Bebington. A local Doctor and the County Health Visitor for the Sandbach Area attend its monthly meetings.

As explained before each of the 16 County Centres, with the exception of Nantwich, have three rooms in use—a large room where the mothers assemble, have talks, tea, &c., a small room where from three to six babies are undressed, at a time, and weighed, and a Doctor's room.

With one exception a local Doctor attends each Centre for consultations on the weighing days. The arrange-

ments for the work at the Centres have been the same as in the previous years.

The Voluntary Committee at each Centre still continues to do excellent work. They attend faithfully, and the mothers very much appreciate their kindly interest in themselves and their babies.

The Mothers' Welcome at Utkinton maintained and run by one lady, has moved into new premises. These are brighter and better adapted for use as a Centre. The Health Visitor for that area attends the fortnightly meetings, but so far there are no regular consultations. This Centre does good work and the mothers enjoy the meetings.

During 1922 the Cheshire Gold Cross Society met three times. As explained in a previous report the object of this Society is to bring the Voluntary Workers together to discuss difficulties arising in the working of the Centres and to exchange ideas. The Annual Meeting was held in Chester in May, 1922. An Exhibition, kindly lent by Dr. Barwise, Medical Officer of Health for Derbyshire, was on view at the Castle, Chester, at this meeting. Mothers came, by char-a-banc, from all parts of the County. They thoroughly enjoyed this interesting and educative Exhibition, and also the lectures given by Miss Hughes, the Supervisor of the Exhibition.

The mothers who came to the Exhibition were able to see the work of the competitors for the Gold Cross Competitions. These were laid out in a separate room. It is to be hoped it may have stimulated more mothers to join in these competitions.

The Gold Cross Society's Shield, which is competed for by the Centres annually, was won in 1921-1922 by Marple Centre for the third year in succession.

Attendances at Centres.

	Hoylake.	Runcorn. (2 days)	Sale.	Stalybridge. (2 days)	Nantwich.	Utkinton.	Whaley Bridge.	Marple.	Heswall.
Consultations held ...	1480	860	890	1976	779	—	256	732	540
Total Attendances made	2971	1939	3777	5109	1473	204	348	885	730
Average Attendance per Meeting	59	20	74	52	31	11	14	35	33
Attendances made by Ante-natal Mothers	15	24	—	—	—	—	—	—	9

	Congleton.	Dukinfield. (2 days)	Higher Bebington.	Lymm.	Neston.	Northwich Rural.	Bollington.	Disley.	Sandbach.
Consultations held ...	704	1422	90	655	567	478	257	197	—
Total Attendances made	890	3831	184	1149	1907	1090	317	204	—
Average Attendance per Meeting ...	20	40	30	25	42	23	14	9	—
Attendances made by Ante-natal Mothers	2	—	6	11	9	—	—	—	—

Section VI.—Miscellaneous.

Housing.

Speaking generally Local Authorities have been active in securing the remedy of insanitary housing conditions. Only occasionally have I been called in to advise or to assist in dealing with refractory owners. The following statement shews that building activity has been fairly well maintained:—

District.	No. of New Houses built during 1922. Total.	As part of a Municipal Housing Scheme.
Congleton M.B.	125	124
Crewe M.B.	124	—
Dukinfield M.B.	Nil.	
Hyde M.B.	2	—
Stalybridge M.B.	3	—
Alderley Edge	12	—
Alsager U.D.	2	—
Altrincham U.D.	39	38
Ashton-on-Mersey	37	10
Bebington and Bromborough U.D. ...	152	—
Bollington U.D.	—	66
Bowdon U.D.	7	—
Bredbury and Romiley U.D.	34	—
Buglawton U.D.	37	32
Cheadle and Gatley U.D.	162	122

District.	No. of New Houses built during 1922. Total.	As part of a Municipal Housing Scheme.
Compstall U.D.	Nil.	
Ellesmere Port and Whitby U.D. ...	39 ...	30
Hale U.D.	31 subsidy houses and 7 larger ones.	
Handforth U.D.	Several bungalows.	
Hazel Grove and Bramhall U.D. ...	63 ...	—
Hollingworth U.D...	Nil.	
Hoole U.D.	3 ...	—
Hoylake and West Kirby U.D. ...	13 ...	—
Knutsford U.D.	51 ...	50
Lymm U.D.	42 ...	40
Marple U.D.	15 ...	—
Middlewich U.D.	9 ...	6
Mottram-in-Longdendale U.D. ...	Nil.	
Nantwich U.D.	Nil.	
Neston and Parkgate U.D.	15 ...	—
Northwich U.D.	77 ...	76
Runcorn U.D.	58 ...	—
Sale U.D.	40 ...	—
Sandbach U.D.	21 ...	18
Tarporley U.D.	Nil.	
Wilmslow U.D.	25 ...	—
Winsford U.D.	17 ...	—
Yeardsley-cum-Whaley U.D.	6 ...	—
Bucklow R.D.	20 ...	—
Chester R.D.	37 ...	—
Congleton R.D.	Nil.	
Disley R.D.	8 ...	8
Macclesfield R.D.	57 ...	4
Malpas R.D.	Nil.	
Nantwich R.D.	92 plans passed	—
Northwich R.D.	175 ...	92
Runcorn R.D.	52 ...	28
Tarvin R.D.	12 ...	—
Tintwistle R.D.	5 ...	—
Wirral R.D.	282 ...	—

Milk Supply.

Extremely few cases of milk infected with tuberculosis have been notified to me during the year by Boroughs and Urban Districts possessing special powers in this direction. This does not of course mean that less tuberculous milk is being circulated but merely that less is being discovered.

The farms I have inspected have not fallen seriously short except in the matter of cleanliness of production. Means to ensure this are generally looked upon as "not worth the trouble." At the same time cleanliness is the *very first essential* in dealing with such an important food.

Several Local Authorities have now made arrangements for taking regular samples of milk to be tested for tubercle bacilli and for following up cases where these are found to be present. I gather that these Councils are satisfied that the measures are of considerable public health value. This procedure should become general.

The more we hear and read about milk the more we realise that we know very little about it. The one hopeful thing in connection with this question of milk is that a good many people have now realised that in the milk of any animal we are dealing not with a substance in the nature of a "Robot" which can be artificially turned out in a factory, but with a vital secretion which contains not merely water, salts, fat, casein and milk-sugar, but a host of biological substances only a few of which have as yet yielded up the secret of their composition to scientists. Of the effects of physical and chemical agencies such as heat, oxidation, preservatives and even dilution on these constituents only very little is as yet known. We know that the presence of vitamins is affected by the food of the cow and by heating and oxidation, that peroxidase and other similar constituents are altered by heating, that the coagulable proteins and the colloidal emulsion of fat are both profoundly altered by heat and so forth and yet we calmly set all these on one side and go on encouraging the sterilisation, pasteurisation and drying of the finest biochemical food in the world. Again one hears but little of the immune substances (those biological components which help to confer immunity from disease) which are present in milk and which are bound to be affected by chemical and physical manipulations.

Everyone is apparently concentrating on the bacterial content of milk and I cannot help thinking that we are not quite on the best track in so doing. In other words I would sooner consume fresh raw milk even with a few thousand bacteria in it than I would milk which had been treated in any way whatever. The few thousand bacteria consumed in fresh raw milk are the mere "shadow of a shade" compared with the billions we imbibe and inhale in other ways. Even in the case of infants living on cows'

milk alone I am not at all sure that it would not be better to feed them on smaller amounts of the fresh neat liquid than on any diluted or fortified material. I have no knowledge of such a method of infant-feeding ever having been tried though of course it must have been practised in by-gone times.

It would be profoundly interesting to know what would happen to a human being if he were kept in a sterilised atmosphere and fed entirely on sterilised food passing into a sterilised alimentary canal.

Let us have the cleanest milk possible from the healthiest cows and let us concentrate on that rather than on methods of treating milk. Here, as in most other public health problems, it is far better to deal with the cause than with the effect.

Water Supply.

An inadequate supply is reported from the following districts:—

In the Runcorn Rural District the following parishes are dependent on shallow wells yielding an indifferent supply both as to quality and quantity:—

Antrobus,
Seven Oaks,
Higher and Lower Whitley,
Crowley,
Appleton (Eastern portion),
Kingsley (also has a supply from a brook which is liable to pollution),
Aston (in part),
Bartington (Eastern portion).

Other parts of this district either have their own public supply, are supplied by private estates or get their water from the Liverpool or Warrington Corporations on a somewhat slender agreement.

Parliamentary powers are apparently to be sought to supplement the supply to Northwich Urban District.

Nantwich Urban District has been short of water for some time and an expert has been called in who has suggested a trial boring in the hope of improvement.

Dorley Lane, Marple, is still without a proper supply.

About 100 isolated houses in Lymm Urban District are dependent on well supplies.

The water supply of Knutsford Urban District is, one understands, causing some local unrest: the source is such as to warrant the adoption of special measures of purification.

Progress has been made in Bollington Urban District with the new Millbrook scheme but the higher parts of Kerridge are still inadequately supplied.

In the Buglawton Urban District Higher Daneinshaw, Rainow and Havannah are not well supplied but in the last-named area a private gravitation supply is being installed.

The supply to Alsager Urban District appears to be very hard though of high organic purity. New pumps have been recently fixed.

Mobberley and Carrington, in the Bucklow Rural District, are not well supplied with water.

The following parishes in the Tarvin Rural District are inadequately supplied, viz., Shocklach Oviatt, Shocklach Church, Horton, Tilston, Broxton, Carden, Tattenhall, Iddinshall and Farndon. The last-named parish could get its supply easily from the Wrexham Water Co.

Higher Disley is still without a satisfactory supply.

The following townships in the Nantwich Rural District are in need of a public supply:—Hatherton, Hunsterson, Doddington, Blakenhall, Bridgemere, Checkley-cum-Wrinehill, Walgherton, Audlem, Buerton, Hankelow, Newhall, Dodcott-cum-Wilkesley, Wrenbury, Sound, Broomhall, Coole Pilate, Austerson and Baddington.

In the Northwich Rural District an improved supply is needed in Little Leigh, Comberbach, Cogshall, Anderton, Weaverham and Acton. Considerable activity has been shewn by this District Council in the matter of water supply and they are to be congratulated on the results they have achieved.

Some reconstruction of the supply has been carried out in the Compstall Urban District but continual supervision will be necessary so long as the present sources are used.

In the Congleton Rural District the supply needs improvement in the townships of Mow Cop, Cranage, Astbury, Holmes Chapel and Hassall Green.

The importance of limiting the amount of impurity introduced into the River Dee is greater than ever. A close watch has to be kept on the sources of impurity and in particular on those near the intake. The officials of the Chester Waterworks Co. have rendered valuable assistance in this direction at all times. The new roughing filters put down by this Company a short time ago appear to be doing their work extremely well and certainly reduce the Bacillus Coli family to very small proportions, the other bacteria being also markedly lessened by their action.

In February, 1923, the West Cheshire and Wirral Water Companies applied to the Ministry of Health for permission to stabilise their existing water charges which were 75 per cent. and 33⅓ per cent. respectively above the statutory allowances. The Companies were opposed by a number of bodies and attacks were made on the quality of the water, an allegation being made that the Permatit system of softening as used at the Hooton Works of the West Cheshire Company resulted in the introduction of injurious constituents to the treated water. The Ministry of Health decided that in the case of the West Cheshire Water Co. an increase of 37½ per cent. only would be sanctioned and this only on condition that the Company undertook to introduce a process within the next twelve months which would comply with their statutory obligation to soften the water and in the case of the Wirral Company no order to increase the charges would be sanctioned at present.

Sewerage and Sewage Disposal.

I am compelled to draw attention at the outset to one matter which I regard as all-important in this connection and that is the stupid policy of several District Councils in passing plans for and permitting the erection and occupation of numbers of buildings without any thought of the ultimate destination of the drainage. Cesspools and similar ridiculously inadequate means of reception—not of disposal be it noted—of the drainage of these buildings are sanctioned and in a short time ditches and water courses

begin to be polluted and nuisance and danger to health arises. The futility of any so-called town-planning scheme which permits of these haphazard methods is obvious except apparently to those on the spot. Strong action either under the Rivers Pollution Acts or under the Public Health Act, 1875, will be necessary if this neglect continues. I have quite a number of cases pending at the moment of writing this Report and if adequate measures are not put in hand I shall relentlessly call for action.

In the following areas the schemes of sewering or sewage disposal are inadequate:—

Congleton R.D.—Holmes Chapel area, Thirlwood area, Elworth area.

Runcorn R.D.—Kingsley area.

Northwich R.D.—Hartford disposal works.

Nantwich R.D.—Warmingham Road, Coppenhall, and Broad Lane, Stapeley.

Disley R.D.—Newtown area.

Tarvin R.D.—Farndon and some other townships.

Chester R.D.—Great Saughall & Mickle Trafford.

Bucklow R.D.—Mobberley, Northenden and Baguley areas.

Yeardsley-cum-Whaley U.D.—A number of premises not connected to sewers.

Winsford U.D.—Some parts not sewered.

Congleton M.B.—Daneinshaw, Astbury Marsh, Congleton Edge and West Heath areas.

Alsager U.D.—Few outlying farms.

Bowdon U.D.—A few houses in Grange Road, Bow Green Road, Bow Lane and Watling Street.

Buglawton U.D.—Outlying rural portions of area.

Cheadle and Gatley U.D.—Heald Green area.

Handforth U.D.—The whole district apparently.

Hazel Grove and Bramhall U.D.—Outlying areas only.

Bollington U.D.—Long Lane and Higher Kerridge.

Knutsford U.D.—Outlying areas only.

Lymm U.D.—Heatley area being remodelled.

Marple U.D.—Dooley Lane, Stone Row, Strines, Windlehurst Road and Barnsfold areas.

Middlewich U.D.—Holmes Chapel Road, &c.

Rivers Pollution.

The prevention of the pollution of rivers and streams continues to occupy a very large part of my time and if the results are at times discouraging it is because it is utterly impossible for one man to keep up the supervision which is necessary over the hundreds of sources from which these pollutions emanate. Some of the sources of trade waste need watching day and night for the simple reason that the pollution is intermittent and it is often only by mere chance that it can be detected.

The Dee, the Dane and the Weaver are large rivers and in places their banks are crowded with sources of contamination. The worst offenders are, of course, known to me, but even so I may inspect them many times without finding a trace of effluent or waste passing into the stream and yet I know that possibly before I am more than a few miles away serious pollution may have taken place. I am more than ever in need of an Inspector possessing a knowledge of sewage disposal, trade wastes, &c., to assist in this work.

Under the Section of this Report dealing with Sewerage and Sewage disposal I have enumerated a number of areas where pollution of streams is taking place and I am dealing with these as well as I can though both patience and persistence are required.

With the sole exception of pollution by ammonium sulphate spent-liquor I think it can be claimed that considerable improvement has been effected in the condition of our main rivers. But the treatment of this spent-liquor is still an unsolved problem on anything but a small scale.

Bacteriological Aids to Diagnosis and Treatment.

The following statement shews the extent to which this essential equipment of every Public Health Department is being used:—

M = Public Health Laboratory, Manchester.
C.R.A. = Clinical Research Association.
R = Runcorn Laboratory.
L.I. = Lister Institute.

N.B.—Figures for examination of sputum at the County Laboratory are not included in this table. Examinations of venereal products are also excluded.

	Institution carrying out work and Specimens examined during 1922.
Municipal Boroughs—	
Congleton	M—17
Crewe	M, C.R.A., and own Laboratory—733
Dukinfield	M—not stated
Hyde	M. and own Laboratory—193
Macclesfield	Report not to hand
Stalybridge	Not stated
Urban Districts—	
Alderley Edge	M—6
Alsager	Not stated
Altrincham	M—68
Ashton-upon-Mersey	M—not stated
Bebington and Bromborough ...	C.R.A.—28
Bollington	R—not stated
Bowdon	M—10
Bredbury and Romiley ...	M—7
Buglawton	M—10
Cheadle and Gatley	M—112
Compstall	M—20
Ellesmere Port and Whitby ...	C.R.A.—4
Hale	M—14
Handforth	M—not stated
Hazel Grove and Bramhall ...	C.R.A.—not stated
Hollingworth	Not stated
Hoole	Dr. Grace—26
Hoylake and West Kirby ...	C.R.A.—11
Knutsford	M—not stated
Lymm	M—26
Marple	Not stated
Middlewich	M—28
Mottram-in-Longdendale ...	M—not stated
Nantwich	M—30
Neston and Parkgate	C.R.A.—1
Northwich	M—29
Runcorn	R—Not stated
Sale	M—not stated
Sandbach	M—not stated
Tarporley	Not stated
Wilmslow	M—57
Winsford	L.I. & M—6
Yeardsley-cum-Whaley ...	C.R.A.—not stated
Rural Districts—	
Bucklow	M—131
Chester	Not stated
Congleton	M—not stated
Disley	M—13
Macclesfield	C.R.A.—27
Malpas	Not stated
Nantwich	M—not stated
Northwich	M—38
Runcorn	M. & R.—60
Tarvin	Not stated
Tintwistle	M—Not stated
Wirral	C.R.A.—7

With about six exceptions the number of specimens submitted for examination is extremely small and one is rather forced to the conclusion that it is the cost which acts as a deterrent. In Counties where such examinations are carried out at a Central Laboratory attached to and forming an integral part of the Public Health Department the cost falling on the County Rate the number of specimens examined exceeds by a long way the figures given in the above table for this County. An extension of these valuable aids to diagnosis and treatment is very necessary in the interests of the public health.

Sanitary Conveniences.

Conversions of insanitary privy-middens to water closets continue to be carried out though at a slow rate in many districts. The matter has been approached in a wholesale manner in some areas and has resulted in pronounced success. The most recent move in this direction has been made by the Dukinfield Corporation and their application to borrow money for the purpose is now before the Ministry of Health. Some idea of the problem in that Town may be gathered from the following figures kindly supplied to me by Mr. G. Taylor, Sanitary Inspector:—

No. of privy-middens in the town	583
No. of privy-closets	1,118
No. of pail-closets	358
Houses without separate accommodation...	297
No. of conversions carried out during	
1921	150
1922	377
1923 (to September 15th)	262

Average cost per closet, carried out by Corporation, £23 19s. 4½d.

The steady work achieved by this Corporation may be gathered from the fact that in 1907 there were 1,070 privy-middens and 584 pail-closets: these numbers were reduced to 583 and 358 respectively in 1923. The Corporation advance or pay the cost and exact repayment extending over varying periods by annual or biennial instalments.

It is to be hoped that other districts will follow this praiseworthy example.

Blind Persons Act, 1920.

The scheme approved by your Council has continued to work satisfactorily though occasional requests have been made for additional assistance. At the Chester end of the County and possibly also in some central place there is a need for a shop and workshop combined. This would provide a regular means of disposal of the work of blind persons and by acting as an advertisement would help to secure orders for work. The scheme is, however, only a very young one and perhaps it is too early to expect such advances.

MEREDITH YOUNG, M.D., D.P.H.,

County Medical Officer of Health.

October, 1923.

Administrative County of Chester.

APPENDIX TO STATISTICS

FOR 1922.

TABLE A.—Vital Statistics for all Districts in the Administrative County of Chester.

TABLE B.—Causes of Death at Different Periods of Life in the Administrative County of Chester, 1922.

TABLE C.—Population, Area, Births, Deaths, &c.—

Showing enumerated and estimated population, area, births and deaths, birth rates, and death-rates, proportion of deaths of Infants to births, deaths from seven principal zymotic diseases and corresponding death rates.

TABLE A.

VITAL STATISTICS FOR ALL DISTRICTS IN ADMINISTRATIVE COUNTY OF CHESTER, 1922.

Causes of Death.	Alderley Edge U.D.		Alsager U.D.		Altrincham U.D.		Ashton-upon-Mersey U.D.		Bebington and Bromborough U.D.		Bollington U.D.		Bowdon U.D.		Bredbury and Romiley U.D.		Broxton U.D.		Cheadle and Gatley U.D.		Compstall U.D.		Congleton M.B.		Crewe M.B.		Dukinfield M.B.		Ellesmere Port and Whitby U.D.		Hale U.D.		Handforth U.D.		Hazel Grove and Bramhall U.D.	
(Civilians only)	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
All Causes	19	15	16	18	132	127	38	39	92	105	30	59	12	28	52	38	7	4	57	79	3	8	66	70	295	312	141	137	95	81	36	47	7	5	55	67
1 Enteric Fever	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	1	...	...	...	...	...	...	...	...
2 Small-pox	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...
3 Measles	...	...	...	...	1	...	...	...	...	1	...	...	...	1	...	1	...	...	...	...	...	...	1	1	3	3	7	4	3	2	...	1	..	...	...	...
4 Scarlet Fever	...	...	...	...	...	1	...	...	...	...	...	...	...	...	..	...	...	...	...	...	...	...	1	...	3	2	...	1	...	...	...	...	...	...	...	1
5 Whooping Cough	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	1	...	...	...	...	3	4	...	2	11	14	...	...	...	...	...	...
6 Diphtheria	1	...	...	...	1	1	...	...	1	1	...	...	...	...	...	...	...	1	2	...	...	...	1	...	3	4	...	...	1	...	...	1	...	..	1	...
7 Influenza	...	...	...	1	1	2	4	1	5	2	...	2	1	2	1	3	1	...	4	4	...	...	2	1	10	12	4	4	5	3	...	1	...	...	2	1
8 Encephalitis lethargica ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...
9 Meningococcal meningitis ...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	1	...
10 Tuberculosis of respiratory system	...	1	...	2	14	3	4	3	5	7	4	3	2	...	5	2	...	...	...	3	...	1	4	3	15	16	10	8	3	5	1	3	...	...	1	2
11 Other Tuberculous Diseases ...	...	...	...	...	4	3	...	...	2	4	1	...	...	1	...	...	...	...	1	1	...	1	...	...	5	5	3	2	4	1	2	...	...	...	4	...
12 Cancer, Malignant Disease ...	2	5	4	1	8	16	6	8	6	6	2	9	1	1	6	4	2	...	8	9	...	...	6	11	33	33	8	13	5	5	4	3	...	...	8	9
13 Rheumatic Fever	...	...	...	...	...	1	1	...	1	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	1	1	2	1	...	...	...	...	...	...	...	...
14 Diabetes	1	...	...	...	1	1	...	...	...	...	...	...	...	1	2	...	...	...	1	2	...	...	...	...	3	4	3	1	...	1	...	3	...	...	...	1
15 Cerebral hæmorrhage, &c. ...	1	..	2	2	7	18	1	1	4	7	1	7	1	4	7	8	...	1	1	3	...	...	3	2	21	27	8	8	6	2	4	3	...	1	...	4
16 Heart Disease	3	2	3	4	14	19	3	7	11	17	5	11	2	6	7	9	1	...	3	11	...	1	3	8	37	44	17	25	1	7	4	6	1	1	4	11
17 Arterio-sclerosis	1	...	...	...	3	2	1	...	5	3	1	..	...	2	3	..	1	...	9	10	2	...	6	4	3	2	3	5	1	...	2	...	3	...	3	1
18 Bronchitis	1	1	2	1	11	14	3	3	5	8	...	8	...	1	5	1	...	...	6	10	...	...	12	7	26	24	7	10	11	7	1	5	1	...	9	9
19 Pneumonia (all forms)	2	1	1	2	16	3	3	3	9	5	2	2	...	4	4	2	1	1	5	2	1	2	4	8	20	23	12	8	10	10	4	3	...	...	7	3
20 Other Respiratory Diseases ...	2	...	...	...	1	1	1	...	2	1	...	1	...	...	1	1	...	...	...	...	...	...	...	...	10	5	2	1	3	...	...	2	...	...	...	...
21 Ulcer of Stomach or Duodenum ...	...	.	3	...	...	1	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	5	4	2	1	...	1	1	1	...	...	...	1
22 Diarrhœa, &c. (under 2 years) ...	...	...	..	3	...	...	...	...	1	...	...	...	...	...	1	...	...	...	1	...	...	...	...	...	4	1	1	2	...	2	...	2	...	...	..	..
23 Appendicitis and Typhlitis ...	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	1	...	...	...	...	1	...	...	...	1	...
24 Cirrhosis of Liver	...	...	...	...	2	...	1	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	1	...	2	...	...	...	...	...	...	...	...	...
25 Acute and Chronic Nephritis ...	...	1	...	...	4	5	...	2	2	2	...	1	1	...	...	...	...	...	1	1	...	2	2	3	8	2	5	5	4	...	...	1	...	...	1	2
26 Puerperal Sepsis	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...
27 Other accidents and diseases of pregnancy and parturition	..	...	...	...	...	1	...	...	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	4	...	3	...	...	...	...	...	...	...	...
28 Congenital debility and malformation, premature birth	1	..	...	1	11	3	1	1	8	6	1	1	...	...	3	...	...	...	3	3	...	...	7	6	10	21	8	8	4	5	1	2	...	...	1	2
29 Suicide	...	...	...	...	1	2	1	1	2	...	1	...	...	...	1	...	...	...	...	1	...	...	3	...	5	1	1	...	...	1	1	2	...	...	...	2
30 Other Deaths from Violence ...	...	1	...	1	5	...	...	1	7	3	2	1	1	...	...	1	1	...	3	...	...	1	...	4	10	3	1	1	2	1	...	...	...	...	...	4
31 Other Defined Diseases ...	4	3	1	3	23	31	8	8	14	27	9	10	3	4	5	6	...	1	9	17	...	...	11	9	53	55	34	23	21	14	10	8	2	2	12	14
32 Causes Ill-defined or Unknown ...	...	...	...	...	1	...	...	...	...	...	1	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Special Causes (included above)—																																				
Poliomyelitis	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	...	...	...	...	...	...	...	...
Polioencephalitis	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Deaths of Infants under 1 year of age	1	1	...	1	20	11	5	2	15	9	2	4	...	1	4	2	...	1	7	4	...	...	14	9	30	36	20	17	25	18	6	4	1	...	5	4
Total Illegitimate	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	1	...	...	1	...	...	...	1	1	2	...	2	1	...	...	1	...	...	...	1	...
Total Births...	30	23	26	25	220	199	58	63	189	186	45	46	8	22	69	64	19	16	81	70	11	3	138	119	437	426	207	167	178	190	74	68	9	7	87	66
Legitimate	28	23	25	25	209	187	56	60	184	181	41	45	7	22	69	62	17	16	76	66	11	3	132	113	424	413	195	161	174	185	72	67	9	7	83	65
Illegitimate	2	...	1	...	11	12	2	3	5	5	4	1	1	...	...	2	2	...	5	4	...	...	6	6	13	13	12	6	4	5	2	1	...	...	4	1
Population	3082		2695		20810		7911		19600		5173		2926		9,73		1651		11170		940		12030		47390		19970		13540		9283		931		10230	

TABLE A.—*Continued.*

VITAL STATISTICS FOR ALL DISTRICTS IN ADMINISTRATIVE COUNTY OF CHESTER, 1922.

Causes of Death.	Hollingworth U.D.		Hoole U.D.		Hoylake and West Kirby U.D.		Hyde M.B.		Knutsford U.D.		Lymm U.D.		Macclesfield M.B.		Marple U.D.		Middlewich U.D.		Mottram-in-Longdendale U.D.		Nantwich U.D.		Neston and Parkgate U.D.		Northwich U.D.		Runcorn U.D.		Sale U.D.		Sandbach U.D.	
(Civilians only)	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
All Causes	19	16	31	43	87	104	204	231	47	28	31	32	241	269	40	43	32	28	23	19	53	48	28	21	129	107	157	123	88	85	33	31
1 Enteric Fever	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...
2 Small-pox	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
3 Measles	...	...	...	...	...	1	4	2	...	...	...	...	5	8	1	...	3	1	...	...	...	...	1	...	5	3	8	11	1	1	...	...
4 Scarlet Fever	...	...	...	...	...	...	1	2	1	1	...	1	2	1	...	...	...	...	...	...	...	...	...	...	...	...	3	2	1	...	...	...
5 Whooping Cough	...	...	...	1	2	3	...	1	1	...	...	...	3	5	...	...	...	...	...	...	...	...	...	...	1	...	2	...	...	...	...	...
6 Diphtheria	...	...	...	...	...	...	1	1	1	2	...	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	1
7 Influenza	1	1	2	2	1	7	5	3	2	...	1	2	4	17	2	4	2	3	...	3	2	2	1	...	3	7	9	6	4	2	3	1
8 Encephalitis lethargica	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
9 Meningococcal meningitis	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...
10 Tuberculosis of respiratory system	1	...	2	2	5	4	13	24	4	...	3	2	17	16	1	2	2	2	2	1	2	4	1	3	7	5	7	9	5	5	4	1
11 Other tuberculous diseases	2	...	...	1	1	1	4	5	...	1	...	...	4	2	...	...	...	...	1	...	2	1	3	...	1	2	3	3	1	...	...	...
12 Cancer, malignant disease	2	5	4	2	18	13	13	30	6	3	2	6	23	28	3	4	4	6	1	4	4	6	2	4	12	14	11	9	15	10	1	4
13 Rheumatic fever	...	...	...	...	...	...	...	2	...	...	...	...	2	3	...	...	...	...	...	...	...	1	1	...	...	1	1	...	1	...	...	...
14 Diabetes	...	...	...	1	3	2	6	4	...	1	2	1	1	2	1	...	...	...	...	1	...	...	...	1	2	2	1	...	2	2	1	...
15 Cerebral hæmorrhage, &c.	2	...	3	10	1	3	8	10	2	3	2	1	9	17	3	...	4	2	2	1	6	3	...	2	5	6	4	8	1	9	1	2
16 Heart disease	3	3	1	7	19	16	23	45	7	3	6	5	26	25	7	12	1	1	3	1	6	7	2	4	18	15	13	10	4	11	2	3
17 Arterio-sclerosis	1	...	...	...	10	8	4	6	1	...	2	...	14	7	4	6	1	1	...	...	1	...	3	1	3	3	12	7	...	6	1	...
18 Bronchitis	2	...	2	4	4	2	26	30	1	...	1	...	14	21	5	8	5	2	2	1	3	1	...	1	11	1	13	15	9	6	...	2
19 Pneumonia (all forms)	...	...	3	1	5	6	26	7	4	3	2	3	21	16	3	1	2	1	1	1	3	4	3	1	11	7	13	7	5	5	7	4
20 Other respiratory diseases	...	2	...	...	...	4	2	2	...	...	1	1	4	3	...	...	...	1	1	...	2	1	1	...	1	2	3	2	2	...	...	1
21 Ulcer of stomach or duodenum	...	...	1	...	...	1	2	...	...	...	...	...	5	...	...	...	...	1	1	...	...	1	...	...	3	...	1	...	...	...	...	...
22 Diarrhœa, &c. (under 2 years)	1	...	...	...	...	1	1	2	...	...	...	...	3	1	...	...	..	...	...	1	...	...	...	...	1	1	3	1	3	...	2	...
23 Appendicitis and typhlitis	...	...	...	1	2	1	2	...	...	...	...	...	3	1	1	...	...	...	..	...	1	...	2	...	...	...	2	...	1	...	...	...
24 Cirrhosis of liver	...	...	1	...	1	...	...	1	...	...	...	...	4	1	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...
25 Acute and chronic nephritis	2	...	...	1	...	5	7	7	2	1	1	...	10	5	2	...	...	...	1	2	...	1	...	...	6	4	4	1	7	4	..	...
26 Puerperal sepsis	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
27 Other accidents and diseases of pregnancy and parturition	...	...	...	...	...	...	...	...	...	1	...	...	...	1	...	...	...	...	...	...	...	1	...	...	...	1	..	1	...	...	...	...
28 Congenital debility and malformation, premature birth	...	...	2	2	2	5	7	3	3	2	1	1	7	12	1	...	2	2	2	...	4	3	4	...	7	5	10	6	3	3	2	4
29 Suicide	...	...	...	...	1	...	1	...	2	...	...	...	4	3	1	...	...	...	...	...	2	...	...	...	1	3	...	1	3	...	...	...
30 Other deaths from violence	1	...	3	2	1	4	3	5	1	...	2	1	4	6	...	1	1	2	1	1	...	1	1	...	6	1	4	1	2	4	...	...
31 Other defined diseases	1	5	7	5	10	16	44	39	9	6	5	8	51	66	5	5	5	3	5	2	13	11	3	4	25	22	27	23	18	17	9	8
32 Causes ill-defined or unknown	...	...	...	1	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1	...	...	...	...	...
Special Causes (included above)—																																
Poliomyelitis	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Polioencephalitis	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Deaths of Infants under 1 year of age	3	1	5	2	5	8	28	7	6	4	1	2	20	22	1	...	3	6	3	1	5	6	6	...	13	11	27	13	10	4	7	8
Total Illegitimate	...	...	...	...	...	2	1	...	2	1	...	...	1	1	...	...	1	...	...	...	...	...	...	...	...	...	1	1	...	...	...	1
Total Births	15	20	39	56	117	124	294	271	49	43	46	58	312	303	55	36	61	47	15	21	71	84	57	56	190	188	204	209	152	133	62	76
Legitimate	15	18	36	52	115	119	281	254	48	42	44	55	295	280	52	35	57	47	15	20	67	77	56	55	182	181	200	205	143	131	59	70
Illegitimate	...	2	3	4	2	5	13	17	1	1	2	3	17	23	3	1	4	...	...	1	4	7	1	1	8	7	4	4	9	2	3	6
Population	2493		6054		16560		34110		5433		5315		34440		6566		5331		2904		7417		5193		18700		18850		16500		6003	

TABLE A.—*Continued.*

VITAL STATISTICS FOR ALL DISTRICTS IN ADMINISTRATIVE COUNTY OF CHESTER, 1922.

Causes of Death.	Stalybridge M.B.		Tarporley U.D.		Wilmslow U.D.		Winsford U.D.		Yeardsley-cum-Whaley U.D.		Bucklow R.D.		Chester R.D.		Congleton R.D.		Disley R.D.		Macclesfield R.D.		Malpas R.D.		Nantwich R.D.		Northwich R.D.		Runcorn R.D.		Tarvin R.D.		Tintwistle R.D.		Wirral R.D.	
(Civilians only)	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
All Causes	195	195	9	18	36	59	70	82	11	6	124	99	66	64	80	60	24	18	100	110	31	32	154	163	138	160	156	164	91	75	13	14	114	107
1 Enteric Fever	1	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1	...	...	1	...	1	...	...	...	...	...	...
2 Small-pox	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..
3 Measles	3	...	...	...	1	...	...	1	...	...	...	1	...	1	1	1	...	...	1	...	...	...	3	3	...	1	2	1	1	1	...	...	1	1
4 Scarlet Fever	...	...	...	...	...	...	1	...	...	...	2	2	...	1	...	...	...	...	1	...	...	1	...	...	...	...	...	...	...	...	...	...	1	1
5 Whooping Cough...	1	1	...	...	...	1	...	2	1	...	1	1	...	...	...	1	...	1	...	3	1	...	...	2	...	1	...	...	...	...	1	1	...	1
6 Diphtheria	1	1	...	...	1	4	...	...	...	...	3	...	...	1	1	1	...	...	...	...	...	2	1	...	1	1	...	1	2	...	...	...	...	...
7 Influenza	7	1	...	1	4	2	5	7	...	...	4	2	3	2	7	4	1	...	5	8	...	1	5	10	7	11	9	10	3	5	1	...	3	3
8 Encephalitis Lethargica ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	1	...	...	...	...	...	...	...
9 Meningococcal Meningitis ...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
10 Tuberculosis of Respiratory System	12	9	...	...	2	2	5	2	1	...	6	2	2	3	3	1	3	1	3	6	2	...	7	9	5	11	6	12	4	2	...	2	5	3
11 Other Tuberculous Diseases ...	3	4	...	...	...	...	1	3	...	...	4	1	1	1	2	1	1	...	...	1	...	1	7	2	2	1	1	2	3	...	1	...	1	6
12 Cancer, Malignant Disease ...	11	21	1	2	6	11	8	4	2	...	7	7	7	7	5	4	2	1	12	12	2	4	19	19	19	13	14	17	8	9	1	2	10	16
13 Rheumatic Fever	...	1	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	1	1	1	1	...	...	...	...	...	...	...	...	...
14 Diabetes	2	2	...	...	1	1	1	...	...	...	...	2	3	2	3	3	1	1	1	1	...	...	3	3	1	2	1	2	1	...	...	2	...	3
15 Cerebral Hæmorrhage, &c. ...	22	19	...	4	4	5	1	5	1	1	5	11	6	1	1	3	1	1	12	8	3	...	15	14	5	10	15	14	5	9	2	1	8	7
16 Heart Disease	23	32	2	4	1	9	15	20	...	1	22	21	8	10	8	8	3	1	11	20	3	8	23	29	23	23	13	28	10	9	2	...	16	12
17 Arterio-sclerosis	3	1	...	1	1	1	1	1	...	1	4	5	5	2	2	3	3	3	5	2	4	2	2	...	6	3	8	5	3	...	2	...	9	4
18 Bronchitis	12	26	1	3	1	4	1	7	1	...	5	3	5	4	9	1	1	...	3	8	1	...	6	9	7	17	7	9	1	1	...	...	3	6
19 Pneumonia (all forms)	28	9	...	...	1	5	10	2	1	...	10	6	3	4	5	7	2	2	7	2	2	1	10	12	7	8	17	5	8	5	...	...	14	4
20 Other Respiratory Diseases ...	5	4	1	...	...	...	1	...	...	...	1	2	...	1	1	...	...	1	5	6	...	...	2	2	...	...	...	1	2	1	...	...	...	1
21 Ulcer of Stomach or Duodendum	3	...	...	...	1	...	...	...	...	...	2	...	...	...	1	...	...	...	...	...	...	...	1	...	2	1	1	...	...	1	...	...	...	1
22 Diarrhœa, &c. (under 2 years) ...	...	...	...	...	...	...	1	...	...	...	1	1	...	1	1	...	...	...	2	...	...	1	1	1	...	1	...	1	1	1	...	1	1	1
23 Appendicitis and Typhlitis ...	4	1	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...	2	1	...	1	1	...	1	2	2	...	1	...	...	...	...
24 Cirrhosis of Liver	...	...	1	...	...	...	...	...	1	...	...	1	1	1	...	...	1	...	...	...	...	...	...	...	1	1	3	1	...	...	...	...	...	1
25 Acute and Chronic Nephritis ...	4	6	1	1	2	2	3	2	...	...	2	...	1	...	3	2	...	2	5	2	...	...	1	3	5	9	11	7	1	1	...	1	2	3
26 Puerperal Sepsis	...	...	...	...	...	...	...	1	...	...	...	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...
27 Other Accidents and Diseases of Pregnancy and Parturition	...	...	...	...	...	2	...	...	...	...	...	1	...	1	...	...	...	...	...	...	...	2	...	...	...	3	...	3	...	...	...	...	...	4
28 Congenital Debility and Malformation, Premature Birth	7	7	...	...	1	2	6	3	...	...	4	2	2	2	1	4	...	1	3	5	...	1	8	6	7	9	12	5	3	6	...	...	7	4
29 Suicide	...	...	...	...	1	1	...	...	...	...	...	1	1	2	2	1	...	...	1	...	...	...	1	...	1	...	3	...	2	1	...	...	3	...
30 Other Deaths from Violence ...	8	1	...	1	1	...	2	2	1	...	4	2	5	...	5	4	...	...	4	2	...	1	6	3	10	2	5	2	6	...	...	...	8	4
31 Other Defined Diseases	34	49	2	1	7	7	8	20	2	3	37	22	11	15	18	11	5	3	19	22	9	6	30	32	28	30	24	34	27	21	3	4	17	21
32 Causes Ill-defined or Unknown ...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...	...	1	...	...	1	1	...	1	...	...	...	...
Special Causes (included above)—																																		
Poliomyelitis	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	1	...	...	...	...	...	...	...
Polioencephalitis	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Deaths of Infants under 1 year of age	24	15	1	...	3	4	14	7	1	...	11	6	3	5	7	8	1	3	9	8	3	3	15	13	9	16	16	8	7	8	1	1	12	7
Total Illegitimate	2	2	...	...	...	...	1	...	1	...	2	...	...	...	...	...	...	...	...	...	...	2	2	...	1	2	1	1	1	3	...	...	2	...
Total Births...	257	217	27	22	63	63	108	102	16	11	187	178	105	100	136	133	25	18	139	145	35	42	239	222	265	261	243	231	117	126	25	12	213	202
Legitimate	242	203	25	19	59	58	102	97	15	11	178	167	98	99	132	128	24	17	136	143	32	34	228	211	259	251	240	220	109	123	22	12	211	190
Illegitimate...	15	14	2	3	4	5	6	5	1	...	9	11	7	1	4	5	1	1	3	2	3	8	11	11	6	10	3	11	8	3	3	...	2	12
Population	25750		2520		8249		11120		1664		22250		13450 For death rate 13030		13440		2993		17030		4433		25250		24880		29320		13460		2053		24960	

TABLE B.

CAUSES OF DEATH AT DIFFERENT PERIODS OF LIFE IN THE ADMINISTRATIVE COUNTY OF CHESTER, 1922.

CAUSES OF DEATH.	Sex.	AGGREGATE OF URBAN DISTRICTS.										AGGREGATE OF RURAL DISTRICTS.									
		All Ages	0—	1—	2—	5—	15—	25—	45—	65—	75—	All Ages	0—	1—	2—	5—	15—	25—	45—	65—	75—
ALL CAUSES	M	2717	341	99	76	104	106	320	758	502	411	1091	94	28	22	32	44	122	261	238	250
	F	2817	245	89	71	83	107	324	676	585	637	1066	86	33	17	31	34	131	232	227	275
1. Enteric fever	M	5	...	...	...	...	2	2	1	...	...	1	...	...	...	...	...	1	...	...	...
	F	2	...	...	...	1	1	...	...	...	...	3	...	...	...	...	...	2	1	...	...
2. Small-pox	M	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	F	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
3. Measles	M	47	8	22	15	2	...	...	...	...	...	9	3	3	3	...	...	...	...	...	...
	F	42	10	20	10	2	...	...	...	...	...	10	3	3	2	2	...	...	...	...	...
4. Scarlet fever	M	13	...	2	2	7	...	2	...	...	...	4	...	...	2	2	...	...	...	...	...
	F	12	...	2	2	7	...	1	...	...	...	5	...	...	...	4	...	1	...	...	...
5. Whooping cough	M	26	12	8	4	2	...	...	...	...	...	3	2	1	...	...	...	...	...	...	...
	F	35	13	14	7	1	...	...	...	...	...	11	5	4	2	...	...	...	...	...	...
6. Diphtheria	M	17	3	2	6	6	...	...	...	...	...	8	..	1	3	4	...	..	...	...	...
	F	18	1	2	4	9	1	1	..	...	...	6	...	...	2	2	...	1	1	...	...
7. Influenza	M	98	2	5	2	5	5	26	36	11	6	48	1	..	2	2	1	14	15	9	4
	F	110	2	4	2	3	5	23	28	28	15	56	1	1	1	2	2	17	14	10	8
8. Encephalitis lethargica	M	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...
	F	3	...	...	...	2	...	1	...	...	...	1	...	...	...	...	...	...	1	...	...
9. Meningococcal meningitis	M	2	..	..	...	...	1	..	1	...	...	...	...	...	...	...	...	...	...	...	...
	F	4	1	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
10. Tuberculosis of respiratory system	M	164	...	...	...	2	32	65	54	10	1	46	...	...	...	1	6	24	13	2	...
	F	156	2	...	1	13	40	62	33	4	1	52	...	..	...	1	9	30	10	2	...
11. Other tuberculous diseases	M	52	10	14	8	9	3	3	5	...	...	23	2	4	3	4	8	2	...	...	...
	F	41	4	4	5	7	7	7	3	3	1	16	4	5	...	3	1	2	...	1	...
12. Cancer, malignant disease	M	258	...	...	...	2	1	15	129	73	38	106	...	...	...	...	...	5	48	39	14
	F	319	..	..	...	1	...	39	138	91	50	111	..	...	...	...	...	7	49	27	28
13. Rheumatic fever	M	10	...	...	...	5	2	2	1	...	...	4	...	...	...	...	2	2	...	...	...
	F	13	...	...	1	3	2	5	2	...	...	2	...	...	...	...	1	...	1	...	...
14. Diabetes	M	34	...	...	1	2	4	6	10	9	2	15	...	..	...	...	...	2	7	4	2
	F	34	...	...	...	2	2	5	17	5	3	21	...	...	...	2	1	3	8	5	2
15. Cerebral hæmorrhage, &c.	M	148	...	...	...	...	2	9	52	48	37	78	...	..	...	...	1	3	16	31	27
	F	209	...	...	...	1	...	8	65	71	64	79	...	...	...	...	...	3	15	36	25
16. Heart disease	M	301	...	1	1	4	12	35	106	91	51	142	...	...	...	1	3	14	39	45	40
	F	423	...	...	1	3	8	33	124	145	109	169	...	...	...	...	2	9	45	56	57
17. Arterio-sclerosis	M	109	...	...	...	...	...	1	28	39	41	53	...	...	...	...	...	1	11	19	22
	F	79	...	...	...	...	...	...	12	27	40	29	...	...	...	...	...	...	2	10	17
18. Bronchitis	M	214	28	9	1	1	1	13	45	68	48	53	3	1	...	...	...	...	9	14	26
	F	243	17	6	7	...	4	8	39	62	100	58	1	...	...	...	...	2	8	17	30
19. Pneumonia (all forms)	M	250	45	26	20	15	3	35	65	27	14	85	10	7	3	2	2	17	17	14	13
	F	165	28	18	12	7	9	18	37	20	16	56	7	7	3	3	3	4	9	11	9
20. Other respiratory diseases	M	46	2	...	2	1	2	7	15	13	4	11	...	..	1	..	1	..	4	3	2
	F	35	...	...	1	1	1	8	10	6	8	15	...	..	...	2	...	1	4	4	4
21. Ulcer of stomach or duodenum	M	29	...	...	...	...	5	8	13	3	...	7	...	...	...	...	1	..	4	1	1
	F	12	...	...	...	...	1	6	2	3	...	3	...	...	...	...	...	3	...	...	...
22. Diarrhœa, &c. (under 2 years)	M	35	22	4	2	...	...	...	2	5	..	10	6	1	...	...	...	1	1	1	...
	F	31	11	3	2	...	1	4	3	4	3	14	8	...	1	...	1	1	1	2	...
23. Appendicitis and typhlitis	M	23	...	...	...	6	3	8	6	...	...	5	..	...	...	1	2	...	2	...	...
	F	6	...	...	...	2	2	2	...	.	...	8	...	...	...	4	1	1	1	...	1
24. Cirrhosis of liver	M	15	...	...	...	...	...	2	10	3	...	6	...	...	...	...	...	...	5	...	1
	F	3	...	...	...	...	...	...	2	1	...	5	...	...	...	...	...	...	3	2	...
25. Acute and chronic nephritis	M	80	2	...	..	3	3	15	32	15	10	31	1	...	...	2	2	2	6	13	5
	F	69	...	...	...	...	3	10	33	15	8	30	...	...	...	...	...	2	16	6	6
26. Puerperal sepsis	M	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	F	3	...	...	...	...	1	1	1	...	...	4	...	...	...	...	1	3	...	...	...
27. Other accidents & diseases of pregnancy & parturition	M	...	...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	..
	F	19	...	...	...	...	...	19	...	...	...	14	...	...	...	...	3	11	...	...	...
28. Congenital debility and malformation, premature birth.	M	130	128	...	2	...	...	...	...	...	...	47	47	...	...	...	...	...	...	...	...
	F	119	116	1	1	...	1	...	...	...	...	45	44	1	...	...	...	...	...	...	...
29. Suicide	M	32	...	...	...	...	3	4	23	2	...	14	...	...	...	...	2	5	5	1	1
	F	18	...	...	...	...	1	8	7	2	...	5	...	...	...	...	1	2	2	...	...
30. Other deaths from violence	M	74	5	2	3	16	6	15	13	6	8	53	...	3	3	2	6	14	15	7	3
	F	55	1	4	8	6	2	2	13	6	13	20	1	2	...	1	1	2	2	3	8
31. Other defined diseases	M	500	74	4	6	16	16	47	109	77	151	225	19	7	2	11	7	15	43	33	88
	F	537	39	8	7	12	15	53	105	92	206	215	12	9	6	5	7	23	38	35	80
32. Causes, ill-defined or unknown	M	5	...	...	1	...	...	...	2	2	...	3	...	...	...	...	...	...	1	1	1
	F	2	...	...	...	...	...	...	2	...	...	3	...	1	...	...	...	1	1	...	...

TABLE C.

TABULAR STATEMENT

prepared from figures supplied by the Registrar General for the various Sanitary Districts in the Administrative County of Chester for the year ending 31st December, 1922.

SANITARY DISTRICTS	Population at Census, 1921.	Population estimated by Registrar General, 1922.	Area in Acres.	Births.	Birth-rate per 1000 Living.	Illegitimate Births.	Deaths.	Death-rate per 1000 Living.	Deaths from Small-pox.	Measles.	Scarlatina.	Diphtheria	Whooping Cough.	Fever.	Diarrhœa.	Deaths from Principal Zymotic Diseases.	Principal Zymotic Diseases Death-rate.	Deaths under one year.	Deaths under one Year to 1000 Births.	Is Hospital Isolation for Infectious Diseases provided?	Name of Medical Officer of Health.
Column Number ...	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
MUNICIPAL BOROUGHS.																					
Congleton	11764	12030	2572	257	21·3	12	136	17·7		2	1	1				4	·33	23	89	Yes. West Heath Joint	Dr. Catto.
Crewe	46477	47390	2184	868	18·2	26	597	12·5		6	5	7	7	1	5	31	·65	66	76	Yes. Crewe.	Dr. Ingram
Dukinfield	19498	19970	1407	374	18·7	18	278	13·9		11	1		2	2	3	19	·95	37	98	Yes. Hyde.	Dr. J. R. S. Park
Hyde	33137	34110	3079	565	16·5	30	435	12·7		6	3	2	1		3	15	·43	35	61	Yes. Hyde.	Dr. U. Gebbie.
Macclesfield	33846	34440	3214	615	17·8	40	510	14·5		13	3	2	8		4	0	·87	42	68	Yes. Macclesfield.	Dr. J. H. Marsh.
Stalybridge	25233	25750	3132	474	18·4	29	390	15·1		3		2	2	1		8	·31	39	82	Small-pox only, Hartshead.	Dr. W. J. Hancock.
	170250	173690	15588	3148	18·1	155	2346	13·5		41	13	14	20	4	15	107	·62	242	76		
OTHER URBAN DISTRICTS.																					
Alderley Edge	3072	3082	678	53	17·1	2	34	11·0				1				1	·3	2	37	Yes. Monsall.	Dr. Baxter
Aisager...	2693	2695	2241	51	18·8	1	34	12·6										1	19	Yes. West Heath Joint.	Dr. Harpur.
Altrincham	20461	20810	1425	419	20·1	23	219	12·4		1	1	2			3	7	·33	31	73	Yes. Altrincham.	Dr. Reid Duncan
Ashton-upon-Mersey ...	7780	7911	1623	121	16·5	5	77	9·8										7	57	Yes. Monsall.	Dr. Scott
Bebington & Bromborough	19110	19600	3446	375	19·1	10	197	10·0		1		2			1	4	·20	24	64	Yes. Wirral Joint.	Dr. J. B. Yeoman.
Bollington	5094	5173	1291	91	17·5	5	89	17·2										6	65	Yes. Macclesfield.	Dr. Conrad Reeves
Bowdon	2967	2926	850	30	10·2	1	40	13·6		1									33	Yes. Altrincham.	Dr. Chappel
Bredbury and Romiley ...	9169	9273	3990	133	14·3	2	90	9·7		1			1		1	3	·32	1	45	Yes. Hyde.	Dr. F. Cant.
Buglawton	1672	1651	2911	35	21·0	2	11	6·6				1			1	1	·60	6	28	Yes. West Heath Joint	Dr. P. M. Davidson
Cheadle and Gatley ...	11036	1170	5037	151	13·5	9	136	12·1				2	1		1	4	·35	1	72	Yes. Monsall and Small-pox Hospital.	Dr. J. H. Godson.
Compstall	944	940	903	14	14·8		11	11·7										11		Yes. Hyde.	Dr. Easton
Ellesmere Port & Whitby	12075	13340	3440	368	27·1	9	176	12·9		5		1	25		2	33	2·4	43	116	Yes. Wirral Joint	Dr. J. B. Yeoman.
Hale	9285	9283	1288	142	15·2	3	83	8·9		1		1			2	4	·43	10	70	Yes. Monsall.	Dr. T. A. Rothwell
Handforth	904	931	1311	16	17·1		12	12·8										1	62	No.	Dr. A. Nowell.
Hazel Grove and Bramhall	10125	10230	5447	158	14·9	5	122	11·8			1	1				2	·19	9	58	Yes. Hyde.	Dr. Thos. Moore.
Hollingworth	2465	2493	2086	35	14·0	2	35	14·4							1	1	·40	4	114	Small-pox, Mottram Moor.	Dr. R. Pomfret Wylde
Hoole	5990	6054	334	95	15·6	7	74	12·2					1			1	·16	7	73	Yes. Chester.	Dr. F. J. Butt.
Hoylake and West Kirby...	17055	16360	1979	241	14·5	7	191	11·5		1			5	1	1	8	·48	13	53	Yes. Wirral Joint.	Dr. J. B. Yeoman
Knutsford	5411	5433	1760	92	16·9	2	75	13·8			2	3	1			6	1·1	10	108	Yes. Monsall.	Dr. Blease.
Lymm	5288	5315	4374	104	19·5	5	63	11·8			1					1	·18	3	28	Yes. Lymm.	Dr. de Jong
Marple	6613	6566	2055	91	13·8	4	83	12·6		1						1	·15	1	10	Yes. Hyde.	Dr. Jackson
Middlewich	5116	5331	1082	108	20·2	4	60	11·2		4						4	·75	9	83	Yes. Northwich Joint and Marbury.	Dr. S. L. Melville.
Mottram	2882	2904	1084	36	12·3	1	42	14·4							1	1	·34	4	111	Yes. Hyde and Small-pox; Mottram Moor	Dr. G. J. Awburn.
Nantwich	7296	7417	703	155	20·8	11	101	13·6		1						1	·19	11	70	Yes. Alvaston Joint.	Dr. J. D. Munro.
Neston and Parkgate ...	5191	5193	3331	113	21·7	2	49	9·4		8			1	1	2	12	·64	6	53	Yes. Wirral Joint.	Dr. J. B. Yeoman.
Northwich	18365	18700	1398	378	20·2	15	236	12·6		19	5	1	2	1	4	32	1·6	40	96	Yes. Northwich Joint and Marbury.	Dr. H. E. Gough.
Runcorn	18393	18850	1274	418	21·9	8	280	14·8		2	1		1		3	6	·36	14	49	Yes. Runcorn.	Dr. H. E. Annett.
Sale ... ~	16357	16500	2006	225	11·2	11	173	10·4				1			2	3	·49	15	108	Yes. Monsall.	Dr. H. Misl Woodhead
Sandbach	5843	6003	2694	138	22·9	9	64	10·6								7	·84	7	55	Yes. West Heath Jt. & Arclid for Small-pox.	Dr. R. Riddell.
Tarporley	2516	2520	6195	49	19·4	5	27	10·7										1	20	Yes. Chester.	Dr. W. E. Burton.
Wilmslow	8286	8249	5090	126	15·2	9	95	11·5		1		5	1			7	·84	7	55	Yes. Monsall.	Dr. A. Byers.
Winsford	10957	11120	5778	210	18·8	11	152	13·5		1	1		2		1	5	·44	21	100	Yes. Davenham and Marbury.	Dr. L. J. Picton
Yeardsley-cum-Whaley ...	1698	1664	1323	27	16·0	1	17	10·2					1			1	·60	1	37	Yes. Hyde and High Peak.	Dr F. G. Allan.
	263009	266087	81486	4848	18·2	191	3188	11·9		48	12	21	41	3	25	160	·56	344	70		
RURAL DISTRICTS																					
Bucklow	22149	22250	56806	365	16·4	20	223	10·0		1	4	3	2		2	12	·53	17	46	Yes. Monsall.	Dr. Blease.
Chester	13327	13450	84253	205	15·2	8	130	9·9		1	1	1		1	1	5	·38	8	39	Yes Chester.	Dr. W. E. Burton.
Congleton	18217	13440	40152	269	20·0	9	140	10·4		2		2	1		1	6	·44	15	55	Yes. West Heath Joint.	Dr. C. H. Wentworth-Bennett
Disley	3024	2993	2466	43	14·3	2	42	14·0					1			1	·33	4	90	Yes. Hyde.	Dr. G. B. Pemberton
Macclesfield	17047	17030	79494	284	16·6	5	210	12·3		1	1		3		2	7	·41	17	59	Yes. Macclesfield and Higher Sutton	Dr. R. Proudfoot
Malpas	4464	4433	21405	77	17·3	11	63	14·2			1	2	1		1	5	1·1	6	77	Yes Chester. [for Small-pox.	Dr. W. E. Burton.
Nantwich	25013	25250	98466	461	18·2	22	317	12·1	6			1	2	1	2	12	·47	28	60	Yes. Nantwich Joint and Small-pox.	Dr. R. T. Turner
Northwich	24434	24880	54307	526	21·1	16	298	11·9	1			2	1	1	1	6	·24	25	47	Yes. Northwich Joint.	Dr. H. E. Gough
Runcorn	28929	29320	49117	474	16·2	14	320	10·9	3			1		1	1	6	·20	24	50	Yes. Dutton. Moore (Small-pox).	Dr. Manson
Tarvin	13410	13460	56871	243	18·0	11	166	12·3	2			2			1	5	·37	15	61	Yes. Chester	Dr. W. E. Burton
Tintwistle	2071	2058	13619	37	18·0	3	27	13·1					2		1	3	1·4	2	54	Yes. Mottram Moor.	Dr G. J. Awburn
Wirral	24657	24980	36761	415	16·6	14	221	12·8	2	2			1		2	7	·28	19	45	Yes. Wirral Joint.	Dr. J. B. Yeoman.
	191742	193599	543717	3399	17·5	135	2157	11·1		19	9	14	14	4	15	75	·38	180	52		
Administrative County ...	625001	633316	640791	11895	17·9	481	7691	12·1		108	34	49	75	11	55	332	·52	766	67		

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Column Number ...	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
MUNICIPAL BOROUGHS.																					
Congleton	11764	12030	2572	257	21·3	12	136	17·7		2	1	1				4	·33	23	89	Yes. West Heath Joint	Dr. Catto.
Crewe	46477	47390	2184	863	18·2	26	597	12·5		6	5	7	7	1	5	31	·65	66	76	Yes. Crewe.	Dr. Ingram
Dukinfield	19498	19970	1407	374	18·7	18	278	13·9		11	1		2	2	3	19	·95	37	98	Yes. Hyde.	Dr. J. R. S. Park
Hyde	33137	34110	3079	565	16·5	30	435	12·7		6	3	2	1		3	15	·43	35	61	Yes. Hyde.	Dr. U. Gebbie.
Macclesfield	33846	34440	3214	615	17·8	40	510	14·5		13	3	2	8		4	0	·87	42	68	Yes. Macclesfield.	Dr. J. H. Marsh.
Stalybridge	25233	25750	3132	474	18·4	29	390	15·1		3		2	2	1		8	·31	39	82	Small-pox only, Hartshead.	Dr. W. J. Hancock.
	170250	173990	15588	3148	18·1	155	2346	13·5		41	13	14	20	4	15	107	·62	242	76		
OTHER URBAN DISTRICTS.																					
Alderley Edge	3072	3082	678	53	17·1	2	34	11·0				1				1	·3	2	37	Yes. Monsall.	Dr. Baxter
Aisager...	2693	2695	2241	51	18·8	1	24	12·6										1	19	Yes. West Heath Joint.	Dr. Harpur.
Altrincham	20461	20810	1425	419	20·1	23	259	12·4		1	1	2			3	7	·33	31	73	Yes. Altrincham.	Dr. Reid Duncan
Ashton-upon-Mersey ...	7780	7911	1623	121	16·5	5	77	9·8										7	57	Yes. Monsall.	Dr. Scott
Bebington & Bromborough	19110	19600	3446	375	19·1	10	197	10·0		1		2			1	4	·20	24	64	Yes. Wirral Joint.	Dr. J. B. Yeoman.
Bollington	5094	5173	1291	91	17·5	5	89	17·2										6	65	Yes. Macclesfield.	Dr. Conrad Reeves
Bowdon	2967	2926	850	30	10·2	1	40	13·6		1						1	·34	1	33	Yes. Altrincham.	Dr. Chappel
Bredbury and Romiley ...	9169	9273	3990	133	14·3	2	90	9·7		1			1		1	3	·32	6	45	Yes. Hyde.	Dr. F. Gant.
Buglawton	1572	1651	2911	33	21·0	2	11	6·6				1			1	1	·60	1	28	Yes. West Heath Joint	Dr. P. M. Davidson
Cheadle and Gatley ...	11016	1170	5087	151	13·5	9	136	12·1				2	1		1	4	·35	11	72	Yes. Monsall and Small-pox Hospital.	Dr. J. H. Godson.
Compstall	944	940	903	14	14·8		11	11·7												Yes. Hyde.	Dr. Easton
Ellesmere Port & Whitby	13075	13540	3149	368	27·1	9	176	12·9		5		1	25		2	33	2·4	43	116	Yes. Wirral Joint	Dr. J. B. Yeoman.
Hale	9285	9283	1288	142	15·2	3	83	8·9		1		1			2	4	·43	10	70	Yes. Monsall.	Dr. T. A. Rothwell
Handforth	904	931	1811	16	17·1		12	12·8										1	62	No.	Dr. A. Nowell.
Hazel Grove and Bramhall	10125	10230	5447	153	14·9	5	122	11·8				1	1			2	·19	9	58	Yes. Hyde.	Dr. Thos. Moore.
Hollingworth	2465	2493	2086	35	14·0	2	35	14·4							1	1	·40	4	114	Small-pox, Mottram Moor.	Dr. R. Pomfret Wylde
Hoole	5999	6054	334	95	15·6	7	74	12·2					1			1	·16	7	73	Yes. Chester.	Dr. F. J. Butt.
Hoylake and West Kirby...	17055	16360	1970	241	14·5	7	191	11·5		1			5	1	1	8	·48	13	53	Yes. Wirral Joint.	Dr. J. B. Yeoman
Knutsford	5411	5433	1760	92	16·9	2	75	13·8			2	3	1			6	1·1	10	108	Yes. Monsall.	Dr. Blease.
Lymm	5288	5315	4374	104	19·5	5	63	11·8			1					1	·18	3	28	Yes. Lymm.	Dr. de Jong
Marple	6613	6566	3055	91	13·8	4	83	12·6		1						1	·15	1	10	Yes. Hyde.	Dr. Jackson
Middlewich	5116	5331	1082	108	20·2	4	60	11·2		4						4	·75	9	83	Yes. Northwich Joint and Marbury.	Dr. S. L. Melville.
Mottram	2882	2904	1084	36	12·3	1	42	14·4							1	1	·34	4	111	Yes. Hyde and Small-pox; Mottram Moor	Dr. G. J. Awburn.
Nantwich	7296	7417	703	155	20·8	11	101	13·6										11	70	Yes. Alvaston Joint.	Dr. J. D. Munro.
Neston and Parkgate ...	5191	5193	3331	113	21·7	2	49	9·4		1						1	·19	6	53	Yes. Wirral Joint.	Dr. J. B. Yeoman.
Northwich	18395	18700	1898	378	20·2	15	236	12·6		8			1	1	2	12	·64	24	63	Yes. Northwich Joint and Marbury.	Dr. H. E. Gough.
Runcorn	18393	18850	1274	413	21·9	8	280	14·8		19	5	1	2	1	4	32	1·6	40	96	Yes. Runcorn.	Dr. H. E. Annett.
Sale	16387	16500	2006	285	11·2	11	173	10·4		2	1				3	6	·36	14	49	Yes. Monsall.	Dr. H. Mial Woodhead
Sandbach	5843	6003	2694	138	22·9	2	64	10·6				1			2	3	·49	15	108	Yes. West Heath Jt. & Arelid for Small-pox.	Dr. R. Riddell.
Tarporley	2516	2520	6195	49	19·4	5	27	10·7										1	20	Yes. Chester.	Dr. W. E. Burton.
Wilmslow	8286	8249	5030	126	15·2	9	95	11·5		1		5	1			7	·84	7	55	Yes. Monsall.	Dr. A. Byers.
Winsford	10957	11120	3778	210	18·8	11	152	13·5		1	1		2		1	5	·44	21	100	Yes. Davenham and Marbury.	Dr. L. J. Picton
Yeardsley-cum-Whaley ...	1698	1664	1823	27	16·0	1	17	10·2					1			1	·60	1	37	Yes. Hyde and High Peak.	Dr F. G. Allan.
	263009	266087	81486	4848	18·2	191	3188	11·9		48	12	21	41	3	25	150	·56	344	70		
RURAL DISTRICTS																					
Bucklow	22149	22250	56806	365	16·4	20	223	10·0		1	4	3	2		2	12	·53	17	46	Yes. Monsall.	Dr. Blease.
Chester	13327	13450	34253	205	15·2	8	130	9·9		1	1	1		1	1	5	·38	8	39	Yes Chester.	Dr. W. E. Burton.
Congleton	13217	13440	40192	249	20·0	9	140	10·4		2		2	1		1	6	·44	15	55	Yes. West Heath Joint.	Dr. C. H. Wentworth-Bennett
Disley	3024	2993	2466	43	14·3	2	42	14·0					1			1	·33	4	90	Yes. Hyde.	Dr. G. B. Pemberton
Macclesfield	17047	17030	79494	284	16·6	5	210	12·3		1	1		3		2	7	·41	17	59	Yes. Macclesfield and Higher Sutton	Dr. R. Proudfoot
Malpas	4464	4433	21405	77	17·3	11	63	14·2			1	2	1		1	5	1·1	6	77	Yes Chester. [for Small-pox.	Dr. W. E. Burton.
Nantwich	25013	25250	98466	461	18·2	22	317	12·1		6		1	2	1	2	12	·47	28	60	Yes. Nantwich Joint and Small-pox.	Dr. R. T. Turner
Northwich	24434	24880	54307	526	21·1	16	298	11·9		1		2	1	1	1	6	·24	25	47	Yes. Northwich Joint.	Dr. H. E. Gough
Runcorn	28929	29320	49117	474	16·2	14	320	10·9		3		1		1	1	6	·20	24	50	Yes. Dutton. Moore (Small-pox).	Dr. Manson
Tarvin	13410	13460	56871	243	18·0	11	166	12·3		2		2			1	5	·37	15	61	Yes. Chester	Dr. W. E. Burton
Tintwistle	2071	2058	13619	37	18·0	3	27	12·1					2		1	3	1·4	2	54	Yes. Mottram Moor.	Dr G. J. Awburn
Wirral	24657	24980	36761	415	16·6	14	221	12·8		2	2		1		2	7	·28	19	45	Yes. Wirral Joint.	Dr. J. B. Yeoman.
	191742	193539	543717	3399	17·5	135	2157	11·1		19	9	14	14	4	15	75	·38	180	52		
Administrative County ...	625001	633316	640791	11895	17·9	481	7691	12·1		108	34	49	75	11	55	332	·52	766	67		