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County Palatine of Chester.

REPORT

OF THE

County Tuberculosis Officer

For the Year 1919.

T. H. PEYTON, D.S.O., M.A., M.D., D.P.H.,
County Tuberculosis Officer.

Medical Adviser to the Cheshire Insurance Committee and
Cheshire Joint Sanatorium Committee,
Assistant County Medical Officer of Health.

REPORT

OF THE

County Tuberculosis Officer

For the Year ending 31st December, 1919.

To the Cheshire County Council and
Cheshire Insurance Committee.

GENTLEMEN,

I have the honour to submit herewith my first Annual Report on Tuberculosis and upon the work of the Tuberculosis Section of the Public Health Department.

The official scheme adopted by the County Council in May, 1914, which was intended to provide facilities for diagnosis and treatment of the disease in all classes of persons with the ultimate object of effecting its prevention and elimination from the community has been retarded in development owing to adverse conditions prevailing during the war period.

Progress has been reported in the Annual Reports of the County Medical Officer dealing with the health of the County as a whole, though this report is intended to be the first survey of the work carried out under the Tuberculosis Scheme as a separate Branch.

During the year under review conditions had not returned to normal to an extent which would allow of rapid development and expansion of the work contemplated under the original scheme, though on the whole satisfactory progress has been achieved.

Members of the medical and clerical staff of the Council and of the Insurance Committee engaged upon tuberculosis administration who were absent on war service resumed their duties during the year, though several changes in staff have occurred necessitating new appointments.

The full establishment of District Tuberculosis Officers has not been available for duty in the dispensaries during the major part of the year, and in consequence it has not been possible to ensure continuity of services rendered under the Dispensary organisation.

Difficulty has also been experienced in obtaining accommodation required for residential treatment of persons resident within the area of the Administrative County, owing to shortage of beds in existing Approved Institutions available for the treatment of tuberculosis throughout the country as a whole, and a waiting list of those selected as suitable for admission was unavoidable.

Discharged service men suffering from tuberculosis attributable to or aggravated by service in the Army, Navy or Air Force, have been afforded preferential treatment in regard to admission to sanatoria and hospitals, and the numbers receiving such institutional treatment during the year have necessarily increased the difficulty of finding accommodation.

Co-ordination of the work undertaken by the Council and the Insurance Committee relative to arrangements for residential treatment of insured persons under the terms of the Principal Agreement entered into in 1916, has become increasingly necessary in view of the dual system of administration which had gradually come into being owing to an arrangement whereby residential accommodation has hitherto been provided partly by the Council and partly by the Insurance Committee.

During the past year it has been agreed that as from the 1st January, 1920, the Council shall provide all residential accommodation required for the treatment of all classes of persons suffering from tuberculosis.

Under Regulations issued by the Ministry of Pensions for the guidance of Medical Boards and Local War Pensions Committees, Tuberculosis Officers are consulted as Special Referees in regard to discharged or demobilised sailors or soldiers suffering or suspected to be suffering from tuberculosis in any form.

In accord with the request of the Ministry of Health the County Council have agreed to the services of their Tuberculosis Officers being made use of in this connection under the organisation of the County scheme, and a large number of Ex-service men have been referred to the Dispensaries for examination and certification.

Daily occupation is one of the most potent of the many factors which determine the condition of health, susceptibility to specific diseases, and probable duration of the life of the individual.

The conditions under which many industries are carried on, and in which a large proportion of workers live have been shown to be powerful agents predisposing to tuberculosis. It has been thought desirable, therefore, to devote a section of this Report to a survey of social and industrial features prevailing in the County in order to supplement information contained in the Reports of the County Medical Officer regarding housing, sanitation and general conditions affecting the health of the population of the area.

Information concerning incidence of tuberculosis in relation to occupations is of special interest having regard to proposals for After-Care work, and Training schemes for re-introduction into employment of persons affected with and partially incapacitated by the disease.

There is evident need for research regarding conditions affecting the incidence of Tuberculosis in relation to environment, and occupation, its prevalence and aetiology, and with regard to its curative treatment and prevention.

It is satisfactory to record that a Medical Research Committee has been inaugurated under the direction of the

Privy Council to enquire and investigate into the many medical scientific problems requiring elucidation.

Interesting and instructive publications have been issued by this Committee upon investigations undertaken in regard to Epidemology of Phthisis, Mortality after Sanatorium Treatment, the Science of Ventilation and Open-air Treatment, Incidence of Phthisis in relation to Occupations, &c.

A section devoted to review of these investigations has been deleted from this Report with reluctance owing to cost of printing.

The Ministry of Health in a Memorandum issued in January, 1920, request that Annual Reports dealing with work undertaken by a County Council in respect of Tuberculosis shall furnish information upon the following:—

(a) Details of the Council's scheme.

(b) The extent to which the scheme has already been developed.

(c) The adequacy or otherwise of the provision made.

(d) The lines on which the scheme needs to be extended or modified as the result of experience.

(e) The extent to which the co-operation of the medical profession has been obtained.

(f) The readiness, or otherwise, of patients to avail themselves of the facilities provided for diagnosis and treatment.

(g) The arrangements at the dispensary for providing for home visitation, search for contacts, after-care work, &c.

Information is also required as to the extent to which the requirements as to notification of tuberculosis are observed by medical practitioners, and of any action taken to enforce the regulations and secure prompt notification.

All of these matters are dealt with as far as possible in this Report.

I desire to express my thanks and appreciation to Dr. Meredith Young, the County Medical Officer, for kindness and assistance in enabling me to acquire a knowledge of developments which occurred during my absence for nearly 4½ years on military duties widely dissociated from those of a Civil Medical Official, and also to thank the whole of the medical, nursing and clerical staffs of the Public Health Department of the Council, and those engaged upon administration of Sanatorium Benefit under the County Insurance Committee for their co-operation and help during the year.

I am, Gentlemen,

Your obedient Servant,

THOMAS HENRY PEYTON,

County Tuberculosis Officer.

Public Health Department,
43, Foregate Street, Chester,
1st December, 1920.

Situation, Natural, Social and Industrial Features of the Administrative County of Chester.

Cheshire is one of the North-western Counties of England, and is usually included in the North-midland Counties.

It extends from 53 degrees to 53 degrees 3 seconds North latitude and from 1 degree 46 seconds to 37 degrees 22 seconds West longitude. Its greatest length from East to West is over 60 miles, and its breadth from North to South 30 miles.

It covers an area of 640,823 acres, or approximately 1,000 square miles.

The *Population* of the Administrative County, as enumerated at the Census of 1911, was 597,771, and as estimated to the middle of the year 1919, was 600,918 for death-rate and 625,978 for birth-rate.

Situate within the Administrative County area are:—

6 Municipal Boroughs.
35 Other Urban Districts.
12 Rural Districts.

Density of Population calculated on the Census returns for 1911 gives averages of 11.05 persons per acre in the six Municipal Boroughs, 3.14 persons per acre in the 35 other Urban Districts, and 0.34 persons per acre in the 12 Rural Districts.

The average density of population for the Administrative County as a whole is 0.95 persons per acre.

Variation is considerable in different parts of the County, notable congestion and sparsity of population in different quarters being characteristic of its mixed agricultural and industrial features.

Diversity in the scenery and natural features prevailing throughout the County is also well marked.

Though the country is mainly level pasture land, verdant and well timbered in parts, it is broken up in several places by ranges of hills with crags and headlands, some rising to heights approximating to 2,000 feet.

The country is interspersed with numerous fresh water lakes or 'meres,' and intersected by river valleys and canals, while adjoining the sea coast are wide sea flats, sand dunes, and the broad estuaries of the Rivers Dee and Mersey.

Amidst a diversity of rural charms are situated busy centres of modern industrial life in which are exemplified all the stress, strain and pace of the struggle for existence incidental to civilisation.

Geologically the larger part of the County is formed from rock strata of the Secondary or mesozoic period, and consists of the new red sandstones interspersed with coarse red sands, Keuper marls and rock-salt, penetrated in places by the Lower Carboniferous rocks and coal measures belonging to the Primary or palaeozoic cycle.

The main plain of Cheshire consists of stiff reddish or yellowish soils most suitable for pasture lands formed from the Keuper marls and sandstones overlying the Bunter rocks, covered in places with boulder-clay and shelly drift gravel. A rather heavy clay characterises the peninsula of Wirral, and the districts of Broxton, Nantwich and Macclesfield.

White sand is found in parts of Delamere Forest, and white freestone at Manley, Runcorn and Storeton Hill.

"Keuper sandstones resting on the Bunter constitute the chief water-bearing strata. Together they form the Peckforton Hills with Beeston Castle Hill, and also the scarps of Alderley Edge."

The South Lancashire coal measures sweeping round to the North of the Manchester area appear in the East of the

County at Hyde, Dukinfield, Bredbury and Romiley, Bollington, to as far South as Macclesfield.

The Staffordshire coalfield runs up to Mow Cop, near Congleton, while the North Wales field extends across the estuary of the Dee and appears at Little Neston, where a pit has been working for some years.

In the central part of the County the salt country occupies the stretch from Northwich to Middlewich, Winsford and Sandbach, thence South to Nantwich.

Saliferous strata are also found in the neighbourhood of Lymm.

Intrusion of the Lower Carboniferous rocks into the later Triassic beds generally prevailing throughout the area is shown in the bold limestone hills around Stalybridge and to the East of Macclesfield and Congleton, while millstone grits also appear at Mottram-in-Longdendale.

Millstone and granite of high silica content are quarried on the Mow Cop, near Congleton and Astbury.

SOCIAL AND INDUSTRIAL FEATURES.

Formerly the two chief products of the County were rock-salt and cheese. The latter is still produced in large quantities, and is perhaps the most profitable product of most of the Cheshire farms. Agriculture and farming provide the chief occupations in large tracts of the County, particularly in the central, southern and western parts of the area, and milk is sent to the great Cities of Liverpool, Manchester, and London.

Salt which was worked from early days by cutting of the rock salt in mines is now almost entirely obtained by the pumping of brine. Iron has been found in small quantities at Alderley and Dukinfield, but is not worked. Copper and lead have been worked in the Alderley district. Red sandstone and freestone are quarried in several parts of the County. The millstone and granite quarried on the Mow Cop for the manufacture of gannister mortar is of importance from the health

point of view in regard to the provisions of the Refractories Industries (Silicosis) Scheme, 1919.

The coal beds on the North-east side of the County are worked in the neighbourhood of Bredbury and Bollington. There is also a pit at Little Neston, in the Wirral.

In conformity with the growth of railways, facilities for water transport, development of machinery, and the natural and mineral features of the County, a number of large and small industrial centres have arisen in the midst of an otherwise rural County.

Large chemical works have sprung up during recent years in the salt country around Northwich, Winsford, Sandbach and Lymm.

During the war, manufacture of munitions, particularly of high explosives, was extensively carried out in the works at Winnington, resulting in an influx of munition workers with overcrowding of the town of Northwich and the surrounding villages.

The inhabitants of the thickly populated North-eastern area of the County around *Hyde*, *Dukinfield* and *Stalybridge* are chiefly employed in cotton manufacture—spinning, weaving and bleaching, rope manufacturing, calico printing and tape making, engineering works, boiler making, electric accumulator works, soap, dye, carriage and wagon works.

In *Bredbury and Romiley Urban District* there are engineering works, cotton mills, hat factories, brickfields, and also a large incandescent mantle works employing a large number of female workers.

"The general condition of the population is a well-to-do industrial one with a number of small farmers and shopkeepers. Many residents are engaged in business in Manchester, Stockport and Hyde."

Bollington Urban District is situated in a valley noted for the humidity of its atmosphere. The staple industry of the

district is the cotton trade, fine cotton spinning, doubling and weaving being carried out in three large mills, while calico printing, and bleaching are done in others.

There are also large paper staining works and a fustian cutting mill. Employment is also provided at the fire-clay works and coal pit at Pott Shrigley, and in stone quarries in the district.

Industrial conditions prevailing in the *Municipal Borough of Congleton* are given in the annual report of the Medical Officer for the year 1919 as follows: —

"Congleton is not only an industrial centre but is becoming more and more a residential town for people carrying on business in the Potteries. The chief occupations of the inhabitants are silk spinning, velvet cutting, towel weaving, tobacco manufacturing, and the manufacture of shirts, skirts, blouses, hosiery, and smallware. None of these occupations can be considered very unhealthy. There is a greater tendency to bronchitis among silk dressers than among the general population of the town, though I have not been able to ascertain that their longevity is seriously affected as a rule.

The trade of the town is brisk at present, all the factories that are in a fit state to be used being occupied, and there is a steady demand for factories amongst persons desirous of commencing business in this town. The bulk of the factories require chiefly female labour, many of the men working outside the town at collieries and iron works, and what is chiefly required in this town is the introduction of new industries employing a large proportion of male labour."

Macclesfield, which was formerly the centre of the silk industry, has declined in trade and population during recent years, though revival of the silk trade during the war has led to an increase in the numbers of those employed in the mills in the town. There are also manufactories of upholsterer's trimmings, smallware factories, a cotton factory, and some breweries giving employment to numbers of the inhabitants.

Crewe owes its prosperity to the growth of the locomotive works and railway centre of the London and North

Western Railway Company, a large number of its inhabitants being employed directly or indirectly in connection therewith.

During the war a considerable number of men were also employed on munition work in the town.

In *Sandbach* and *Nantwich* the industries consist of engineering and chemical works, boot and clothing manufacturing, with silk and fustian works in the former.

Ellesmere Port is mainly an industrial town built on the flat sandy southern shore of the Mersey at the junction of the Manchester Ship and Ellesmere Canals, and has grown rapidly in recent years. Large iron works for the making of galvanized iron constitute the staple industry of the town. There are also large flour mills, Portland cement works, and an aniline dye factory. Many men are employed in connection with the Shropshire Union Railways and Canal Company. Shipbuilding and repairing, large timber creosoting works, docks and warehouses provide occupation for a large number of hands.

Runcorn is a port on the Mersey facing the town of Widnes, and is one of the busiest centres of industry in the County. There are many chemical works in the town and important tanneries giving employment to large numbers of the inhabitants.

Numbers of persons living in Runcorn are also employed in the chemical works and power station at Weston Point, in the jam factory at Frodsham, and the electric cable works at Helsby.

The inhabitants of *Stockton Heath*, *Grappenhall*, and surrounding districts are largely employed in the factories and works in Warrington.

Cheadle and Gatley. The Medical Officer of Health reports:—The district is mainly residential and agricultural. There are two bleach and dye works, two steam laundries and a small engineering works.

Wirral District. The inhabitants may be divided into those engaged in agricultural pursuits, and those associated

with business in Liverpool and other towns. Dairy farming and market gardening are largely followed.

Higher Bebington. The Medical Officer of Health reports:—"Agriculture is the staple industry and stone quarrying is an important source of employment, but working the stone does not seem to be associated to any extent with respiratory trouble. Women in a number of instances find occupation in laundry work for households in Birkenhead."

Lower Bebington includes the model village of Port Sunlight. The majority of the population find employment in the soap and candle works of Messrs. Lever Bros.

Causes and Prevalence of Tuberculosis.

CAUSES.—General Observations.

Tuberculosis is an infectious disease caused by infection with a specific germ—the tubercle bacillus discovered by Robert Koch in 1882. It is an established fact that the disease cannot occur without infection with this germ. The bacillus may gain entrance to the system through many portals—most commonly by inhalation, through the epithelial membrane of the respiratory tract anywhere from the posterior nares to the lung alveoli, or by swallowing, through the intestinal mucous surface. Inoculation through the skin or exposed mucous membranes would appear to be comparatively rare causing local lesions from which systemic infection may originate later.

Following infection, the germs are gradually spread by way of the lymphatic system and may establish themselves in practically any portion of the body. In this way tuberculosis may be set up in the skin (lupus), lungs or their coverings, bones, joints, lymphatic glands, brain or its membranes, internal organs or lastly the germs may be circulated in the blood stream and set up disseminated disease in several parts.

In the human being the lungs are the organs most frequently affected, the disease being called pulmonary tuberculosis or phthisis. The popular name, "consumption," is more properly associated with rapid wasting or consumption of the body tissues which is a common characteristic of the pulmonary affection.

Though it is generally possible to determine a definite focus of disease with marked anatomical changes in the affected part, due to the irritant effect of the growth of the

bacillus locally, it is important to appreciate that damage to the system and to the health of the individual is mainly caused by absorption of poisons or toxins into the circulating blood, these toxins being elaborated during growth and development of the germs *in situ*.

Unlike many other infectious diseases, tuberculosis is gradual in its onset and slowly progressive. Long before it is possible to localise an actual lesion, absorption of the characteristic toxins may be indicated by early symptoms, too commonly overlooked or neglected. However, the converse is unfortunately also true, patients giving a history of slight or almost inappreciable symptoms may on examination present signs of extensive local disease.

The disease is world-wide in its geographical distribution. No race is exempt, though it is rare amongst the Jews and amongst nomadic peoples.

Tuberculosis is also known to affect many other species in the animal kingdom as well as man. Three types of causative organisms have been identified, differentiated by cultural characteristics and by their affect on different species—human, bovine, and avian.

Anatomically it is not possible to distinguish between the lesions caused by the bovine and human types of bacilli, though tuberculous lesions in each species of animal have well-marked peculiarities not due to differences in the bacilli which initiate them but to differences in the animals in which they develop.

At the Tuberculosis Congress in London in 1901, Koch enunciated the view that the bovine tubercle bacillus was a separate and distinct organism from the human and that bovine tuberculosis was not transmissable to man. Research work carried out in Germany at the instance of the German Imperial Health Office and a Report of the British Royal

Commission on Tuberculosis published in 1907, definitely established that the bovine bacillus is in fact capable of causing tuberculous disease in the human subject and that cow's milk containing bovine tubercle bacilli is a possible source of infection. It has since been abundantly proved that though pulmonary tuberculosis is most commonly attributable to infection from human sources, the bovine germ is demonstrable as the causative organism in a certain number of cases. On the other hand, considerable numbers of cases of tuberculosis of the bones, joints, glands and intestinal tract in children are definitely due to bovine infection, though disease occurring in the same tissues in adults is almost invariably caused by the human strain of organism.

Summaries of results obtained by research workers in recent years show that of 998 cultures of tubercle bacilli isolated from the sputum in pulmonary tuberculosis 991 were of the human type, 4 were bovine and in 3, a mixture of both types were demonstrated, while of 626 cultures obtained from material from tuberculous lesions in bones and joints 477 were of the human type, 125 bovine, and 24 were atypical.

There is evidence to show that about 27 per cent. of bone and joint tuberculosis in children under 10 years of age is derived from bovine infection.

Though the identity of the two types of mammalian tubercle bacilli as the causative organisms of tuberculosis has been established beyond all doubt there still exists in the minds of clinicians, epidemiologists and research workers marked differences of opinion as to the relative importance attaching to contagion in regard to subsequent development of disease amongst those exposed to infection.

It is known that the tubercle bacillus is so widely distributed from sources of infection as to be almost ubiquitous. The daily expectoration of a single tuberculous patient may contain many millions of bacilli, and it has been proved that

drying for months will not destroy their virulence. When sputum carelessly expectorated dries, it becomes pulverized, and the dust resulting therefrom is blown about. Bearing in mind that under present conditions, as shown by incomplete notification, by deaths of cases which have never been notified, and the late stage at which new cases apply for treatment at our dispensaries, it is evident that a large proportion of the total cases of pulmonary tuberculosis remain unrecognised, during the major part of their disease and opportunities for the spread of infection are unlimited.

Tubercle germs are scattered broadcast by careless and uncontrolled expectoration and by the spraying of infective particles through unrestrained coughing. The presence of virulent tubercle bacilli has been demonstrated many times in dust obtained from public tramcars, railway carriages, house sweepings and must be abundantly distributed along our public thoroughfares.

It seems almost impossible that anyone can escape exposure to infection and post-mortem examinations show that a very large number of persons do in fact become infected, as evidenced by healed tubercular scars on the lungs or on their covering membranes, though only a comparatively small number of persons present signs or symptoms indicative of tuberculosis recognisable during life.

All observers are agreed that something other than simple exposure to infection is necessary to induce development of the disease and though this also applies in lesser degree to other infectious diseases, tuberculosis has been described as "conditionally infective" or "sub-infectious" having regard to this comparative infrequence of transmission from man to man.

In the light of our present knowledge two conditions necessary for development of the disease would appear to be :—

1. The dose of infective germs must be sufficiently large to gain a footing in the tissues and overcome the natural defensive organisation of the body, or expressed in another way "massive infection" is necessary.

   The Royal Commission on Tuberculosis reported—"Very large doses are deadly and overcome the most resistant, while very small doses are harmless even to the most susceptible."

2. Susceptible soil for implantation of virulent germs.

Persons in a lowered state of health with poor resisting power afford the ideal conditions required to enable this non-motile organism, slow in growth and multiplication, to become established within the body—once established it proceeds to encase itself within a barrier of protective inflammatory tissue, by which it offers determined resistance to our efforts to subsequently dislodge it.

All factors and conditions therefore tending to lower the natural resistance of the individual may be cited as causes predisposing to tuberculosis :—

(a) Debilitating diseases—Influenza, measles, whooping cough, malaria, syphilis, pneumonia, bronchitis, alcoholism, prolonged sepsis ; decayed teeth and septic mouths resulting in faulty metabolism ; rickets, adenoid growths and enlarged tonsils in children resulting in poor physical development ; injury to lung tissues, caused by inhalation of irritant vapours or particles.

(b) Faulty home surroundings—Overcrowding, poverty, underfeeding, stagnation and impurity of air, dampness and exclusion of sunlight.

It is recognised that the disease is often "house-borne"—being particularly prevalent in certain streets and localities.

(c) Unhygienic conditions in the factory or workplace. Certain occupations have enjoyed the reputation of inducing tuberculosis, owing to the ravages of the disease amongst those engaged in them. It is now generally admitted however that it is not the industry which induces the disease, but rather the faulty conditions under which particular industries are carried on.

Research work during the war demonstrated how effectively hygiene may be applied to industry in stamping out disease. T.N.T. poisoning was practically abolished and there can be no doubt but that with proper control of hours of labour, attention to design and structure of workplaces and expenditure on requisite plant, for removing dust and harmful vapours, the environment of the factory and workshop could be freed from its baneful influence upon the health of the employee with elimination of the risk of spreading the infection of tuberculosis.

(d) Insufficient attention to the requirements of health and hygiene during leisure hours.

The home and workshop are often blamed for a good deal of injury to health which has in fact been occasioned by carelessness during the loafing or pleasure hours. The average working man to-day is only engaged at his job for 48 hours per week. We must not lose sight of how the remainder of his time is spent, and to what extent leisure is utilised to the best advantage towards improving health and to the development of sound physique.

Too often we will find but little attention is given to regularity or quality of meals, and that far too much off-time is spent in dark, ill-ventilated, overcrowded picture houses and music halls, dusty billiard saloons, or still worse, in stuffy public houses, frequented only too commonly by the tuberculous.

Publicans and inn servants present a comparative mortality from phthisis of 173, as against 100 for all Occupied and Retired males.

A recent writer in commenting on this high mortality observes :—"It may be assumed that many persons suffering from tuberculosis frequent public houses, where the possible presence of spittoons does not prevent a large amount of their sputum reaching the floor; that is why the sawdust is put there. Further, public houses are generally ill-ventilated, and being kept shut all night afford ideal conditions for the drying of the sputum."

(e) There would appear to be transmission of some inherent weakness or susceptibility to infection in children born of tuberculous parents.

It has been held that tuberculosis is not an hereditary disease in that actual infection is not transmitted from the parent to the off-spring at birth.

There is much to be said in favour of the view that the high incidence of disease amongst those of tubercular stock is largely due to increased risk of post-natal infection and debilitating conditions so frequently found in the home affected with this disease.

Notification.

All forms of tuberculosis were made compulsorily notifiable under The Public Health (Tuberculosis) Regulations, 1912, which came into force on 1st February, 1913. Under these regulations there are two forms of notification—primary and supplemental. It is a statutory obligation for the former to be made by every private Medical Practitioner, Poor Law District Medical Officer, Medical Officer of a Tuberculosis Dispensary and School Medical Officer to the District Medical Officer of Health regarding every case recognised to be suffering from tuberculosis in any form and which there is reason to believe has not previously been notified as such.

Supplemental notifications must be sent weekly to the respective Medical Officers of Health of districts concerned by all Poor Law Institutions and Sanatoria of all cases admitted and discharged during the previous week.

Each District Medical Officer of Health is required to keep a register with full particulars of each notification, and to send to the County Medical Officer a weekly return of all notifications received during the week.

Under the regulations general powers are also vested in local sanitary authorities "to supply, on the advice of their Medical Officer of Health, such medical assistance, facilities and articles as may be necessary for the detection of tuberculosis; for preventing the spread of infection and for removing conditions favourable to infection . . ."

Various amending orders referring to transmission of information regarding notified cases to the Army Council and to the Medical Department of the Ministry of National Service were issued during the war period, but the provisions of the 1912 Regulations still remain in force without modification.

Since the regulations came into force they have never been carried out in a complete manner.

Writing in 1912–13 the Principal Medical Officer to the Local Government Board states :—"the Medical Officer of Health of a district in which the notifications of phthisis do not number more than twice the deaths from this disease may advisedly consider whether in his area there is not failure to notify."

The following table gives totals of notifications, from the 29th December, 1918, to the week ending 3rd January, 1920, of all forms of tuberculosis at different age periods summarised from weekly returns rendered to the County Medical Officer.

Age-periods	Notifications on Form **A**. Number of Primary Notifications. 0 to 1.	1 to 5.	5 to 10.	10 to 15.	15 to 20.	20 to 25.	25 to 35.	35 to 45.	45 to 55.	55 to 65.	65 and upwards.	Total Primary Notifications.	Total N'tifications on Form **A**	
Pulmonary Males	—	5	8	14	26	41	71	70	48	18	10	311	311	586
,, Females .	—	6	14	18	27	41	65	68	21	11	4	275	275	
Non-pulmonary Males	7	21	20	14	7	5	7	7	—	—	1	89	89	203
,, ,, Females	3	26	25	22	10	8	16	2	1	1	—	114	114	

Age-periods	Notifications on Form **B**. Number of Primary Notifications. Under 5.	5 to 10.	10 to 15.	Total Primary Notifications.	Total Notifications on Form **B**.	Number of Notifications on Form **C**. Poor Law Institutions.	Sanatoria.
Pulmonary Males ...	—	1	—	—	1	17	109
,, Females ...	—	1	—	—	1	13	64
Non-pulmonary Males ...	—	—	—	—	—	4	—
,, ,, Females	—	—	—	—	—	1	—

Primary Notifications on FORM **A** should be made by every Medical Practitioner within 48 hours after first becoming aware that a person is suffering from tuberculosis, unless he has reasonable grounds for believing that the case has already been notified. Any additional notification of a case which has been previously notified in the area is regarded as duplicate.

FORM **B** is used by School Medical Officers to make weekly returns to Medical Officers of Health of all cases of tuberculosis coming under their notice in carrying out the medical inspection of school children attending Public Elementary Schools.

FORM **C** is for the use of Medical Officers of Poor Law Institutions and Sanatoria, who are required to make weekly returns of all cases of tuberculosis admitted during the week, and transmit to the Medical Officer of Health for the District within which the places of residence of the cases are situate.

Table showing notification of Tuberculosis in England and Wales and in the Administrative County of Chester during the years 1912 to 1919.

Year.	England and Wales.			Cheshire.		
	Pulmonary	Non-Pulmonary.	Total.	Pulmonary	Non-Pulmonary	Total.
1912	110,706	—	—	—	—	—
1913	96,841	38,200 (11 months)	135,041	732	492	1,224
1914	81,159	24,366	105,525	938	355	1,293
1915	73,538	22,864	96,402	705	296	1,001
1916	72,479	23,877	96,356	708	291	999
1917	73,654	22,096	95,750	563	207	770
1918	72,741	19,391	92,132	603	167	770
1919	65,229	16,821	82,050	586	203	789

Note.—Figures for 1912 are not available for Cheshire as the Public Health (Tuberculosis) Regulations, 1912, did not come into operation until 1st February, 1913.

Table showing notifications received from each Municipal Borough, Urban District and Rural District in Cheshire, prepared from weekly returns rendered by District Medical Officers of Health.

SANITARY DISTRICTS.	Pulmonary.	Non-Pulmonary.	Total.
MUNICIPAL BOROUGHS—			
Congleton	18	6	24
Crewe	46	13	59
Dukinfield	35	5	40
Hyde	30	3	33
Macclesfield	61	20	81
Stalybridge	51	3	54
OTHER URBAN DISTRICTS—			
Alderley Edge	3	1	4
Alsager	2	...	2
Altrincham	16	3	19
Ashton-upon-Mersey	11	4	15
Higher Bebington } Included in N.W.	...	...	..
Lower Bebington } Cheshire Comb. Dist.	...	...	...
Bollington	1	...	1
Bowdon	5	2	7
Bredbury & Romiley	14	23	37
Bromborough (Included in N.W. Cheshire Combined Districts)	...	...	...
Buglawton	1	2	3
Cheadle & Gatley	14	5	19
Compstall	1	1	2
Ellesmere Port & Whitby (Included in N.W. Cheshire Combined Districts)	...	...	...
Hale	14	5	19
Handforth	...	...	...
Hazel Grove & Bramhall ...	1	1	2
Hollingworth	...	...	...
Hoole	8	1	9
Hoylake & West Kirby (Included in N.W. Cheshire Combined District)	...	...	...
Knutsford	6	3	9
Lymm	5	2	7
Marple	1	2	3
Middlewich	4	7	11
Mottram	1	...	1
Nantwich	11	...	11
Neston & Parkgate	...	...	...
Northwich	14	3	17
Runcorn	9	5	14
Sale	...	...	...
Sandbach	1	7	8
Tarporley (Included in Chester Rural) ...	...	...	...
Wilmslow	6	...	6
Winsford	...	...	...
Yeardsley-cum-Whaley	...	...	...
RURAL DISTRICTS—			
Bucklow	18	4	22
Chester	11	5	16
Congleton	8	1	9
Disley	5	1	6
Macclesfield	9	1	10
Malpas (Included in Chester Rural) ...	...	...	...
Nantwich	20	...	20
Northwich	10	...	10
Runcorn	22	23	45
Tarvin (Included in Chester Rural) ...	...	...	...
Tintwistle	2	1	3
N.W. Cheshire Combined Districts ...	91	40	131
Total for the Administrative County ...	586	203	789

Some of the District Medical Officers of Health of the Districts of Cheshire commenting in their Reports for the year on notification as carried out in their areas state--Notification of tuberculosis by Medical Practitioners is as prompt as is to be expected in a disease of this character.

It is however apparent on comparing the foregoing figures for notifications with the totals of registered deaths from tuberculosis in the following pages of this Report that the average number of notifications are only approximately equal to the average number of deaths. Bearing in mind that the probable duration of a case of tuberculosis from the time when it may with reasonable care be diagnosed as such to the time of death is variously estimated to be from three to five years, it is reasonable to assume that the estimate of the Principal Medical Officer of the Local Government Board of notifications which should be received in any year rather understates than exaggerates the facts.

That the duty of notification is seriously neglected in the County as a whole is further borne out by two series of investigations.

Arrangements were made with Local Registrars of Deaths for weekly returns to be rendered to my office giving details of deaths registered during the previous week, as having occurred from tuberculosis.

Careful search has been made through the Register of Notifications kept in the Public Health Department and compiled in the manner previously stated from returns rendered each week by District Medical Officers of Health to the County Medical Officer. In this way it has been possible to ascertain whether persons whose deaths have been registered as attributable to tuberculosis have previously been notified to be suffering from the disease.

To obviate the possibility of individual cases having been inadvertently omitted from the weekly returns or otherwise

overlooked, when notification cannot be traced in the County Medical Officer's register, verification is sought in each instance direct from the District Medical Officer of Health. This procedure not only ensures accuracy but serves the double purpose of drawing the attention of the Local Sanitary Authority to the efficiency with which the duty of notification is carried out in the district. With few exceptions all concerned have appreciated the object of enquiries made, and co-operated in every possible way.

The following figures are necessarily incomplete for the year, since the death returns were only obtained from Registrars on and after the 1st April, 1919.

Investigation of Returns of deaths from all forms of tuberculosis registered in the Administrative County of Chester from 1st April, 1919, to 31st December, 1919 (not including deaths in Public Institutions transferable to districts outside the County), showed that notification had been carried out as follows :—

Notified.

At time of, or after death registration	...	24	
Within 1 month of " "	...	38	
" 2 months of " "	...	7	
" 3 " " "	...	10	
Prior to 3 months from "	..	50	
		—	129
No trace of notification	...		163
Total deaths from all forms of Tuberculosis	...		292

In consequence of failure to notify it may be inferred that in over 50% of cases the first intimation received that these persons had suffered from tuberculosis was gleaned from the weekly returns of deaths.

A similar investigation carried out in the adjoining County of Lancaster during the past four years elicited

information that of 2,156 deaths registered in that County as attributable to tuberculosis during 1916, a total of 417 had never been notified. The figures for 1917 showed 2,050 deaths, with 397 failures to notify; while for 1918 there were 2,087 deaths and 440 not notified.

Facilities for confirmation of diagnosis by bacteriological examination of expectoration and exudates have been available through the Public Health Laboratory in Manchester and more recently in the County Tuberculosis Laboratory.

Further confirmation of the manner in which the duty of notification is neglected in the County is demonstrated on examining the Notification Registers to ascertain the number of persons from whom specimens of sputum sent in for examination and found to contain tubercle bacilli are subsequently notified as suffering from tuberculosis. After lapse of periods of three or four months appreciable numbers are noted as not yet notified. Surely there can be no excuse for neglecting a statutory obligation in these undoubtedly recognised cases.

Early notification is important for three definite reasons:—

1. Notification is one of the chief means of prevention, since by it early and complete knowledge of each case is conveyed to the Local Sanitary Authority, who are empowered through their Medical Officer of Health to exercise such supervision as may be necessary, to carry out periodic disinfection, or supply disinfectants, investigate the sanitary conditions in the household and generally take such steps as may be necessary to prevent spread of infection.

2. By means of the weekly returns of notifications rendered to the County Public Health Department, the County Tuberculosis Officers are supplied with information regarding each notified case, and facilities for prevention and treatment available under the County organisation are placed at the disposal of the Medical Practitioner in

attendance for the benefit of the individual and the community.

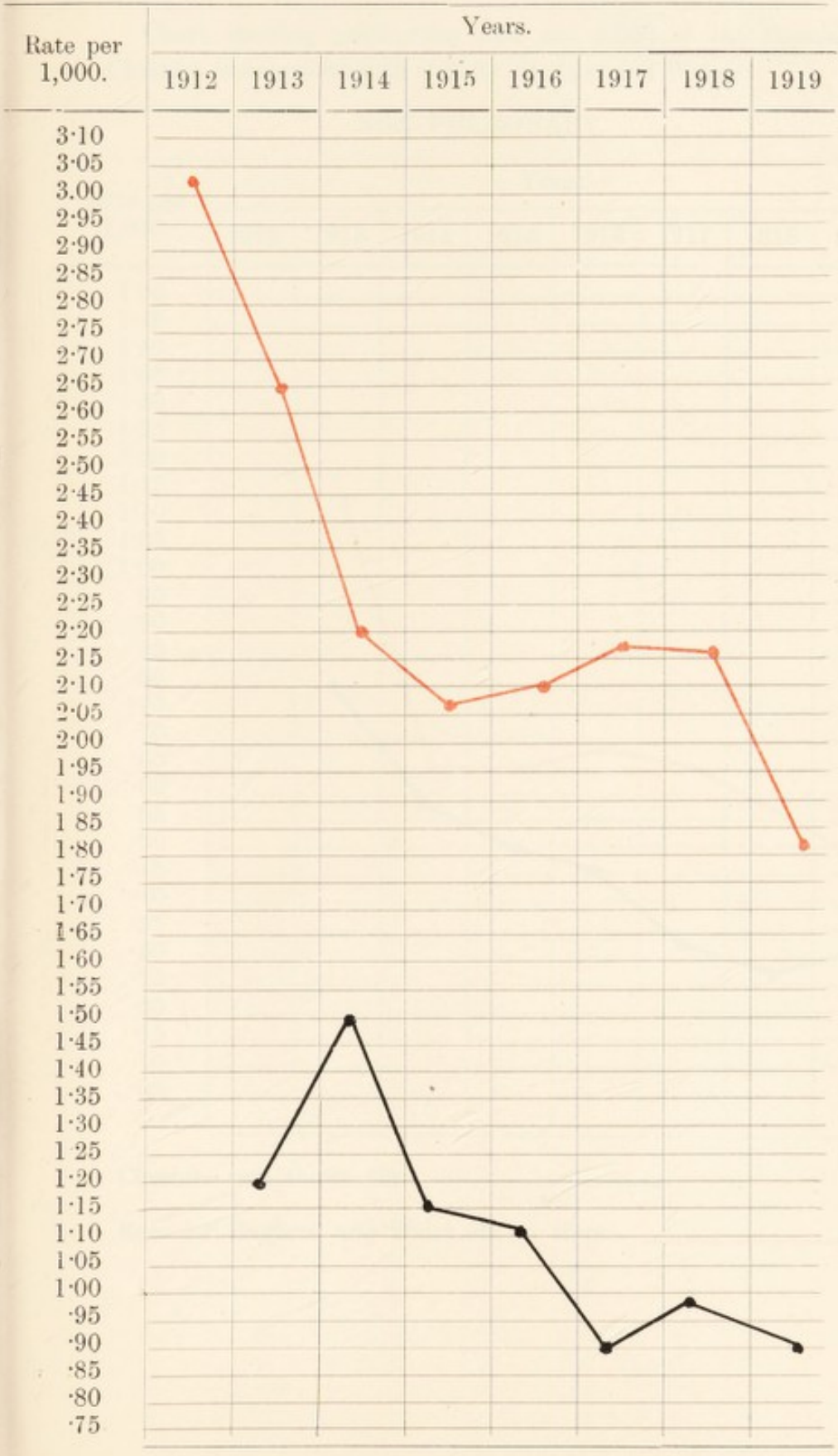
3. Examination of "contacts"—that is of those persons living in close association with the infected cases or who have been exposed to actual risk of infection, is made in conjunction with the Medical Practitioner.

Many incipient cases will be detected by thorough and periodic examination of "contacts," and the importance of such examinations cannot be over-estimated.

Before concluding my remarks regarding notification I would further emphasise that to carry the regulations into effect in the spirit as well as in the letter, not only should each and every case be notified with least possible delay, but care should be taken to acquaint the patient with the nature of his illness at the earliest opportunity. Medical practitioners in neglecting this duty appreciably lessen the active co-operation of the patient in precautions taken against spread of the disease, and occasionally unpleasantness may be caused by misunderstandings which could otherwise have been avoided.

Chart showing notification rate per 1.000 of the Population in Cheshire as compared with that for England and Wales.

PULMONARY TUBERCULOSIS.



Cheshire rate shown thus ———————

Rate for England and Wales shown thus ———————

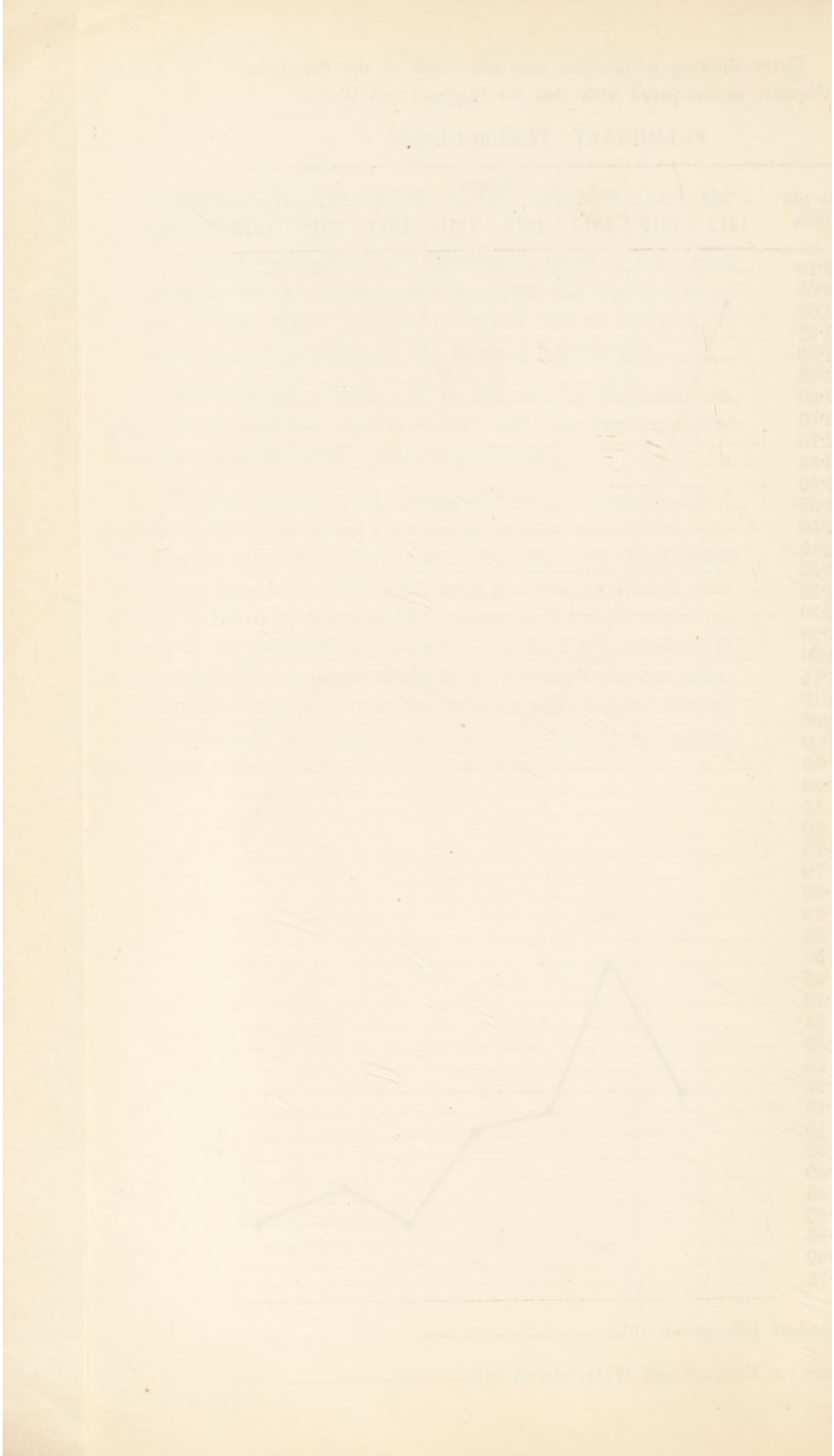
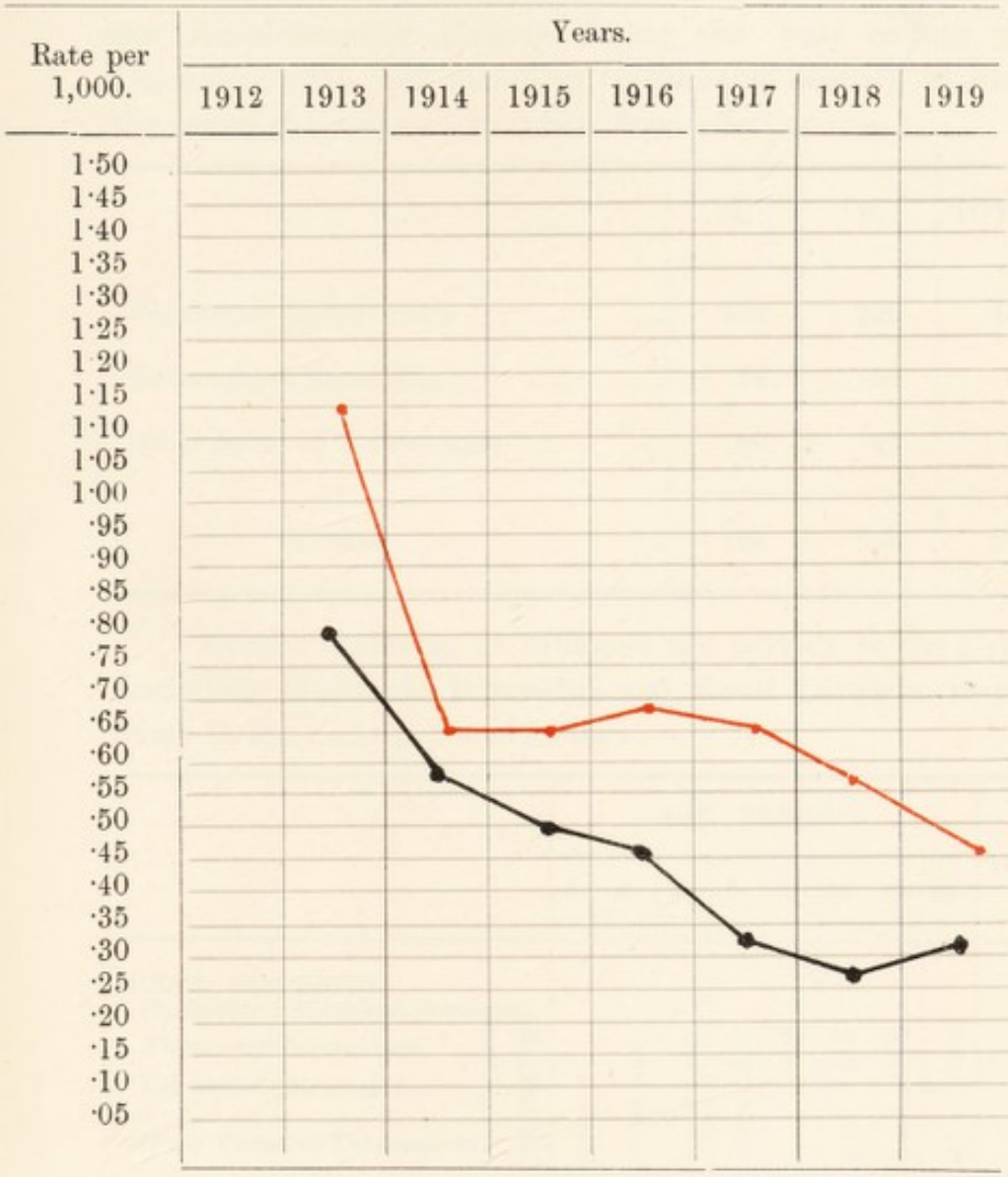


Chart showing notification rate per 1,000 of the Population in Cheshire as compared with that for England and Wales.

NON-PULMONARY.



Cheshire rate shown thus ———————

Rate for England and Wales shown thus ———————

Deaths from Tuberculosis.

The following table shows the total deaths registered in the Administrative County during the year ending 31st December, 1919 (not including transferable deaths), in which the cause was assigned to tuberculous affections :—

	M.	F.	TOTAL.
Pulmonary Tuberculosis	232	220	452
Tuberculous Meningitis	24	31	55
Other forms of Tuberculosis	40	45	85
TOTALS	296	296	592

Deaths occurring at different age periods in the Urban (including Municipal Boroughs) and Rural Districts respectively in the County are af follows :—

		AGE PERIODS.								TOTAL.
		0-	1-	2-	5-	15-	25-	45-	65-	
URBAN DISTRICTS (Including 6 Municipal Boroughs).										
Pulmonary Tuberculosis ...	M.	...	...	4	4	35	69	57	8	177
	F.	...	3	1	10	38	72	33	3	160
Tuberculous Meningitis ...	M.	1	4	7	3	2	...	1	...	18
	F.	4	1	9	6	5	...	1	...	26
Other Forms of Tuberculosis	M.	6	1	3	6	7	6	3	...	32
	F.	2	1	3	4	1	9	3	3	26
TOTAL URBAN		13	10	27	33	88	156	98	14	439
RURAL DISTRICTS.										
Pulmonary Tuberculosis ...	M.	2	...	1	3	17	17	14	1	55
	F.	...	...	...	4	17	25	10	4	60
Tuberculous Meningitis ...	M.	1	2	...	3	...	...	...	...	6
	F.	2	...	1	2	...	...	...	...	5
Other Forms or Tuberculosis	M.	1	1	1	2	2	..	1	...	8
	F.	1	...	3	4	3	3	5	...	19
TOTAL RURAL		7	3	6	18	39	45	30	5	153
TOTAL COUNTY		20	13	33	51	127	201	128	19	592

The two following tables show the numbers of deaths from Phthisis and other Tuberculous Diseases in the Municipal Boroughs, Urban and Rural Districts of the Administrative County of Chester for the six years ending 31st December, 1919:—

Deaths from Phthisis and other Tuberculous Diseases in the Municipal Boroughs and Urban Districts of the Administrative County of Chester during the years 1914—1919, with average number of deaths, and annual death rates from Pulmonary Tuberculosis during the period :—

Sanitary Districts.	Population for Death Rate, 1919.	Deaths from Phthisis.							Deaths from other T.B. Diseases.							Average No. of Deaths from all forms of Tuberculosis.	Annual Death Rate from Pulmonary Tuberculosis.
Column No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
		1914	1915	1916	1917	1918	1919	Av'g'e 6 yrs.	1914	1915	1916	1917	1918	1919	Av'g'e 6 yrs.		
Municipal Boroughs—																	
Congleton	11,808	6	6	16	12	10	11	10	3	4	3	4	2	1	3	13	·84
Crewe	45,640	34	46	45	38	42	26	33	10	15	13	20	17	6	13	51	·82
Dukinfield	18,688	23	24	21	20	29	16	22	6	10	7	8	14	12	9	31	1·17
Hyde	32,500	42	42	42	21	38	32	36	15	10	6	9	10	7	9	45	1·1
Macclesfield	32,432	30	38	37	29	45	36	36	10	12	13	10	9	6	10	46	1·11
Stalybridge	26,052	36	35	36	42	46	30	37	14	13	14	13	18	10	14	51	1·41
Other Urban Districts—																	
Alderley Edge	3,436	4	1	0	2	3	2	2	0	0	1	1	0	0	0	2	·58
Alsager	2,761	5	2	1	10	2	4	4	0	4	0	0	0	0	1	5	1·43
Altrincham	16,735	13	11	20	13	27	27	18	9	6	7	2	6	9	6	24	·96
Ashton-upon-Mersey ...	7,897	5	3	5	2	2	4	3	3	4	2	2	1	1	2	5	·38
Higher Bebington ...	1,777	2	2	4	4	1	3	3	1	0	1	2	1	0	1	4	1·94
Lower Bebington	14,199	10	10	16	12	18	14	13	10	9	5	6	3	4	6	19	·91
Bollington	5,000	5	2	4	3	6	2	4	0	2	4	3	2	0	2	6	·78
Bowdon	2,983	2	0	1	0	2	2	1	0	0	0	0	2	0	0	1	·33
Bredbury and Romiley ...	8,200	8	4	6	4	2	2	4	7	6	4	5	0	4	4	8	·48
Bromborough	2,422	1	0	0	1	1	0	1	0	0	0	2	1	1	1	2	·41
Buglawton	1,633	0	0	2	1	2	1	1	0	0	1	1	1	0	1	2	·61
Cheadle and Gatley ...	10,285	6	0	10	8	5	3	5	1	4	1	3	3	1	2	7	·48
Compstall	821	0	2	2	2	2	1	2	0	0	0	0	1	0	0	2	2·43
Ellesmere Port and Whitby	13,374	5	9	10	17	14	13	11	8	3	5	2	6	1	4	15	·82
Hale	9,583	6	4	5	8	8	7	6	2	1	0	3	4	1	2	8	·62
Handforth	923	2	1	1	2	0	0	1	0	1	0	0	1	0	0	1	1·08
Hazel Grove and Bramhall	9,659	7	9	6	10	5	7	7	1	7	2	4	4	3	4	11	·72
Hollingworth	2,207	0	4	3	1	1	3	2	0	1	1	1	1	2	1	3	·90
Hoole	5,857	5	5	4	9	3	3	5	5	0	0	1	1	1	1	6	·85
Hoylake and West Kirby ...	15,347	13	7	14	18	17	20	15	5	7	2	5	4	3	4	19	·98
Knutsford	4,842	5	3	3	5	5	5	4	2	3	1	1	3	2	2	6	·82
Lymm	4,824	3	9	1	4	6	6	5	1	1	0	2	0	1	1	6	1·03
Marple	6,381	4	4	4	5	3	2	4	3	2	1	2	1	1	2	6	·62
Middlewich	4,596	3	1	3	1	2	1	2	1	3	1	2	1	2	2	4	·43
Mottram	2,804	1	4	2	1	2	2	2	0	0	2	0	0	1	1	3	·71
Nantwich	7,062	9	11	9	11	7	6	9	6	5	0	3	3	1	3	12	1·27
Neston and Parkgate ...	4,413	5	9	5	6	2	2	5	4	2	2	1	2	0	2	7	1·13
Northwich	19,096	8	10	16	13	9	10	11	10	8	6	7	5	3	7	18	·57
Runcorn	18,542	17	14	18	18	19	6	15	10	7	7	6	4	3	6	21	·80
Sale	13,328	8	18	14	14	10	9	12	4	6	1	2	4	3	3	15	·73
Sandbach	5,503	2	2	2	3	2	2	2	3	1	2	0	1	8	2	4	·85
Tarporley	2,582	2	2	1	0	1	1	1	0	1	0	0	0	0	0	1	·38
Wilmslow	8,211	1	3	2	2	3	9	3	1	0	1	2	3	0	0	4	·36
Winsford	11,457	5	5	8	7	7	6	6	5	3	6	4	3	4	4	10	·52
Yeardsley-cum-Whaley ...	1,636	2	1	2	2	2	1	2	5	2	1	0	0	0	1	3	1·22
Totals	422,756	346	363	401	381	411	337	370	165	163	123	139	142	102	137	507	·87

Deaths from Phthisis and other Tuberculous Diseases in the Rural Districts of the Administrative County of Chester, during the years 1914—1919, with average number of deaths and annual death rates from Pulmonary Tuberculosis during the period, together with total for the whole County :—

Sanitary Districts.	Population for Death Rate, 1919.	Deaths from Phthisis.							Deaths from other T.B. Diseases.							Average No. of Deaths from all forms of Tuberculosis.	Annual Death Rate from Pulmonary Tuberculosis.
Column No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
		1914	1915	1916	1917	1918	1919	Av'g'e 6 yrs.	1914	1915	1916	1917	1918	1919	Av'g'e 6 yrs.		
Rural Districts—																	
Bucklow	23,761	16	13	12	9	12	20	14	7	6	6	3	3	6	5	19	·58
Chester	10,816	5	10	12	11	5	8	8	1	3	3	2	3	2	2	10	·74
Congleton	12,287	4	9	5	8	9	6	7	4	5	5	4	4	0	4	11	·56
Disley	2,997	4	2	2	3	1	4	3	0	1	1	0	2	2	1	4	1·00
Macclesfield	15,362	4	6	6	7	11	8	7	2	3	1	3	3	2	2	9	·45
Malpas	4,294	3	4	4	4	1	2	3	0	1	1	0	5	2	1	4	·60
Nantwich	22,796	17	9	13	12	13	10	12	7	9	7	4	5	1	7	19	·52
Northwich	23,397	13	9	8	12	20	14	13	9	3	3	5	6	1	5	18	·55
Runcorn	27,159	12	19	14	22	30	11	18	7	5	4	9	6	10	7	25	·66
Tarvin	12,246	4	15	15	6	8	12	10	2	1	5	5	6	3	4	14	·81
Tintwistle	1,907	1	1	2	3	3	1	2	0	0	0	1	2	1	1	3	1·04
Wirral	21,138	16	9	16	16	24	19	17	6	8	8	2	4	3	5	22	·80
Totals	178,162	99	106	109	113	137	115	114	45	45	44	38	54	38	44	158	·64
Totals Administrative County ...	600,918	445	469	510	494	548	452	484	210	208	167	177	196	140	181	665	·80

The deaths from Pulmonary and non-Pulmonary Tuberculosis respectively registered in the County during each of the years 1914 to 1919 inclusive are as as follows :—

	Pulmonary.	Non-Pulmonary.	Totals. All Forms.
1914	445	210	655
1915	469	208	677
1916	510	167	677
1917	494	177	671
1918	548	196	744
1919	452	140	592

The foregoing figures convey the interesting and gratifying information which is further depicted graphically for England and Wales as compared with Cheshire in the chart given at the end of this section, that the marked increase in deaths attributable to pulmonary tuberculosis which occurred during the war period and which culminated in a maximum for 1918, has been followed by a remarkable decline during the first year of peace.

Progressive decline in the number of deaths from non-pulmonary tuberculosis has been steadily taking place during the past half century, and it is gratifying to note that this has continued without intermission during the war period.

The total deaths registered as due to tuberculosis in the whole County—592, gives a death-rate of ·98 per 1,000 of the estimated population as compared with a corresponding rate of 1·35 per 1,000 for last year. It will be observed that the rate throughout is considerably less in Cheshire than in England and Wales as a whole.

In the 41 Urban Districts in the County (including the six Municipal Boroughs) the death-rate was 1·03 per 1,000 and in the 12 Rural Districts ·85 per 1,000.

All of these rates show a decrease in comparison with the corresponding figures for previous years.

The death-rates for Pulmonary and other forms of Tuberculosis occurring in the Urban and Rural Districts together with those for the whole of the County during the years 1914 to 1919 inclusive, are :—

Pulmonary.	1914.	1915.	1916.	1917.	1918.	1919.
Total Urban	·80	·86	1·01	·97	1·07	·79
Total Rural	·52	·58	·62	·66	·83	·64
Total for County ...	·71	·78	·89	·87	·99	·75

Other Forms.	1914.	1915.	1916.	1917.	1918.	1919.
Total Urban	·38	·39	·31	·35	·37	·24
Total Rural	·24	·25	·25	·22	·33	·21
Total for County ...	·34	·34	·29	·31	·36	·23
Total for County from all orms	1·05	1·12	1·18	1·18	1·35	·98

Effects of the War.

The Registrar General in his Report for 1918 states that the "deaths assigned to tuberculous affections in England and Wales numbered in the aggregate 58,073—31,027 of males and 27,046 of females—or 2,139 more than those so classified in the previous year."

Increase in the prevalence of tuberculosis in all belligerent countries during the war period may be explained as due to increased risk of exposure to infection and an accentuation

of the ordinary factors which predispose to development of susceptible soil, attributable to conditions necessarily prevailing in all parts of the world, and in varying degree in different parts of our own country.

Overcrowding with dilapidation of house property owing to stoppage of building, undue concentration of population in certain areas where munition work was obtainable, overwork with prolonged physical and mental strain due to unusually long hours of employment, shortage of foods, more especially fats ; difficulties of transport involving prolonged and tiresome journeys to and from work, utilization of all available space in the factory and workshop to speed up production.

These factors, coupled with the whole atmosphere of excitement which was inseparable from the progress of events and developments during the overcrowded days of the war, produced a mental and physical fatigue resulting in general malnutrition and carelessness in regard to regulation of the rules of living.

The Registrar General draws attention in his report to three important corrections which should, however, be taken into consideration in a review of the apparently most alarming increase in the deaths from tuberculosis, which occurred progressively during each succeeding year of the war period :—

1. The enlistment of the whole or nearly all of the healthy males, and their withdrawal from the general population rendered the increase in the tuberculosis mortality amongst the latter considerably less significant.

2. Epidemics of influenza during the years 1917–1918 influenced phthisis mortality to a marked extent in two ways—First, a high mortality from influenza amongst those of the general population known to be suffering from pulmonary tuberculosis and in whom death would have been attributed to the

latter; and Second, erroneous registration of deaths as due to phthisis which should have been more correctly ascribed to influenza.

3. A remarkable increase in the deaths from tubercle in lunatic asylums which grew progressively during the war—"very nearly half of the total increase has occurred amongst this very small section of the population, consisting of just under 100,000 persons."

"A committee of the Board of Control which investigated this and other causes of increased mortality in asylums ascribed the principal share in increasing the general death-rate in asylums to reduction in quantity and deterioration in quality of food (particularly flour) . . . . deterioration of the asylum staffs owing to withdrawal of the fit for war service . . . . want of space for isolation owing to the evacuation of some asylum buildings for war purposes and consequent congestion of the remainder."

Having regard to the importance of fully appreciating the significance of the increase in deaths amongst the inmates of lunatic asylums in relation to the mortality of the general population of the whole County, the Medical Superintendents of the two County Asylums have been requested to furnish information on the points specially referred to by the Registrar General.

I am much indebted to Dr. Grills and Dr. Dove Cormac for permission to include in this report information which they have kindly given regarding matters to which special interest attaches in this connection.

1. Total numbers of deaths from all causes and from tuberculosis (all forms) occurring amongst inmates of each institution extending over a period of years, together with the percentage which the latter constitutes of the former.

Parkside Asylum, Macclesfield.

The average rate from Tuberculosis as compared with the general rate for the five years ended 1914, was 10 per cent., while the corresponding figure for the next five years was 17·3 per cent.

The actual figures are shown in the following table :—

Year.	Total No. of deaths in year.	No. of deaths from Tuberculosis (all forms).	Percentage.
1910 ...	95	... 10	... 10·5
1911 ...	101	... 7	... 6·9
1912 ...	127	... 9	... 7·1
1913 ...	110	... 13	.. 11·8
1914 ...	121	.. 17	... 14·
1915 ...	164	... 22	... 13·4
1916 ...	158	... 32	... 20·2
1917 ...	127	... 19	... 14·9
1918 ...	177	... 39	... 22·
1919 ...	162	... 25	... 15·4

Upton Asylum, near Chester.

The total numbers of deaths from all causes, numbers of deaths from Tuberculosis, percentage of the latter to the former, and daily average number of patients in residence in the institution during each year from 1914 to 1919 are as follows :—

Year.	Total number of deaths from all causes.	Number of deaths from Tuberculosis (all forms).	Percentage of latter to former.	Average number of patients in residence.
1914	148	14	9·5	1100
1915	204	38	18·7	1427
1916	171	25	14·6	1479
1917	201	35	17·4	1483
1918	249	27	10·8	1460
1919	152	19	12·5	1446

2. In reply to a query as to whether patients were admitted to the Cheshire Asylums from other institutions during any portion of the war period and, if so, whether overcrowding was caused thereby :—

Dr. Dove Cormac states :—" Yes, in 1915, 175 patients " were admitted from Winwick Asylum ; Parkside then con- " taining 1.220 Cheshire cases, and being practically full."

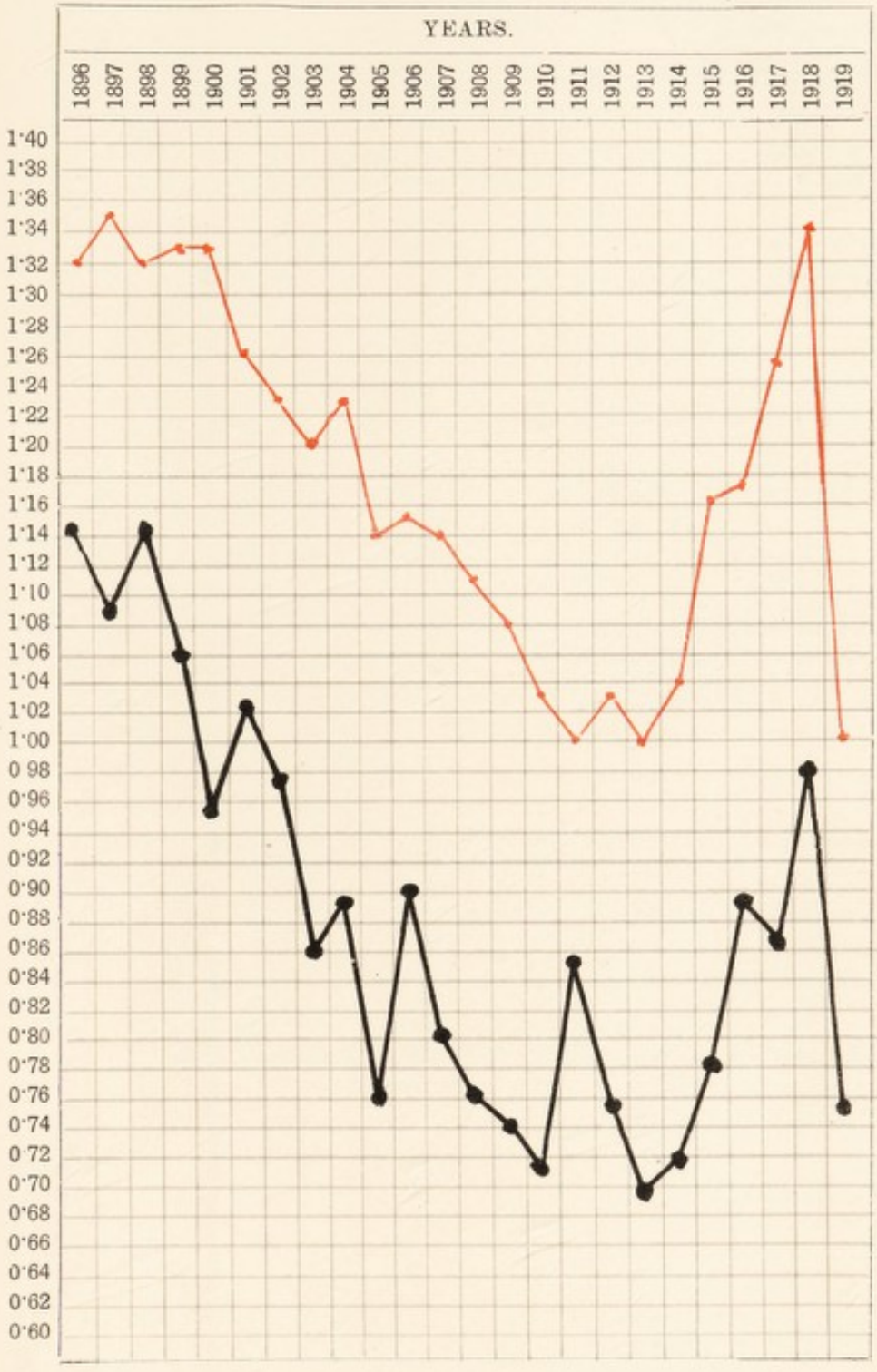
Dr. Grills states : —"In March, 1915, 360 patients were admitted from Winwick Asylum and 15 from Cardiff. No overcrowding occurred at any time. The patients were accommodated in a new Annexe which was opened for them."

3. With regard to the possible effect of withdrawal of staff and inexperience of those doing temporary duty in nursing and prevention of spread of infection—Dr. Dove Cormac gives the following information : —"Only a small percentage of the regular staff were retained and the vacancies filled by men over 50 and boys under 18, who had had no previous experience. In addition the Nurses were depleted and there were constant changes in the staff. The Medical staff was also reduced."

Dr. Grills maintains that the standard of nursing and attendance was not depreciated as Nurses were employed when the services of men could not be obtained.

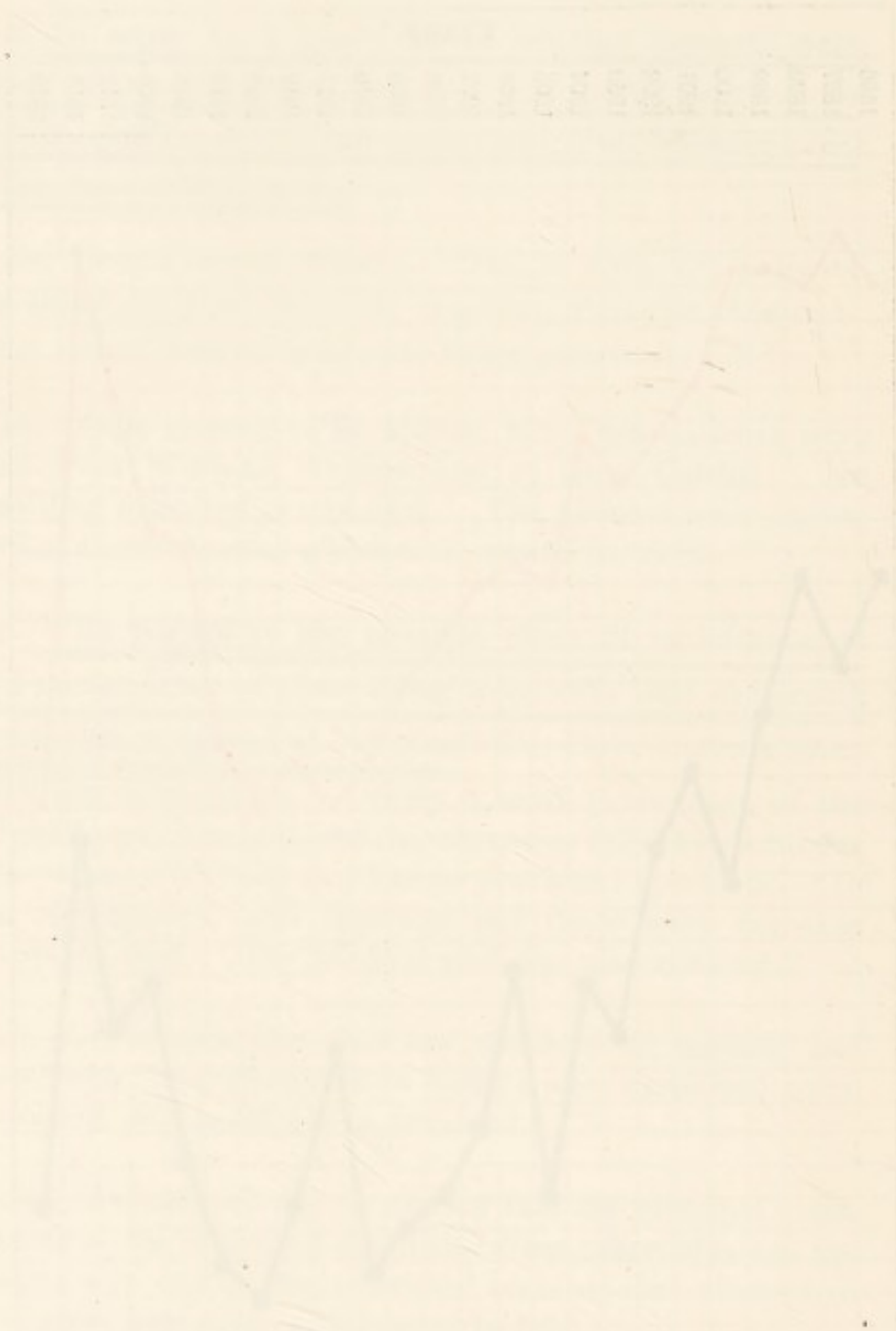
Both Medical Officers are agreed that the principal cause contributing to the increased death-rate from tuberculosis in the Institutions was due to the restricted scale of diet allowed in Asylums, more especially with regard to fats.

Chart showing Death-rate from Pulmonary Tuberculosis in Cheshire as compared with that for England and Wales.

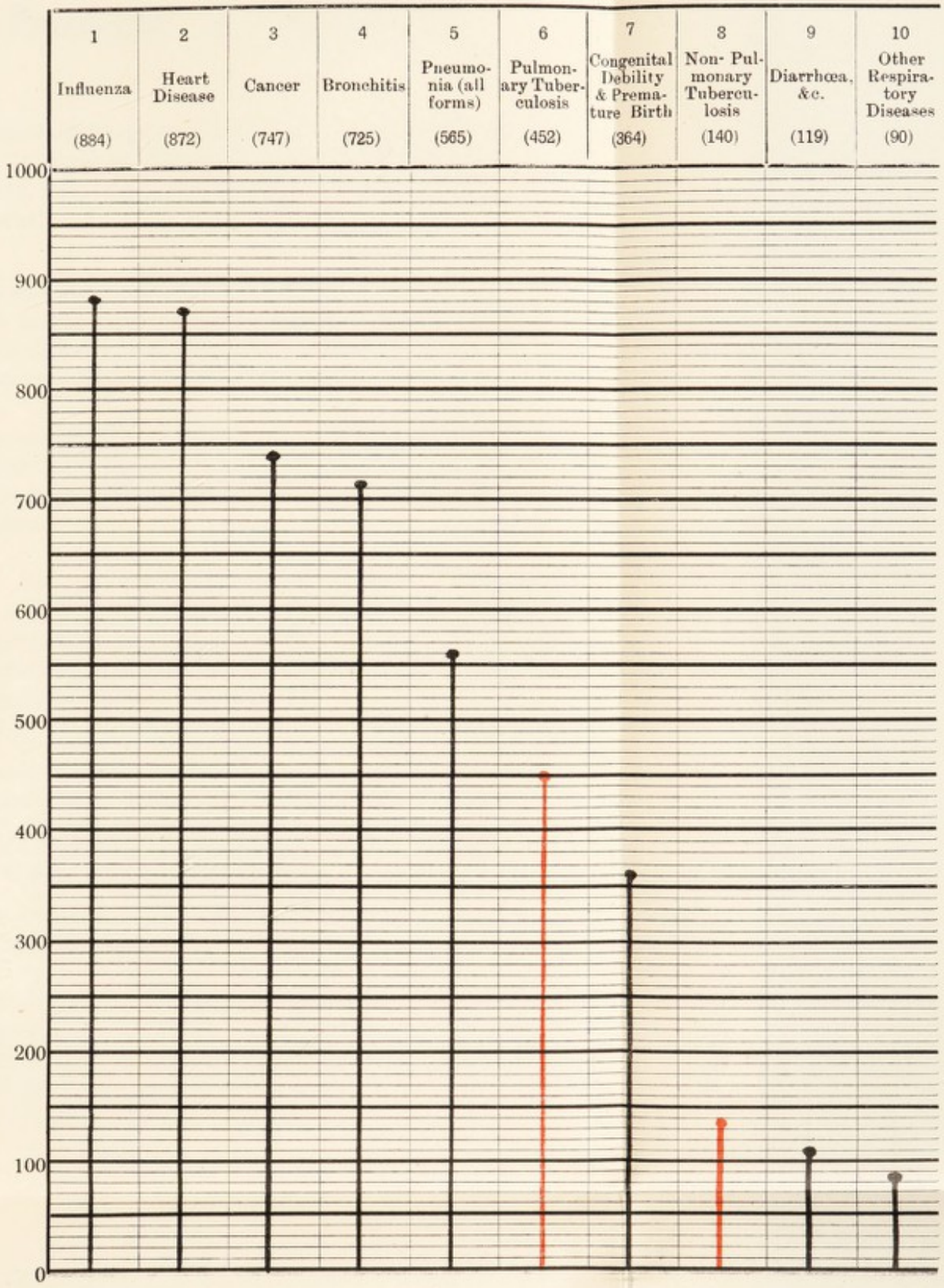


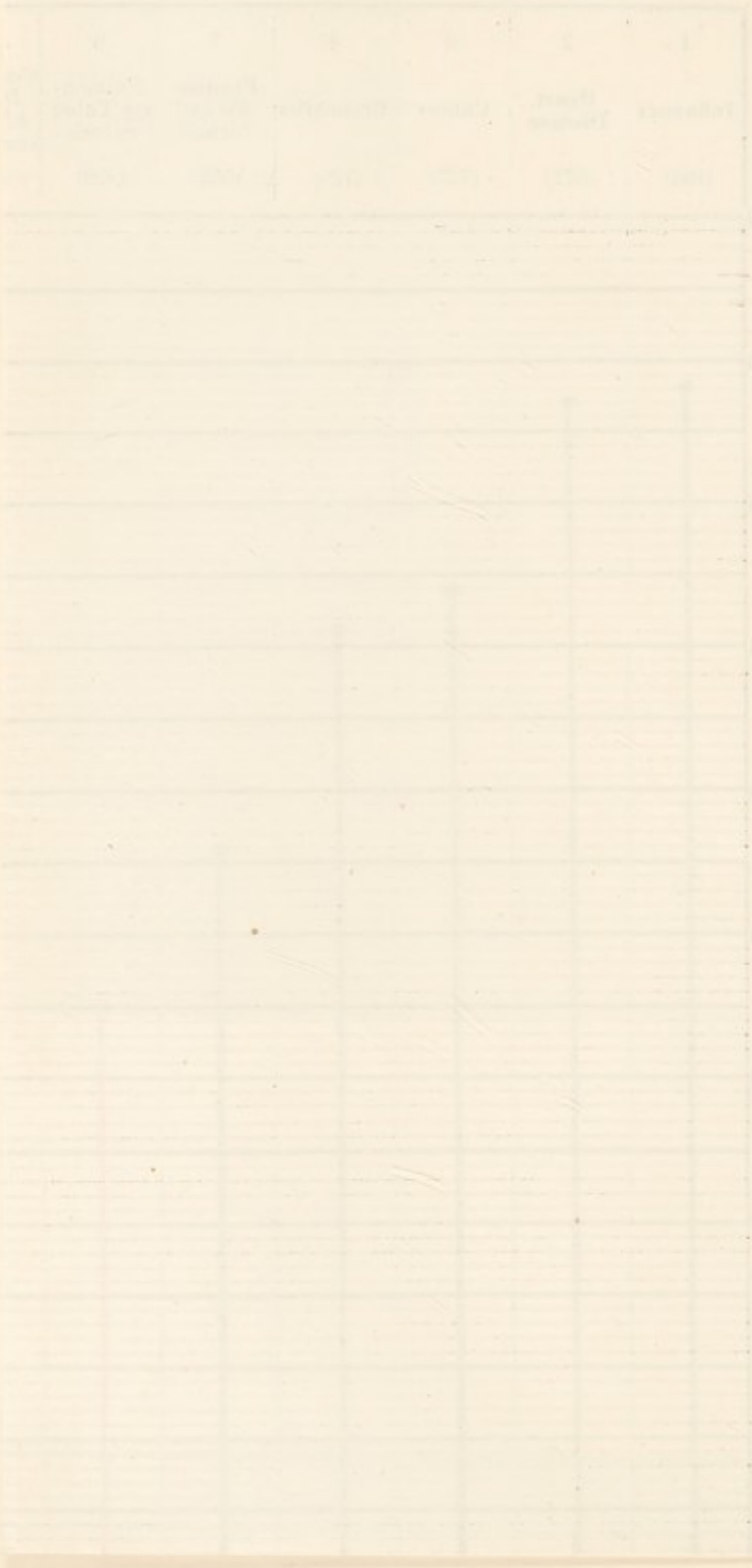
Cheshire rate represented by ——————

England and Wales rate ,, ——————



Comparative view showing relative position of Pulmonary and Non-Pulmonary Tuberculosis in regard to the ten Principal Causes of Death in Cheshire during the year 1919.





Prevention of Tuberculosis.

"Tuberculosis permeates human society as does no other malady. It is one of the tolls levied on mankind because of his social habits, and society suffers through its ravages no less than the individual. It is the expression of an incomplete civilisation."

These words, written by Sir Robert Philip, of Edinburgh, serve as a fitting introduction to consideration of tuberculosis in its social aspects, and of a few thoughts regarding measures which may be adopted towards its prevention.

Prevention and treatment are so closely inter-related that it is difficult to dissociate them,—"Effective treatment leads to prevention, and effective prevention leads to diminished need for treatment."

Sir George Newman, Chief Medical Officer to the Ministry of Health, in a memorandum presented to the Minister points out that the first duty of medicine is not to cure disease, but to prevent it, and goes on to express the objects of Preventive Medicine as follows:—

1. "To develope and fortify the physique of the individual and thus to increase the capacity and powers of resistance of the individual and the community.
2. To prevent or remove the causes and conditions of disease or of its propagation.
3. To postpone the event of death and thus prolong the span of man's life."

"Preventive Medicine must define and secure the maximum of those conditions of life for the individual and the community which are the frontier defence against disease, and establish the foundations of sound living. For the health and physique of the people is the principal asset of a nation."

The causes and prevalence of tuberculosis have been dealt with at some length in the previous sections of this report. It will be apparent from a study of the facts stated how inseparable are difficulties relating to this disease from the many social and industrial problems confronting those who would lay the foundations of a new epoch leading to the building of a better, healthier and happier community.

Accepting that the prevention and treatment of tuberculosis on national lines must be held in due perspective as a part of the whole policy of Preventive Medicine, it is well to bear in mind that its eradication is perhaps the most difficult task as yet undertaken.

The Departmental Committee on Tuberculosis defined methods of prevention as divisible into two classes: —

1. Those intended to prevent the entrance of tubercle bacilli into the human system.
2. Those designed to prevent persons into whose system tubercle bacilli have entered from developing active disease.

It is impracticable that either of these classes of measures should be regarded as complete or independent of one another. To be effective in a co-ordinated campaign against the disease both must be employed thoroughly and simultaneously.

Some idea of the magnitude of the task may be gleaned from the accompanying 'Formulated statement of measures for the Prevention of Tuberculosis,' which has been drawn up in order to present the issue in as concise a form as possible.

FORMULATED STATEMENT OF MEASURES FOR THE PREVENTION OF TUBERCULOSIS.

TUBERCULOSIS.

An Infectious Disease which can be minimised or abolished as a cause of social and economic distress and ill-health in the general community by

Diminishing risk of exposure to infection.

- Securing freedom of the food supply of the country from the germs of tuberculosis, *e.g.*, precautions against sale of tuberculous meat; measures to ensure supply of milk, cream, cheese and butter, free from tubercle bacilli.
- Improvement of housing and supervision over the habits of those frequenting places of amusement, public houses and thoroughfares, to minimise danger of infection through overcrowding and unhygienic behaviour.
- Prevention of spread of infection by infected persons through education, provision of facilities for better isolation in the home, removal to institutions for treatment and segregation with compulsory powers for retention of highly infectious cases where risk of spreading infection cannot be eliminated by other measures; detection of early cases by full use of methods for establishing a diagnosis, examination of "contacts," systematic medical examination of recruits to industry, and those presenting evidences of ill-health.
- Systematic and thorough disinfection of premises harbouring infection at frequent and regular intervals.

Measures calculated to increase powers of bodily resistance.

Removal of general influences tending to depreciation of the health of the community and predisposing to tuberculosis.

- Provision of food supply sufficient in quantity and quality, with guarantee of adequate wage or pecuniary assistance to prevent privation and starvation.
- Improvement of housing, with provision of properly ventilated dry and roomy dwellings for the people, with a sufficiency of open spaces.
- Adequate control of hours and conditions of labour, with attention to design and hygienic requirements in factories and workplaces
- Provision of facilities for healthy recreation during leisure hours, with supervision of sanitary conditions in places of amusement ond public houses.
- Prevention of intemperance and other forms of excesses.
- Reduction in prevalence of disease resulting in debility by thorough application of the principles of Preventive Medicine.

Minimise exposure to influences causing injury to tissues, or hindering physical development, and productive of local conditions suitable for implantation and growth of tubercle.

- Improvement of facilities for prevention and removal of injurious dust and harmful vapours in the factory or workplace.
- Prevent and correct conditions in childhood leading to deformity or retarded development of chest and air passages.
- Ensure necessary precautions against accidents which may cause injuries predisposing to tuberculosis.

Each one of the headings might be taken as a subject upon which much might be written. Perusal of the statement will show how closely problems connected with tuberculosis are bound up with all that appertains to the health and well-being of the community.

Sir George Newman states:—"It is not the Ministry of Health, but the Local Authority in whose hands will rest the main business of the execution of a national health policy. It is in the local area, in direct touch with the patient, that the integration of medicine is to be achieved. It is there that early diagnosis and a prompt and adequate medical service is to find its fulfilment. It is there that the systematic and continuous attack is to be made, for there is the fighting line. Eugenics, maternity, child welfare, industrial hygiene, the problems of environment, the prevention of disease, the education of the public—these matters can only be dealt with where the people are born, and live, and work and die."

Local Sanitary Authorities, meaning the Councils of Municipal Boroughs, Urban or Rural Districts, are the Public Health Authorities under the Public Health (Tuberculosis) Regulations, 1912, and exercise in their several jurisdictions the powers of the Public Health Acts, and regulations made under them.

All cases of tuberculosis have to be notified to the Medical Officers of Health of the Local Sanitary Districts, and these officers are primarily responsible for ensuring that the regulations are carried out in an efficient manner, that such enquiries are made and such steps taken as are necessary or desirable for investigating the source of infection, for preventing the spread of infection, and for removing conditions favourable to infection. Important provisions of the regulations have been previously referred to under 'Notification' and need not be repeated here. That notification under the regulations is not being efficiently carried out in the County is incontrovertible. Consequently the first link in local medical administration essential to a comprehensive scheme for prevention of the disease must be admitted to be faulty and incomplete.

Notification constitutes the introduction only to effective procedure, but without it prevention is made difficult or almost impossible. To be of use it must be achieved sufficiently early to enable measures for prevention of spread of infection to be carried out, and to permit of treatment of each case with reasonable prospect of success.

Under existing circumstances it is no exaggeration to state that the large majority of persons notified for the first time under the regulations, as well as those applying for treatment under the provisions of the County Scheme, and for Sanatorium Benefit under the National Insurance Act, are found on examination to be in the late, second or advanced stages of the disease.

Reasons for delay in arriving at a diagnosis and making the prescribed notification may be stated as follows:—

1. Reluctance on the part of the patient to admit to illness or to seek medical advice.

   The well known psychology of the Consumptive contributes in no small degree to this unwillingness to admit defeat and leads him to explain away his symptoms to his own satisfaction and effectively camouflage his weakness until forced to give in through established ill-health.

2. Inability on the part of the Doctor to arrive at a diagnosis due to lack of time for a full examination owing to the exigencies of general practice.

3. While there is every reason to feel that medical practitioners throughout the County are beginning to appreciate facilities offered under the County Scheme to assist them in arriving at diagnosis of their cases, it must be admitted that there is still room for improvement in the extent to which the services of the Tuberculosis Officers are utilised as consultants. Mutual confidence and cordial co-operation are essential to success.

Arrangements for home visitation with a view to making such inquiries and taking such steps as are necessary or desirable

for investigating source of infection, preventing spread of infection, and removing conditions favourable to infection are as previously stated the duty of the Local Sanitary Authority.

The interests of the individual are protected under the regulations in that "nothing shall have effect under them in a manner to render any person liable to a penalty or subject the person to any restriction, prohibition, or disability affecting himself or his employment, occupation, or means of livelihood, on the ground of his suffering from tuberculosis."

In the Municipal, Urban and Rural Districts of the County as a general rule the Medical Officer of Health personally visits the homes of notified cases, while in certain areas this duty is left to a sanitary inspector or health visitor, who reports the result of the inspection to and works under the directions of the Medical Officer. Markedly insanitary conditions are dealt with under provisions of the Public Health Acts, and houses are disinfected after death or removal of the patient free of charge to the occupants.

Actual disinfection is usually carried out by the Sanitary Inspector, but it must be recognised that no matter how thoroughly and efficiently this may be done it is extremely doubtful whether it is of any practical use in dealing with the disease under conditions generally prevailing in the community.

Disinfection is a valuable and simple expedient in dealing with the acute infectious fevers, and is readily achieved on removal or completion of a case lasting for a period varying from a fortnight to six or eight weeks. It is altogether a different proposition in a case of tuberculosis which may last five or six years and which even then may not have been recognised as a source of danger until long after infection has been spread broadcast.

To be effective the sufferer must learn and be willing to co-operate loyally in carrying out precautions; defects in the home such as overcrowding, lack of light and ventilation must be remedied, and rooms used by the patient must be kept clean

and free from dust; otherwise the most frequent and thorough disinfection will be useless in preventing spread of the disease.

Strong smelling and unpleasant liquids and gases and the paraphernalia associated with the rite of disinfection have a mysticism all their own, but for actual efficiency there is no comparison with the simple practice of thorough cleansing with soap and hot water and daily dusting with a damp cloth.

The Regulations empower a Local Sanitary Authority to "supply medical and other assistance and reasonable facilities and articles for preventing the spread of infection and for removing conditions favourable to infection."

Preceding the adoption and approval of the Scheme of the County Council, which aims at prevention and treatment, and with a view to furnishing Local Authorities with an authoritative statement relative to powers and responsibilities vested in them by the articles of the Regulations, the County Medical Officer sought precise information from the Local Government Board as to whether Local Authorities were empowered to supply, on the advice of their Medical Officer of Health, certain articles, monetary allowances and extra nourishment to persons suffering from tuberculosis.

The reply received from the Board on 14th January, 1913, was circulated to all Medical Officers of Health in the County, and contained information on the following points:—

1. A Local Authority may provide portable shelters (with the necessary permanent equipment) under the provisions of Section 131 of the Public Health Act, 1875, for the reception of persons suffering from tuberculosis in their district, and may incur expenditure incidental to their use such as conveyance to and from the homes of patients and labour necessary to erect and take them down.

2. Sputum flasks or boxes, paper pocket-handkerchiefs, and disinfectants may be supplied by the Local Authority.

3. A Sanitary Authority has no power to incur any expenditure either in connection with the provision of a separate bedroom for the use of a person suffering from tuberculosis, where there is no such room available for his separate accommodation in the house occupied by him, cost of removal to more suitable premises, or in connection with the supply of beds and bedding to enable such patient to occupy a separate bed, except in so far as beds may be provided for the equipment of temporary shelters lent out by the Local Authority.

4. The Regulations do not authorise Sanitary Authorities to supply food to persons in their own homes.

It is apparent from a review of the remarks of the Medical Officers of Health of the Districts in the County, contained in their annual reports and from enquiries made through the County Dispensaries in regard to individual cases, that disinfectants are available for distribution to patients requiring them in most of the sanitary districts, while leaflets giving information and instruction respecting the disease and precautions to be taken against it are provided in a few instances.

Cardboard sputum boxes are supplied by the Public Health Department for Crewe, and 552 of these boxes were distributed during the year. This Department also obtained a supply of shelters suitable for loaning out to patients for erection on sites adjoining their own homes, but these have since been taken over by the County Council and are now included in those available under the County Scheme. They are loaned out through the Dispensary organisation.

The framing of Bye-laws to prevent spitting is a procedure which should be carried into effect by all Local Sanitary Authorities. Notices warning against expectorating should be freely exhibited and should be strictly enforced in all factories, workshops, railway carriages and public conveyances, waiting rooms, halls, places of amusement, public houses, and places frequented by the public.

Close co-operation between the Medical Officers of Health of Local Sanitary Districts, General Medical Practitioners,

School Medical Officers, Medical Inspectors of Factories and Workshops appointed under the Home Office, Medical Referees and Medical Boards working under the Ministry of Pensions, Medical Referees under the National Insurance system, and the Tuberculosis service of the Local Executive Tuberculosis Authority is essential to attainment of success in a complete organisation having for its objective the prevention and eradication of tuberculosis from the community.

The County Tuberculosis Scheme.

The complete Scheme for the County was formulated in 1914 and adopted by the County Council in May of that year, after it had received the sanction and approval of the Local Government Board.

This Scheme was based upon the recommendations of the Astor Departmental Committee on Tuberculosis contained in an Interim and a Final Report published in 1912 and 1913. These recommendations were mainly:—

1. That schemes dealing with the whole population should be drawn up by Councils of Counties or County Boroughs or by combinations of these bodies.
2. That establishment of an adequate number of tuberculosis dispensaries was essential.
3. "That, so far as possible, grants in aid of tuberculosis dispensaries should only be given where such institutions would eventually form constituent parts of complete schemes."
4. "That, in framing complete schemes, regard should be had to all existing available Authorities, organisations and institutions with a view to avoiding waste by overlapping, and to obtaining their co-operation and inclusion within schemes proposed."
5. "That special regard should be given to securing the co-operation of Medical Practitioners in the working of the schemes, particularly in relation to the early detection of the disease, and its domiciliary and dispensary treatment."
6. "That special attention should be paid to securing suitably qualified and experienced Medical Practitioners for the senior appointments in connection with institutions established, as the ultimate result obtained by the treatment recommended must depend to a great

extent upon their medical and administrative qualifications."

7. That, in erecting, or adapting institutions pretentious and extravagant buildings should be avoided and provision of institutions of a simple and inexpensive character aimed at.

8. That accommodation for hospital cases as distinguished from the early sanatorium case should be provided in connection with existing Institutions, so far as possible in districts easy of access to the friends of the patients.

   Beds in Isolation hospitals might be adapted and utilised, or additional beds provided by enlargement of such institutions rather than by erection of new and special buildings.

9. That the effectiveness of the campaign against the disease can be greatly increased by the organisation of voluntary Care Committees formed of representatives from Local Authorities, Boards of Guardians, Insurance Committees, and from all charitable and social work organisations in the area.

10. That children suffering from pulmonary tuberculosis should, whenever practicable, be sent to residential sanatorium schools, those affected with bone tuberculosis should be sent to residential sanatorium schools equipped with all necessary appliances for conservative surgical treatment, while glandular and other forms of non-pulmonary tuberculosis should be dealt with as necessary in open-air schools, playground classes, night camps, &c.

11. That every sanatorium, dispensary or other institution for the treatment of tuberculosis and every Medical Practitioner should have access to laboratory facilities for establishing a diagnosis and for carrying out routine work.

In their final report the Committee emphasised how closely the questions of prevention and treatment were interrelated.

The County Scheme as ultimately adopted provided for:

1. Facilities for treatment and prevention of all forms of tuberculosis as affecting all classes of persons resident within the Administrative County area.
2. Establishment of Central and Branch Dispensaries.
3. Provision of Sanatorium accommodation for early curable cases.
4. Provision of Pulmonary Hospitals for advanced cases requiring treatment or isolation and beds for patients requiring observation to determine a diagnosis or the form of treatment suitable to the needs of each case.
5. Arrangements with General Hospitals, Infirmaries and Cottage Hospitals in reference to the provision of beds for emergency cases and operative measures for conditions requiring surgical treatment.
6. Supply of open-air shelters to be loaned out through the dispensaries to facilitate treatment at home.
7. Co-operation between Tuberculosis Officers and Medical Practitioners carrying out domiciliary treatment of insured persons, and private patients.
8. Supervision of supply of extra nourishment allowances to insured persons.
9. Arrangements with Approved Sanatorium Schools for accommodation of children suffering from early pulmonary tuberculosis and others affected with non-pulmonary forms of the disease.
10. Equipment of a County Bacteriological Laboratory at Chester for examination of sputum and pathological specimens.
11. Care and After-care organisations were forecast as essential developments to augment and co-operate with the Dispensary organisation.
12. Training or Employment Colonies were appreciated as a probable outcome of "after-care" work to solve the question of re-introduction into employment of the partially incapacitated consumptive.

The organisation and administration of the Scheme as a whole was centralised and co-ordinated in the Central Office of the County Tuberculosis Officer in Chester, which was constituted within the Public Health Department, to work in close association with all agencies for the prevention of disease and promotion of the health of the community.

The Administrative County was divided into four Dispensary Districts with one Sub-District *(vide* Map), as follows:—

1. CHESTER DISTRICT.

Population, including Chester City, 70,000.

Central Dispensary at Chester, Branch Dispensary at Tarporley.

Attendance of Tuberculosis Officer and Nurses.—Central Dispensary, 2 day and 1 evening sessions per week, (not including sessions for City patients). Branch Dispensary, 1 day and 1 evening session per week.

Staff.—1 whole-time Tuberculosis Officer and 1 whole-time Tuberculosis Nurse.

1a. CHESTER SUB-DISTRICT.

Population, 63,077.

Sub-Dispensaries at Ellesmere Port, West Kirby and Birkenhead.

Attendance.—One day session at each Branch Dispensary per week.

Staff.—1 Part-time Tuberculosis Officer and 1 whole-time Tuberculosis Nurse.

2. CREWE DISTRICT.

Population, 130,453.

Central Dispensary—Crewe. Branch Dispensaries—Winsford and Congleton.

Attendance.—Central Dispensary, 2 day and 1 evening sessions per week. Branch Dispensaries, 1 day and 1 evening session per week.

Staff.—1 Part-time Tuberculosis Officer and 2 whole-time Tuberculosis Nurses.

3. HYDE DISTRICT.

Population, 196,308.

Central Dispensary—Hyde. Branch Dispensaries—Macclesfield and Stockport.

Attendance.—Central Dispensary, 2 day and 1 evening sessions per week. Branch Dispensaries, 1 day and 1 evening session per week.

Staff.—1 whole-time Tuberculosis Officer and 2 whole-time Tuberculosis Nurses.

4. NORTHWICH DISTRICT.

Population, 169,123.

Central Dispensary—Northwich. Branch Dispensaries—Altrincham and Runcorn.

Attendance.—Central Dispensary, 2 day and 1 evening sessions per week. Branch Dispensaries, 1 day and 1 evening session per week.

Staff.—1 whole-time Tuberculosis Officer and 2 whole-time Tuberculosis Nurses.

DISPENSARIES.

Each Dispensary District constitutes a complete Unit of organisation, and is under the control of the District Tuberculosis Officer, the nurses acting directly under his supervision. The Tuberculosis Officer examines patients at the Dispensaries, makes such recommendations and reports as may be necessary in each case, and also acts as a consultant to the medical practitioners in regard to all cases of Tuberculosis occurring within his area.

SANATORIA FOR EARLY CASES.

Under the Scheme it was estimated that 70 Sanatoria beds would be required. These were to be provided in the County Joint Sanatorium, *i.e.*, 14/30ths. of total accommodation of 150 beds contemplated.

PULMONARY HOSPITALS FOR ADVANCED CASES.

50 Hospital beds were to be provided, suitable pavilions being constructed where necessary in connection with existing Isolation Hospitals throughout the County.

GENERAL HOSPITALS.

A sum of £500 per annum was estimated for surgical treatment of cases in Hospitals, operations, appliances, etc. The number of beds required for such cases could not be estimated owing to insufficient data to hand at the time the Scheme was being prepared.

RESIDENTIAL OPEN-AIR SCHOOL, RESIDENTIAL CLASSES, ETC., FOR CHILDREN.

Attention was drawn to the need for the care and treatment of pre-tubercular children being considered by the Education Committee. Ten beds had been retained at the West Kirby Convalescent Home.

Steps were to be taken for the retention of further beds at the Leasowe Children's Hospital and Royal Liverpool Country Hospital at Heswall for treatment of children affected with non-pulmonary tuberculosis.

SHELTERS.

The sum of £500 was estimated for the provision of 50 shelters at £10 each, such shelters to be allocated to the Dispensaries for erection near the patient's own home when suitable sites were available, necessary supervision of the patients to be exercised by the Tuberculosis Nurses from the Dispensaries.

DOMICILIARY TREATMENT.

Under the National Insurance Act, 1911, provision was made for the payment of a set sum of 6d. per head per insured patient to Panel Practitioners for the domiciliary treatment of insured persons. Administration of this fund was vested in, and remained under the County Insurance Committee.

CARE AND AFTER-CARE COMMITTEES.

The need for providing an organisation whereby consumptives would be assisted in a philanthropic manner over and above treatment benefits obtainable through the County Dispensary organisation was foreshadowed in the Scheme.

It was, however, decided that the Dispensary organisation should be got into working order before undertaking the organisation of Care and After-Care Committees. Development of labour and employment colonies and health gardens on an industrial basis was contemplated as a possible outcome of Care Committee work.

BACTERIOLOGICAL LABORATORY.

A central laboratory for the examination of sputum and pathological specimens was to be equipped in connection with the Central Office of the County Tuberculosis Officer.

TUBERCULOSIS NURSES.

Eight Tuberculosis Nurses, who would devote their whole time to work in the Dispensaries, home visitation and enquiry regarding cases of Tuberculosis, were to be appointed under the Scheme. Two were to work in each of the Districts under the direction and supervision of the District Tuberculosis Officer.

DISTRICT TUBERCULOSIS OFFICERS.

Four whole-time Tuberculosis Officers were to be appointed.

In the case of the Chester District arrangements were entered into with the City Council whereby the services of the Tuberculosis Officer appointed for this district would devote one-third of his time to work within the city area, and during such time would work under the directions of the City Medical Officer of Health. This Officer would also assist in the work of the Central Office and in the Tuberculosis Laboratory when not engaged in connection with routine work of the Dispensary District.

For the Chester Sub-District the duties of Tuberculosis Officer would be carried out by a part-time officer, who was also Medical Officer of Health for the North-West Cheshire Combined Sanitary District. This officer would attend at each of the three Branch Dispensaries for one session on one day per week, and be responsible for such home visitation as might be found necessary.

CENTRAL OFFICE.

The Scheme was to be administered and co-ordinated by the Chief Tuberculosis Officer. This Officer was to act in the capacity of a consultant to the District Tuberculosis Officers and to Practitioners where necessary, and generally supervise the residential treatment of all cases in Institutions. It was also his duty to effect the development and advancement of the Scheme and bring forward such improvements in administration and organisation as might be found desirable. He was also to be responsible to the County Committees for the manner in which instructions were carried out, and was appointed to act as Medical Adviser to the Cheshire Insurance Committee.

In order to enable the work to be centralised and controlled and statistical enquiries carried out, the Chief Tuberculosis Officer was to be provided with an office and clerical staff, at an estimated cost of £400 per annum.

To ensure co-ordination of the Tuberculosis Department with that of the County Medical Officer, the Chief Tuberculosis Officer was appointed Assistant County Medical Officer of Health in March, 1914.

AGREEMENTS.

1. *Principal Agreement entered into with the Cheshire Insurance Committee* on 30th December, 1916, which came into operation on 1st July, 1917, provides that:—

(a) The Tuberculosis Officers and County Medical Officer of Health shall advise the Committee in regard to administration of Sanatorium Benefit under the National Insurance Act, 1911, examining insured persons and recommending treatment necessary in each case.

The Chief Tuberculosis Officer shall attend the regular meetings of the Committee and of the Sanatorium Benefit Sub-Committee.

(b) Central Dispensaries shall be provided at Crewe, Northwich, Hyde and Chester, and ten Sub-Dispensaries at the places set forth under the County Scheme.

(c) Shelters shall be provided for use of insured persons authorised by the Committee.

(d) Residential accommodation shall be found for treatment of 35 insured persons in Sanatoria and for 30 insured persons in hospitals for advanced cases and those requiring surgical treatment.

The Committee shall pay to the County Council a sum calculated at the rate of sevenpence halfpenny for every sum of ninepence per head of insured persons remaining available to them for defraying the expenses of Sanatorium Benefit.

A Joint Consultative Committee shall be constituted for the purpose of advising on matters appertaining to the future staffing and internal management of the Dispensaries, and as to the arrangements provided for insured persons treated in Hospitals.

N.B.—This agreement only came into operation on the date stated so far as the services of Tuberculosis Officers, use of Dispensaries, and shelters, and provision of Hospital accommodation was concerned.

Since the Council was not in a position to find the stipulated number of Sanatorium beds in the County Sanatorium, the Insurance Committee continued to engage and pay for such beds as they required for insured persons in existing Institutions. This meant that the bulk of their funds available for Sanatorium Benefit was expended on maintenance of patients in Sanatoria.

An arrangement has been determined during the past year, whereby the County Council agreed to provide all residential accommodation required for treatment of all cases, whether insured or uninsured. This arrangement comes into operation on 1st January, 1920.

The whole of the arrangements for treatment and prevention of Tuberculosis under the County Scheme and under Sanatorium Benefit of the National Insurance Act, 1911, with the single exception of domiciliary treatment will then be controlled and co-ordinated

through the Central Office of the County Tuberculosis Officer.

In consequence of this agreement of the two Authorities, treatment and supervision of cases will be brought under control, and available beds in Institutions utilised to the best advantage.

Supplemental Agreement with the County Insurance Committee.

A Supplemental Agreement was entered into whereby the County Council undertake that from the 1st January, 1919, "all accommodation available to them for the treatment of adult cases of tuberculosis shall be available in priority for the reception and treatment of cases of Tuberculous Discharged Soldiers."

The whole of the cost of such treatment will be defrayed by the Exchequer and will be recovered by the Council through the Insurance Committee.

2. *Agreement entered into between the Chester City Council and the Cheshire County Council* on 9th October, 1914, for provision of a Dispensary in the City of Chester and a Pavilion at Sealand, Chester, for treatment of persons suffering from Tuberculosis.

This agreement came into operation on 1st September, 1914, and shall continue in operation for seven years, subject to revision in every third year.

It is agreed that:—

(a) The City Council shall provide and maintain premises in the City to be used for purposes of a Dispensary for treatment of persons suffering from Tuberculosis. The County Council shall have exclusive use and control of such Dispensary premises on three days in each week, and the City Council at all other times.

Cost of maintenance, lighting, heating, cleaning and insurance of premises, wages of caretaker, etc.,

shall be borne by the City Council and the County Council in equal shares.

(b) A Tuberculosis Officer shall be appointed by a Joint Committee.

The salary of such Tuberculosis Officer shall be paid by the County Council, and the City Council will repay one-third part of the cost. He shall devote one-third of his time exclusively to the treatment of persons resident in the City of Chester or to duties incidental to the prevention and cure of Tuberculosis or such other diseases as the Local Government Board may appoint, and while so devoting such one-third of his time shall be and act in all respects subject to the control and under the direction of the Medical Officer of Health for the City of Chester. During the remaining two-thirds of his time he shall be and act subject to the control and under the direction of the County Tuberculosis Officer.

(c) The City Council shall provide, furnish and equip a Pavilion for the residential treatment of persons suffering from Tuberculosis adjoining the Isolation Hospital at Sealand, and shall receive 6 cases—3 males and 3 females—from the County area.

Order constituting the Cheshire Joint Sanatorium Committee under Sub-Section (3) of Section 64 of the National Insurance Act, 1911.

An Order dated 19th May, 1914, was issued to the County Council of Chester and to the Councils of the County Boroughs of Birkenhead, Chester, Stockport, Stoke-on-Trent, and Wallasey by the Local Government Board constituting a Joint Committee under the said Sub-section of the National Insurance Act, 1911.

The Order came into operation forthwith and constituted the Joint Committee a body corporate having for the purposes of its constitution a perpetual succession and a common seal. The purpose of the Joint Committee was for the joint exercise

by the Constituent Authorities of their powers in relation to the provision of a Sanatorium or for the treatment of Tuberculosis.

The Committee to consist of thirty members to be elected by the Constituent Authorities from among their own members, in proportions set out in a schedule to the Order, namely:—

Name of Area.	Name of Council.	Number of Members.	Proportions.
The Administrative County of Chester	The County Council of Chester	14	14/30ths
The County Borough of Birkenhead	The Council of the County Borough of Birkenhead	4	4/30ths
The County Borough of Chester	The Council of the County Borough of Chester	1	1/30ths
The County Borough of Stockport	The Council of the County Borough of Stockport	3	3/30ths
The County Borough of Stoke-on-Trent	The Council of the County Borough of Stoke-on-Trent	6	6/30ths
The County Borough of Wallasey	The Council of the County Borough of Wallasey	2	2/30ths

For the purposes of the Order the Joint Committee shall be deemed to be a "local authority" within the meaning of Section 16 and shall have all the powers of a County Council under Sub-section (2) of Section 64 of the National Insurance Act so far as regards the provision of Sanatoria, and shall be an authority with whom an Insurance Committee may with the consent of the Insurance Commissioners, enter into agreements for providing treatment in a Sanatorium for persons recommended by the Insurance Committee for Sanatorium Benefit.

The Constituent Authorities shall be entitled to accommodation in any Sanatorium or Sanatoria provided by the Joint Committee and in hospitals or other institutions used by the Joint Committee under agreements entered into with the consent

of the Local Government Board, in the proportions set opposite to their names in the schedule.

The Joint Committee may agree with any Local Authority or with any persons for the treatment at any sanatorium provided by them of any patients, whether resident within or without the Constituent Areas, on such terms as may be agreed upon.

The total accommodation for patients to be provided at any one time under the Order shall not, without the consent of all the Constituent Authorities and of the Local Government Board, exceed 150 beds. The size or capacity of the administrative block of any Sanatorium provided by the Joint Committee under the Order is specifically deemed to be excluded from this restriction.

The Committee are empowered to appoint and remunerate such officers and servants as they think requisite.

This Order to be cited as the Cheshire Joint Sanatorium Committee Order, 1914, shall remain in force for a period of twenty years, unless previously rescinded by the Board.

The Board may, on the application of the Joint Committee or of any of the Constituent Authorities at any time, vary the provisions of the Order as may appear to them necessary or expedient.

Under the terms of the Order the expression "Sanatorium" means a residential institution for the treatment of patients suffering from tuberculosis in whom permanent improvement or recovery may reasonably be anticipated.

Development of the Scheme.

The Scheme outlined in the previous Section materialised to a large extent during the War under the administration and direction of Dr. Meredith Young, the County Medical Officer of Health, who also acted as County Tuberculosis Officer and Medical Adviser to the Cheshire Insurance Committee during the absence of the County Tuberculosis Officer on military service.

Unforeseen circumstances and pressure of requirements in other directions associated with the military policy of the nation during the war period necessarily checked development and led to modification of certain proposals contemplated under the Scheme in its original form.

Facilities offered for investigation, diagnosis and treatment of all classes of persons under the provisions of the Scheme were brought to the notice of all Medical Practitioners in the County by means of the following circular letter sent out by the County Medical Officer in July, 1915:—

CHESHIRE COUNTY COUNCIL.

Public Health Department,
43, Foregate Street,
Chester,
July 1st, 1915.

Dear Sir,

DISPENSARY TREATMENT OF TUBERCULOSIS.

The County Council is most desirous that this and all cognate work should be carried out in full accordance with the best traditions of the profession and in strict compliance with all the canons of medical etiquette and professional courtesy.

A complete Scheme has been prepared which will be put into full operation as early as practicable and which the Council

feel assured will be of the greatest assistance and utility to Medical Practitioners in the treatment of this disease.

The Council is now prepared to assist Medical Practitioners in the treatment of tuberculosis in the following ways:

1. By examining at the Dispensary, or at the patient's own home if necessary, and as desired by the practitioner in attendance, any person, *insured or uninsured*, suffering from or suspected to be suffering from any form of tuberculosis, and offering suggestions, in confidence of course, to the practitioner concerned as to the form of treatment.

2. By supplying outfits for the collection of sputum and examining and reporting on the same.

3. By examining at the Dispensary, or at the home if necessary, insured or uninsured persons who have been in contact with sufferers from tuberculosis.

4. By arranging for the visitation, by trained nurses, of the homes of patients suffering from tuberculosis, and the giving of such instructions as the practitioner in attendance may wish to be given.

5. By administering tuberculin or rendering assistance in the carrying out of any special form of treatment approved by the practitioner in attendance.

6. By lending sputum cups, pocket flasks, clinical thermometers, &c., to patients under treatment in cases where the practitioner in attendance desires the patient to have such articles.

7. By arranging for Institutional treatment or for the use of shelters so far as facilities are available in cases where the practitioner in attendance agrees that such form of treatment is desirable.

8. By supplying appliances required for the treatment of surgical cases where the circumstances, in the opinion of the practitioner in attendance, are such as to render this desirable.

9. Generally to confer with the practitioner in attendance on any case of tuberculosis and to render him such assistance as is reasonably practicable. Practitioners will be welcomed at the Dispensary during any time when it is

open for the attendance of patients and at any other time convenient to them by special arrangement.

I am, Sir,
Yours faithfully,
MEREDITH YOUNG,
For the County Tuberculosis Officer.

THE DISPENSARY ORGANISATION.

The Central Dispensary is the centre of all anti-tuberculosis endeavour within each district, and is the headquarters of the District Tuberculosis Officer entrusted with its administration under the direction of the Central Office.

The word "Dispensary" is a misnomer, but has been adhered to in the Scheme, since it was used in the reports of the Departmental Committee, and has unfortunately been repeated in reports and memoranda of the Local Government Board.

This unit might more comprehensively be referred to as the Tuberculosis "Centre," "Institute" or "Clinic."

The function of the Dispensary is to act as a receiving centre for all classes of cases, and all kinds of information relative to, and affecting tuberculosis in the district; a centre to which cases shall be sent for expert examination and diagnosis; a clearing house where all cases of tuberculosis shall be sorted out, classified and suitable treatment or procedure determined in each instance; old cases re-examined from time to time as may be necessary, and home treatment supervised.

Close co-operation with the Public Health organisations of the district with constant interchange of information is essential.

The preventive function of the local sanitary department is supplemented when necessary by supplying through the dispensary sputum flasks, paper handkerchiefs, disinfectants, and instructions on how to avoid risk of spreading infection. A copy of a pamphlet entitled "How to carry Sanatorium Methods into the Home," written by the County

Tuberculosis Officer, for the guidance of patients, is given to each patient in attendance.

One of the important functions of the dispensary is the examination of "contacts" with a view to detection of incipient cases of disease at the earliest opportunity and before symptoms have become manifest.

Though the Departmental Committee recommended that the dispensary should also be utilised as a centre for treatment, routine or symptomatic treatment is not contemplated or carried out at the dispensaries under the Scheme in Cheshire, other than in exceptional instances where the patients have no private medical attendant, and have no means of obtaining treatment through other agencies. Precaution was taken in framing the Scheme as originally presented to the Council that treatment should be left as far as possible to medical practitioners, and that Tuberculosis Officers should devote their whole time, skill and energy to searching out and diagnosing the disease, and acquiring information regarding circumstances tending to its development and propagation in each district.

It was fully appreciated that results yielded by routine medicinal treatment of individual cases in dispensaries was not likely to prove materially better than was obtainable by medical practitioners in their own surgeries. Furthermore it is undesirable for many reasons that practitioners should in any way be excluded from the treatment of the disease. On the contrary interest and facilities for increased proficiency should be stimulated and encouraged in every way possible.

The Tuberculosis Dispensary organisation in Cheshire is intended to afford the practitioner of medicine every possible assistance in the treatment and early recognition of all cases of tuberculosis coming under his observation, and to loyally cooperate with him in all ways calculated to prevent or ameliorate predisposing conditions.

Certain specialised measures such as administration of tuberculin, vaccines, sodium morrhuate, brass treatment of skin

tuberculosis, pneumo-thorax and others are provided for in suitable cases, but modification of the Scheme particularly in regard to nursing supervision, which will be referred to later, has made general application of such measures inadvisable or impossible.

Medical Practitioners are invited to refer cases to the dispensary where an opinion after thorough examination with application of special diagnostic tests if necessary is required. In all such cases the Tuberculosis Officer reports in detail and communicates in confidence his clinical findings and views regarding each case.

Practitioners are also at liberty to make full use of the dispensary and of the opportunities and materials available for acquiring increased knowledge of methods of examination, application of tests, and of the principles of prevention applicable to the disease.

Central and Branch Dispensaries were opened as soon as premises could be obtained in the appointed places. All of those provided for under the Scheme have been opened and are now in operation.

Descriptions and particulars regarding premises at present occupied in each district are as follows:—

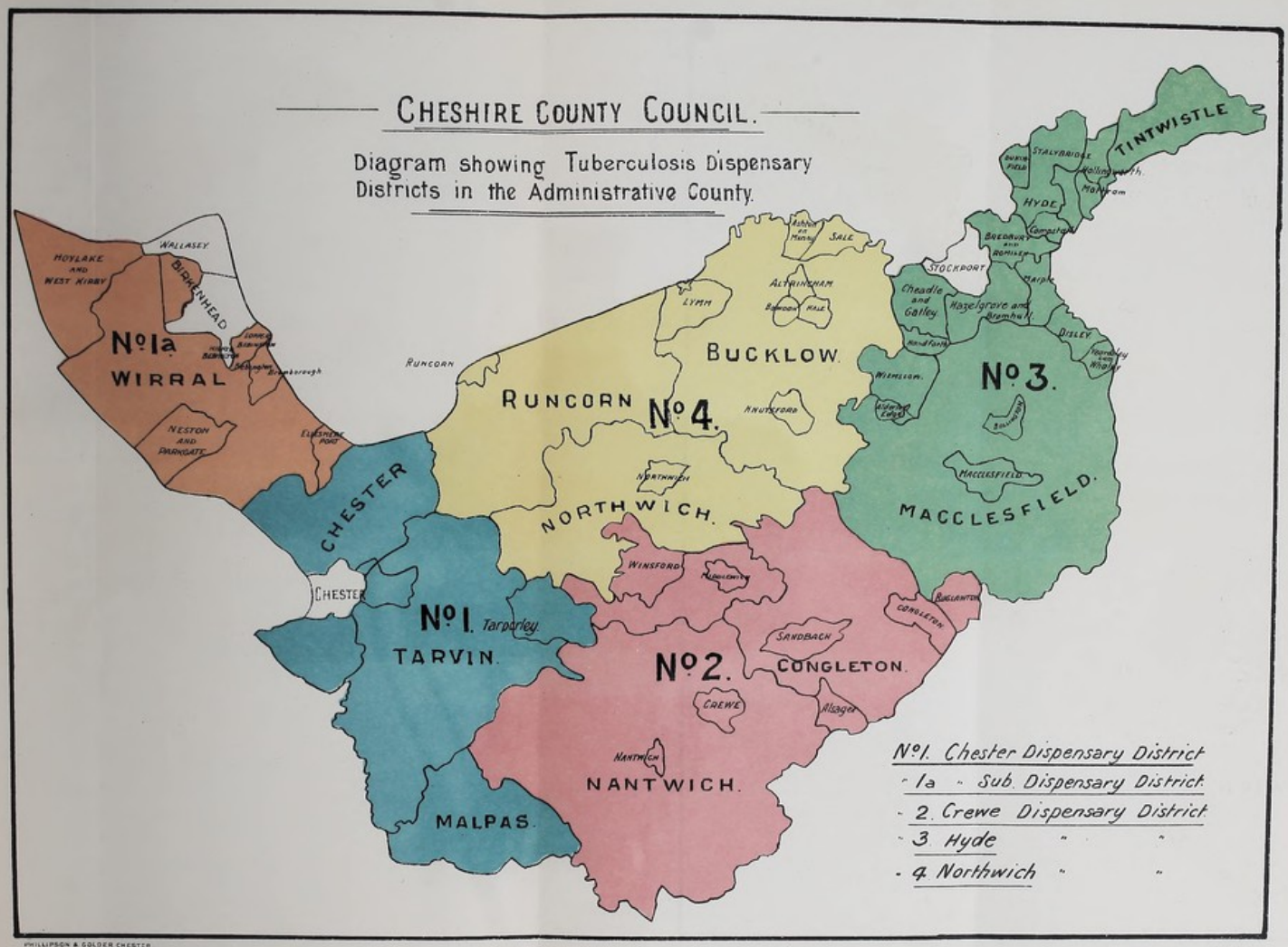
1. CHESTER DISTRICT.

CHESTER CENTRAL DISPENSARY.

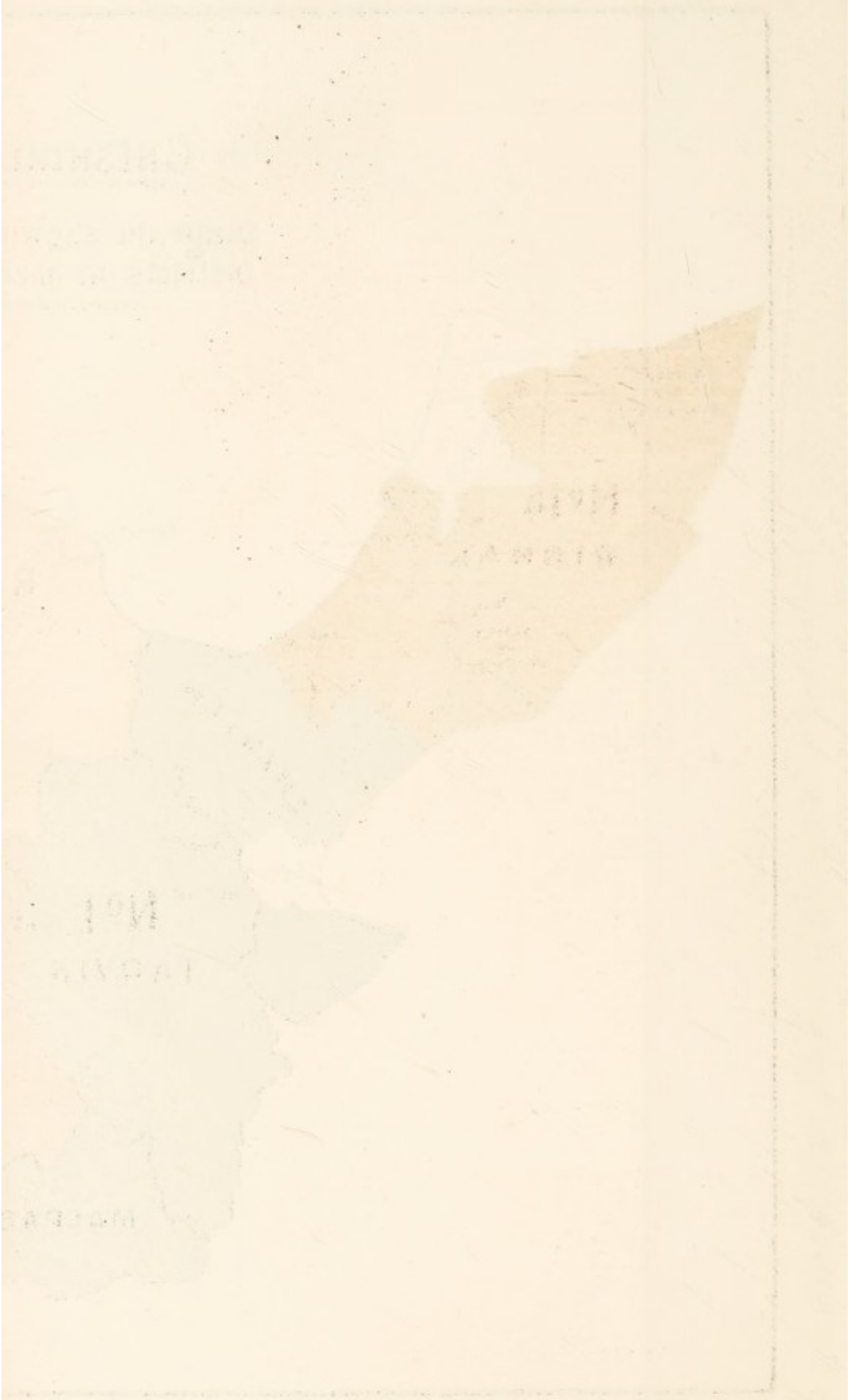
Opened in October, 1914.

Situation of Premises.—The Dispensary is situate in 15, St. John Street, Chester, which is a private house rented by the Chester City Council for the purpose of providing a joint dispensary, on a five years' lease at a yearly rental of £50.

The County Council has the use and control of the premises on three days in each week, and the City Council at other times, excepting that portion consisting of two bedrooms and a sitting-room set apart on the first floor and reserved by the County Council for the exclusive use of Tuberculosis Nurses in residence. The County pays seven-tenths of the maintenance account in respect of the premises.



PHILLIPSON & GOLDER CHESTER



The building is an old one but is in a fair state of repair.

One side of the house faces St. John Street.

There is an open space in front of the house, consisting of a small garden and a small yard. The back of the house overlooks the backs of some cottages. There are two entrances, both in the front of the house—one from the garden (leading into the entrance hall) and one from the yard (leading into a scullery).

There is no entrance at the back of the house. The house is built of brick and is somewhat damp. Internally the distribution and size of rooms are as follows:—

Ground Floor.

Entrance Hall.—This is spacious and more or less rectangular in shape. It is about 15ft. by 15ft. One corner is divided off and encloses a lavatory and w.c. There is a large fireplace in the hall.

Office.—Size 16ft. by 12ft. by 9ft. Little used at present. Contains telephone.

Kitchen.—This is large, 17ft. by 15ft. by 9ft. In addition there are a scullery and two pantries.

There are two staircases leading to the first floor.

First Floor contains:—

Consulting Room, 17ft. by 16ft. by 9ft. Contains fireplace and lavatory basin. This room is used for general purposes (examination of patients, &c.) One corner is curtained off to act as dressing room for patients.

Dispensary, 14ft. by 9ft. by 9ft. Contains large medicine chest and shelves; also small washing sink.

Nurses' Sitting Room, about 16ft. by 16ft. by 9ft. Contains fireplace.

Bedroom 1.—16ft. by 12ft. Occupied by Nurse.

Bedroom 2.—15ft. by 15ft. Occupied by Nurse.

Bedroom 3.—12ft. by 14ft.
Bedroom 4.—12ft. by 12ft. } Occupied by caretakers.

Bathroom and Lavatory.

The building is lighted throughout by electric light, except the kitchen, which has gas.

Accessibility.—The dispensary occupies a central position in the City, and is within two minutes' walk of electric cars, and within fifteen minutes' walk of both railway stations.

Residents comprise Nurses 2; Caretakers, man, wife, child.

TARPORLEY BRANCH DISPENSARY.

98, High Street, Tarporley, adjoining Foresters' Arms.

Opened in February, 1915.

Situation of Premises.—Consist of two rooms on ground floor of cottage property opening on to main street of village, with out-buildings and a yard, held on a ten years' lease at a yearly rental of £26.

The building is old, damp and not in good state of repair.

There is one entrance only, opening directly into waiting room from the street.

The rooms used for dispensary purposes are on ground floor, and are as follows:—

Waiting Room, 13ft. by 13ft. by 8ft. Contains fireplace. Opening off this at the back is a small room containing lavatory and w.c.

Consulting Room.—Opens off the waiting room (there is no passage), size 16ft. by 12ft. by 8ft. In this room especially the dampness is marked, the paper being in places almost stripped from the walls. This room is used for general purposes (office, examination of patients, dispensary). There is no separate dressing accommodation for patients.

This room contains fireplace and lavatory bowl.

Both rooms are lighted by gas.

Accessibility.—This is not good, the dispensary is situated at one end of the village and is half hour's walk (mostly up-hill) from the nearest railway station (Beeston Castle).

11a. CHESTER SUB-DISTRICT.

ELLESMERE PORT BRANCH DISPENSARY.

Opened in February, 1915.

Situation.—This dispensary is situated at 52, Victoria

Road, Ellesmere Port, in a dwelling house of the artizan type, held on a ten years' lease at a yearly rental of £20.

Waiting rooms, medical examination room and sanitary accommodation are provided.

Accessibility.—The premises are within a quarter of a mile of the railway station; Buses from Chester and New Ferry pass the end of the road.

The needs of the district are well supplied by this dispensary.

WEST KIRBY BRANCH DISPENSARY.

Opened in July, 1916.

Situation.—The dispensary is in the Lodge of the Lear Home of Recovery, Darmond's Green, West Kirby, held on a three years' lease at a rental of £20 per annum. This lease expired on the 30th June, 1918. Available accommodation consists of a waiting room, examination room, and suitable sanitary provision. The premises are too small and are not suited to the requirements of a dispensary for the district.

Accessibility.—The Lodge is situated within 15 minutes' walk of the railway station.

BIRKENHEAD BRANCH DISPENSARY.

Opened in November, 1914.

Situation.—The Corporation of Birkenhead provided, furnished and equipped premises in Duncan Street, Birkenhead, for use as a Tuberculosis Dispensary.

Under agreement the County Council have the use of the waiting room, consulting room, and dressing room, with lavatory, &c., and also of the Laboratory and the apparatus and chemicals therein, after 1 p.m. upon Tuesdays and Fridays in each week, for a payment of £30 per annum.

The County Council provide all equipment necessary for the use of their Tuberculosis Officer and Nurses and for their patients.

Accessibility.—The dispensary is situated near Hamilton Square, convenient to the tram service from the adjoining areas, and within five minutes' walk of the Hamilton Square and Woodside Railway Stations.

2. CREWE DISTRICT.

CREWE CENTRAL DISPENSARY.

Situate in Ashton House, which is held on a ten years' lease at a yearly rental of £40.

Opened in December, 1914.

Description of Premises.—The house is semi-detached, situated at the corner between Gatefield Street and West Street. House consists of two floors and a basement. The main entrance is from Gatefield Street, and there is a flight of three steps. Entrance may also be obtained from Gatefield Street through the garden into the hall and waiting room.

Externally, the house is of brick and is in good repair. There are two water-closets outside in the garden, one of which is next the waiting room.

Internally, on the ground floor there is a "T" shaped hall giving access to the staircase and to the rooms. Including the kitchen there are four large rooms on the ground floor:—

	Length.	Width.	Height.
(a) Front ...	15ft. 3in.	12ft. 9in.	10ft.
(b) Back ...	17ft. 0in.	13ft. 0in.	10ft.
(c) Side ...	13ft. 0in.	13ft. 6in.	10ft.
(d) Kitchen ...	15ft. 0in.	11ft. 6in.	10ft.
(e) Back Kitchen ...	7ft. 10in.	7ft. 10in.	10ft.
(f) Scullery ...	7ft. 10in.	6ft. 6in.	10ft.

The front room is used as the consulting room of the dispensary, and the side room as the waiting room.

On the first floor are similar rooms of the same dimensions; the room above 'a' being the Nurses' sitting room, those above 'b' and 'c' Nurses' bedrooms, and those above 'd'—'f' the Caretaker's bedrooms.

In the basement there are two large cellars.

The walls of the house are somewhat damp.

Accessibility.—The dispensary is situated in the centre of the town, and the town buses run past the house.

Access from other districts is by train or motor omnibus. Crewe Station is one mile from the dispensary. The Sandbach and Nantwich buses halt at the Town Hall, about a quarter of a mile distant.

CONGLETON BRANCH DISPENSARY.

Opened in February, 1915.

Description of Premises.—Two rooms which have been shut off from a detached house. Entrance is obtained from Chapel Street through a paved court-yard. These premises are held on a ten years' lease at a yearly rental of £15.

Externally the house is of brick, but is in poor repair. There is a water-closet in the court-yard.

Internally there is one large room with a smaller room opening off it. The large room is used as the waiting room and the smaller room as the consulting room.

	Length.	Width.	Height.
Waiting room ...	17ft. 6in.	13ft. 6in.	8ft. 3in.
Consulting room ...	11ft. 3in.	10ft. 1in.	10ft. 11in.

Accessibility.—Access from the surrounding districts is by train or bus. The dispensary is one mile distant from the station, and two minutes from the motor bus terminus.

WINSFORD BRANCH DISPENSARY.

Opened in February, 1915.

Description of Premises.—Two rooms in what was formerly the stables of the house which is now the Albert Infirmary. The remainder of the building is used as an X-ray department. Entrance is gained by means of a cinder path branching off the carriage drive leading to the Infirmary. Held on a 20 years' lease at a rental of £40 per annum.

Externally the building is of brick and is in good repair.

Internally the two rooms are united by a long corridor.

	Length.	Width.	Height.
Waiting room ...	12ft. 8in.	10ft. 7in.	9ft. 6in.
Consulting room ...	18ft. 6in.	15ft. 0in.	9ft. 6in.

There are two water-closets, one on either side of the entrance.

Accessibility.—The dispensary lies some 150 yards from Winsford Station, one mile from Winsford, and two miles from Middlewich.

3. HYDE DISTRICT.

HYDE CENTRAL DISPENSARY.

Opened in April, 1916.

Description of Premises.—Situated in Beeley Street and known as the Old Police Station. These premises are the property of the County Council.

Well-built corner house of two floors and a stone cellar. The main entrance is from the street through a small railed area. There is one step. Side entrance through a large open yard to back of house.

Externally the house is of brick and in good repair. In the yard is a w.c. and out-buildings used as drying shed for clothes and a coal house.

Internally there is a good hall leading to the staircase and to the following rooms on the ground floor, viz.:—

Front room	...	15ft. by 15ft. by 9ft. height.
Front room	...	14ft. by 10ft. by 9ft. height.
Back room	...	19ft. by 15ft. by 9ft. height.
Kitchen	...	12ft. by 15ft. by 9ft. height.
Scullery	...	12ft. by 9ft. by 9ft. height.

Both front rooms are used as waiting rooms; the large back room with two windows forming a well-lighted and quiet consulting room and dispensary. The kitchen and scullery are in the occupation of the resident caretaker. In each of the three first-mentioned rooms is a lavatory basin; and leading from the smaller waiting room a w.c. There are fireplaces and wall ventilators in each room.

On the first floor are four bedrooms measuring respectively about:—

Front room	...	14ft. by 15ft. by 9ft. 6in. height.
Front room	...	14ft. by 15ft. by 9ft. 6in. height.
Back room	...	10ft. by 12ft. by 9ft. 6in. height.
Back room	...	10ft. by 14ft. by 9ft. 6in. height.

also bath room with lavatory basin and hot and cold water supply; and a separate w.c.

One bedroom is not in use; one serves as a sitting room and the others are occupied by the resident Nurse and Care-

taker respectively. The cellar forms a useful store room; the whole house is dry.

Accessibility.—The dispensary is situated about three minutes' walk from the main tram terminus in Hyde whence access is obtained by frequent cars to Bredbury, Woodley, Gee Cross, Ashton, Dukinfield, Stalybridge, Newton, Mottram and Godley.

The railway station is about ten minutes' walk from the dispensary. There is a good service of trains from the surrounding industrial districts to the north; and from the rural and residential areas of Romiley, Marple, Hollingworth, &c.

STOCKPORT BRANCH DISPENSARY.

Opened in October, 1915.

Description of Premises.—Situated in Throstle Grove House, Great Egerton Street.

This is a well-built, detached house, standing some 50 feet back from the street, leading from which is a paved pathway, provided with wooden forms for the use of waiting patients; and flanked by shrubs and trees. There is a side entrance into the yard.

The premises are of brick and in good repair. They are used jointly by the Stockport Borough Tuberculosis Authorities and the County, a mutual arrangement preventing any clashing of hours which might lead to confusion between the patients from the two areas respectively.

The County Council has the use on two days in each week of four rooms on the first floor, and the exclusive use of a large back room on the ground floor about 14ft. square, and fitted with a Yale lock for use as a repository for filing cabinets, documents, and as a store room. The County Council have the use of these premises on a yearly tenancy at a rental of £40 per annum.

On the ground floor are doctor's consulting and nurses' rooms used exclusively by the Stockport Authorities.

On the first floor is a large, well-lighted room (three windows) used as consulting room and dispensary. It measures about 24ft. by 15ft. by 9ft. in height; has a fireplace, electric

light, and hot and cold lavatory basin. The portion used as a dispensary is partitioned off.

On the same floor are two excellent waiting rooms, for male and female patients respectively; a small room used as a weighing and dressing room, and a w.c.

The waiting rooms measure 13ft. by 13ft. by 9ft. This suite is placed at the disposal of the Cheshire County Tuberculosis Officer and Nurse on certain afternoons during the week.

There is ample dry cellarage for drug hampers, &c.

Accessibility.—This dispensary is about two minutes' from the tramcars giving access to those outskirts of Stockport which come within our purview. Tiviot Dale Midland Railway Station is only about half a mile off. The more distant rural areas of Wilmslow, Handforth, Cheadle, Disley, &c., are served by the L. & N. W. Railway, the station for which is easily accessible by car—about ten minutes—to the dispensary.

MACCLESFIELD BRANCH DISPENSARY.

Opened in February, 1915.

Premises held on a ten years' lease at a rental of £20 per annum.

Description of Premises.—Two rooms on the ground floor of Pear Tree House, Jordangate, are used as the dispensary. The main entrance is from the street, and there is a flight of seven steps.

Externally the house is of brick and is in good repair.

Internally there is a good hall off which the dispensary rooms open.

	Length.	Width.	Height.
Front room ...	14ft. 10in. by	14ft. 10in. by	10ft. 3in.
Back room ...	14ft. 8in. by	14ft. 6in. by	10ft. 3in.

There is a water-closet opening off the back room, but separated from it by a small ante-room.

The front room is used as the waiting room and the back room as the consulting room.

The house is dry.

Accessibility.—The dispensary occupies a good central position in the town. Access from other districts by train. Hibel Road Station 100 yards. Central Station quarter mile.

4. NORTHWICH DISTRICT.

NORTHWICH CENTRAL DISPENSARY.

Opened in July, 1915.

Premises.—These consist of a detached double-fronted house situated in London Road. The building, which is on supports, is a portion removed from a neighbouring building at a time when a subsidence occurred. The premises are held on a ten years' lease at a rental of £30 per annum.

The house is on a main thoroughfare and consists of two floors (no attics or basement).

The structure is of brick on the outside, and of wood inside—it is dry and in a good state of repair.

The main entrance is from the street; there are also a side entrance (unused) and a back entrance, the latter opening on to an enclosed and uncultivated small piece of land. There is a through passage from front to back doors. The ground floor comprises the following:—

(a) Entrance hall, or through passage.
(b) Nurses' sitting room (right front).
Dimensions 12ft. by 10½ft., 9ft. high.
(c) Kitchen (right rear).
Dimensions 10ft. by 10ft., by 9ft.
(d) Waiting room (left front).
Dimensions 12ft. by 10½ft., 9ft. high.
(e) Consulting room (left rear).
Dimensions 11ft. by 10½ft., 9ft. high.

This latter room serves the general purposes of examination room, office, drug store, &c.

The first floor comprises three bedrooms, viz.:—

(a) Nurse's bedroom	...	13½ft. by 7ft. by 9ft.
(b) Ditto	...	13½ft. by 10ft. by 9ft.
(c) Housekeeper's bedroom		12ft. by 10ft. by 9ft.

In addition bath room and w.c. are on this floor.

The heating throughout is by gas fires.

Two nurses and a housekeeper are in residence.

Accessibility.—The house is 1¼ miles from Northwich Station. It is the centre of the town and of easy access for patients in the town. Subsidence is constantly occurring in the area surrounding the site with consequent damage to drains, gas piping, &c. The river Weaver frequently floods this district, and on three or four occasions during the past winter water has risen to a height of 1 to 2 feet above the floors in the rooms and hall downstairs.

ALTRINCHAM BRANCH DISPENSARY.

Opened in July, 1915.

Premises.—These consist of accommodation in a large building of offices occupied by the Prudential Assurance Co., situated at 12, Dunham Road. The building is of modern construction, dry, in good repair, built of brick, and opens on to a main thoroughfare.

The portion used for the dispensary comprises three rooms and a passage on the ground floor. The whole (passage included) is shut off by a separate door from the main entrance hall of the building.

There is only one entrance, viz., from the main street. The premises are held on a ten years' lease at a yearly rental of £30.

The rooms are as follows:—

(a) Waiting room (front, opening off the passage). Dimensions 12ft. by 10ft. by 9ft. Contains lavatory bowl and open fireplace.

(b) Consulting room (rear, opening off the passage). Dimensions 10ft. by 10ft. by 9ft.

One corner is partitioned off for a patients' dressing room. The consulting room has an open fireplace and is used for general purposes (medical inspection, office, drug store).

(c) A small room containing w.c. and lavatory bowl. This room opens off the consulting room.

There is no residential accommodation for Nurse at this dispensary.

Accessibility.—This is convenient, the dispensary being three minutes' walk from Altrincham and Bowdon Station. Electric cars pass within three minutes' walk also.

RUNCORN BRANCH DISPENSARY.

Opened in October, 1915.

Premises.—The whole of 28, High Street, Runcorn, is rented by the County Council for the purposes of the dispensary, on a ten years' lease at a rental of £20 per annum. The house is a two-floor building and has also an attic and basement.

The building is of brick, not of recent construction. The state of repair is not very good, as the roof leaks, the cellars are very damp, and re-decorating is required.

The main entrance is from the street, leading into a dark and narrow L-shaped passage. There is a side door opening off the latter into a small flagged yard.

There is a w.c. on the ground floor inside and in good condition. There is also one in the yard, but this is disconnected and not used.

On the ground floor in addition to the passage and w.c. there are two rooms, viz.:—

(a) Waiting room, 10ft. by 11ft. by 9ft.
This room contains a lavatory bowl.

(b) Consulting room, 13½ft. by 11ft. by 9ft.
This room is used for general purposes (medical inspection, office, drug store).

There is also a small passage (not used) leading off this room and communicating with what used to be the principal door of the public house (now not used). Both these rooms contain open fireplaces. The rooms are not perfectly rectangular and the internal walls are in a bad condition.

First floor contains:—

(a) Nurse's sitting room, 16ft. by 11ft. by 9ft.

(b) Nurse's bedroom, 10ft. by 11ft. by 9ft.

(c) Kitchen, small room, 10ft. by 6ft., roof sloping.

There is also an attic, 7ft. by 5ft., roof irregular. This is not used for any special purpose.

One Nurse resides on the premises.

Accessibility.—The dispensary is situated in the centre of the town—there are no cars in the town. The distance from Runcorn Station is quarter mile, and about the same from the Runcorn—Widnes Transporter Bridge.

Summary of work done in the Dispensaries during the year ending the 31st December, 1919.

New persons examined	1,612
Attendances—new and old cases	9,213
Discharged Soldiers examined	260
Certificates relative to examination of ex-service men rendered to War Pensions Committees...	378
Reports rendered to Medical Practitioners regarding cases sent for examination ...	1,380
"Contacts" examined	466
Home visits paid by Tuberculosis Officers ...	419
Home visits by Nurses	3,771
Number of patients who had shelters on loan ...	23

Work was considerably handicapped by shortage and frequent changes in the personnel of the medical staff during the year.

Owing to absence of Dr. G. H. Thompson, the Tuberculosis Officer for the Chester District, on military service, the Chester Central and Tarporley Branch Dispensaries were practically closed up to the middle of the year, when Dr. J. Walker commenced duty.

The work of the Hyde Central Dispensary was carried on by Dr. A. L. Barrett, one of the Lady School Medical Inspectors, as a temporary expedient until Dr. W. H. Hooton was appointed in June, 1919.

Dr. Barrett carried out her duties in connection with the Medical Inspection of School Children in addition to her work in the Tuberculosis Dispensary, and though large numbers of cases were examined and most excellent work carried out by her, it was physically impossible that she should seriously attempt

to cope with the requirements of the area or endeavour to undertake other than essential examination of patients attending at the dispensary.

The Macclesfield Branch Dispensary was temporarily administered from Crewe by Dr. J. D. Ingram.

This arrangement necessarily checked expansion in the Macclesfield area and to some extent detracted from full development of the Crewe District, since there was already plenty of scope for Dr. Ingram to devote the whole of his time to elaboration of the working of the Central and Branch Dispensaries in his own area.

It is unquestionable that the work actually accomplished as indicated by the foregoing figures falls far short of what might reasonably have been anticipated had circumstances been favourable.

The following figures show total numbers of new patients attending at the Dispensaries for examination during the past five years:—

	1915.	1916.	1917.	1918.	1919.
1. Chester District ...	11	39	32	39	195
1A. Chester Sub-District	68	75	193	Figures not available	447
2. Crewe District ...	139	202	201	216	280
3. Hyde District ...	Figures not available	129	147	286	378
4. Northwich District ..	32	128	130	250	312
TOTALS ...	250	573	703	791	1612

The record for 1919 certainly demonstrates decided improvement in the appreciation shown towards the benefits and services available under the dispensary organisation, and signs

are not wanting that the commencement which has been made will quickly progress to full and wide use of the dispensaries throughout the County, and their recognition as central agencies for diagnosis, inquiry, and guidance in all matters concerning tuberculosis.

Apart from changes in the medical staff and periods during which no Tuberculosis Officer was available to carry on the work in certain of the dispensaries, two additional factors militating against development may be cited: —

1. *No provision is made for clerical assistance in the dispensaries.*

A large amount of the District Tuberculosis Officer's time is consequently devoted to general correspondence, entering up registers, keeping accounts, writing out certificates and reports for War Pensions Committees and Pensions Medical Boards, filing records, and general office routine of the dispensary and district.

Reference has been previously made to the scrupulous attention devoted to supply of full information and reports to medical practitioners upon results of examination of patients and to intimation of procedure proposed which might in any way affect their professional interests. These details of etiquette which are made a feature of the Scheme in Cheshire, simple though they may appear, entail a serious addition to the routine clerical work of the dispensary.

The actual amount of time devoted to office work varies in each district, but it is the general experience of the Tuberculosis Officers that it is impossible to get through during ordinary working hours, and most of it has to be done at home in the evenings.

A good deal of the Tuberculosis Officer's time is wasted upon work which would be done more efficiently by a clerk.

The Tuberculosis Officer should be free to devote the whole of his time to the special duties of his appointment.

2. *Specially trained Tuberculosis Nurses devoting their whole time to the work in the manner provided in the Scheme originally adopted by the County Council have not been appointed.*

Twenty-five Health Visitors devoting two-thirds of their time to work in connection with Maternity and Child Welfare, Medical Inspection of School Children, Mental Deficiency, and other fields of activity under the Public Health Department of the County, nominally devote one-third of their time to home visitation of cases of tuberculosis, and a certain number of these Visitors attend the Tuberculosis Dispensaries during the sessions when the Tuberculosis Officer is in attendance.

Home supervision is imperfect, and in consequence of difficulties experienced through insufficient control over temperatures, regulation of rest and exercise, &c., it has not been possible to undertake specialised methods of treatment at or through the dispensary. Many of the Health Visitors do not attend any dispensary and are seldom seen by the Tuberculosis Officer. Their work is therefore reduced to occasional visitation of the homes of known cases of tuberculosis in their districts, and rendering formal reports to the dispensary as occasion arises.

This arrangement provides an inadequate substitute for the whole-time services of the specially trained Tuberculosis Nurses who were intended in the Scheme as originally adopted to carry out visitation of patients at their own homes for purposes of treatment, imparting advice, investigating the environment and general conditions of life and livelihood in the household, and searching out and ameliorating risks of spreading infection to others.

To fulfil her duties in an efficient manner it is essential that the Tuberculosis Nurse should work under the close supervision of the Tuberculosis Officer, and should be in attendance at the dispensary to impart personal information regarding facilities for carrying out instructions and the manner in which such instructions are carried out by individual patients in her districts.

The duty of bringing in "contacts" for examination falls to a large extent upon the Tuberculosis Nurse, and demands energy, tact and discrimination. Her personal knowledge of the home surroundings is invaluable in dealing with those exposed to risk of infection in this way.

It will be noted that the number of contacts examined during the year in the whole County—466, is extremely small.

This is attributable to a large extent to the same factors which retarded development of the whole organisation.

The moment is perhaps not opportune for review of the disposition of the Central and Branch Dispensaries throughout the County area. Experience gained up to the present time however confirms the opinion that for the dispensary organisation to be effective it will be necessary to establish additional Branch Dispensaries in certain other populous centres throughout the County.

Having regard to the fact that the bulk of the work in the Northwich District is centralised in and around Altrincham, it will probably be found advisable to arrange for transfer of the Central Dispensary for this district to the latter town, and supply the needs of Northwich by opening a Branch only.

It will be observed that premises at present temporarily occupied are in certain instances unsatisfactory. Great difficulty was, however, experienced in obtaining premises of any sort, and this would be greatly accentuated under present conditions.

SLEEPING SHELTERS.

Only 18 shelters have been purchased out of the 50 originally estimated for.

These have been in constant use since they were first obtained in 1915 and 1916. Many of them are now almost beyond repair and cost considerable sums to maintain in a fit state for habitation. Hitherto cost of replacing has been high, but the demand is such that the whole of the original 50 shelters should now be obtained. A suitable type of shelter costs approximately £20 at present.

These shelters are loaned out to patients for erection on sites adjoining their own homes, and are found of considerable advantage as accessories to home treatment, where a suitable site is available convenient to and in ready communication with an inhabited dwelling.

Temperament and physical condition of patients have to be carefully considered in determining their ability to use a shelter properly.

Bedsteads or bedding have not been loaned to patients for use in these shelters or in their own homes under the Scheme, as it was anticipated that provision of these and such articles as rugs, blankets and hot water bottles would be undertaken in connection with an auxiliary After-Care organisation.

Shelters are most valuable for patients who have received a course of residential treatment in an institution, and been instructed in open-air methods. They do not solve difficulties in connection with isolation of the advanced and highly infectious case, and can only ameliorate the housing problem to a very small extent.

In most urban areas it is difficult to find suitable sites owing to lack of available space near the patient's dwelling house.

Shelters are disinfected periodically and invariably retreated with creosote when removed from one set of premises for occupation by another patient.

Conveyance, erection and removed is arranged with local Contractors by the County Tuberculosis Officer, the cost being borne by the Council.

Non-insured persons contribute towards expenses incurred as far as their means allow.

A register is kept in the Central Office in which is entered up the location, and condition of each shelter, and these particulars are kept up-to-date through information transmitted by the District Tuberculosis Officers.

SPECIAL NOURISHMENT.

The Cheshire Insurance Committee have allowed grants of extra nourishment for insured persons suffering from tuberculosis as ancillary to domiciliary treatment where such nourishment has been considered necessary by the Panel Doctor, and been recommended by the Medical Adviser.

Before recommending such a grant enquiries are made regarding the economic position of the household, and extra nourishment is only authorised where it may reasonably be inferred that the special foodstuffs required would be additional to the usual dietary of the patient, and would be of assistance in checking progress of the disease, or an aid towards recovery of health.

Owing to insufficiency of funds these grants were discontinued during the war, but have been resumed by the Committee during the latter part of the past year, subject to the condition that the maximum expenditure shall not exceed 6/- per case per week. Grants were sanctioned in respect of 24 insured persons up to the end of the year, and were administered on behalf of the Committee through the County Dispensary organisation.

During the year the County Council have agreed to make similar grants of special nourishment to uninsured persons in attendance at the County Dispensaries.

Since the 1st January, 1919, the cost of special nourishment for Discharged Sailors and Soldiers suffering from tuberculosis which has been held to be attributable to or aggravated by service, is borne by the Ministry of Pensions.

Grants not exceeding 10/- per week may be made by Local War Pensions Committees to Pensioners receiving treatment, and certified unable to work at a remunerative occupation, on the recommendation of the Tuberculosis Officer acting as Special Medical Referee.

The instructions of the Ministry provide that such grants may be disbursed by Local Committees either by money payments to Pensioners, or by arrangements made with local tradesmen for supply of the food stuffs authorised.

In order to obtain uniformity in administration the majority of Local Committees in the County area have utilised the Dispensary organisation for administering such grants under arrangements similar to those made for insured persons with the Insurance Committee; supply of the food stuffs authorised being arranged and supervised by the County Nurses, and accounts rendered to the Committees duly certified at the end of each month.

These arrangements have worked well and have served as an additional inducement to Ex-service men to report regularly at the Dispensaries.

Forms used in recommending and supplying extra nourishment applicable to all classes of persons under the Scheme are reproduced in Appendix IV.

DENTAL TREATMENT.

In order that treatment of tuberculosis may be carried out to the best advantage it is essential that patients should be able to masticate their food efficiently, and that digestion should not be disturbed by swallowing or absorption of septic products from carious teeth.

Arrangements have been made by the County Insurance Committee for giving dental treatment to insured persons selected for residential treatment where this is recommended by the Tuberculosis Officers.

In general dental treatment is only given to Sanatorium cases, though extractions and limited palliative measures are occasionally carried out in advanced cases where oral sepsis can be obviated by such treatment.

It is arranged as far as possible that treatment required should be carried out before the patient proceeds to the Sanatorium, but if completion of the work entails undue delay it is customary to deal with essentials only rather than postpone admission to the Sanatorium indefinitely. In some instances it has been possible to arrange for patients to receive dental treatment while in residence in a Sanatorium, and this should be provided for in all such Institutions.

Where dental treatment is carried out at home the Tuberculosis Officer has the patient examined and obtains an estimate from a local Registered Dental Surgeon. This estimate is considered by the Insurance Committee, and if approved the Dentist is authorised to carry out the work by the Committee. On completion of the work the account is certified by the District Tuberculosis Officer and passed to the Insurance Committee for payment.

Under the scale approved at present the cost must not exceed a total of £6 in any one case.

Similar arrangements are made through Local War Pensions Committees for dental treatment required by Ex-service men suffering from tuberculosis.

Dental treatment is not provided for non-insured persons under the County Scheme.

X-RAY EXAMINATION.

The value of X-rays in the diagnosis of many forms of tuberculosis is undoubted, and such examination may be utilised with advantage in confirming clinical findings in doubtful pulmonary cases.

It is not possible, however, to determine activity in a given lesion by this method alone.

Arrangements have been made with the Manchester Royal, Chester Royal, Ashton-under-Lyne, Royal Southern Liverpool, Stockport, and the Winsford Albert Infirmaries whereby patients may be sent for X-ray examination as required. Examination by Specialists with private installations may also be arranged as necessary.

The detailed report of the X-ray Specialist based on the screen examination of the part, together with a print from the photographic plate, is forwarded to the Dispensary and filed with the dossier of papers relating to the case.

X-rays are utilised therapeutically in the treatment of cases of lupus and glandular tuberculosis at the Manchester and

Salford Skin Hospital, and arrangements have been made for special cases from the County of Chester to attend at this Institution for such treatment as may be required.

It is desirable that existing installations should as far as possible be made full use of in this manner rather than that new apparatus be purchased.

Residential Treatment.

Under an Order of the Local Government Board issued on the 19th May, 1914, a Joint Committee of the Cheshire County Council and of the Councils of the County Boroughs of Birkenhead, Chester, Stockport, Stoke-on-Trent and Wallasey, was constituted to provide a Cheshire Joint Sanatorium with accommodation for 150 early cases of either sex.

Negotiations were entered into with certain Joint Isolation Hospital Boards and Local Authorities in 1914 with a view to providing for erection of Tuberculosis Pavilions for observation, treatment and isolation of cases considered unsuitable for sanatorium treatment. These pavilions were to be constructed on the single and two-bedded cubicle system with accommodation for from 10 to 20 cases in each, on sites adjoining and convenient for administration to Isolation Hospitals within the County area selected so as to be as near and as accessible as possible to the homes of the patients.

Erection of the Joint County Sanatorium and of these Tuberculosis Pavilions was not practicable during the war owing to suspension of capital grants available from Treasury funds.

Accommodation required for early cases was therefore provided by engaging beds in Approved Institutions throughout the country, and numbers of persons have been sent outside the County long distances from their homes.

The total number of sanatorium beds available for the whole country proved inadequate to meet requirements, and difficulty was experienced in providing accommodation for Cheshire cases as was the case throughout the country generally.

The number of applications from uninsured persons was small in comparison with the insured, no great difficulty arose in finding beds required, and consequently there was no waiting list of uninsured persons awaiting residential accommodation.

The Cheshire Insurance Committee on the other hand experienced considerable difficulty in finding accommodation

for an ever-increasing number of applicants amongst insured persons approved for residential treatment.

The position was rendered still more difficult by reason of arrangements made in 1915, whereby all sailors and soldiers whose homes were situated in the Administrative County, and who were discharged from the Navy and Army suffering from tuberculosis or who subsequent to discharge or demobilisation develop tuberculosis must be given preferential terms in the matter of admission to institutions and occupation of beds available to the Committee.

A long list of cases awaiting admission to institutions steadily accumulated, and at one period was well into three figures.

Engagements entered into by the County Insurance Committee with certain institutions for retention of beds required for treatment of insured persons were continued by the Committee after the Principal Agreement had been entered into with the County Council on the 30th December, 1916, since the latter were not yet in a position to provide the 35 sanatorium beds in the Joint County Sanatorium.

The County Council had, however, been able and did provide more than the 30 hospital beds for insured persons stipulated by the terms of the agreement.

During the year 1918 the County Insurance Committee, finding that even allowing for grants payable in respect of treatment of Ex-service men, funds available to the Committee under Sanatorium Benefit were inadequate to pay for all beds required for accommodation of insured persons, applied to the County Council to make provision for insured persons as well as uninsured in residential institutions, and so supplement the arrangements previously made by the Committee for treatment of insured persons in sanatoria to the extent which their funds would allow.

To this request the County Council responded by paying for and placing an increasing number of beds at the disposal of the Committee.

Shortage of accommodation throughout the country generally alone precluded the possibility of meeting the whole demand, and though the waiting list steadily declined there were still 42 males and 2 females awaiting admission to sanatoria and 22 male and 2 female advanced cases on the list for admission to pulmonary hospital beds on the 31st December, 1919.

Administration and financial adjustment was extremely difficult under the complicated system of dual engagement of beds for identical classes of persons which grew into being under the incompleted terms of the Principal Agreement between the Council and the Committee.

During the past year the County Council have agreed with the County Insurance Committee to find accommodation required for residential treatment of all classes of persons whether insured, uninsured, or discharged tuberculous soldiers and sailors, and to continue preferential terms for the latter as requested by the Ministry of Health. This arrangement will take effect from the 1st January, 1920.

The following table shows the number of insured (including discharged soldiers and sailors) and uninsured persons who have received residential treatment during the years 1914 to 1919:—

	INSURED.		UNINSURED.		
Year.	Males.	Females.	Males.	Females.	Totals.
1914	162	81	—	—	243
1915	157	88	3	8	256
1916	216	112	35	33	396
1917	177	70	57	72	316
1918	180	56	69	105	410
1919	300	72	62	92	526
Totals	1192	479	226	310	2147

Up to the end of 1918 no definite differentiation was made between sanatorium and hospital treatment.

All classes of persons are examined and classified through the Tuberculosis dispensary organisation.

Should the District Tuberculosis Officer, acting in consultation with the Medical Practitioner in cases where the patient has a medical attendant, be of opinion that residential treatment in an institution is desirable, a report setting forth clinical conditions and recommending the type of institution suitable for the case is forwarded to the County Tuberculosis Officer.

Where the patient is an insured person a recommendation based upon this report is submitted to the Cheshire Insurance Committee for approval, and subsequent to institutional treatment being approved the name is placed upon a waiting list.

Under the system in vogue in the past the Insurance Committee has kept its own waiting list, and information has been sent to each patient according as his or her turn has been reached, with instructions regarding the particular institution to which they were to proceed, date and best method of getting there. Railway vouchers to enable the patient to obtain a single 3rd class ticket to the nearest railway station have also been forwarded, the vouchers for return half ticket being sent to the Medical Superintendent of the Institution.

It has been inevitable under this system that patients have been selected for particular institutions according as vacant beds became available more as a consequence of their position upon the waiting list, than with due regard to their condition and suitability for the treatment carried out in the various types of institution.

It is, however, satisfactory to record that during the year the County Insurance Committee have determined to transfer the detail of making arrangements for admission of insured persons to the office of the County Tuberculosis Officer. In future all classes of persons can be dealt with on the single ground that they are suffering from tuberculosis requiring treatment in a particular manner determined upon the physical and clinical condition of each case.

The following statement indicates the Institutions to which patients have been admitted from the Administrative County of Chester during the year ending 31st December, 1919, and also numbers of Insured and Uninsured persons respectively

treated in each Institution, together with a statement of the average duration of periods in residence:—

TABLE A.

Name of Institution.	Insured.					Uninsured.					
	Male.	Female.	Total.	Average period in residence.		Male.	Female.	Children under 16.	Total.	Average period in residence.	
				wks	dys					wks	dys
Sanatoria.											
Grosvenor (Kent)	31	...	31	15	0	3	...	...	3	11	2
Liverpool (Kingswood) ...	16	1	17	14	3	2	1	...	3	6	5
Crossley	2	...	2	25	3	...	3	...	3	10	0
Meathop (Westmorland) ...	51	16	67	11	0	...	...	...	...	...	...
North Wales (Denbigh) .	...	10	10	17	6	...	5	3	8	13	0
Bradley Wood (Huddersfield)	1	...	1	21	5	...	...	...	...	...	...
Cranham Lodge (Stroud) ...	...	...	...	...	...	...	7	19	26	19	5
	101	27	128			5	16	22	43		
Special Institutions for Children.											
Eastby (Skipton)	...	...	...	...	...	...	...	16	16	18	4
Heswall Institution ...	...	...	...	...	...	...	...	1	1	40	2
Leasowe Hospital	...	...	...	...	...	...	...	8	8	33	6
	...	...	...			...	...	25	25		
Pulmonary Hospitals.											
Hyde Pavilion	90	...	90	24	5	3	...	...	3	19	2
Eryngo (New Brighton) ...	...	30	30	16	1	...	14	6	20	15	2
Groesynyd (Conway) ...	31	...	31	15	5	8	...	6	14	6	1
Baguley	3	...	3	13	4	...	...	...	...	...	...
Mount Pleasant (Liverpool)	...	2	2	26	4	...	3	...	3	8	6
Sealand Pavilion	5	2	7	27	2	1	4	1	6	30	4
Cottingham (Hull) ...	1	...	1	7	5	...	...	...	...	...	...
Crewe Pavilion	7	1	8	28	4	...	...	...	...	...	...
Macclesfield Pavilion ...	36	...	36	11	5	...	...	...	...	...	...
West Hulme (Oldham) ...	8	...	8	4	1	...	...	...	...	...	...
Whitehill Hosp. (Stockport)	...	...	...	...	...	...	...	1	1	46	3
	181	35	216			12	21	14	47		
General Hospitals.											
Royal Southern (Liverpool)...	1	1	2	8	6	...	...	...	...	...	...
Stockport Infirmary ...	1	...	1	2	4	...	...	2	2	17	3
Manchester Royal Infirmary	6	3	9	3	8	3	1	4	8	11	0
Chester ,, ,,	1	1	2	24	5	...	...	3	3	10	4
Macclesfield Infirmary ...	1	...	1	3	0	...	...	1	1	20	3
Albert Infirmary, Winsford...	3	4	7	16	5	1	2	9	12	3	5
District Infirmary, Ashton-under-Lyne ...	3	1	4	16	4	1	2	10	13	10	2
	16	10	26			5	5	29	39		
Colonies.											
Hull After-Care	2	...	2	30	1	...	...	...	...	...	...
Total all Institutions	300	72	372			22	42	90	154		

SANATORIUM TREATMENT.

The name sanatorium refers to a residential institution for the treatment of patients suffering from tuberculosis limited in extent, and in whom permanent improvement or recovery can reasonably be anticipated after a course of treatment lasting sufficiently long to obtain the maximum of benefit.

The title has unfortunately been misapplied in the National Insurance Act and in Government memoranda to all residential institutions for treatment of tuberculosis, and a good deal of misapprehension has resulted regarding the real nature of a sanatorium, and of the class of patient suitable for treatment in such institutions.

Even with the most careful selection of cases sanatorium treatment not infrequently fails to arrest or ameliorate the disease, and it must be admitted that it is not in any sense a specific cure. However, where such selection is made with due regard to the extent of local disease, general condition and signs indicative of toxic absorption, mental and moral adaptability of the patient to discipline, educability and stability, arrest can be established with reasonable certainty in the large majority of cases.

The essential feature of a successful sanatorium is a Medical Superintendent devoted to duty, of specialised skill, dominant personality, undisputed authority, and above all, imbued with a sympathetic understanding of the idiosyncrasies of the extraordinary psychology of the consumptive.

Sanatorium treatment implies constant personal observation of each case, with careful graduation of exercise, recreation, work, rest—supervision of the whole daily routine, with careful adjustment to incidents in the course of the disease.

The sanatorium has fallen into disfavour in popular opinion during recent years because of misapplication of the name to all sorts of institutions, admission of numbers of unsuitable and hopeless cases to such institutions, limitation of periods of treatment owing to shortage of available accommodation, and lastly because so many industrial patients are

obliged under present conditions to return home after their course of treatment to undesirable surroundings and to resume occupations or trades carried on under unhealthy conditions in factories, workshops and offices, in full competition with their healthy fellows.

The Medical Adviser to the London Insurance Committee epitomises the situation thus:—"A wide gulf separates the prospects of the consumptive among the industrial classes and those of his neighbour in a higher social stratum."

NUMBER OF SANATORIUM BEDS REQUIRED.

The Departmental Committee on Tuberculosis expressed the opinion that it was advisable to provide one bed per 5,000 population. This is commonly referred to as the Aston standard, and experience since gained, particularly in industrial districts, shows that it is inadequate to meet requirements in certain areas.

According to this standard approximately 120 beds are required for the Administrative County of Chester. It was, however, decided in the original scheme to make provision for 70 beds only in the Joint Sanatorium—14/30ths. of the total 150 beds available, and arrange to increase accommodation should such provision prove inadequate.

All of the Constituent Authorities to the Cheshire Joint Sanatorium Committee have agreed during this year to increase the accommodation in the Joint Sanatorium to 240 beds, and the Order constituting the Joint Committee has been revised accordingly.

By this amendment the County Council will obtain 112 beds with an option of a further 9 beds which it is probable the Borough of Stockport will not require.

These 121 Sanatorium beds should prove adequate for the requirements of all classes coming under the County scheme.

PULMONARY HOSPITALS.

Residential accommodation is required for detention of advanced, chronic and incurable cases of both sexes where they

can be received for treatment under homely and comfortable conditions, education in methods to avoid spread of infection, and where those whose home surroundings are bad will be encouraged to remain segregated indefinitely.

Types of cases requiring hospital treatment are:—

(a) Advanced, asthenic cases in need of isolation for their own benefit and for the protection of the community.

(b) Chronic and incurable moderately advanced cases unsuitable for sanatorium treatment.

Many of this type are able to do a certain amount of work. To deal with them provision must be made not only for treatment, but of some suitable occupation under medical supervision.

(c) Acute, relapse and emergency cases.

(d) Doubtful cases presenting comparatively early signs but in whom evidence of asthenia or signs of toxic absorption render it undesirable that they should be immediately admitted to a sanatorium without further observation to ascertain character of treatment required.

Varying views have been expressed as to whether accommodation for these cases should be provided for in:—

(1) Large hospitals reserved for this type of case.

(2) Small local institutions convenient to the patient's home and to the Tuberculosis Dispensary.

(3) Separate hospital pavilions in the curative sanatorium for early cases.

(4) Open-air wards and balconies of General Hospitals and Infirmaries specially reserved for cases suffering from tuberculosis.

(5) Hospital blocks within Occupational Colonies and Village Settlements.

(6) Extended use of sleeping shelters to enable cases to be treated near their own homes.

The first consideration to be borne in mind is that under existing legislation compulsory powers of removal and detention have only been obtained by a few Authorities, and are not applicable to any part of the County of Chester.

The Departmental Committee recommended "as an effective means of preventing the spread of the disease, the compulsory isolation of certain cases which are in a state of high infectivity, particularly in those instances where the patient's surroundings are such as to increase the risk of other persons becoming infected. So far as may be practicable patients should not be removed to places difficult of access from their homes, and arrangements should be made to facilitate visits from their families and friends."

Under the Cheshire Scheme it was decided to make provision for treatment and segregation of advanced, medium, chronic, acute and other cases unsuitable for direct admission to a Sanatorium in Tuberculosis Pavilions to be erected throughout the County on sites convenient for administration from the administrative blocks of existing Isolation Hospitals.

One of the pavilions of the Hyde Isolation Hospital situated in an elevated position overlooking an open space outside the town was adapted in October, 1917, approved by the Local Government Board, and has since been utilised as a Tuberculosis Pavilion under the County Scheme, providing accommodation for 32 male cases. Similarly a pavilion in the grounds of the Macclesfield Isolation Hospital on the Moss was opened in December, 1918, for accommodation of 14 male cases.

Two beds in a revolving shelter placed in the grounds of the Crewe Isolation Hospital were approved as a temporary measure in March, 1918, and have been kept occupied since.

The Chester City Council erected a special Tuberculosis Pavilion adjoining their Isolation Hospital on Sealand Road, about two miles outside the City. This Pavilion was opened in May, 1915, and under an agreement with the City Authorities, 6 beds—3 for males and 3 for females, are retained for County patients and have been kept occupied.

The Bucklow Joint Hospital Board have the option of occupying 15 beds in the Baguley Sanatorium. It has been possible to utilise some of these beds for treatment of suitable male and female cases resident within the areas of the Constituent Authorities of the Joint Board situate within the Administrative County. Arrangements can only be made for admission of cases to these beds through the Board, and only cases resident within the area of the Board may be admitted, conditions which prevent the beds being made use of to the best advantage.

The Eryngo Private Sanatorium, New Brighton, was reserved for females in intermediate stages of the disease, and the 14 beds available have been kept fully occupied since the Institution was opened.

NUMBER OF PULMONARY HOSPITAL BEDS REQUIRED.

It will be observed that in the statement shewing numbers of each class of case treated in residential institutions during the past year more cases were treated in the advanced type of institution than in early curative sanatoria.

This undoubtedly represents the true state of affairs which has existed hitherto, but under improved facilities for diagnosis and acceleration of admission of early cases to sanatoria a more equitable adjustment has definitely set in according as the whole organisation developed.

The Departmental Committee expressed an opinion that approximately the same proportion of Hospital beds would be required as of Sanatorium beds for early cases—that is one bed for every 5,000 of the population.

Having regard to the longer duration of residence necessary for segregation and treatment of advanced cases this would appear to be a reasonable estimate for immediate requirements, though according as facilities for diagnosis and searching out cases in the early stage are made use of, need for hospital beds should diminish. Fifty beds were estimated for in the original scheme, but experience since gained would indicate that at least 100 are required.

As previously stated negotiations entered into with Isolation Hospital Authorities for erection of special Tuberculosis Pavilions throughout the country for this class of case had to be broken off towards the end of 1915.

During the past year certain of the proposals have been again taken up, and plans, specifications and estimates are in course of preparation for provision of new Pavilions and Shelters which can be economically administered from the under-mentioned Isolation Hospitals:—

1. *Crewe Isolation Hospital.*
   An open-air Pavilion with accommodation for 10 males and 6 females.
2. *Davenham Isolation Hospital, Northwich.*
   A similar Pavilion.
3. *Alvaston Isolation Hospital, Nantwich.*
   A smaller Pavilion with accommodation for 6 males and 4 females.
4. *Runcorn Urban Isolation Hospital.*
   Eight open-air Châlets in the grounds of the Hospital.
5. *West Heath Isolation Hospital, Congleton.*
   It has not been possible to proceed with the proposal to erect a Pavilion adjoining this Hospital owing to damp and unsuitability of site available.
6. *Wirral Area.*
   Negotiations were re-opened with the Wirral Joint Hospital Board with a view to having a Pavilion erected on a site belonging to the Wirral Board of Guardians, adjoining the Isolation Hospital at Clatterbridge.

The Guardians declined to sell the site required and the proposal had to be abandoned.

Until such time as accommodation required for the Pulmonary Hospital type of case can be provided for by erection of suitable pavilions within the County, it will be necessary to continue present rather unsatisfactory arrangements and send cases to institutions at a distance from their homes.

TREATMENT OF NON-PULMONARY CASES IN GENERAL HOSPITALS.

Agreements have been entered into with the under-mentioned General Hospitals and Infirmaries for reception and surgical treatment of cases admitted from the area of the Administrative County. Responsibility for maintenance charges is accepted under the County Scheme where the patient is suffering from tuberculosis, and has made application for treatment on the appropriate form to the County Council or County Insurance Committee respectively:—

Manchester Royal Infirmary.
Liverpool Royal Southern Hospital.
Chester Royal Infirmary.
Stockport Infirmary.
Macclesfield Infirmary.
Ashton-under-Lyne Infirmary.
Albert Infirmary, Winsford.

Suitable cases are admitted to these Institutions when beds are available on the request of the County Tuberculosis Officer, and reports rendered regarding treatment carried out, condition on discharge, and further treatment indicated.

Cottage Hospitals within the County which can offer facilities for surgical treatment of tuberculosis may apply to the Ministry of Health to be recognised under the National Insurance Act as Approved Institutions.

A circular letter has been addressed to all such Hospitals during the year pointing out the desirability of obtaining such approval in order that agreements might be entered into to allow of cases being treated and paid for under the scheme.

The greater number of patients suffering from non-pulmonary forms of the disease are children, and certain of these cases require prolonged treatment and convalescence under open-air conditions. Glandular, bony, and articular foci are but local manifestations of a general constitutional disease, and the old system of retaining such cases in the wards of a General Hospital for repeated operations and continued application of surgical dressings is now admittedly wrong.

Joint and spinal cases in particular run a very long course necessitating prolonged immobilisation under stimulating atmospheric conditions preferably near the sea coast, where maximum exposure to the actinic rays of the sun is obtainable.

The Liverpool Hospital for Children at Leasowe and the Royal Country Hospital at Heswall receive these cases of Surgical Tuberculosis requiring open-air treatment, immobilisation, helio-therapy, and orthopœdic measures, but they are unable to meet present large demand for beds, and additional accommodation is urgently required.

Eight beds have been retained in the former for Cheshire cases, and one has been kept occupied in the latter for some years.

CHESHIRE CASES under treatment in Hospitals for Children (Non-Pulmonary Tuberculosis) during the year 1919:

LEASOWE HOSPITAL FOR CHILDREN.

Patients initials.	Age	Nature of disease.	Date of		No. of days under treatment.	Result of Treatment.
			Admission	Discharge		
R. D.	6	Low. dorsal caries	16-10-17	—	365	Remaining in Institution.
M. J.	10	Marked angular curvature of dorsal spine and tuberculosis of left hip.	30-4-18	—	365	Remaining in Institution.
M. McK.	6	Tubercular knee.	9-12-18	—	365	Remaining in Institution.
A. H.	9	Tuberculosis of dorsal spine.	10-1-19	2-6-19	144	Slight improvement. Taken away by parents against medical advice.
R. W.	2	Tuberculosis of the hip and spine.	18-2-19	—	317	Remaining in Institution.
M. L.	7	Tubercular right knee joint.	19-6-19	—	196	Remaining in Institution.
J. R.	12	Tubercular right hip.	29-8-19	—	125	Remaining in Institution.
D. H.	5	Tuberculosis of the spine with discharging sinus.	9-12-19	—	23	Remaining in Institution.

ROYAL COUNTRY HOSPITAL FOR CHILDREN, HESWALL.

D. H.	6	Tuberculosis right hip joint.	25-3-19	—	282	Remaining in Institution.

Domiciliary Treatment.

Sanatorium Benefit under the National Insurance Act may take the form of residential treatment in a Sanatorium or Hospital, Surgical Hospital treatment, Dispensary treatment, or Domiciliary treatment, the latter meaning home treatment by the patient's Panel Doctor, together with such medical accessories as he may prescribe.

With but few exceptions home treatment must occupy an important place in the history of every case, though officially no arrangements have been made for such treatment except in the case of insured persons.

Panel Doctors are paid the sum of sixpence per head in respect of each person on their panel list to cover services rendered to those of their insured patients suffering from tuberculosis in any form, and time spent in preparing reports and transmitting these to the Medical Adviser to the County Insurance Committee.

As has been stated in describing the Dispensary organisation, routine or symptomatic treatment is not undertaken at the County Dispensaries. General supervision and co-operation with Panel Practitioners in regard to Domiciliary treatment as required under the Regulations of the Local Government Board is exercised by the Tuberculosis Officers. Arrangements for provision of Domiciliary treatment were made under the Tuberculosis (Domiciliary Treatment in England) Order, 1916, issued by the Local Government Board, and which came into operation on 1st January, 1917.

These Regulations were framed with a view to providing treatment otherwise than in sanatoria or other institutions for insured persons suffering from tuberculosis with persons and Local Authorities (other than Poor Law Authorities) undertaking such treatment in a manner to be approved by the Board.

It is provided under Article II. of the Order that:—

The treatment shall be carried out under the care and direction of a Medical Practitioner, subject to the following conditions, and to such other conditions as We may in any case from time to time approve, that is to say:—

(1) That the Medical Practitioner attend each patient at such intervals as may be necessary in the interest of the patient.

(2) That the Medical Practitioner give the patient such instructions as are required as to his mode of living, diet, rest and work, and as to precautions necessary to protect the patient against re-infection.

(3) That the Medical Practitioner prepare and transmit to the Consulting Officer at such reasonable intervals, not being less often than once in every three months, as may be arranged between them, a report in regard to each patient in the Form set forth in the Schedule to these Regulations.

(4) That the Medical Practitioner make arrangements with the Consulting Officer for each patient to be examined by the Consulting Officer not less often than once in every twelve months.

(5) That the Medical Practitioner confer with the Consulting Officer at such times and in such circumstances as may be arranged between them in regard to patients under the care of the Medical Practitioner.

(6) That the Medical Practitioner from time to time inform the Medical Officer of Health of the Sanitary District in which the patient resides, of any circumstances known to the Medical Practitioner which may affect adversely the sanitary conditions under which the patient is living, and in respect to which action by the Medical Officer of Health or of the Sanitary Authority would, in the opinion of the Medical Practitioner, be necessary or desirable.

The expression "Consulting Officer" means the Tuberculosis Officer of a Dispensary area, or such other Medical Officer

as We may from time to time approve for the purposes of these Regulations.

The expression "Medical Practitioner" means a registered Medical Practitioner.

A "Record of Progress, &c.," model report form is given in a Schedule to the Order, and has been adopted unchanged by the Cheşhire Insurance Committee for obtaining the quarterly reports required to be rendered by Panel Doctors in respect of each case receiving Domiciliary treatment.

The forms are sent out to Medical Practitioners by the Insurance Committee and returned direct to the Medical Adviser, who in turn determines such further treatment as may be necessary, and arranges examination by the District Tuberculosis Officer if such be considered desirable.

The form of return is redundant with much unnecessary detail, and causes a good deal of unnecessary clerical work to the Panel Doctor. A re-print is given amongst the forms in Appendix IV.

The following statement shows the total number and present conditions of insured persons who have made application for Sanatorium Benefit from the 1st January, 1913, to 31st December, 1919, and who have been dealt with by the County Insurance Committee in accordance with the recommendation of the Medical Adviser.

All of these persons received Domiciliary treatment while the majority received periods of residential treatment:—

Districts from which applications received.	Number of applications.		Present Condition.			
	Men.	Women.	Working	Not Working	Dead.	Total.
Boroughs	594	253	261	331	255	847
Urban Districts ...	604	210	311	252	251	814
Rural Districts ...	250	89	144	101	94	339
Totals ...	1448	552	716	684	600	2000

RESULTS OF TREATMENT AFFORDED UNDER SANATORIUM BENEFIT.

Examination of the records and statistics regarding insured persons who have received periods of residential treatment in Institutions has revealed that no useful purpose would be served by a detailed analysis of the histories and data available.

Special clerical assistance would be required in collecting the necessary information and a lengthy actuarial enquiry would have to be undertaken before arriving at tabulated statements from which any sort of conclusions could be drawn.

Patients were not classified in the early days of administration of Sanatorium benefit with even approximate regard to the extent of their disease or clinical condition. Owing to the shortage of available accommodation in Institutions it was not possible to enquire too minutely into the merits of various Institutions which claimed to be sanatoria for the treatment of Pulmonary Tuberculosis. In practice it worked out that large numbers of cases were sent to these sanatoria whose conditions rendered them quite unsuitable for sanatorium treatment, and who in point of fact offered little or no prospect of cure or arrest of the disease. Differentiation into sanatorium, pulmonary hospital and observation cases was not feasible and the records of the Committee demonstrate that practically all stages of the disease with the exception of those in such an advanced stage as to be bedridden, or incapable of undertaking the journey to an Institution, were afforded periods of residential treatment.

The treatment given was necessarily of such short duration as to be quite insufficient to secure more than temporary alleviation of the signs and symptoms even in the few early cases which came forward to be dealt with.

The waiting list re-acted adversely upon those who had to wait their turn, many of whom progressed from incipient stages to advanced and incurable degrees before gaining admission to Institutions.

Furthermore numbers of the applicants for benefit had attained to advanced stages of disease before preferring their applications.

Add to these obstacles to success the fact that the County Dispensary organisation for searching out sources of infection and re-infection and supervising home conditions was practically in abeyance and had never been developed, together with the fact that no scheme for After-care or for re-introduction of the consumptive into suitable employment was in existence in the County, it will be obvious that the results obtainable could not be otherwise than poor.

BACTERIOLOGICAL LABORATORY.

A Laboratory was equipped in 1914 in connection with the Office of the County Tuberculosis Officer at 43, Foregate Street, Chester, for examination of sputum and secretions as an aid to diagnosis of tuberculosis. This Laboratory was closed during the war owing to the absence of the staff on military service and was not re-opened until the 14th July, 1919.

It is intended that all bacteriological work in connection with the County Tuberculosis Scheme shall be centralised in the Laboratory at Chester, and the dispensaries are not equipped to carry out microscopic examinations.

Prior to re-opening of the County Tuberculosis Laboratory specimens were sent for examination to the Public Health Laboratory, Manchester, under an arrangement made with Professor Delépine, reports being rendered through the office of the County Medical Officer to Tuberculosis Officers and Medical Practitioners forwarding specimens for examination.

During the year under review 465 specimens of sputum were examined with results as follow:—

	Negative.	Positive.	Total.
Specimens examined at the Public Health Laboratory, Manchester, from 1st Jan. to 13th July ...	90	25	115
Specimens examined at the County Laboratory, at Chester, from 14th July to end of year ...	285	65	350
	375	90	465

In addition to the above, specimens of sputum were examined at the Laboratory maintained by the Town Council at Crewe, as under:—

No. of Specimens.	Negative.	Positive.
83	62	21

A number were also examined from County patients in the Laboratory in connection with the Joint Dispensary at Birkenhead and in the private Laboratory of the Medical Officer of Health for the Urban District of Runcorn.

This important side of the work in connection with diagnosis of Tuberculosis is steadily increasing according as the facilities provided become more generally known and appreciated by Medical Practitioners and Medical Officers of Health throughout the County.

Outfits for forwarding specimens to the Laboratory are supplied direct to all Medical Practitioners, or may be obtained on applying to any District Medical Officer of Health or to one of the County Dispensaries.

All examinations are carried out free of charge.

Reports on results of examination are sent off on the date of receipt unless delay is necessary to enable special examination or concentration methods to be applied.

Microscopic examination of sputum is an indispensable aid to diagnosis in every case of lung disease suspected to be tuberculosis.

Even where a diagnosis of pulmonary tuberculosis has already been made it is useful for purposes of treatment, prognosis and prevention to ascertain whether tubercle bacilli continue to be expectorated or not. Periodic examinations should be continued for so long as there is any sputum in all doubtful or established cases.

Finding of tubercle bacilli is indisputable evidence of the presence of tuberculosis, but failure to demonstrate the specific germ even after repeated examinations cannot be accepted as more than presumptive evidence that the disease is not present.

One negative examination is valueless, but repeated negative results after careful examination of properly collected specimens, aided by use of concentration methods, are certainly of assistance in deciding against tuberculosis.

All specimens where the examination proved negative by the direct method and the physical appearance of the specimen was consistent with its origin from a focus of tuberculosis were submitted to one or other of the methods of concentration—the Anti-formin process, Ellerman and Erlandsen method, or the salt concentration process described by Davis, of Birmingham. It has been our experience that careful search by the direct method of examination will generally reveal the bacilli if these are present, and only a very small number have been found to be positive after concentration which would otherwise have been missed.

Examination for the Albumen re-action in sputum is carried out in bronchitic cases suspected to be associated with a tuberculous condition, and in which tubercle bacilli have not been found.

CARE AND AFTER-CARE.

Patients on discharge from residential institutions are as a routine procedure referred to the Tuberculosis Dispensary and to their own Doctors.

Information regarding date of discharge and a copy of the "Report on Discharge" by the Medical Superintendent of the institution is forwarded by the County Tuberculosis Officer to the District Tuberculosis Officer and Medical Practitioner as soon as possible, and as a general rule all patients discharged are seen by the former within a fortnight of discharge.

Medical supervision is continued as necessary to ensure that the benefit obtained from the course of treatment may be as permanent as possible.

Experience has demonstrated that large numbers of patients after a period of residence in a sanatorium are unfit to resume active employment except under specially sheltered and

favoured conditions of life. The environment required for continuation of health is unobtainable for the average industrial patient who has to eke out a livelihood and perhaps support a family on the monetary benefits payable under the National Insurance Act.

To assist in care and after-care work essential to completion of the scheme it was proposed to establish Care Committees in each Dispensary area to promote active co-operation between voluntary and official agencies. Developments were postponed owing to war conditions, and up to the present time apart from the previously mentioned "following-up" exercised through the County Dispensaries, no official organisation exists under the scheme whereby patients may be assisted financially or practically to regain suitable employment, or the economic and social amenities of life sacrificed through ill-health occasioned by the disease. A scheme was prepared and submitted to the Hospitals and General Purposes Sub-Committee in March of this year.

This scheme is at present under consideration, but it is realised that there are many inherent difficulties in the way of its successful application and accomplishment.

The following are examples of work required in connection with a Care Scheme: —

1. Obtaining or assisting in the purchase of necessary warm clothing, boots, etc., required by patients about to enter a Sanatorium, or while they are undergoing treatment in such an Institution.

2. Supplying additional food and nourishment for poor persons in receipt of treatment at home.

It should not be necessary for such patients to seek Poor Law Relief.

3. Rendering help to dependents, who through the incapacity of the patient to earn a livelihood are reduced to straitened circumstances.

Consumption is more likely to permit of a cure being obtainable in the early stage. The victim of the disease,

however, often finds it necessary to continue working as the breadwinner of the family until forced to give in. His disease may in consequence have advanced to an incurable stage. A little timely help might have made it possible for such a patient to have submitted to treatment earlier, and so saved a life, preventing the breaking up of a home.

Patients frequently have to abandon residential treatment and return home before any lasting result has been achieved, through the necessitous circumstances of their families.

Again, patients after returning home on completion of a course of treatment in an institution are as a rule unfitted to start full work immediately. Necessity not infrequently tempts the returned consumptive to undertake work beyond his capacity for the purpose of bringing bread to his household, and a breakdown inevitably results.

Judicious assistance and advice at this critical juncture may enable the poor patient with cured or arrested disease to commence work gradually with a view to establishing convalescence and cure, as his more fortunate well-to-do neighbour would wisely arrange for himself after an illness.

4. Preventing spread of infection by providing on loan such furniture as will enable poor patients who cannot afford to buy beds, etc., to occupy rooms apart from the rest of the family, or at all events to sleep in separate beds.

5. Financial or other assistance towards improving home conditions, and if necessary effecting a change of residence in order to obtain better housing and surroundings.

6. Facilitating the nursing of bed-ridden cases by providing bath-chairs, bed rests, air cushions, hot-water bottles, crutches, rugs, etc.

7. Finding employment for those who, on account of their disease are obliged to abandon unhealthy or unsuitable occupations, and assisting to secure work for

those who have sufficiently recovered after treatment, but find themselves unemployed on returning from residential treatment in an Institution.

8. Educating patients, their relatives, and the general public towards an intelligent appreciation of the nature of tuberculosis, and methods calculated to prevent spread of infection. This would include promotion of lectures and demonstrations.

9. Visiting the homes of patients and rendering friendly sympathetic advice, and financial assistance in special circumstances.

10. Exercising supervision over patients whose disease has been cured or arrested and who are capable of earning a livelihood, with a view to preventing them from developing into 'loafers.'

Certain patients readily develop the sanatorium habit and find it more convenient to imagine that a life of ease is the only one suited to their case. This is physically and morally bad for the patient.

11. Payment of travelling expenses of patients attending at the County Tuberculosis Dispensaries in instances where investigation shows this to be necessary.

Under existing arrangements neither the County Council nor the Cheshire Insurance Committee undertake relief of the disabilities set forth under these headings, and it is questionable whether the social questions involved could be dealt with officially under any approved scheme.

Re-introduction into Employment of Patients after Residential Treatment.

It is generally admitted that the daily occupation of the industrial classes necessitating as is often the case exposure to trade hazards, grouping of workers under artificial conditions in mines, quarries, factories, yards and workshops, labour under hygienically unsuitable conditions, with exposure to high tension and competition tend towards nervous strain, hardships, overcrowding and disabilities productive of disease.

Investigations which have been undertaken regarding the effect of occupation in relation to the prevalence of tuberculosis would appear to indicate that the adverse influence of occupation is exerted by lowering the natural resistance of the body tissues to an infection which originates in the home.

Experience has shown that persons who have become affected with tuberculosis are necessarily less resistant to the disease, and even where arrest has been secured by appropriate treatment there remains a definite liability to relapse.

The problem of finding suitable employment for patients who have completed Sanatorium treatment is one which can to some extent be dealt with by an After-Care organisation. In a number of cases however home environment and the conditions under which former occupations were carried on offer little prospect of health being maintained if the patients have to return to them and engage in full competition with healthy persons.

A proposal to establish a Training and Employment Colony for Tuberculosis Patients in Cheshire and certain County Boroughs has been under consideration by the Cheshire Branch of the British Red Cross Society and Order of St John of Jerusalem during the year. A report was submitted by the County Tuberculosis Officer to the County Director of the

British Red Cross Society in February, 1919, setting forth for the information of the Demobilisation Committee the general lines upon which such a scheme could be organised and developed to the best advantage, and emphasising the need for co-ordination with the existing County Tuberculosis Scheme.

A joint meeting of representatives of the Cheshire County Council and of the County Demobilisation Committee of the Cheshire Branch of the British Red Cross Society was held on the 12th May, 1919, when it was resolved that: —

1. A Training and Employment Colony on the lines set forth in the report submitted by the County Tuberculosis Officer be established subject to the approval of the Cheshire County Council and the Ministry of Health.
2. The main work of the Colony would be training and employment of selected cases with arrested disease as a final course following Sanatorium treatment, though it might be practicable to extend the scope of the Institution ultimately to provide for employment and segregation of patients retaining degrees of working capacity but in whom the disease could not be regarded as either cured or arrested.
3. The Colony shall be established as a memorial of the work of the Red Cross Hospitals and Units in Cheshire during the War, 1914-1919, from funds subscribed by the British Red Cross Society and the Order of St John of Jerusalem, and shall be under the management of a Management Committee appointed by the Cheshire County Council, and an Advisory Committee, on which shall be co-opted a proportion of members of the Joint Committee of the Cheshire Branch of the British Red Cross Society and Order of St John of Jerusalem.

A number of estates for sale in the County were inspected by the County Tuberculosis Officer during the year, and it was ultimately decided that Wrenbury Hall, near Nantwich, with 164 acres of land, would be suitable for the purposes of the proposed Colony.

The County Tuberculosis Officer was deputed to visit the Colonies at Papworth, in Cambridgeshire, the Hull After-Care Colony, near Beverley, and Preston Hall, near Maidstone. The following reports were submitted to the Council:—

Report of the County Tuberculosis Officer on a Visit Paid to the Cambridgeshire Tuberculosis Colony, Papworth Hall, Cambridge.

I visited this Institution on June 2nd, 1919, and spent an extremely interesting and instructive afternoon in an inspection of the establishment.

The scheme is much more comprehensive than anything previously attempted, and may be regarded as an effort to thoroughly embrace the whole life of the consumptive, catering for industrial patients in all stages of the disease, providing necessary treatment, after-care and suitable employment under healthy conditions.

The Papworth Hall scheme originated in a smaller and more defined undertaking known as the Bourne Colony, which was established for 15 male patients, and was really a training and farm colony where the patients were selected early cases. They were accommodated in wooden shelters made by themselves, and much of the work of establishing the Colony was carried out by patients' labour.

Patients could only be kept in the Bourne Colony for a limited period, and though every effort was made to find those about to be discharged suitable occupation, many difficulties were experienced. The ex-Colonist could not earn enough to obtain the good conditions and good food he required without over-straining his newly gained strength. The gap between the Colony life and ordinary industrial life was found to be too great. Accordingly it was found necessary to forge an additional link in the chain intended to embrace the whole life of the patient by forming a Tuberculosis After-Care Association.

After negotiations with the Approved Societies under the National Insurance Act, 1911, and with the approval of the Insurance Commissioners, a scheme was arranged whereby a

tuberculosis patient while doing part-time work with the approval of the Tuberculosis Officer, either in an Institution or at home, may continue to receive sick pay or such part of it as is necessary through the After-Care Association out of a fund contributed by Approved Societies and individual members. Sanction was given for the Societies to pay subscriptions and also give donations for special cases out of their Benevolent Funds. This scheme was sanctioned for trial in Cambridgeshire only and has worked satisfactorily. It is administered by the After-Care Association through the Tuberculosis Dispensary organisation.

It was soon felt that the Bourne Colony and the After-Care Association were too limited in scope, and that the situation created by the War both regarding increase of tuberculosis amongst the civil population, and the problem of the discharged tuberculosis soldier called for a more comprehensive scheme.

On the initiative of Professor Sir G. Sims-Woodhead and Dr. Varrier-Jones it was determined to extend the Colony idea with a view to dealing with all classes of cases of tuberculosis in all stages of the disease, and while segregating the sufferers, to provide as far as possible remunerative and interesting employment under healthy conditions.

Papworth Hall, the seat of Mr. E. T. Hooley, the financier, was accordingly purchased with a view to being converted into a Sanatorium, as the Central Institute of the new Colony.

The Hall is situated in a beautiful woodland park, 39 acres in extent, with extensive kitchen and fruit gardens, out-houses, and lawns upon which a number of shelters made by the patients have been erected. Mild and partially arrested cases sleep in these shelters. Those requiring special nursing and those in an advanced stage of the disease are accommodated in rooms of the mansions which have been converted into wards. Here also are housed the Medical Officer, Matron and Nursing Staff. The large Entrance Hall has been converted into a Dining Hall, and there are also billiard and recreation rooms and a reading and writing room.

Patients are regarded as under treatment while living in the Hall and shelters, but may be employed after their first month in residence.

In order to provide for the restored patients the model village of Papworth Everard, built by Mr. E. T. Hooley, was purchased in 1917.

The whole scheme as at present established may be regarded as consisting of two parts.

1. Papworth Hall.

Here active Sanatorium treatment is provided for early curable cases, and segregation for more advanced and apparently hopeless cases. Accommodation for about 50 patients has been arranged for at the present time, though it is intended to extend this by increasing the number of shelters.

2. Papworth Everard Village Colony.

The village is situated about a quarter of a mile from the Hall. It contains 22 model semi-detached red brick cottages, each with its own garden in front, two shops, a village School, Church, village Recreation Hall, farm buildings, and workshops.

The surrounding land to the extent of 350 acres also belongs to the Colony, and is being divided up into small model farms, which are to be allotted to colonists interested in farm work.

A portion of the land has been set apart for grazing purposes for a dairy farmer who supplies the Colony with milk and butter, thus ensuring that these food stuffs are not produced or handled by tuberculous persons.

Another portion is being planned as a poultry farm on the most up-to-date lines under the management and supervision of an ex-patient poultry farmer.

Market gardening is carried out in the extensive gardens of the Hall, and supplies surplus to requirements of the Sanatorium and Colony are sold in open markets.

Carpentry, joinery, and cabinet making are undertaken in the village workshops—châlets, garden gates, and garden furniture being made specialities. The furniture is sold by Papworth Industries to local firms and private purchasers at market prices. This department is under the management of an ex-patient who contracted tuberculosis in the Army and had previous experience in the management of industrial concerns.

The fruit farm, poultry farm, market gardening, carpentry, joinery, and cabinet making are all carried out as industries for the benefit of the Colony community, and wages paid at the following rates:—

(a) Four instructors at 50/- and 28/- per week.

(b) Patients in the Sanatorium are not paid for work done during the first two months in the Institution.

Patients in Papworth Hall and Colonists in the village are paid:—

3d. per hour during third month in residence.
4d. per hour during fourth month in residence.
5d. per hour during fifth month in residence.
6d. per hour during sixth month in residence.

6d. per hour is the maximum rate paid at present, though it is now intended to revise the scale to a maximum of 1/- per hour.

These rates are paid irrespective of skill or working capacity and are recognised by Trade Unions. No patient or colonist works longer than six hours per day.

Patients under treatment in the Sanatorium, *i.e.*, in the Hall, are paid for by their respective Authorities at weekly maintenance rates of:—

(a) From Cambridgeshire, Huntingdonshire, and London, 40/-.

(b) Other areas, 55/-.

This charge ceases on the patient being discharged from the Sanatorium and taking up residence in the village as a colonist.

Colonists may remain in the village for an indefinite period. If married they may rent one of the cottages and are encouraged to bring their wives and families and settle down permanently. Accommodation for single men is provided in the village Institute, or as lodgers in some of the cottages.

The cottages are rented at from 3/- to 5/- per week and the colonists maintain themselves on their own earnings. Sickness benefit is paid by Approved Societies to Colonists whilst resident in the Hall or village whether working or not. Discharged service men are paid treatment allowances during the whole of the period of their treatment, training and employment in the Colony, though it is not known how long this arrangement will continue.

FINANCE.

1. The approximate cost of purchase of Papworth Hall, Papworth Everard Village, and the adjoining estate of 350 acres, plus necessary cost of alterations, furnishing and purchase of stock will be £50,000 when complete.

2. Weekly cost of maintenance of patients undergoing treatment in Papworth Hall, 40/-.

3. Colonists in the Village Colony are self-supporting.

T. H. PEYTON,

County Tuberculosis Officer.

REPORT BY THE COUNTY TUBERCULOSIS OFFICER ON THE HULL AFTER-CARE COLONY, WALKINGTON, NEAR BEVERLEY, EAST YORKSHIRE.

I visited this Institution on the 22nd April.

The Colony is situated about 2½ miles from Beverley, 450 feet above sea level, on light loamy soil, and overlooking the surrounding grass and wooded country.

It was opened in April, 1918, under the Government of a separate Committee of Management, consisting in the main of representatives drawn from the Hull After-Care Committee, together with leading citizens interested in charitable endeavour.

The proposal to establish the Colony originated from the Hull After-Care Committee, who realised the difficulties experienced by consumptives in whom disease was cured or arrested, when faced with the necessity of seeking a mode of livelihood under healthy conditions. This Committee sent representatives to visit Colonies in Scotland in August, 1917, who recommended that a Colony similar to that established at Springfield, near Edinburgh, should be opened for the City of Hull.

It was estimated that £10,000 would be required to put the scheme on a sound financial footing.

The estate at Walkington, consisting of a capacious Manor House, two cottages, buildings and other out-offices, with 29 acres of land, was secured for the sum of £3,750. The only alterations necessary were the provision of extra lavatories, new w.c's. and baths for both sexes and staff.

The Colony has been approved by the Local Government Board as an Institution for the treatment of persons suffering from tuberculosis, under the National Insurance Act, 1911.

The Colony is for selected cases who have undergone a course of Sanatorium treatment, and who have been declared clinically and bacteriologically free from the disease, and able to perform at least six hours work per day. Under the scheme any one who develops active symptoms must be discharged from the Institution and returned to a Sanatorium for further treatment.

Each person admitted must agree to remain for at least one year in order to receive a training in the occupation which he or she has selected.

The present accommodation is for 17 men and 8 women, though the estate by necessary additions lends itself to further developments.

The Colony was established primarily for the inhabitants of the City of Hull and the East Riding of Yorkshire, but at the request of the Ministry of Pensions the Committee of Manage-

ment decided to accept discharged service men from other parts of the country whenever accommodation was available. There are at present two cases from Cheshire in the Institution who were sent there by the Ministry of Pensions on the recommendation of the County Tuberculosis Officer.

Colonists sent to the Institution by the Corporation of the City of Hull and by the County Council of the East Riding of Yorkshire are charged for at a weekly maintenance rate of 28/-. Since the capital for establishment of the Colony was mainly subscribed by residents from these two areas it was decided that those coming from outside should pay at the rate of 35/- per week.

The Colonists live in the main building, and use the reception rooms for dining and reception purposes.

A billiard table with indoor games and a supply of books, etc., have been provided, also accommodation for out-door games, such as bowls, lawn tennis, football, etc.

The land and gardens have been tastefully laid out, about one-half of the farm land adjoining the house having been ploughed up for planting of crops and vegetables and for rearing of medicinal herbs.

The remaining 11 acres have been retained as grass land for poultry, sheep and cattle.

Pig rearing is being carried out in the out-houses, but plans are being prepared for laying out piggeries.

There are two vineries on the estate, and during the past year cash sales of grapes actually realised £68 11s. 0d.

The Colonists do the bulk of the work on the estate, the only paid officials at present being the Doctor, Matron, Steward, Cook, and a Maid who was formerly a patient at the Sanatorium.

The women colonists in addition to training on the land, generally assist in the house and receive instructions in domestic duties.

Farming, agriculture, poultry rearing, etc., is under the control of the Steward, who lives with his wife and family in the lodge.

The East Riding County Council agreed to permit their Tuberculosis Officer to act as Medical Adviser to the Colony.

Each Colonist is trained by a gradual process regulated according to degree of physical fitness under the supervision of the Medical Officer, the object being to train them until they are sufficiently strong to resume their ordinary vocation, or if thought fit, to adopt one which they have been taught in the Colony.

On the day of my visit I saw Colonists engaged in general agricultural work, tending cattle, pigs, poultry, etc. Some of the women were digging, cleaning up paths, tending fruit trees, etc. All appeared to be happy and contented, and the Medical Officer informed me that owing to the continual useful employment there is very little difficulty in retaining the Colonists for the stipulated period or longer if need be.

It is hoped that the estate will be self-supporting, but up to the present an examination of the balance sheet shows that only about 30 per cent. of the cost of maintenance is recoverable from the produce. The cash sales during the year 1918 of plants, flowers, fruit, vegetables, etc., amounted to £191 14s. 10d. House consumption amounted to £57 9s. 1d. The value of the stock on 31st December, 1918, poultry, pigs, sheep, etc., was £142 0s. 6d., making a total of £391 4s. 5d.

It was originally intended that no payment should be made to the Colonists for work done by them while undergoing training. A good deal of dissatisfaction arose and the Committee decided to inaugurate a system of pecuniary acknowledgement for services rendered. This applies to domestic work performed by the women Colonists as well as the outside labour.

It will be observed that both sexes are admitted. No difficulty has arisen in ensuring observation of rules while the patients are in the Institution, but unfortunately as a result of

acquaintances formed, some ex-colonists have married subsequent to discharge. This is of course undesirable from the "Eugenic" point of view, and the Medical Superintendent informed me that in his opinion it was a mistake to have both classes in one Institution.

T. H. PEYTON,

County Tuberculosis Officer.

APPENDIX I.

CHESHIRE COUNTY COUNCIL.

How to carry Sanatorium Methods into the Home.

Instructions and Suggestions for those who have received or are about to receive training in a Sanatorium.

BY

The County Tuberculosis Officer.

Patients while in a Sanatorium learn how to lead a healthy and correct mode of life, and if they have learnt their lesson thoroughly, they can make use of this knowledge after their return home towards maintenance of their own health, and to the benefit of others by instructing them in the principles which they themselves have found to be of value. These notes are written with a view to helping the consumptive to more thoroughly appreciate the object of the measures which he sees being carried out in detail in the Sanatorium.

GENERAL FACTS.

Tuberculosis is a catching disease, capable of being transmitted from one individual to another, caused by a tiny living germ called the Tubercle Bacillus. This germ is so small as to be only visible with the aid of a powerful microscope. It may attack any part of the body, such as the skin, glands, bones, joints, lungs, throat, bowels, etc. When it attacks the lungs, it is commonly spoken of as *Consumption* or *Pulmonary tuberculosis.*

The germs by which the disease is caused and spread are found in thousands in a single drop of the spit of a person

suffering from consumption, and also, though in less numbers, in discharges from tuberculous ulcers and abscesses.

In the act of coughing, small drops of phlegm are carried into the air, and these may contain germs. Even a so-called dry cough, loud talking or unrestrained laughter, may cause infective droplets to be expelled from the mouth and air passages.

Germs may also be present on knives, forks, spoons, cups, etc., used by consumptive patients. These germs may remain alive for weeks even when dry.

When the phlegm or the matter from tubercular disease is allowed to dry, or becomes dust, the germs are scattered about, and may then be breathed in or swallowed by healthy persons. *This is how infection occurs.*

Though it is important that all dressings and discharges from tubercular sores should be immediately burnt or otherwise destroyed, it is chiefly through the spit which has dried and been scattered about as dust that other persons become infected.

Fortunately, only a small proportion of persons who get the germs of tuberculosis into their bodies subsequently develop the disease.

The condition is not inherited, and although some people inherit a constitution which renders them more liable to the disease, the disease can be avoided. Those who maintain the resistive powers of their bodies by leading a healthy open-air life, properly regulated hours for meals, rest and exercise, a sufficiency of nutritious food, and avoidance of unclean, ill-ventilated rooms, may rest assured that there is but little chance of their developing consumption.

A strong and healthy constitution may, however, become susceptible to the disease by unhealthy conditions, or habits of life which render one less able to resist infection. Probably everyone takes in the germs at one time or another. Tubercle germs, like all other living things, require surroundings suitable to their livelihood, before they can grow; and though they may

gain entrance to the body, they will there find conditions which either favour or hinder their development according to the state of the health of the individual. If the person be in good health, the tissues will offer an unfavourable soil for the life of the germs, and consequently the disease does not develop.

Sanatorium treatment aims at raising the general health of the consumptive to such a level that the tissues gradually cease to be a favourable soil for the life of the tubercle bacillus, and so cause it to be thrown off from the parts which it has previously succeeded in invading.

It is important to remember that a consumptive patient under suitable treatment may lose all symptoms and appear to be cured of the disease, whilst it is really only in an arrested condition, and the patient still retains in his body germs capable of causing a fresh outbreak.

The consumptive must, therefore, endeavour to maintain his general health at its highest possible level after discharge from the Sanatorium for a length of time sufficient to justify the belief that the disease has actually been cured.

Though everybody is well advised who maintains his health at the highest possible pitch at all times, it is essential for the "cured consumptive" to do so, in order that he may remain absolutely free from all signs and symptoms for at least two years before feeling confident of complete recovery.

RULES TO ASSIST IN THE CURE OF CONSUMPTION.

Your own health can best be maintained by endeavouring to lead an open-air life modelled, as far as possible, on your experiences in the Sanatorium. The following twelve rules should be carefully studied, and every endeavour made to carry them out:—

1.—*Fresh air is the great preventive and curative agency against Consumption.* Keep your rooms thoroughly ventilated by seeing that the windows are open freely *day and night, summer and winter.* Do not close up any existing ventilators, and if there is a fire-place see that the chimney is open. As far

as possible, observe this rule at work as well as at home. Keep the mouth closed, and breathe through the nose—cold air will in this way be warmed before reaching the lungs.

2.—*Avoid crowded buildings or ill-ventilated rooms.* Spend as much of your time as possible out of doors, and when opportunity allows, take your meals out of doors also. Be guided by your Doctor as to how much exercise you should take.

3.—*Dust and dirt harbour germs whilst sunlight quickly kills them.* See that your rooms are clean, free from dust and well lighted. Avoid much furniture, and have as few curtains and hangings as possible. Do not allow unframed pictures, picture postcards, or clothes on your walls, or lumber in places where dust can lodge. Dusting and cleaning should be done regularly, and in a manner that will cause the least possible disturbance of particles of dust.

Sweep the floors every day after covering with damp sawdust or tea leaves, and then thoroughly dust everything with a damp duster. The sweepings should all be burnt and dusters boiled in the process of washing.

Oilcloth or linoleum is preferable to carpets for the floors. If the floor boards are even, the bare floor can be scrubbed and kept cleaner without a carpet. Wash the woodwork every week.

4.—*Put the bed near the window and away from the walls so as to have air all round.* If possible the consumptive patient should sleep in a room by himself, and should also have a bed to himself.

5.—*Keep the body clean and warmly clad.* Avoid colds and chills, and never remain in wet clothes or boots. Clothing should be loose and not of heavy material likely to cause overheating or interference with freedom of breathing or exercise.

6.—*The Teeth must be kept clean.* Use a toothbrush with some simple tooth powder (precipitated chalk, powdered charcoal or ordinary cleaning whitening are efficient) in the morning and at night before going to bed. All decayed teeth

should be removed or stopped. Artificial sets should fit accurately, and be kept scrupulously clean.

7.—*Rest before and after Meals.* Avoid rushing and try not to have to sit down to your food when hot or fatigued, because proper digestion is impossible under such conditions. All meals should be taken at regular hours and food carefully masticated and eaten without hurry.

8.—*Eat plenty of wholesome and simple food.* Avoid unnecessary extravagance on expensive food stuffs and meat extracts. Have everything properly cooked and nicely served. The dietary should contain plenty of fats, such as margarine, dripping, lard, and butter, as also fat meat and bacon. The following are examples of a few cheap but highly nutritious food stuffs:—Oatmeal, lentils, peas, beans, bread, cheese, cheap cuts of meat (cheap foreign is quite good), tripe, cheaper kinds of fish (herring, bloater, cod, hake, haddock), treacle (golden syrup), jams, sugar, beet-root, and milk puddings made with stale bread, rice, sago, tapioca, etc. Oatmeal porridge and thick soups made with peas, beans, and lentils, are cheap and highly nutritious forms of food.

9.—*Avoid beer and spirits*, unless ordered for you by your doctor. Drink plenty of milk after meals, but avoid drinking while eating. Cocoa is a more wholesome and nourishing beverage than tea or coffee.

Moderate smoking is permissible, but never immediately before meals, when working, or walking up hill.

10.—*Work and mental occupation tend to assist the cure*, but the strength should never be unduly taxed by overwork, unsuitable exercise, long hours, confinement, or excess of any kind.

11.—*The phlegm must on no account be swallowed* since there is danger that it may cause tuberculosis of the bowels. For the same reason hands should be washed and the mouth rinsed out before each meal.

12.—*Retire to bed early and take a long night's rest.*

RULES FOR THE PREVENTION OF CONSUMPTION.

Prevention of tuberculosis is of the utmost importance to the community, and it is the duty of every consumptive that those around him be protected as far as possible from the danger of catching the disease. He can at once ensure that he does not cause infection of others and at the same time benefit to himself, in that he renders fresh infection less likely, by taking the following precautions. It should be sufficient reward for his trouble to know that if he conscientiously does so, he is not otherwise infectious.

1.—*Never spit about, either indoors or out.* Always use a proper receptacle, such as a pocket spitting flask, sputum mug or jar. The spit must never be allowed to dry, therefore, the sputum vessels should always contain a little water. Mugs should have covers to keep out flies. The contents should be disposed of at intervals during the day, either by emptying down the w.c., down the drain outside the house (not into the sink), burying in the earth, or burning in the fire after mixing with sawdust. N.B.—Do not pour the liquid into the firegrate, as it is likely to run through the fire into the pan beneath without being burnt. On no account must any of the contents be emptied on to the gutter, roadway, or on the surface of the yard.

The mug or spittoon must be placed in boiling water for ten minutes each day and then thoroughly cleansed. The pocket flask and stopper should be put into cold water in a saucepan kept specially for the purpose, raised gently to the boiling point and allowed to stand for ten minutes.

2.—*Never cough except into a handkerchief, paper napkin, cheap muslin, or rag.* It is best to use materials which can be burnt. They should be carried in a separate washable bag, and not placed loosely in the pocket where they may dry and scatter germs. This bag should be boiled at frequent intervals.

3.—*Handkerchiefs should not be used for receiving expectoration*, but where such use is unavoidable, they must be boiled or burnt as soon as possible afterwards.

4.—*A consumptive person must not kiss or be kissed on the mouth.*

5.—Sputum is apt to get upon the beard or moustache. It is, therefore, advisable that a consumptive be clean shaven.

6.—*Keep a separate towel and set of eating utensils for your own use* (spoons, knives, forks, cups, and tumblers). See that they are washed separately in boiling water.

7.—Since coughing may occur during the night without the mouth being covered, infection of the bed clothes is likely to occur. The pillow cases and sheets should consequently be changed every week and boiled in the course of washing. Blankets should also be washed frequently.

8.—*Sunlight and fresh air are not only the best curative remedies, but also the best preventives and disinfectants.* It is, therefore, a protection to all those in contact with a consumptive that air be admitted freely through open windows everywhere in the house. Do not shut out sunlight by the unnecessary use of blinds and curtains.

9.—Consumptive parents should bear in mind that though consumption is not inherited, and no one need have it, yet their children are likely to be of a delicate constitution, and that the greatest care should be taken in their bringing up, training, choice of a career, etc., so that they be placed under the healthiest conditions and so overcome any undue susceptibility that they may otherwise show.

10.—*A room which has been occupied by a consumptive should be thoroughly disinfected before being occupied again.* The Sanitary Authority will undertake this upon request being made to them.

APPENDIX II.

CHESHIRE COUNTY COUNCIL.

Classification of Pulmonary Tuberculosis.

The following system of classification will be adopted by Tuberculosis Officers in keeping records and furnishing clinical reports.

The system is based on the Turban-Gerhardt anatomical classification with the addition of a symbol letter to indicate the importance of the anatomical lesion in relation to evidence of systemic absorption.

The letter "L" or "l" will be used to signify the lung or local lesion, numerals 1, 2, or 3 being added to indicate extent of such lesion.

The letter "S" or "s" will be used to indicate relative systemic disturbance.

A combination of these letters will denote the anatomical stage of the disease in relation to the general condition of the patient. Relative importance of these two factors in determining the stage of the disease and prognosis will be indicated by using a capital letter "L" when the extent of the anatomical lesion is relatively more marked than evidence of systemic disturbance, a small "s" being added to indicate that there are signs of minor systemic intoxication—or *vice versa*.

Should physical signs of a lesion be discovered, but there be evidence from which it can be assumed that the condition has become quiescent and is not responsible for any constitutional disturbance, the letter "S" will be omitted altogether; in such a case the anatomical stage will be indicated, and the word "quiescent" or "healed" added.

Description of Anatomical Classification by Physical Signs.

1. *"L" or "l" (early).* Disease of slight severity, *i.e.*, in early infiltration stage limited to small foci on either side which in the case of infection of both apices does not extend below spine of the scapula posteriorly or clavicle anteriorly, or in the case of infection of apex of one lung only, does not extend below the second interspace in front.

2. *"L 2" or "l 2" (intermediate).* Disease in stage of consolidation extending to the level of the 2nd interspace on both sides, or the fourth rib on one side only.

3. *"L 3" or "l 3" (advanced).* All cases of greater severity than the previous stage and all cases in which there are cavities, or grave tuberculous complications.

Examples.

1. An intermediate case with relatively little systemic disturbance—L 2 s.

2. An intermediate case with relatively marked systemic intoxication—l 2 S.

Complications or important features in the case which should be considered in determining prognosis will be indicated by adding descriptive wording to the formula, *e.g.*:—

1. An early case with slight evidence of systemic absorption but in which marked anæmia is a feature thus:

   L. 1. s. + anæmia.

2. An intermediate case of the fibroid type with slight general intoxication:—

   L. 2. s. fibroid.

3. A medium case with relatively little systemic intoxication but presenting hæmoptysis as an important feature:—

   L. 2. s. hæmoptysis.

In furnishing Clinical Report Forms details regarding complications indicated in classification will be set forth under "If any complications state here."

It is important also on the Clinical Report to note presence or absence of sputum and of tubercle bacilli in the sputum, if this has been ascertained. Specimens of sputum will where possible be sent to the laboratory for examination and it should be borne in mind that one negative examination is valueless. The search for bacilli should be continued so long as there is any sputum whenever physical signs and symptoms are suggestive of tuberculosis.

N.B.—Despatch of Clinical Reports to the Central Office in order to obtain treatment required for individual cases will not, however, be delayed where the Tuberculosis Officer is satisfied from signs other than presence of tubercle bacilli in the sputum that the case may properly be diagnosed as suffering from tuberculosis.

T. H. PEYTON,

County Tuberculosis Officer and
Medical Adviser to the Cheshire Insurance Committee.

43, Foregate Street, Chester,
1st January, 1920.

APPENDIX III.

CHESHIRE COUNTY COUNCIL.

Statement of Duties and Terms of Appointment of the Tuberculosis Officers, Nurses, and Caretakers, at Central Dispensaries.

Duties of District Tuberculosis Officers.

Officers appointed will be responsible for:—

1. The working of the Central and Sub-Dispensaries within their areas, the supervision of the work of the Nurses, the general conduct of Patients, Nurses and Caretakers in the dispensaries, and the care of the instruments and general equipment.

2. Keeping careful records of all cases attending the dispensaries, and transmitting details as required to the County Tuberculosis Officer.

3. Examining, and when desired treating, patients in the dispensaries, and dispensing any medicines which may be prescribed.

4. Reviewing and examining if necessary all persons living in association with known cases of tuberculosis in order to detect disease in contacts at the earliest moment.

5. Visiting applicants for Sanatorium Benefit at their homes who are unable to attend at the dispensaries, and reporting upon their condition to the County Tuberculosis Officer.

6. Affording their services for consultation with medical practitioners regarding actual or suspected cases of tuberculosis in all classes of persons residing in their districts.

7. Paying such visits to insured persons receiving Domiciliary treatment in conjunction with their medical attendants, as may be necessary to ensure intimate acquaintance with the progress of cases.

8. Visiting in hospitals patients who have been admitted for purposes of observation, and to generally act as Consultant Medical Officer at such institutions.

Duties of Tuberculosis Nurses.

1. To commence duty each day at 9-30 a.m. (or occasionally at 9 a.m.)

Unless otherwise arranged the Nurses each day to be at the Tuberculosis Dispensary or Branch Dispensary at the hour stated above.

2. Each Nurse is entitled to one hour and a half off duty (between the hours of 12 noon and 3 p.m.) for lunch, and, on days when duty is required after 5-30 p.m., to one hour off duty for tea.

3. The days of the week will be divided into sessions—morning, afternon and evening—and the working week will thus consist of sixteen sessions. No Nurse will be required to work more than twelve sessions per week, of which as a rule not more than two and never more than three will be evening sessions.

4. One clear week-end (from Friday evening until Monday morning) will be allowed each month. Saturday afternoon and evenings and Sunday will always be free.

5. The essential duties of the Dispensary Nurses are:—

(i.) To prepare the Dispensaries and Branch Dispensaries (apart from cleaning) for the Tuberculosis Officer on the days when the Dispensary is to be open for patients, and to be present, when the Dispensary is so open, to assist the Tuberculosis Officer, as he may direct, in taking histories, taking temperatures, weighing patients, preparing patients for injections of tuberculin, dressing surgical cases, &c.

(ii.) To be responsible for the good care of the instruments, &c., in the Dispensary.

(iii.) To do such home visiting as may be directed.

6. All sessions not occupied in Dispensaries are to be used, unless otherwise ordered, for home visitation.

7. Home visitation will include the visiting of patients receiving Domiciliary and Dispensary treatment.

The enquiries at the visit will be divided into two sections:

(a) Enquiries as to the progress of the patient, as to whether directions are being followed, shelters being properly used, &c.

(b) Enquiries as to the condition of the other occupants of the house, directed with a view to ascertaining the existence of contact cases.

A visit to the home is to be paid within a fortnight of an insured person being put on Sanatorium Benefit, and afterwards as frequently as may be necessary.

8. A serious endeavour is to be made to secure the attendance at the Dispensary of all occupants of the house in which a patient has been visited, whether they seem ill or not. The ideal arrangement is that in which every occupant from the house of each patient is examined by a Doctor. Much can be done in the earlier development of this part of the work by persuading all those with suspicious symptoms, such as cough, &c., to attend at the Dispensary or to be examined by their own Doctor.

9. Each Nurse will keep a diary of her work, and will fill up a form in respect of each case visited. The forms are to be kept together, and submitted, with the diary, for the Tuberculosis Officer's inspection each Saturday morning.

10. An account (in the book provided) must be kept of travelling expenses.

11. No detailed enquiry is to be made into the sanitary condition of houses. Any obvious defect is to be reported to the Tuberculosis Officer.

12. The following articles to be lent by the County Council to patients—shelters, sputum cups, sputum flasks, thermometers, inhalers. The Nurse will make enquiries as to the proper use of these articles. If a shelter is found to be not in use, this is to be reported at once to the Tuberculosis Officer, so that it may be transferred elsewhere.

13. Some insured persons receiving Domiciliary treatment are provided with extra nourishment by the Insurance Committee. The names of such can be found from the Dispensary Register, and an enquiry should be made as to whether it is being used for the patient's use only.

14. Domiciliary treatment is given by Panel Doctors to insured persons. It is important in enquiries in such cases to find out, first of all, what orders have been given by the doctor, before trying to find out whether they are being carried out; otherwise some apparent contradictions may arise.

15. Any complaints (from patients or otherwise) to be referred at once to the Tuberculosis Officer.

List of Duties and Terms of Engagement of Caretakers of Central Tuberculosis Dispensaries.

1. To keep the whole of the premises thoroughly clean and free from dirt and dust, doing all requisite sweeping, scrubbing, window cleaning, polishing, disinfecting, attention to fires and firegrates, washing of utensils, dishes, bed-linen, table linen, towels, and other linen or clothes used in the Dispensary according to instructions, to be given by the Tuberculosis Officer or his Assistants or Nurses. To cater for the Nurse or Nurses in residence if they wish to make arrangements with the Caretaker for their catering, and to do the Nurses' personal laundry (including the washing of aprons, dresses, caps, cuffs, and any other articles of uniform), if desired on terms to be arranged.

2. To wait on the Nurse or Nurses in residence, and carry out all necessary cooking, bedmaking, attendance on meals, answering the door, and taking messages.

3. To take and write down clearly all messages for Doctors or Nurses, the Council supplying all materials reasonably required for carrying out such last mentioned duties.

4. Caretakers will be appointed subject to one month's notice from the Council through the County Tuberculosis Officer, to determine their appointment, and in cases of uncleanliness, incompetence, insobriety, misconduct, insubordination, or serious neglect of any of these duties they will be liable to instant dismissal. In the event of instant dismissal they will only be paid up to and including the date of dismissal. One month's notice in writing addressed to the County Tuberculosis Officer must be given by Caretakers desirous of giving up their duties, or, in default of notice, one month's wages will be deemed to be due to the Council, and recoverable by them as liquidated damages.

5. Caretakers will be required to move their own furniture and effects into and out of the premises at their own cost. They must on moving into the premises furnish the County Tuberculosis Officer with a full and complete list of their own personal furniture and effects, each article to be properly identified, and, if practicable, labelled in a permanent manner.

6. No Caretaker is permitted under any circumstances to take in lodgers, or, without the permission of the District Tuberculosis Officer, to have visitors staying over night.

7. In matters not specifically mentioned in this list of duties the Caretaker shall obey the instructions of the County Tuberculosis Officers.

8. Wages £1 per week, with house, coal, light, and cleaning materials.

APPENDIX IV.

Some of the forms in use in connection with administration of the scheme for Insured and Uninsured Persons.

Case Sheets, Temperature Sheets, and other forms in use in the Dispensaries, are not reproduced owing to difficulty and cost of printing.

FORM T. T. 1.

OFFICE REFERENCES.
Application No. .....
Dispensary Area.....

CHESHIRE COUNTY COUNCIL.

Application for Treatment by an Uninsured Person suffering from Tuberculosis.

I hereby apply for treatment, and in support of my application declare I am not an Insured Person under the National Insurance Acts, 1911 to 1913, that to the best of my belief I am suffering from Tuberculosis, and that the following particulars are correct ;—

Name of Applicant in full.....
Present home address.....
Civil Parish.....
Previous addresses during the past three years, if any.....
.....
.....
Date of birth..... Married or Single.....
Occupation ..... Whether now at work.....
Name and address of Employer.....
.....
Are you able to take exercise out of doors?.....
Name and address of Doctor who attended you .....
.....
Are you at present under Medical Treatment?.....
.....
Have you any Dependents? .....
Have you previously been in a Sanatorium, Convalescent Home or other Institution?.....
If so, where..... When.....
Have you received any advice, assistance or treatment from the Poor Law Guardians, Local Sanitary Authority, or at a Hospital or Dispensary?.....
Date..... Signature of Applicant.....

Statement to be filled up by a Medical Practitioner.

This is to Certify that.....is in my opinion suffering from Tuberculosis of the.....

It would not endanger the condition of the applicant to attend at the Tuberculosis Dispensary at.....for examination.

Doctor's Signature .....
Address .....

Date.....

This Form, when completed, to be forwarded to the County Tuberculosis Officer, 43, Foregate Street, Chester.

Form T. T. 2.

CHESHIRE COUNTY COUNCIL.

PUBLIC HEALTH DEPARTMENT.

(Tuberculosis).

Particulars of financial and other circumstances where application is made for treatment under the County Tuberculosis Scheme.

Name of Patient_____ Age_____

Address_____

Number of persons in household_____

Number of children under 14_____ Over 14 years_____

Total Weekly Income of household from all sources_____

Rent of house_____

Can patient provide railway fare if sent to Institution_____

Amount of weekly contribution suggested towards cost of maintenance in Institution_____

Signature of Patient or Parent_____

Form Med. 1a.

NATIONAL HEALTH INSURANCE

CHESHIRE INSURANCE COMMITTEE,
28, NICHOLAS STREET, CHESTER.

SANATORIUM BENEFIT.

FORM OF APPLICATION.

I, being an Insured Person, suffering, to the best of my belief, from Tuberculosis, hereby make application for Sanatorium Benefit, and I declare that the particulars which I have given below are correctly stated.

1. Surname..... Sex.....

In the case of a woman who has recently married, the name before marriage should be shown in brackets. For example—Jones (formerly Smith).

2. Present age..... Occupation.....

3. Christian Names (in full).....

4. (*a*) Name and Number of Approved Society ... { .... Number.....

(*b*) Name and Number of Branch (if any) ... { .... Number.....

If Deposit Contributor write "D.C." or if holding certificate of exemption write "Exempt" and give in next space number of certificate.

5. Membership Number in Insurance Book.....

6. Present Address.....

7. Have you been living at the above address for the last three months?.....

8. If not, state below any other addresses at which you have been living during the last three months and the date of your leaving each address :—

Previous Addresses within last three months.	Date of leaving Address shown.

9. Do you intend to remove to another neighbourhood within three months of the present date?.....

10. If so, when?.....

To what address or neighbourhood?.....

11. Have you any person or persons wholly or in part dependent upon your earnings?.....

I enclose my medical card.

Signature.....

[If a woman, insert "Mrs." or "Miss."]

Date.....

NOTE.—No person is entitled to Sanatorium Benefit unless recommended for it by the Insurance Committee. A person applying for Sanatorium Benefit must produce his or her medical card and such other evidence as the Committee may require, and must give the particulars required on this form to the best of his or her ability. Sanatorium Benefit, if granted, must take the form of treatment in a Sanatorium, or at a Dispensary, or in the patient's own home, according as the Committee decides.

Form Med. 4.

CHESHIRE INSURANCE COMMITTEE.

A—Recommendations of Medical Adviser to the Committee.

1. Name of Applicant in full_____

2. Address of Applicant_____

   Occupation_____ Age_____

3. Prospect (*a*) of cure, or (*b*) of sufficient improvement to enable the patient either to follow his present occupation or to follow another occupation.

4. Recommendation as to kind and duration of treatment immediately required [Sanatorium, Hospital, Dispensary, Domiciliary].

Kind of Treatment.	Duration of Treatment.

5. Case to be reconsidered in.....weeks' time.

6. Observations :—

Signature of Medical Adviser _____

Date_____

Filled in by Nurses in respect of each case in attendance at the Tuberculosis Dispensary, and filed with dossier of papers relative to case.

Form T. T. 4.

NURSE'S ENQUIRY FORM.

No. in Register
Date of Visit
Reception recorded

CHESHIRE COUNTY COUNCIL.

TUBERCULOSIS DISPENSARY.

Name — Occupation

Address — Previous addresses during past 3 years

How long in residence?

Has any other case of Tuberculosis occurred in house occupied? If so, give particulars

Possible source of infection

Capacity for work — Exercise — Confined to bed

Relationship to Head of Household — No. in family

Names and Ages of members in family residing in house

Present Health of other members of the Household

Are there persons other than members of the family resident in the house?

Character of neighbourhood

Air space in front — In rear

General condition of house (clean, damp, dusty, stuffy, lighting, &c.)

Number and description of rooms

Has patient separate bedroom? — Separate bed?

Proximate size of bedroom occupied — Window space

Are windows kept open by day? — By night?

Is room kept tidy and free from dust?

Precautions taken to prevent spread of infection

Evidence of present or previous privation

Insanitary conditions deserving of special notice

Questions to be answered if "Extra nourishment allowance" is recommended.

Approximate income of Household from all sources

Number, ages and sex of persons actually depending on such Income

If in receipt of any outside assistance?

Family dietary (Particular mention should be made of unnecessary expenditure or thriftlessness)

(Signed)

Clinical Report returned to County Tuberculosis Officer.

Form T. T. 5.

CHESHIRE COUNTY COUNCIL.

Clinical Report.

Patient's Name .....

„ Address .....

.....

Age ..... Occupation .....

Insured. Uninsured.

Doctor's Name .....

„ Address .....

.....

Localisation of Disease .....

Stage or extent of Disease .....

.....

Diagrams of larynx and back and front views of trunk inserted here.

Prospect of cure or arrest .....

Condition of Teeth .....

If any complications state here .....

Treatment at present .....

Treatment recommended for next two months :—

SANATORIUM.	**TRAINING COLONY.**
PULMONARY HOSPITAL.	**DOMICILIARY.**
GENERAL „	**DISPENSARY.**
OPEN AIR SCHOOL.	

In case of Patient recommended for Sanatorium or Hospital Treatment state whether fit to undertake railway journey.....

Other Remarks .....

.....

.....

.....192 .....

District Tuberculosis Officer.

Letter from Tuberculosis Officer to Medical Practitioner.

Form T. T. 6.

Private and Confidential.

COUNTY TUBERCULOSIS DISPENSARY,

_____ 19

DEAR DR. _____

I have to-day examined a patient of yours named :—

_____

of _____

I find his / her condition to be as follows :—

_____

_____

_____

_____

I would suggest the following as the best line of treatment :—

_____

_____

_____

_____

If there is any further information or assistance I can give in connection with this patient I shall be pleased to do so.

I am,

Yours faithfully,

_____

Diagrams of larynx and back and front views of trunk inserted here.

Form T. T. 7.

Application No......

CHESHIRE COUNTY COUNCIL.

43, Foregate Street, Chester.

Report on patient receiving treatment in a Sanatorium.

Name Admitted

Address Due for Discharge on

	On Admission.	Present Condition.
Symptoms		
Sputum		
Tubercle bacilli in sputum		
Evening temperature		
General condition		
Capacity for work		
Exercise		
Physical signs		
Weight		
Complications		
	Diagrams of thorax	Diagrams of thorax

Remarks:

Probable further treatment required

Signed

Sanatorium

Date

Specimen page from book kept by District Tuberculosis Officer for recommending supply of Extra-Nourishment.

TUBERCULOSIS.

No......

Name .....

Address.....

.....

Insured. Uninsured.
Discharged Sailor or Soldier.

Income of Household .....

Weekly Rent .....

No. of Dependents.....

Foods allowed :—

.....

.....

.....

.....

.....

.....

Tradesman.....

From.....to.....

Renewed,

From.....to.....

.....

.....

.....

.....

.....

District Tuberculosis Officer.

Counterfoil to be retained by District Tuberculosis Officer.

Tuberculosis.

No......

Name.....

Renewed to .....

.....

Dist. Tubercu. Officer.

Tuberculosis.

No. .....

Name.....

Renewed to.....

.....

Dist. Tubercu. Officer.

Tuberculosis.

No......

Name..... .....

Renewed to .....

.....

Dist. Tubercu. Officer.

Tuberculosis.

No......

Name ... .

Renewed to .....

.....

Dist. Tubercu Officer.

Tuberculosis.

No......

Name.....

Renewed to .....

.....

Dist. Tubercu. Officer.

Slips to be detatched and forwarded to C.T.O. when renewal of allowance is required.

Form T.T. 8.

TUBERCULOSIS.

Extra Nourishment Allowance.

Name .....

Address .....

Age..... Occupation.....

Insured. Uninsured.
Discharged Sailor or Soldier.

£ s. d.

Approximate Income of Household from all sources ... ...

Weekly Rent ... ...

Number, Ages and Sex of Persons actually depending on such Income .....

.....

If in receipt of any outside assistance .....

Food Stuffs required daily from date to.. .....

.....

.....

.....

.....

.....

.....

.....

District Tuberculosis Officer.

Date.....

Approved by.....Date.....

This portion to be forwarded to—
The County Tuberculosis Officer,
43, Foregate Street, Chester.

Voucher delivered to Tradesman by Tuberculosis Nurse.

TUBERCULOSIS.

Voucher for Extra Nourishment.

Name .....

Address .....

.....

Tradesman .....

Address .....

Foodstuffs (authorised quantity).

.....

.....

.....

From .....

To .....

Date .....

Initials.

Form T. T. 9. No. .....

CHESHIRE COUNTY COUNCIL.

TUBERCULOSIS.

Voucher for goods named below from date hereof until last day of month:—

.....

.....

.....

To be supplied to—

Name .....

Address .....

Tradesman's Name .....

,, Address .....

Date .....

T. H. PEYTON, M.D.,
COUNTY TUBERCULOSIS OFFICER,
43, FOREGATE ST., CHESTER.

The Tradesman should send all Vouchers received at the end of the month to Doctor—

.....

Payment will be made from Chester during following month.

He should fill up the following :—

Quantities of Food Stuffs supplied on this Voucher during month.		Price.	Amount.
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
	Total ...		£ : s. d.

Certified as correct .....
District Tuberculosis Officer.

The materials authorised may only be supplied on this authority to the person whose name appears on the other side.

Enquiry Form sent to District Tuberculosis Officer in respect of each death registered as due to Tuberculosis.

Form T. T. 10.

PUBLIC HEALTH DEPARTMENT,
43, FOREGATE STREET,
CHESTER.

Date.....

Dear Sir,

DEATHS FROM TUBERCULOSIS.

I am advised that.....

who was a patient of Dr.....

died on the.....from.....

Please complete the subjoined form, and return to this Office.

Yours faithfully,

T. H. PEYTON,

County Tuberculosis Officer.

N.B.—This portion should be detached and retained by the D.T.O. for reference.

Name.....

Address.....

1. Has disinfection been carried out ?	.....
2. State number of Contacts examined	.....
Number of Contacts not yet examined ...	.....
3. Was the case at any time under Dispensary Supervision ?	.....

Signed.....

District Tuberculosis Officer.

Date.....

Letter to Patient intimating arrangements made in respect of residential treatment.

Telephone: Chester 1017.

CHESHIRE COUNTY COUNCIL.

PUBLIC HEALTH DEPARTMENT,
43, FOREGATE STREET,
CHESTER.

.....192.....

Dear Sir (or Madam),

TREATMENT OF TUBERCULOSIS.

Your application for treatment under the County Tuberculosis Scheme has been duly considered and a period of residential treatment in an Institution granted to you.

A bed has been secured for you at the..... .....

.....Sanaitorium.....

.....

and you can proceed there on.. .....

A voucher is enclosed herewith, which will be exchanged for a ticket for the journey to the Sanatorium on presentation at the Booking Office of the Station named. A similar one to enable you to obtain a return ticket has been sent to the Medical Officer at the Institution.

Please inform the Medical Superintendent of the time he may expect you.

If you will call at the Tuberculosis Dispensary.....

.....you will be supplied with a clinical thermometer and a sputum flask which you should take with you.

Kindly let me know if it is your intention to proceed to the Institution on this date.

I am,
Yours faithfully,

County Tuberculosis Officer and Medical Adviser to the Cheshire Insurance Committee.

Letter to Medical Superintendent or Secretary of Institution advising them of intended arrival of patients to fill vacant beds.

TELEPHONE: CHESTER 1017.

CHESHIRE COUNTY COUNCIL.

PUBLIC HEALTH DEPARTMENT,
43, FOREGATE STREET,
CHESTER,

....19.....

Dear Sir,

I beg to inform you that the undermentioned persons have been instructed to proceed to your Institution for residential treatment for the preliminary period set out against each name, viz. :—

Name and Address.	*Period.*	*Name and Address of Local Medical Officer of Health to whom Forms C and D should be sent in accordance with Public Health (Tuberculosis) Regulations, 1912.*

They have been instructed to proceed on..... next, and to inform you of their hour of arrival.

I shall be glad if you will despatch the enclosed postcards to the Clerk to the Cheshire Insurance Committee and to me in due course, intimating date of admission.

I am,
Yours faithfully,

County Tuberculosis Officer and Medical Adviser to the Cheshire Insurance Committee.

Letter addressed to the Medical Attendant and District Tuberculosis Officer.

TELEPHONE: CHESTER 1017.

CHESHIRE COUNTY COUNCIL.

PUBLIC HEALTH DEPARTMENT,
43, FOREGATE STREET,
CHESTER,
.....19.....

Dear Sir,

.....

.....

With reference to an application by the above-named person for treatment under the County Tuberculosis Scheme, I beg to inform you that he (she) has been requested to proceed to the.....Sanatorium, on.....instant.

If any change has taken place in the condition of the patient which, in your opinion, renders it inadvisable for the patient to now proceed to an Institution, I shall be glad if you will let me know immediately.

I am,
Yours faithfully,

County Tuberculosis Officer and Medical Adviser to the Cheshire Insurance Committee

Letter forwarding copy of Discharge Report to the Medical Attendant and District Tuberculosis Officer.

CHESHIRE COUNTY COUNCIL.

PUBLIC HEALTH DEPARTMENT.

43, Foregate Street,

Chester,

.....192.....

Dear Dr.....

The above patient was discharged from the.....

..... on .....

I enclose a copy of the Medical Superintendent's report on this case for your information.

Yours faithfully,

County Tuberculosis Officer.

Laboratory No.....

PUBLIC HEALTH LABORATORY.

43, FOREGATE STREET, CHESTER.

Examination of Sputum for Tubercle Bacilli.

It is requested that this Form be filled up and forwarded direct to 43, Foregate Street, in the same package as specimen.

Date of Collection..... 192 . Sanitary District.....

If a former Specimen has been forwarded, give date .. ..

Patient's Name..... Age..... Sex.....

Address .....

Occupation.....

Duration of Illness.....

Remarks of Doctor respecting course of Disease.....

.....

.....

.....

.....

.....

Doctor's Name..... Telephone No.....

Postal Address.....

Please note Directions to Patient at the back of this Form.

Practical Directions. [*Back of Form.*

The examination of specimens is facilitated if doctors carefully instruct patients to attend to the following points :—

1.—Spit directly into the outfit supplied, taking every precaution to avoid soiling the outside of the bottle or box.

2.—The thick yellow portion of the sputum coughed up the first thing in the morning, before any food has been taken and after the mouth has been well washed out with water, should be selected. The presence of excess of saliva or particles of food seriously interferes with the success of the examination and every care should be taken to prevent this difficulty.

3.—Only a very small quantity is required and as soon as it is collected it should be packed up and sent off by the first out-going post.

4.—It is of no use to send a specimen while much hæmorrhage is taking place.

5.—Forward the specimen in the envelope provided to—

DR. T. H. PEYTON,
County Tuberculosis Officer,
43, Foregate Street,
CHESTER.

Note.—The Laboratory hours are 9 a.m. to 5 p.m.; Saturdays, 9 a.m. to 1 p.m. Specimens should be sent to arrive if possible between these times; they should not be sent so that they arrive on Sunday.

Notification of Change of Address sent to the Medical Officer of Health for the district into which a tuberculous patient has moved from the County Area.

TELEPHONE No. 1017.

CHESHIRE COUNTY COUNCIL.

PUBLIC HEALTH DEPARTMENT,
43, FOREGATE STREET,
CHESTER.

.....

Insured.
Non-Insured.

Dear Sir,

CHANGE OF ADDRESS.

I desire to inform you that a patient named

.....

formerly residing at.....

has removed to.....

within your area.

I give below particulars of the treatment so far received by this patient

Yours faithfully,
T. H. PEYTON,
County Tuberculosis Officer.

To.....

.....

.....

Date of Original Application for Benefit.....

Treatment received by patient:—

Domiciliary.
Dispensary.
Institutional.

Condition on Discharge..... .....Working capacity... .....Sputum.....

Other forms of treatment .....

Observations .....

....

Progress Report rendered Quarterly by Panel Medical Practitioners respecting each insured person in receipt of Domiciliary Treatment on their panels.

Ch. $\frac{\text{S B (5)}}{\text{Revised.}}$

NATIONAL INSURANCE ACT, 1911.

CHESHIRE INSURANCE COMMITTEE.

SANATORIUM BENEFIT.

DOMICILIARY TREATMENT OF TUBERCULOSIS.

Case No.....

Name of Patient.....

Address .....

.....

.....

Sex..... Age.....

Occupation .....

Medical Practitioner :—Dr.. .....

.....

This Report must be forwarded to the Medical Adviser to the Cheshire Insurance Committee, 43, Foregate Street, Chester, after the completion of months' Domiciliary Treatment at the latest, or immediately after (*a*) the admission of the patient to an institution, (*b*) the removal of the patient to another district, or (*c*) in the event of the treatment being terminated from any cause at an earlier date.

NOTE.—The Medical Adviser will be glad to receive a report at any time prior to the expiration of the period above-mentioned should the practitioner think such a course desirable owing to a change in the condition of the patient.

RECORD OF PROGRESS, &c.

(*a*) Progress of the Patient since the last Report :—

(*b*) Present Condition of the Patient :—

1. General Nutrition :—

Temperature Range—Morning..... Evening.....
Pulse rate (resting) .....
Appetite.....
Cough .....
Sweats.....
Sputum, amount .. .. and character .. ..
Weight (if obtainable)..... .....
Able to work :—

* Full time?..... * Able to get about?.....
* Part time? ..... * Confined to bed?.....

* *Strike out inappropriate words.*

2. Condition of Organs affected by Tuberculosis?

(i) Lungs... .....

[Diagram of thorax].

(ii) Other Organs..... .....

3. Complications now present.....
4. Other disease present ....
5. Relapses or extensions of disease which have occurred since last report.....

(*c*) General Line of Treatment followed since the last Report :—

(*d*) Are the Conditions under which the Patient is living and receiving Treatment satisfactory as to :—

1. Sufficiency of Food? .....
2. Necessary attention being given to the Patient?.....

(*e*) Is the Behaviour of the Patient in carrying out Instructions satisfactory with regard to :—

1. Treatment? .....
2. Precautionary measures?.....

(*f*) Has any other Form of Treatment, in your opinion, become desirable? If so, what Form :—

* Sanatorium?..... * Hospital?..... * Dispensary Treatment?.....

* *Strike out inappropriate words.*

(Signed).....

Date..... .....19.....