[Report 1931] / TB Officer, Lancashire County Council.

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LANCASHIRE

COUNTY COUNCIL.

PREVENTION AND TREATMENT OF TUBERCULOSIS IN THE ADMINISTRATIVE COUNTY OF LANCASTER.

Report of the Central Tuberculosis Officer
of the Lancashire County Council
for the Year 1931.

C. Tinling & Co. Ltd., Liverpool, London and Prescot.
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COUNTY TUBERCULOSIS COMMITTEE (1932).

The Chairman of the County Council :

†J. T. Travis Clegg, Esq., D.L., J.P.

The Vice-Chairman of the County Council :

*†W. Hodgson, Esq., J.P.

Chairman of Committee :

*†C. J. Trimble, Esq., C.B., C.M.G., L.R.C.P., D.P.H., D.L., J.P.

Vice-Chairman :

*E. Boothman, Esq., J.P.

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A. S. Bury, Esq., J.P.

R. Sephton, Esq., M.R.C.S., J.P.

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*B. P. Allen, Esq.

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*Rev. A. M. Mitchell, M.A.

N. Worsley, Esq., J.P.

* Members of the Sanatorium and Hospital Sub-Committee.

† County Aldermen.

MEDICAL AND NURSING STAFF OF THE TUBERCULOSIS DEPARTMENT, 1932.

G. Lissant Cox, M.A., M.D. (Camb.), M.R.C.S. (Eng.), L.R.C.P. (Lond.), Central Tuberculosis Officer.

STAFF FOR THE DISPENSARY AREAS AND COUNTY SANATORIA AND HOSPITALS.

Area No. 1. (Population 264,667).

(Lancaster, Morecambe and Heysham, Lytham St. Annes, Garstang Rural (part), Preston Rural, Walton-le-Dale, Chorley, and Horwich districts).

Consultant Tuberculosis Officer and Visiting Physician, Lancaster Pulmonary Hospital—Alan D. Brunwin, M.A., M.D., B.Ch., (Camb.), D.P.H. (Aberdeen). [N.B.—The Lancaster Hospital is now in course of erection.]

Assistant Tuberculosis Officer—George H. Leigh, M.D., Ch.B., D.P.H. (Manch.).

Area No. 2. (Population 346,624).

(Clitheroe, Colne, Nelson, Burnley Rural, Blackburn Rural, Accrington, Darwen, Haslingden, Rawtenstall, and Bacup districts).

Consultant Tuberculosis Officer and Visiting Medical Superintendent, Withnell Pulmonary Hospital—Burgess MacPhee, M.B., Ch.B. (Glas.), D.P.H. (Camb.).

Assistant Tuberculosis Officers—Scott C. Adam, M.B., Ch.B. (Glas.), D.P.H. (Lond.), and F. C. S. Bradbury, M.B., B.Ch., B.A.O. (Belfast), B.Hy., D.P.H. (Durham).

Area No. 3. (Population 375,024).

(Ramsbottom, Littleborough, Radcliffe, Heywood, Crompton, Royton, Prestwich, Middleton, Chadderton, Failsworth, Ashton-under-Lyne, Mossley, and Denton districts).

Consultant Tuberculosis Officer—George Fletcher, M.A., M.D., (Glas.), M.R.C.P. (Lond.), D.P.H. (Camb.).

Assistant Tuberculosis Officers—Cecil Berry, L.R.C.P., L.R.C.S. (Edin.), L.R.F.P.S. (Glas.), D.P.H. (R.C.P.S.I.), and James L. Armour, M.B., Ch.B. (Liverpool), M.R.C.S. (Eng.), L.R.C.P. (Lond.).

Area No. 4. (Population 347,473).

(Westhoughton, Atherton, Farnworth, Leigh, Swinton and Pendlebury, Eccles, and Stretford districts).

Consultant Tuberculosis Officer and Visiting Medical Superintendent, Peel Hall Pulmonary Hospital—George Jessel, M.A., M.D. (Oxon.), D.P.H. (Manch.).

Assistant Tuberculosis Officers—Alexander B. Jamieson, M.B., Ch.B. (Edin.), and Henry J. Villiers, L.R.C.P.I., L.R.C.S.I.

Area No. 5. (Population 251,579).

(West Lancashire Rural, Great Crosby, Waterloo-with-Seaforth, Newton-in-Makerfield, Whiston Rural, Warrington Rural, and Widnes districts).

Consultant Tuberculosis Officer and Visiting Medical Superintendent, Rufford Pulmonary Hospital—Charles W. Laird, B.A., M.D. (Dublin), D.P.H. (Liverpool).

Assistant Tuberculosis Officer—Charles H. Lilley, M.B., Ch.B. (St. Andrews), D.P.H. (Lond.).

Furness Sub-Area. (Population 37,959).

(Dalton-in-Furness, Grange-over-Sands, Ulverston, and Ulverston Rural districts).

Consultant Tuberculosis Officer and Medical Superintendent, High Carley Sanatorium—George Leggat, M.B., Ch.B., D.P.H. (Aberdeen).

Fylde Sub-Area. (Population 63,780).

(Fleetwood, Thornton Cleveleys, Fylde Rural, Garstang Rural (part), and Kirkham districts).

Consultant Tuberculosis Officer and Medical Superintendent, Elswick Sanatorium—G. Barker Charnock, L.R.C.P., L.R.C.S. (Edin.), L.R.F.P.S. (Glas.), D.P.H. (Liverpool).

Wigan County Sub-Area. (Population 117,294).

(Ashton-in-Makerfield, Hindley, Ince-in-Makerfield, and Wigan Rural districts).

Consultant Tuberculosis Officer and Medical Superintendent, Wrightington Hospital—E. H. Allon Pask, M.D. (Lond.), M.R.C.S. (Eng.), L.R.C.P. (Lond.).

Assistant Tuberculosis Officer—John E. Wallace, M.B., Ch.B. (Liverpool), M.R.C.S. (Eng.), L.R.C.P. (Lond.).

High Carley Sanatorium and Oubas House Children's Sanatorium.

Medical Superintendent and Consultant Tuberculosis Officer, Furness Dispensary Sub-Area—George Leggat, M.B., Ch.B., D.P.H. (Aberdeen).

Assistant Medical Superintendent—William Fettes, M.B., Ch.B., D.P.H. (Aberdeen).

Elswick Sanatorium.

Medical Superintendent and Consultant Tuberculosis Officer, Fylde. Dispensary Sub-Area—G. Barker Charnock, L.R.C.P., L.R.C.S (Edin.), L.R.F.P.S. (Glas.), D.P.H. (Liverpool).

Wrightington Hospital.

Medical Superintendent and Consultant Tuberculosis Officer, Wigan Dispensary County Sub-Area—E. H. Allon Pask, M.D. (Lond.), M.R.C.S. (Eng.), L.R.C.P. (Lond.).

Assistant Medical Superintendent—E. H. W. Deane, M.B., B.S. (Melbourne).

Junior Assistant Medical Officer—D. I. A. Williams, M.B., Ch.B. (Liverpool).

Chadderton Pulmonary Hospital.

Visiting Medical Superintendent, and Medical Officer of Health for the Chadderton Urban District—James Wood, M.D., Ch.B., D.P.H., R.C.P.S.I.

Heath Charnock Pulmonary Hospital.

Visiting Medical Superintendent, and Medical Officer to the Chorley Joint Hospital Board—John W. Rigby, M.R.C.S. (Eng.), L.R.C.P. (Lond.).

Withnell Pulmonary Hospital.
Peel Hall Pulmonary Hospital.
Rufford Pulmonary Hospital.

The Consultant Tuberculosis Officers of Dispensary Areas Nos. 2, 4 and 5, respectively, are the Medical Superintendents of these Hospitals.

CONSULTING SURGICAL STAFF.

Sir Robert Jones, Bart., K.B.E., C.B., F.R.C.S.
Honorary Consulting Orthopædic Surgeon, Wrightington Hospital.

T. P. McMurray, M.Ch., F.R.C.S. (Edin.), and
Harry Platt, M.D. (Manch.), M.S. (Lond.), F.R.C.S. (Eng.).
Visiting Consulting Orthopædic Surgeons, Wrightington Hospital.

H. Morriston Davies, M.D., M.Ch. (Camb.), F.R.C.S. (Eng.).
Visiting Consulting Chest Surgeon, Elswick Sanatorium and Peel Hall Pulmonary Hospital.

TUBERCULOSIS HEALTH VISITORS.

Area No. 1.—L. Walker*, J. Skelcher, F. D. Abbott*, G. M. Hunter.

Area No. 2.—R. Lambert*, A. Munro*, M. Duggan*, L. F. Norwood, E. Watterson, H. M. Alcock*.

Area No. 3.—M. A. Potter, H. Dewsnap*, I. F. Macdonald*, C. Guilfoy*, A. Flynn*, W. Swift, M. Sherwen.

Area No. 4.—M. B. Jones, H. M. Shakespeare*, F. G. Smith, A. Dickinson, I. M. Corfield, K. Blakemore, M. Gibson*.

Area No. 5.—E. Walch, M. J. Wilson*, A. Duncan, L. Farquhar*, M. J. McKeown*.

Furness Sub-Area.—E. A. Dus·on.

Fylde Sub-Area.—A. Tweedy

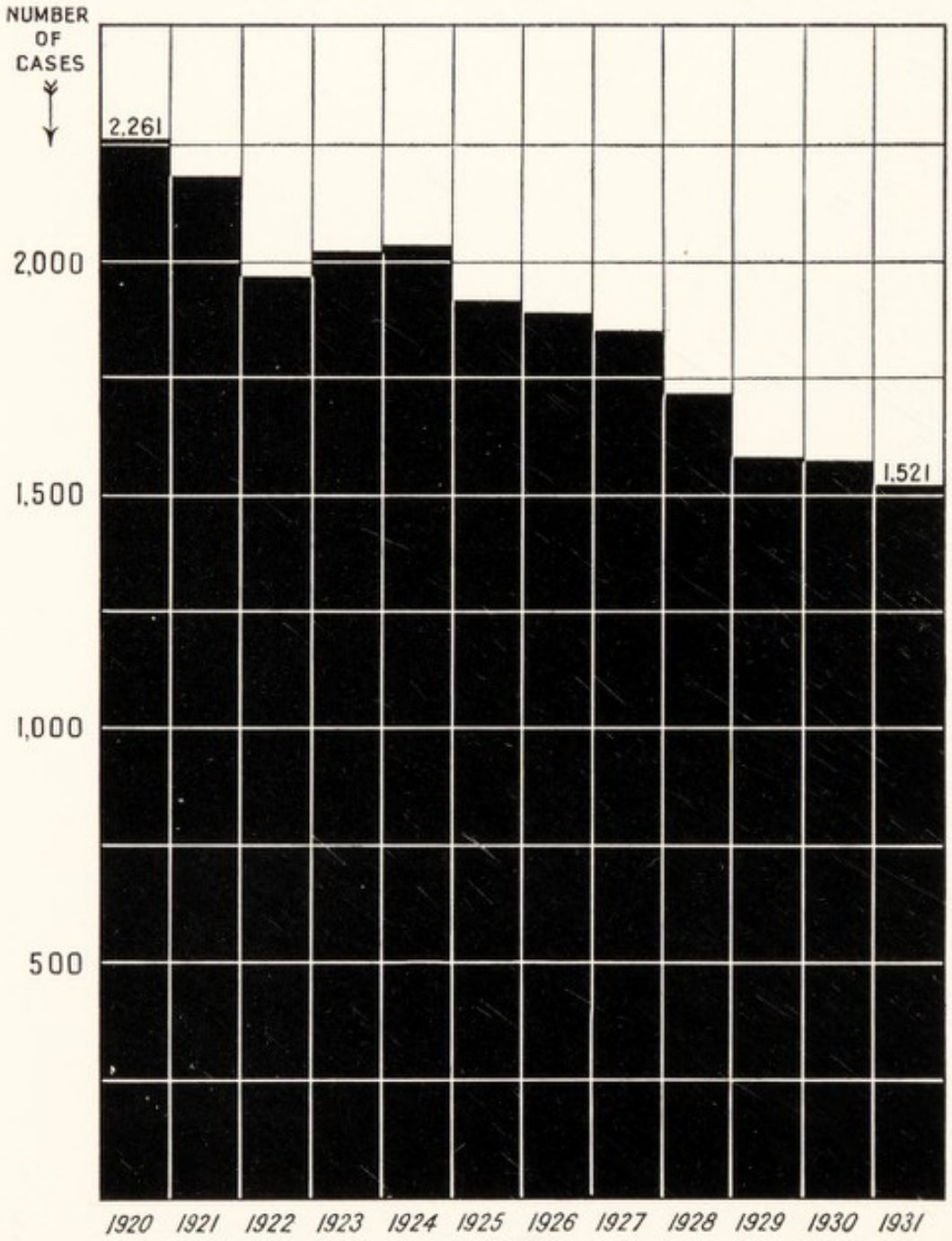
Wigan County Sub-Area.—E. Walters*, M. J. Evans.

* Possesses a health visitor's or sanitary certificate.

ADMINISTRATIVE COUNTY OF LANCASTER.

(Population 1,804,400.)

Reduction in number of New Cases of Pulmonary Tuberculosis (Consumption) notified during the years 1920-1931.



(See also page 2 for comments on these figures, which comprise statutorily notified cases plus cases reported only at death.)

REPORT

OF THE

CENTRAL TUBERCULOSIS OFFICER

FOR THE YEAR 1931.

To the Chairman and Members of the
Lancashire County Council.

LADIES AND GENTLEMEN,

I have the honour to submit the eighteenth annual report on the work of the tuberculosis department, and in this introductory portion will give briefly some of the principal features of the work in 1931.

Mortality from tuberculosis.

The death-rate from pulmonary tuberculosis (consumption) in 1931 is again the lowest on record ; from 1923, with the exception of one year, there has been a continuous decline. This decreased mortality has accompanied a decline in the total known cases of this form of the disease reported during the year (see frontispiece). In regard to mortality, the decline is occasioned by a remarkable fall in the number of female deaths (15·8 per cent. on 1930) which was, however, offset to a considerable extent by an increase in the male deaths (9·2 per cent. on 1930). The large disproportion in the male and female mortality makes the year 1931 unique in comparison both with past years and with England and Wales.

Dealing with non-pulmonary tuberculosis, the deaths in 1931 are a little above the figure for the previous year but otherwise are the lowest on record.

The County death-rate from tuberculosis is still less than that for England and Wales, as it has always been. The experience in Lancashire may be compared with the death-rate from all forms of tuberculosis in other administrative counties with a population in the region of a million :—Durham, 0·94 ; Essex, 0·78 ; Kent, 0·77 ; Middlesex, 0·70 ; West Riding of Yorkshire, 0·73. The Lancashire rate is 0·71, and England and Wales 0·89.

While it is satisfactory to record that the tuberculosis deaths in 1931 showed a decline it is hardly to be expected that, with a continuation of the present economic conditions in the country, the mortality for the next year or so will provide a similar progressive decline.

Sir George Newman in his report for 1931 to the Minister of Health refers to the decline in tuberculosis in England and Wales and draws attention to the fact that in 1882 the standardised death-rate per million of the population from pulmonary tuberculosis in England and Wales was 1,945 ; in 1930 it had fallen to 685.

The conservative use of institutional accommodation.

As the result of the conservative diagnosis of pulmonary tuberculosis in children it has only been necessary to provide relatively few sanatorium beds in Lancashire for such children. This matter is referred to in the chapter commencing on page 82.

With regard to adults suspected to be suffering from pulmonary tuberculosis a similar conservative attitude has been adopted as may be noted from the proportion, namely 45·5 per cent., of pulmonary cases on the dispensary registers classified as T.B. minus. In contrast four large counties with a population exceeding one million show an average percentage of 51·1 T.B. minus cases, and England and Wales 50·1.

The very careful examination of patients before deciding upon a diagnosis of pulmonary tuberculosis is further dealt with by Dr. G. Jessel, the consultant tuberculosis officer for Dispensary Area No. 4, in a new chapter " Chronic inflammatory conditions simulating pulmonary tuberculosis " (see page 7).

Dr. E. H. A. Pask, the medical superintendent of the Wrightington Hospital, contributes a chapter commencing on page 11, showing the value of the Mantoux tuberculin test in the diagnosis of children.

An exhaustive examination of patients ensures that the least number possible receive institutional treatment and this undoubtedly saves a considerable sum of public money by reducing the number of beds required for the treatment of patients.

Progress and future requirements in the tuberculosis scheme.

The Wrightington Hospital was opened for the treatment of cases of non-pulmonary tuberculosis and combined pulmonary and non-pulmonary cases on the 14th December, 1931. The total number of in-patients on the 30th September, 1932, was 210.

The High Carley Sanatorium has been brought up to date by the provision of a new treatment block which will give better facilities for the treatment of patients by surgical methods (*e.g.*, artificial pneumothorax, phrenic evulsion and thoracoplasty).

Attention may be drawn here to structural changes at the Rufford Pulmonary Hospital. The verandah on the ground floor on the south-west side has been improved by providing a glass front for the upper portion; above, on the first floor, a new balcony has been constructed with a sliding glass front. The cost of the work has been borne out of the balance of the Sanatorium Benefit Fund. The experiment is interesting, marking as it does the change which has taken place in recent years whereby greater protection from adverse weather conditions—cold and strong winds—is now considered desirable for patients, especially intermediate and advanced cases. A description is given on page 59, together with photographs.

The foundation stone of the new isolation hospital at Lancaster, which will include a block for 30 adult cases of pulmonary tuberculosis, was laid on the 19th July, 1932. The hospital is being provided by the Lancaster and District Joint Hospital Board and will replace the Luneside Hospital.

The arrangements for the provision of a pulmonary hospital in Dispensary Area No. 3 (south-east Lancashire) to be in charge of the consultant tuberculosis officer for that area have progressed since the last report. After negotiations with the Rochdale Corporation definite proposals are now under consideration whereby Wolstenholme Hall, belonging to the Corporation, would be transferred to the County Council, who would re-organise the accommodation and provide certain new buildings to take 55 adult cases of pulmonary tuberculosis, 25 of the beds to be leased to the Corporation.

The existing rooms at Virginia House, Ulverston, used as a dispensary have with the development of the scheme proved too small, and new premises, namely 59, Albion Place, Lightburn Avenue, Ulverston, have been purchased by the County Council in replacement.

Better dispensary accommodation is still required at Widnes and Oldham.

The chief dispensary at Accrington for Area No. 2, (population 346,624) was changed on the 21st December, 1931, to more suitable premises, "High Lea," 108a, Whalley Road, Accrington. The new dispensary contains a modern x-ray plant and an artificial litgh department.

Visit of the Minister of Health.

We were honoured by a visit to the Withnell Pulmonary Hospital and the Accrington Dispensary on the 6th and 7th September, 1932, respectively, of the Rt. Hon. Sir Edward Hilton Young, G.B.E., D.S.O., M.P., the Minister of Health, who made an inspection of the institutions named. Sir Edward was accompanied by Sir Arthur B. Lowry, C.B., (Chief General Inspector of the Ministry), and the Chairman, Vice-Chairman, and Clerk of the County Council. The tuberculosis scheme was explained to him by the Chairman and Vice-Chairman of the County Tuberculosis Committee.

Visits of medical officers from other countries.

I beg to report also that the following visitors came to study the work of the County tuberculosis scheme :—

Dr. P. V. Benjamin, Medical Officer, Union Mission Tuberculosis Sanatorium, South India ; and Dr. M. S. Abaza, Egyptian Public Health Department. Visited Central Office, Leigh, Eccles, and Ashton-under-Lyne Dispensaries, Elswick Sanatorium, and Peel Hall Pulmonary Hospital, in April, 1931.

Dr. A. El-Agaty, Medical Officer, Egyptian Government. Visited Central Office, Eccles and Ashton-under-Lyne Dispensaries, Elswick Sanatorium, and Peel Hall Pulmonary Hospital, in April, 1931.

Dr. K. Hamano, Medical Officer of Health and Chief of the Omiya Field Laboratory, Central Sanitary Bureau, Department of Japanese Home Affairs. Visited Central Office, Leigh, Eccles, and Ashton-under-Lyne Dispensaries, High Carley Sanatorium, and Peel Hall Pulmonary Hospital, in February, 1932, studying the County scheme for a month.

Dr. F. D. Zau, Isolation Hospital, Shanghai ; Dr. L. C. Ling, Union Hospital, Foochow ; and Dr. T. C. Y. Sun, Soochow Hospital. Visited Rufford Pulmonary Hospital, 29th September, 1932.

Extent and cost of County scheme.

The tuberculosis scheme covers the whole of the Administrative County, population 1,804,400 and acreage 1,050,889. The average number of beds in use is 993. There are 24 tuberculosis dispensaries owned or rented, and a total of 7,868 definite cases on the dispensary registers. The gross expenditure on tuberculosis services for 1932–33

is estimated at £193,078 less £2,750, income from various sources. Towards the expenditure there is now an amount included in the General Exchequer Grant receivable under the Local Government Act, 1929; it is not specifically allocated to the tuberculosis service but is a general credit to the County Fund. Previous to the passing of the Act the Government made an annual grant based upon 50 per cent. of the net approved expenditure; for 1928–29 their grant amounted to £74,105.

Co-operation with medical practitioners, sanitary authorities, and health officials.

The results of the tuberculosis scheme would be very different if the relations with the medical practitioners in the County, together with the sanitary authorities and their medical officers and sanitary inspectors, had not been of the most cordial and satisfactory character. I take this opportunity of acknowledging such co-operation from these sources. It was very satisfactory that 89 per cent. of new cases were sent *before notification* to the tuberculosis officers for an opinion as to diagnosis.

I have again to thank my medical colleagues and the nursing and clerical staffs for continued help. I have had very valuable help from my principal clerk, Mr. H. F. Hughes, especially in preparing this report, and have, in addition, to thank the Public Health Department for furnishing certain statistics on notifications and deaths.

I am,

Your obedient Servant,

G. LISSANT COX,

Central Tuberculosis Officer.

County Offices, Preston.

14th October, 1932.

Administrative County of Lancaster.

Population (estimated, 1931) 1,804,400. Area 1,050,889 acres.
County Boroughs, shaded, do not form part of the Administrative County.

Map showing dispensary organisation: (*a*) five large dispensary areas (average population 320,000) with pulmonary hospital in charge of the consultant tuberculosis officer; and (*b*) three small dispensary areas around the High Carley Sanatorium, the Elswick Sanatorium, and the Wrightington Hospital, the respective medical superintendents being the consultant tuberculosis officers. [See pp. 5 & 6].

I.—TUBERCULOSIS INCIDENCE AND MORTALITY IN 1931.

The principal features of tuberculosis incidence and mortality in 1931 in the Administrative County, which contains an estimated population of 1,804,400, are as follow :—

1. The death-rate (0·56 per 1,000 of the population) from pulmonary tuberculosis in the County is the lowest on record, and is again, as in previous years, below the pulmonary rate (0·74) for England and Wales.

2. Similarly, the number of cases of pulmonary tuberculosis —1,521—reported during the year was the lowest on record. (See frontispiece and page 2.)

3. The death-rate (0·14 per 1,000 of the population) from non-pulmonary tuberculosis remains the same as in 1930. It is now only one-half of the rate recorded in 1918. The rate for England and Wales is 0·15.

4. The number of cases of non-pulmonary tuberculosis —913— reported during the year was also the lowest on record.

5. The saving in human life by the reduction in the County death-rate from all forms of tuberculosis is considerable ; for example, if the death-rate for 1931 had been the same as in 1914 there would have been 2,147 deaths instead of the actual number of 1,287—a difference of 860.

6. Pulmonary tuberculosis is again more prevalent among males than females in regard to both cases and deaths. Allowing for the difference in the population of the sexes, for every 100 deaths of females in 1931 there were 166 deaths of males. The ratio for the average of the five years 1926–30 was 100 female to 133 male deaths. For England and Wales the ratio for 1931 was 100 female deaths to 140 male deaths.

7. Pulmonary tuberculosis has again proved most fatal for females between the ages 15–25, after which a progressive decline takes place. On the other hand, for males the most fatal age-group was 45–55, although occasionally in recent years the age-group 35–45 has furnished a higher mortality.

8. With regard to non-pulmonary tuberculosis the most striking decline has occurred in the age-group 0–5 years ; in 1914 the deaths in this group totalled 286, whereas in 1931 there were only 69.

New Cases of Tuberculosis.

The following Table 1 shows since 1918 the total number of new cases of pulmonary and non-pulmonary tuberculosis reported in each year; the case-rate for pulmonary tuberculosis is also given :—

Year	Pulmonary tuberculosis				Non-pulmonary tuberculosis		
	Cases notified (*i.e.*, during life)	Cases reported at time of death only	Total known cases	Case-rate per 1,000 of population	Cases notified (*i.e.*, during life)	Cases reported at time of death only	Total known cases
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1918	2,534	303	2,837	1·64	885	137	1,022
1919	2,105	221	2,326	1·34	847	104	951
1920	2,084	177	2,261	1·30	968	122	1,090
1921	2,044	135	2,179	1·23	899	96	995
1922	1,863	105	1,968	1·11	956	83	1,039
1923	1,937	85	2,022	1·13	1,188	74	1,262
1924	1,972	64	2,036	1·14	1,120	65	1,185
1925	1,846	67	1,913	1·07	1,027	57	1,084
1926	1,828	58	1,886	1·05	953	32	985
1927	1,794	54	1,848	1·02	1,045	42	1,087
1928	1,660	56	1,716	0·94	956	51	1,007
1929	1,517	62	1,579	0·87	913	61	974
1930	1,527	46	1,573	0·87	982	61	1,043
1931	**1,460**	**61**	**1,521**	**0·84**	**862**	**51**	**913**

The steady decline—continuous since 1924—in the new cases of pulmonary tuberculosis is particularly noticeable from column (4) of the above table; the fall is further illustrated by the chart which is printed as the frontispiece to this report. The improvement has taken place mainly among the females in age-groups 5–15 and 25–45. Further, the reduction in the number of new cases has occurred among both the negative and positive sputum cases; four-fifths of all new patients come on the dispensary registers and we know from their classification that the number of new persons with a positive sputum was 697 in 1931 compared with an average of 788 for the previous five years.

With regard to non-pulmonary tuberculosis, notification was undoubtedly influenced by the developments in the County scheme between 1922 and 1927, such as the establishment of light centres at the dispensaries. Furthermore, in the earlier years it is known that notification of non-pulmonary cases was not uniformly carried out by the practitioners as in those years the treatment provided under the County scheme was not so extensive as at the present time.

The notifications referred to in columns (2) and (6) are dealt with further in Appendix II, where folding Tables B, C, and D are inserted.

Analysis of Deaths from Pulmonary Tuberculosis.

The following Table 2 shows the deaths recorded from pulmonary tuberculosis in 1931 and the preceding 10 years analysed according to sex and age :—

Period	Estimated sex population	Pulmonary deaths in various age-groups									Death-rate per 1,000 of sex population
		0 to 5	5 to 15	15 to 25	25 to 35	35 to 45	45 to 55	55 to 65	65 and over	Total	
Males.											
1921–25 (average)	841,030	9	15	120	131	151	153	83	26	688	0·81
1926–30 (average)	856,920	4	9	107	111	133	130	79	27	600	0·70
1931	858,023	6	11	99	126	120	142	80	29	613	0·71
Females.											
1921–25 (average)	929,614	8	26	172	145	104	69	37	17	578	0·62
1926–30 (average)	946,771	4	18	155	133	81	49	37	18	495	0·52
1931	946,377	2	10	129	95	75	49	31	17	408	0·43

It will be seen that a considerable decline took place in the female pulmonary deaths for 1931 compared with the averages since 1921. On the other hand the total deaths of males in 1931 are a little above the average for 1926–30, but well below that for 1921–25.

Analysis of Deaths from Non-Pulmonary Tuberculosis.

Table 3 below shows the deaths from non-pulmonary tuberculosis in age-group and sex :—

Period	Estimated sex population	Non-pulmonary deaths in various age-groups									Death-rate per 1,000 of sex population
		0 to 5	5 to 15	15 to 25	25 to 35	35 to 45	45 to 55	55 to 65	65 and over	Total	
Males.											
1921–25 (average)	841,030	73	40	35	29		22		5	204	0·24
1926–30 (average)	856,920	49	27	27	13	9	11	7	5	148	0·17
1931	858,023	41	25	27	14	8	7	8	6	136	0·15
Females.											
1921–25 (average)	929,614	51	40	31	27		16		6	171	0·18
1926–30 (average)	946,771	35	23	22	16	14	10	6	6	132	0·13
1931	946,377	28	24	25	23	14	6	7	3	130	0·13

The chief decline in the deaths from non-pulmonary tuberculosis has taken place in the age-group 0–5 followed by the age-group 5–15. This decline is due to segregation and supervision of the adult pulmonary cases, social measures, the safe-guarding of the milk supply, and the successful modern methods of treatment of children with non-pulmonary disease.

The classification of the deaths in 1931 from non-pulmonary tuberculosis, according to part affected, is as follows :—Vertebral column, 22 ; other bones and joints, 16 ; intestines and peritoneum, 64 ; central nervous system, 96 ; disseminated, 52 ; genito-urinary, 10 ; lymphatic system (abdominal and bronchial glands excepted), 3 ; skin and subcutaneous tissues, 3 ; total, 266.

Deaths and Death-Rates from Tuberculosis.

Table 4 below shows the number of deaths registered and the death-rates recorded during the nineteen years 1913 to 1931 in the Admini trative County :—

Year	Deaths.			Death-rate per 1,000 of population.		
	Pulmonary tuberculosis	Non-pulmonary tuberculosis	Total.	Pulmonary tuberculosis	Non-pulmonary tuberculosis	Tuberculosis (all forms)
1913	1,441	527	1,968	0·82	0·30	1·12
1914	1,523	572	2,095	0·87	0·32	1·19
1915	1,614	555	2,169	0·96	0·34	1·30
1916	1,685	471	2,156	1·04	0·29	1·33
1917	1,584	466	2,050	1·00	0·30	1·30
1918	1,652	435	2,087	1·07	0·28	1·35
1919	1,339	358	1,697	0·80	0·22	1·02
1920	1,323	396	1,719	0·76	0·23	0·99
1921	1,301	376	1,677	0·73	0·21	0·95
1922	1,362	389	1,751	0·77	0·22	0·99
1923	1,250	412	1,662	0·70	0·23	0·93
1924	1,215	339	1,554	0·68	0·19	0·87
1925	1,205	361	1,566	0·67	0·20	0·87
1926	1,158	286	1,444	0·64	0·16	0·80
1927	1,105	296	1,401	0·61	0·16	0·77
1928	1,066	287	1,353	0·58	0·15	0·74
1929	1,102	279	1,381	0·60	0·15	0·76
1930	1,046	253	1,299	0·57	0·14	0·71
1931	**1,021**	**266**	**1,287**	**0·56**	**0·14**	**0·71**

In Appendix I are given the tuberculosis deaths and death-rates in the urban and rural sanitary districts in the Administrative County, and dispensary areas.

II.—THE DISPENSARY ORGANISATION.

A tuberculosis dispensary should be the centre of activity, for a town or district, in regard to measures for the prevention of the disease, the expert examination and diagnosis of cases, together with the supervision, special treatment, and care of all known tuberculous persons.

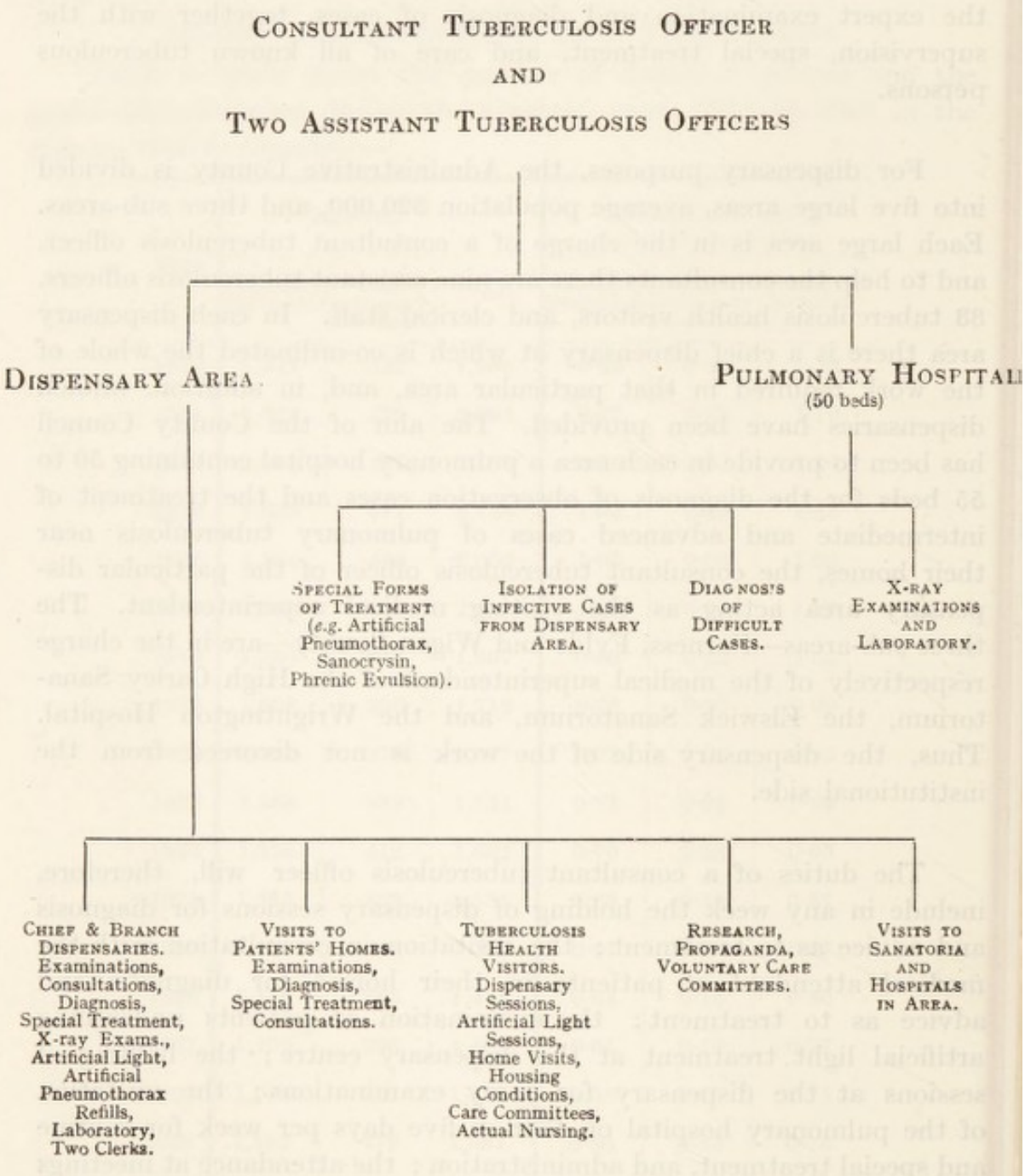
For dispensary purposes, the Administrative County is divided into five large areas, average population 320,000, and three sub-areas. Each large area is in the charge of a consultant tuberculosis officer, and to help the consultants there are nine assistant tuberculosis officers, 33 tuberculosis health visitors, and clerical staff. In each dispensary area there is a chief dispensary at which is co-ordinated the whole of the work required in that particular area, and, in addition, branch dispensaries have been provided. The aim of the County Council has been to provide in each area a pulmonary hospital containing 50 to 55 beds for the diagnosis of observation cases and the treatment of intermediate and advanced cases of pulmonary tuberculosis near their homes, the consultant tuberculosis officer of the particular dispensary area acting as the visiting medical superintendent. The three sub-areas—Furness, Fylde and Wigan County—are in the charge respectively of the medical superintendent of the High Carley Sanatorium, the Elswick Sanatorium, and the Wrightington Hospital. Thus, the dispensary side of the work is not divorced from the institutional side.

The duties of a consultant tuberculosis officer will, therefore, include in any week the holding of dispensary sessions for diagnosis and advice as to treatment; the visitation in consultation with the medical attendant of patients in their homes for diagnosis and advice as to treatment; the examination of patients undergoing artificial light treatment at the dispensary centre; the holding of sessions at the dispensary for x-ray examinations; the visitation of the pulmonary hospital on four or five days per week for routine and special treatment, and administration; the attendance at meetings of voluntary care committees; arrangement of work with the two assistant tuberculosis officers, the tuberculosis health visitors, and the clerical staff.

The dispensary organisation is better illustrated by the chart overleaf.

The Dispensary Organisation.

The Administrative County is divided into five large dispensary areas (average population 320,000). The chart below illustrates the organisation and work of one of these dispensary areas :—



The work done through the dispensary organisation during the year 1931 is dealt with further in Chapter IX.

III.—CHRONIC INFLAMMATORY CONDITIONS SIMULATING PULMONARY TUBERCULOSIS.

By G. Jessel, M.D., Consultant Tuberculosis Officer,
Dispensary Area No. 4.

One of the most important functions of a tuberculosis dispensary is accurate diagnosis. The opportunities that are now available for detailed investigation facilitate the detection of the beginnings of tuberculous disease, in so far as this is possible by known methods. On the other hand, there is the ever-present danger of over-diagnosis, resulting in serious disadvantages to the patient, and unnecessary expense to the local authority in providing institutional treatment. In cases presenting acute symptoms, a comparatively short period of observation and study should usually enable a correct diagnosis to be made. Difficulties are more likely to be met with in dealing with patients suffering from chronic pulmonary disease, many of whom are liable to be erroneously diagnosed as tuberculous and to receive periods of unnecessary treatment in tuberculosis institutions.

Even before the routine use of radiology, an accurate diagnosis of such cases was frequently made by physicians with special experience, based upon opportunities of observing such cases for several years. It is, however, by no means an easy matter to classify some patients seen for the first time, especially where the family doctor is inclined to regard the case as tuberculous. The extended utilisation of x-ray examination, which in skilled hands provides an indispensable adjunct to existing diagnostic facilities, is of the greatest assistance in this connection, though by itself the information derived therefrom may be equivocal. In certain types of chronic pulmonary disease it is impossible to distinguish by radiology alone whether or no the cause is tuberculous. Where, however, all the clinical evidence, including radiology, is properly utilised, an accurate differentiation can usually be made.

The process of fibrosis in the lungs is analogous to the reaction that occurs, when healing takes place superficially or in any part of the body, *viz.*, the formation of scar or fibrous tissue, leading to contraction or shrinkage of the adjacent parts. Fibrosis in the lungs is a pathological condition rather than a definite disease, and must be regarded as a process of replacement of the affected part by fibrous tissue, following some definite pathological cause. Whatever the exciting reason may be, the reaction is the same. There is an over-production of scar or fibrous tissue, which replaces the damaged portion of the

lung and tends to limit and wall off the rest of the lung from the infective agent.

Chronic pulmonary tuberculosis is the commonest manifestation of a chronic inflammatory process in the lungs. In unilateral cases diagnosis is sometimes possible on mere inspection. The localised muscular wastings in the supra- and infra-clavicular regions and in the supraspinous fossæ are characteristic, and the diagnosis is frequently clinched by the history of the case, finding of tubercle bacilli and x-ray appearances. This is illustrated by skiagram P.T. 1.

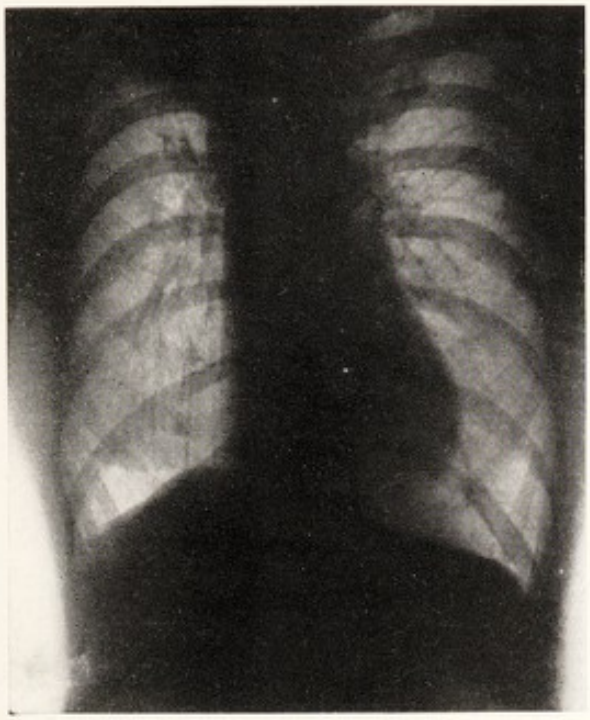
A similar condition of localised fibrosis may be seen in cases of limited bronchiectasis (see skiagram P.T. 2).

In more extensive disease, involving one lung particularly, there is marked flattening and wasting of the whole of one side of the chest, dullness on percussion and variable breath sounds, either blowing in character or weak if the pleura is greatly thickened. The x-ray appearances are : deviation of the heart and mediastinum, &c., to the affected side, raising of diaphragm and frequently a more or less uniform opacity of the affected side. In such cases difficulties in diagnosis may arise, as in addition to the chronic cough and dyspnœa the x-ray appearances in tuberculous and non-tuberculous cases may be identical. This is illustrated in skiagrams P.T. 3 and 4.

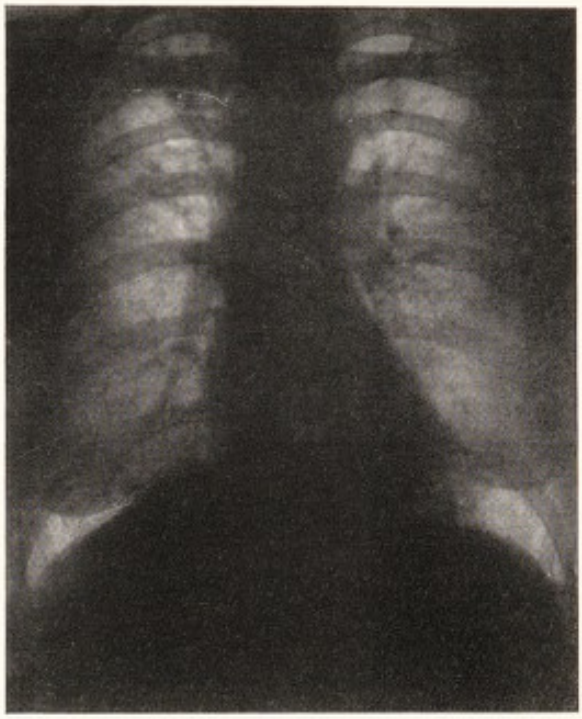
The commonest non-tuberculous causes to be considered in this connection are pneumonia and broncho-pneumonia, especially when suppuration has occurred. A careful history of the case is important. Pneumonia is usually a definite and severe illness, unlikely to be forgotten ; tuberculosis often manifests itself insidiously and may be unnoticed for years, until marked ill-health occurs. Repeated sputum examination is important, and while it is true that in a few cases tubercle bacilli have not been discovered until a great many specimens have been carefully examined, and/or special concentration methods are used, the repeated failure to find tubercle bacilli is strong cumulative evidence against tuberculosis, in cases where there is much muco-purulent sputum. Where tuberculosis is the cause, some other manifestation will usually be found in the opposite lung or elsewhere. Occasionally, cases may occur where the evidence is conflicting and a final diagnosis cannot easily be reached. The following is a case in point :—

Female, aged 26. First examined by the tuberculosis officer in 1918. Gave history of chest trouble since infancy. Double pneumonia twice—first time in 1913–14. Under doctor this time for nearly twelve months. Complained of cough, expectoration, night sweats, dyspnœa, malaise and ? loss of weight. Physical signs :

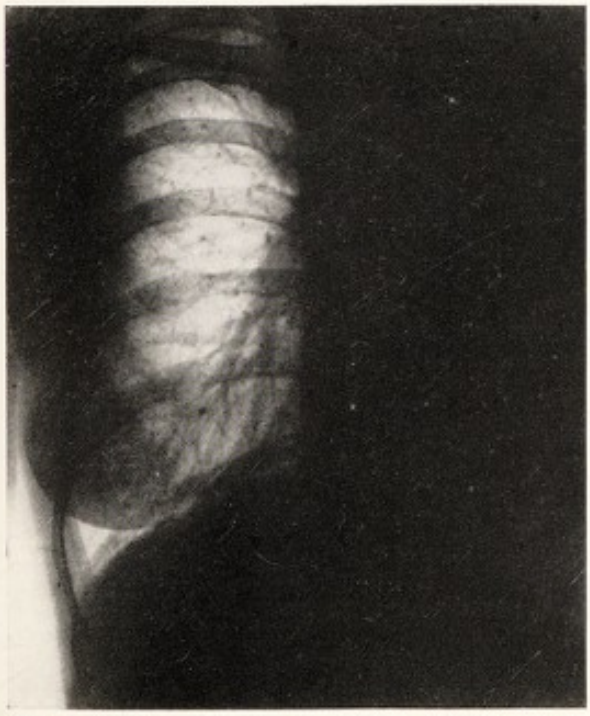
Skiagrams Illustrating Chronic Inflammatory Conditions Simulating Pulmonary Tuberculosis.



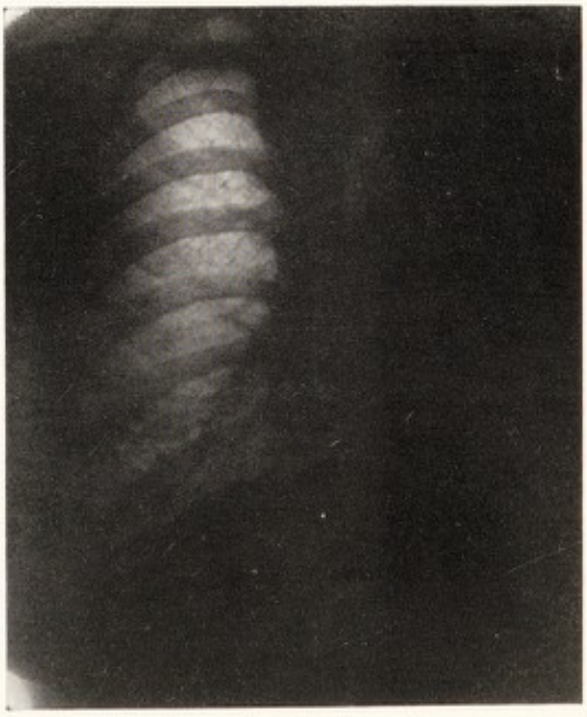
P.T.1—Female, aged 49. First examined in November, 1921. Sputum positive. Physical signs: dullness upper part of both lungs. Had sanatorium treatment followed by dispensary supervision; subsequently dullness right upper. No moist sounds. Skiagram taken 22/5/31 (10 years later) shows fibrosis upper part of right lung. January, 1932, doing housework, apparently well.



P.T.2—Female, aged 53. A stout woman. No history of previous illness except chronic cough. Subject to bronchitis since childhood. Hæmoptysis (moderate amount) nine or ten weeks previously. Complained of cough, slight sputum, dyspnœa on exertion, hæmoptysis, night sweats and slight hoarseness. Well nourished, no localised wasting, rhonchi left base and many crepitations right lung. Sputum negative on nine occasions. Skiagram shows localised fibrosis upper part of right lung.



P.T.3.—Female, aged 36. First examined by tuberculosis officer in 1914. Complained of cough, sputum, etc. Physical signs: crepitations to nipple and axilla left lung, also dull percussion note. Sputum positive 1914, 1922, 1923, 1924 and 1926, intermittently negative, negative on several occasions 1926-1931. Skiagram shows whole of left lung is opaque.

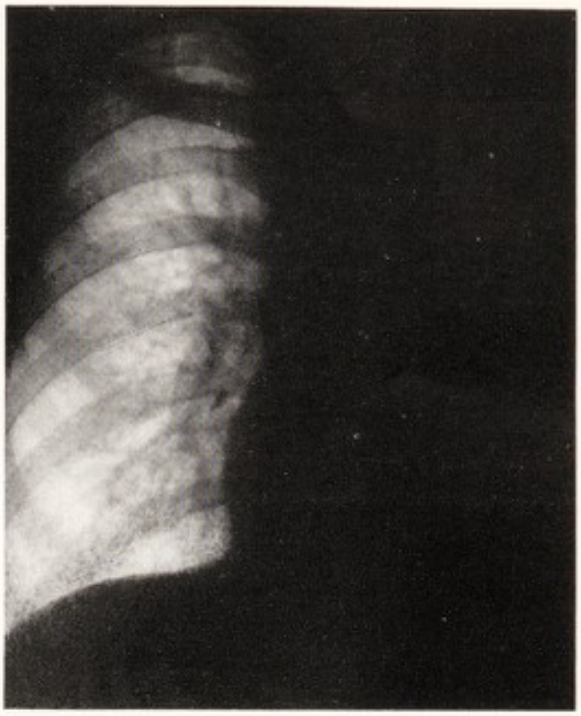


P.T.4.—Female, aged 44. Plump woman. First examined February, 1931. Had pneumonia several years previously. Complained of pain left side for past eight weeks. Physical signs: dullness and tubular breath-sounds left lung, no crepitations. Sputum negative on three occasions. Skiagram shows opacity whole of left lung.

[Skiagrams taken by Dr. Jessel at Eccles Dispensary.]

Skiagrams Illustrating Chronic Inflammatory Conditions Simulating Pulmonary Tuberculosis (contd.).

P.T.5.—Case presenting extreme difficulty in diagnosing. Sputum repeatedly negative for 13 years. See full notes on case on pages 8 and 9.

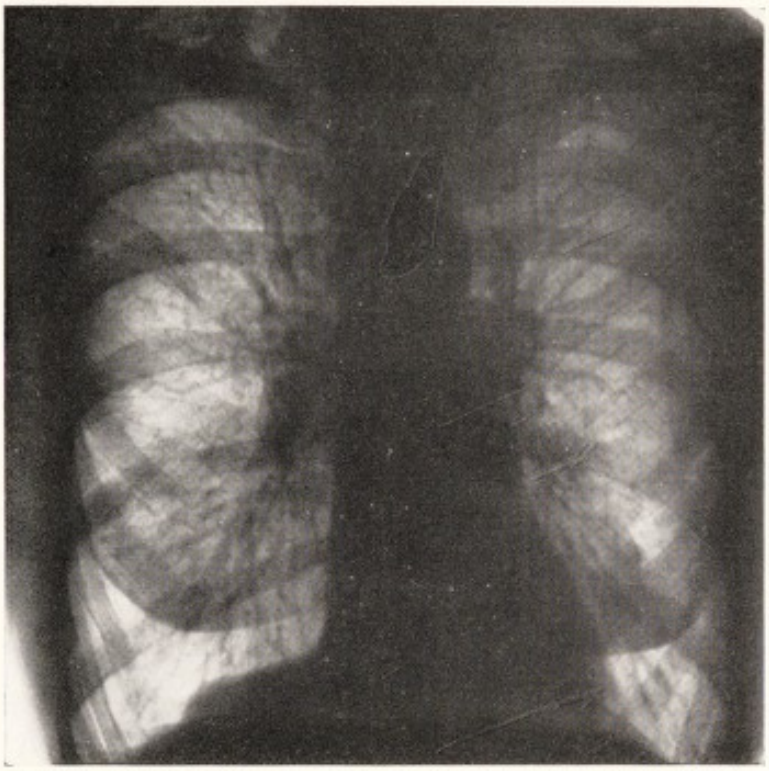


P.T.6.—Male, aged 29. Had pneumonia in 1925. Complained of cough, sputum, dyspnœa and lassitude. Percussion note dull, tactile vocal fremitus, no crepitations left lung. Sputum negative on six occasions. Under dispensary supervision 1926-30. Sputum profuse, green and offensive. Three further specimens were negative. X-ray shows nearly all the left lung to be opaque.

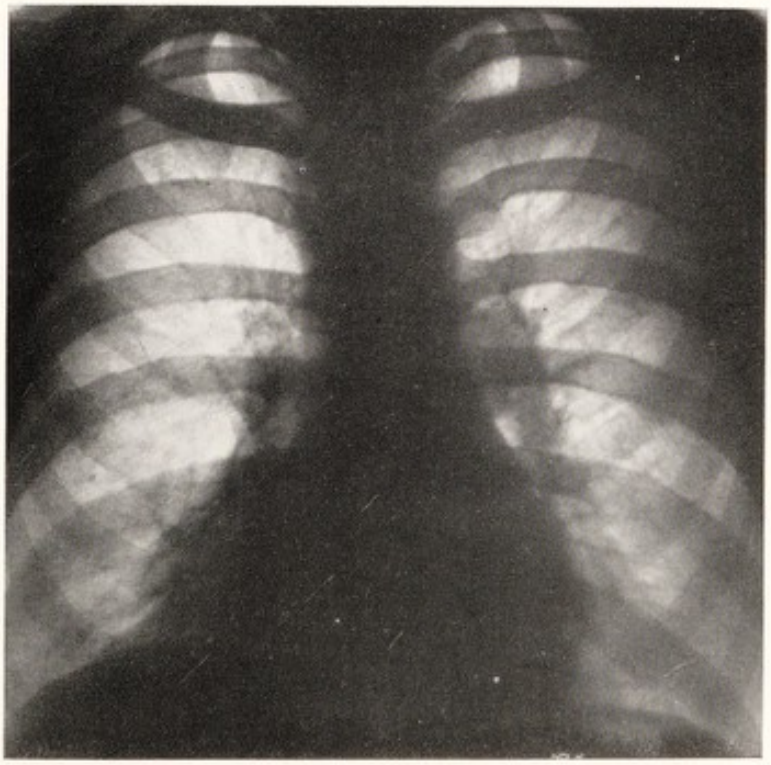
P.T.7.—Male, aged 63. Pre-war soldier. Suffered from malaria 25 years ago. Also bronchial catarrh. For 11 years, until July, 1930, was supervisor of man working emery wheels, but took no actual part in the work. Gave an indefinite history: cough, expectoration, dyspnœa. Well-nourished man. Sputum negative. Physical signs: inspiratory creaking sounds right lower. Wife had two miscarriages. History of syphilis 25 years ago. Wasserman examination strongly positive 1-45 dilution. X-ray shows diffuse homogeneous fibrosis both lungs. A further skiagram taken after a year's continuous anti-syphilitic treatment shows some diminution of the reticulation.

[*Skiagrams taken by Dr. Jessel at Ecc'es Dispensary.*

Skiagrams Illustrating Chronic Inflammatory Conditions Simulating Pulmonary Tuberculosis (contd.).



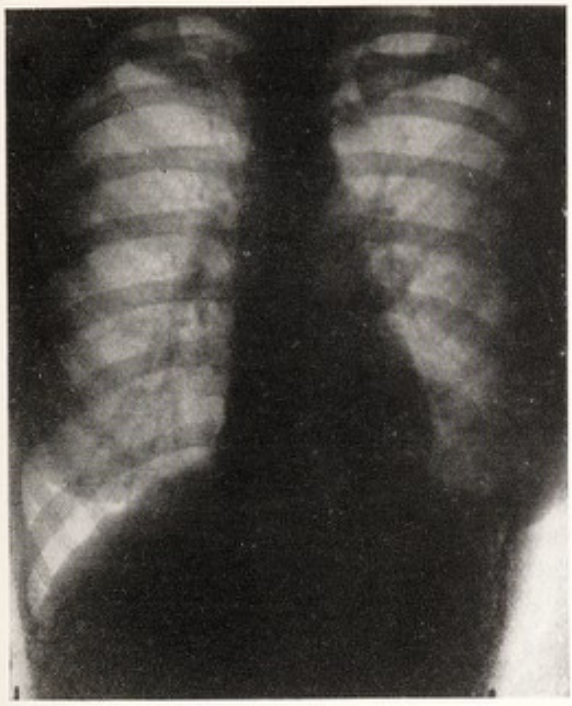
P.T.8.—Female, aged 54. First examined by tuberculosis officer 24/1/29. Gave history of having suffered from bronchitis on and off. Under doctor for past two years. Complained of cough, slight sputum, dyspnœa, loss of weight. Physical examination showed supra-clavicular hollows, impaired percussion note right upper, dry crepitations right lower lobe and left base. 5/2/29: dry crepitations right lower back, left lung nil. Sputum negative on two occasions. X-ray shows extensive branchings both lungs corresponding to bronchial tree.



P.T.9.—Female, aged 23. First examined by tuberculosis officer May, 1932. Frequent blood-spitting age 4-11. Always "chesty." Complained of cough on and off for past seven months, and lassitude. Sputum negative on three occasions. Physical signs indefinite. X-ray shows upper lungs clear, much branching lower zones.

[*Skiagrams taken by Dr. Jessel at Eccles Dispensary.*]

Skiagrams Illustrating Chronic Inflammatory Conditions Simulating Pulmonary Tuberculosis (contd.).



P.T.10.—Female, aged 17. Gave history of pneumonia in infancy. Had attacks of pleurisy once or twice yearly for the past several years. Six weeks ago had a similar attack, and cough, epistaxis. Vomited blood. Physical signs: occasional crackles and dry rub left base. Well nourished. No M.I. X-ray appearances suggest localised bronchiectasis at left base.

P.T.11.—Female, aged 52. First examined in Sept., 1927, having been under own doctor on and off for six months. Subject to bronchitis for years. Physical signs: dry crepitations left front and upper part of back both sides. X-ray 12/9/27 showed extensive patchy opacities with linear branchings throughout both lungs. Sputum negative. Was in pulmonary hospital two months in 1927 and since has had variable physical signs in both lungs with sometimes scattered râles, and at other times no abnormal sounds. Managed housework fairly well until June, 1931. Since then has had periods of more active ill-health, but during whole of the time sputum has been negative on several occasions. Skiagram 1/3/32 shows: left lung, much loss of translucency suggesting extensive fibrosis; right lung, general shaggy appearances especially middle and lower lobes, and fibrosis right apex.

P.T.12.—Female, aged 28. Pneumonia twice in girlhood and once with pleurisy. Subsequently intermittent cough for several years. Sputum negative. Patient thin; supra-clavicular hollow. No definite localising signs. X-ray shows marked branching at bases strongly suggestive of bronchiectasis. Reticular pattern upper parts of both lungs.

[*Skiagrams taken by Dr. Jessel at Eccles Dispensary.*

coarse bubbling râles all over right lung and greater part of left lung behind. Sputum negative on two occasions. A provisional diagnosis of tuberculosis was made; patient being under dispensary supervision until February, 1923, when the condition was regarded as non-tuberculous. Nine further specimens of sputum were all negative for tubercle bacilli. The physical signs found in 1923 were similar to those found in 1918. On 8th May, 1931, the case was notified as one of pulmonary tuberculosis. Clinical examination showed crepitations and rhonchi apex to base, right lung; the left lung being similar. Three further specimens of sputum were muco-purulent in character and negative for tubercle bacilli. X-ray shows the whole of the right side of the chest to be opaque, with marked deviation of trachea and bronchi. Heart and mediastinum deviated to the right. Sputum examined at a general hospital in May, 1931, showed a few tubercle bacilli. Subsequently a guinea pig inoculation was negative. This case is illustrated by skiagram P.T. 5.

Pleurisy, especially if there is a purulent exudate, may give rise to chronic pulmonary fibrosis, or the pleurisy may be incidental to a pneumonia. In extensive cases the fibrinous exudate may become organised, and the process extend into the lung substance, so that eventually the case appears similar to one starting in the lung (see skiagram P.T. 6).

In a few cases no evidence appears as to the origin of the fibrosis. In such cases the following causes have been suggested: (*a*) syphilis (see skiagram P.T. 7); (*b*) pneumonia, unsuspected and of mild character; (*c*) idiopathic or primary.

In chronic affections, as in bronchitis, there is at first a thickening of the bronchial walls, and the bronchi appear in a skiagram as conspicuous branchings (see skiagram P.T. 8). Later, there is a tendency towards destruction and weakening of the bronchial walls, either in the affected area or generally. The resulting condition, *viz.*, bronchiectasis, accounts for much of the chronic chest disease seen at dispensaries and not seldom confused with tuberculosis. The modern study of this disease has shown that the weakening and dilatation of the bronchial walls is not the prerogative of glass-blowers and players of wind instruments. It is the result of an inflammatory, rather than a mechanical, process. In slight cases there are intermittent cough and sputum with few or variable physical signs. Skiagrams show branchings from the hila downwards, the upper lobes being less involved (see skiagram P.T. 9). Later, the sputum may become more profuse and foul, and in such cases a suspicion of bronchiectasis should be aroused, when repeated examination fails to reveal tubercle bacilli. The bronchiectasis may be localised or general. It can frequently be diagnosed in skiagrams, but the use of Lipiodol has revealed its presence in many unsuspected cases. Skiagrams P.T. 10, 11 and 12 illustrate various manifestations of bronchiectasis in adults, the result of a chronic infective inflammatory process, which for a time were suspected as being tuberculous and referred to the dispensary. Skiagrams

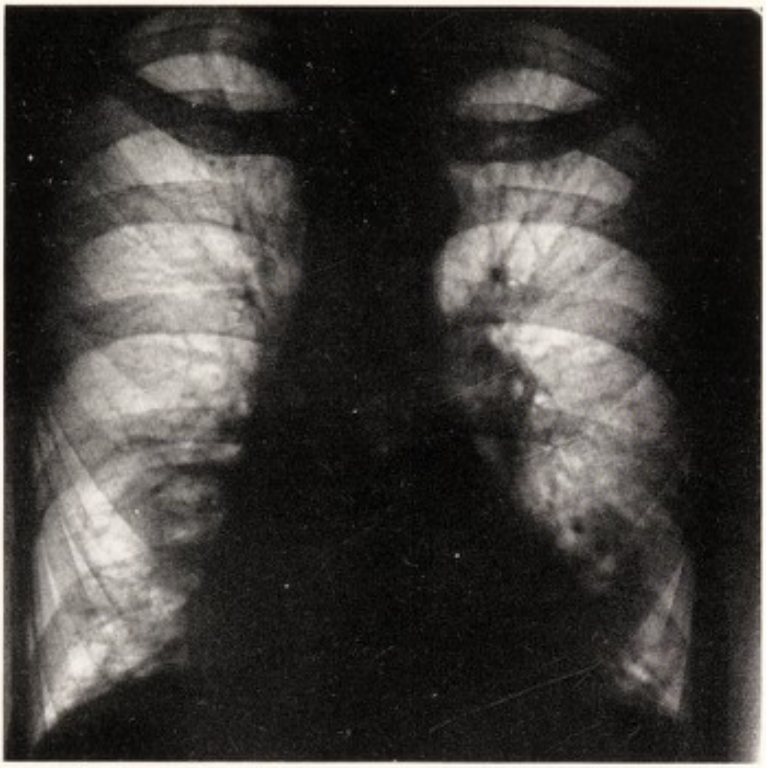
P.T. 13 and 14 illustrate the condition before and after the use of Lipiodol.

Special reference must be made to chronic inflammatory conditions of the lungs occurring in childhood, causing, as they are apt to do, much chronic ill-health. These children are frequent attenders at dispensaries as suspected cases of tuberculosis, and may either be kept under observation for years, or if tuberculosis is definitely ruled out by a tuberculosis officer, they will not infrequently be referred again at intervals, whenever there is an exacerbation of the disease.

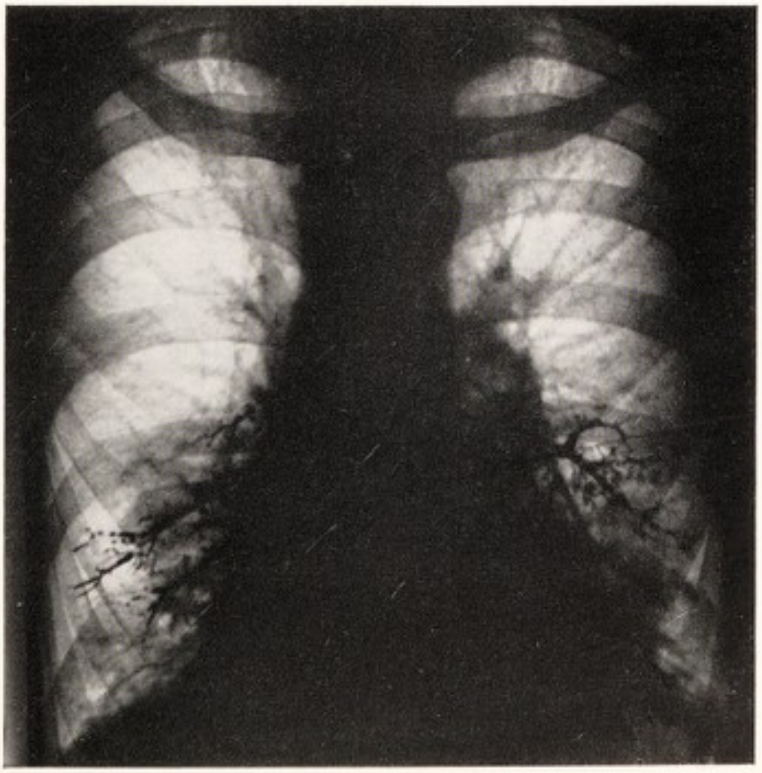
The affection is of a chronic disabling character, but its severity is not constant. There may be comparatively long spells when the health is reasonably good and recovery has apparently taken place, then suddenly the child contracts another " cold " and the symptoms return with their former, or increased, severity. The onset may take place at any age from infancy upwards, the common exciting causes being measles, whooping cough or pneumonia. When seen the child has usually a bad cough, but the sputum, if sufficient to examine, is in these cases always negative. The weight is as a rule sub-normal for the child's age, but this is not invariably the case. The temperature is often raised, and during exacerbations may be high. As associated and concomitant affections the tonsils and adenoids are apt to be enlarged. On physical examination râles are frequently to be heard and may persist for a time, but during quiescent periods will disappear. On x-ray examination little or nothing is seen at first ; later, there are increased lower lobe markings and an increase in the bronchial shadows. No mottling characteristic of tuberculosis is seen. These children show a marked susceptibility to " colds " and recurrences are common, resulting in the development of bronchiectasis with attacks of broncho-pneumonia at intervals as an acute incident. Indeed, bronchiectasis may be suspected with some confidence when a child has muco-purulent sputum, which on examination is repeatedly negative, and where the lower lobes of the lungs are found to be mainly or entirely involved.

Children suffering from this condition are frequently absent from school, when they are referred to the tuberculosis officer by the school medical officer or family doctor as suspected cases of pulmonary tuberculosis. The prognosis in these cases is often unfavourable, owing to the risks of broncho-pneumonia. Skiagrams P.T. 15, 16 and 17 illustrate the condition in some of its varied aspects.

Skiagrams Illustrating Chronic Inflammatory Conditions Simulating Pulmonary Tuberculosis (contd.).



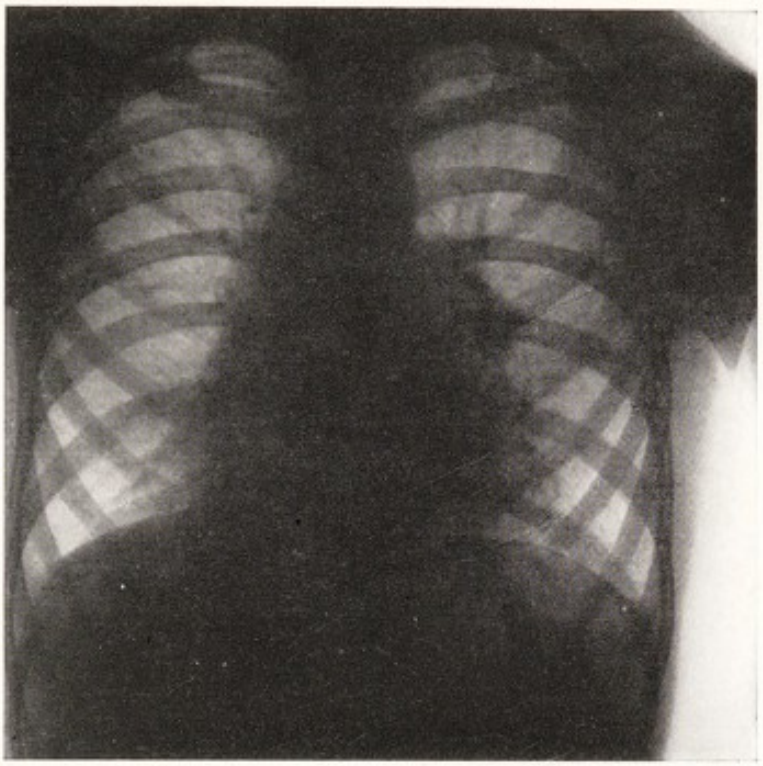
P.T.13.—Male, aged 17. Had rheumatism when 13 years of age. Has been unwell for past year and under doctor. Away from work for two days. Complained of cough, expectoration, loss of weight, loss of energy, and night sweats. Temperature 100°. Clinical examination showed dullness in the interscapular region, base of the right lung hyper-resonant but no crepitations; heart, wavy impulse, presystolic thrill and murmur, cardiac area enlarged. Had marked clubbing of fingers. Skiagram taken 23/11/29 shows extensive branching downwards, no mottling.



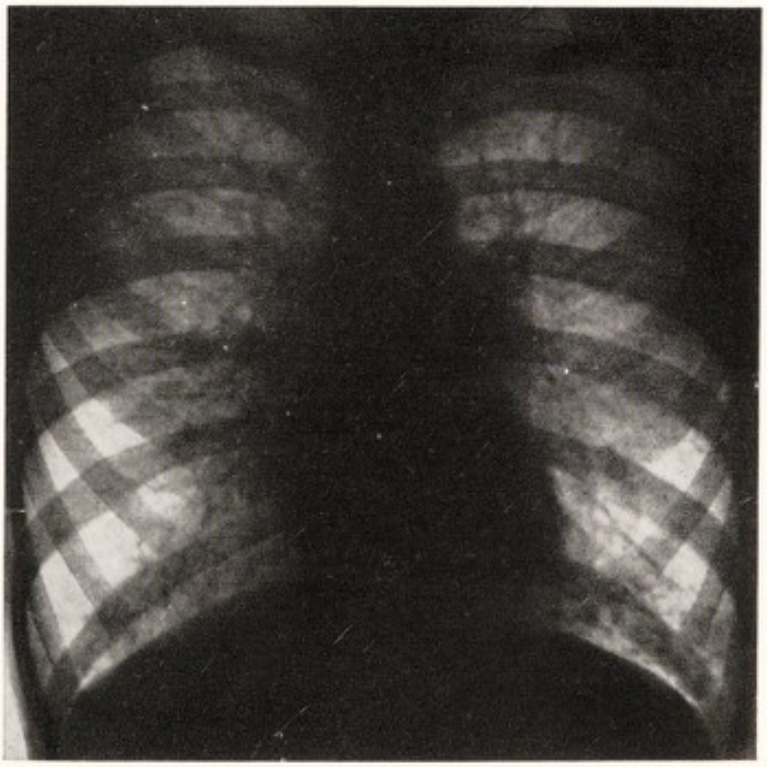
P.T.14.—Same patient. Skiagram taken 29/11/29 after injection of Lipiodol shows marked dilatation of lowest bronchi on the left side.

[*Skiagrams taken by Dr. Jessel at Peel Hall Pulmonary Hospital.*]

Skiagrams Illustrating Chronic Inflammatory Conditions Simulating Pulmonary Tuberculosis (contd.).

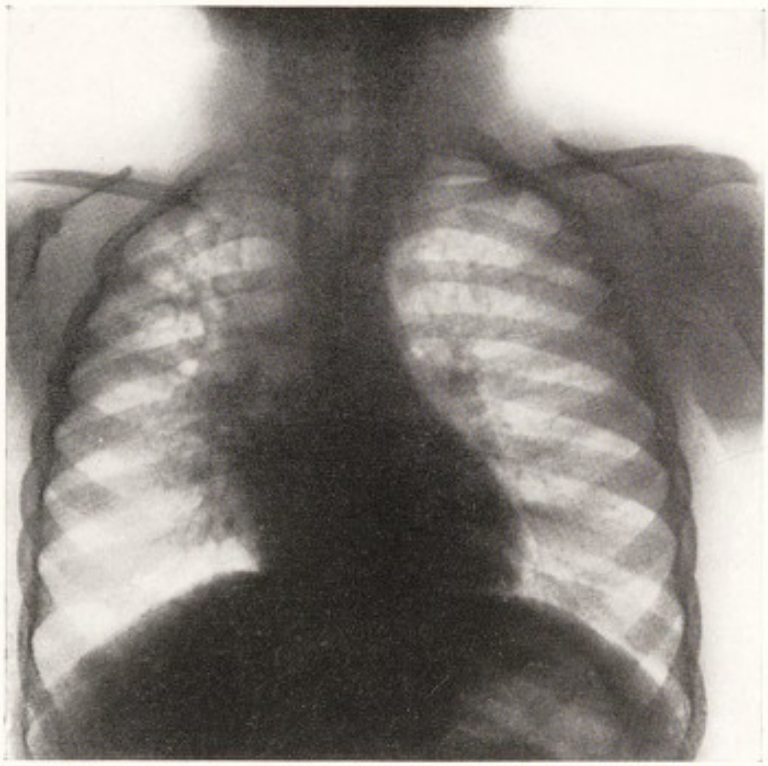


P.T.15.—Female, aged 12. Gave history of having had measles and whooping cough. Examined by tuberculosis officer in 1927, 1929, 1930 and 1931. Attacks of hæmoptysis occurring from time to time. Physical examination showed slight pigeon chest, no definite moist sounds. Sputum negative on three occasions. X-ray shows large heart and marginal appearances shaggy; there is no mottling in the lung substance and the heart is slightly deviated to the right.



P.T.16.—Female, aged 13. First seen by tuberculosis officer January, 1927. History of cough since infancy with inflammation of lungs. Physical examination, râles all over chest. No skiagram taken but a diagnosis made of non-tuberculous inflammatory condition. In July, 1932, the case was referred to tuberculosis officer by another doctor. Physical signs as before, namely, crepitations both lungs, also slight Harrison's sulcus. Sputum negative on three occasions. Skiagram shows extensive branching, characteristic of chronic inflammatory condition—? bronchiectasis left base.

[Skiagrams taken by Dr. Jessel at Eccles Dispensary.



P.T.17.—Female, aged 8. Gave a history of being subject to chest trouble since infancy. Influenza 1926. Fed on Nestle's milk. Complained of cough, fever, lassitude. Snores. Physical signs: rhonchi and râles general, area of high-pitched tubular breath-sounds heard over upper right lung. No sputum. X-ray shows small dark rings in right upper lung with lighter margins, and grouped together, right heart has shaggy extension into lung substance.

[*Skiagrams taken by* ***Dr.*** *Jessel at Eccles Dispensary.*]

IV.—THE INTRACUTANEOUS TUBERCULIN TEST (MANTOUX) AS AN AID TO DIAGNOSIS.

By E. H. Allon Pask, M.D., Medical Superintendent, Wrightington Hospital.

The Mantoux intracutaneous test has been done by my assistant—Dr. E. H. W. Deane—as a routine on all patients admitted to the Wrightington Hospital since it was opened in December, 1931, up to the end of May, 1932. The test has been carried out on 85 children (40 girls and 45 boys) up to the age of 15, and on 79 adults. In considering the results it will be as well to separate them into two groups—children and adults.

Children.

The 85 children consisted of 73 cases of non-pulmonary tuberculosis (bones, joints, glands, peritoneum, kidney, and skin) with three cases of pulmonary tuberculosis and nine cases in which the condition was not tubercular. Three dilutions of Old Tuberculin (human) were used :—1 in 10,000 (0·01 mg.), 1 in 1,000 (0·1 mg.), 1 in 100 (1·0 mg.).

In each case the dose was 0·1 c.c. If a reaction was not obtained with the weaker solutions a final dose of the 1/100 concentration was given ; 48 hours were allowed to elapse before reading the reactions.

In cases where the reaction was negative to the weaker solutions another dose of a higher concentration was given within a week. No ill-effects were observed. The results are given in the following Table 5 :—

Lesion.	Total.	Result of Mantoux Test.				Remarks.
		Positive—dilutions.			Negative.	
		1/10,000	1/1,000	1/100		
Glands neck	19	11	7	—	1	1 case non-tubercular.
Spine ..	15	11	3	1	—	
Hip ..	12	5	4	1	2	Includes 2 cases of pseudo-coxalgia.
Knee ..	9	6	1	—	2	3 cases non-tubercular
Ankle ..	5	4	1	—	—	
Peritoneum	10	2	3	3	2*	2 non-tubercular.
Skin ..	4	4	—	—	—	
Elbow ..	2	2	—	—	—	
Chest ..	3	2	1	—	—	
Dactylitis	2	2	—	—	—	
Kidney ..	2	1	1	—	—	
Jaw ..	1	1	—	—	—	Osteo-myelitis of jaw.
Metatarsal	1	1	—	—	—	
Total	85	52	21	5	7	
		78				

*Two cases " ? Tb. Peritoneum " sent in for observation and diagnosis.

As regards the above seven cases which gave a negative reaction these consisted of one case of enlarged glands of the neck which was due to a septic condition of the naso-pharynx, two cases of pseudo-coxalgia, two cases of arthritis of the knee-joint in which there was considerable doubt as to its cause, and two cases sent in for observation as possibly tuberculous peritonitis, but on clinical evidence the diagnosis of tuberculous peritonitis was not confirmed.

Two of the cases which gave a positive reaction were not cases of tuberculosis, one was a case of osteo-myelitis of the jaw in a child aged two years, and the other was one of infective arthritis of the knee-joint.

The remaining 76 cases which were clinically tuberculous all reacted to the Mantoux test. Therefore the percentage of error in the series was 2·6.

From the foregoing results it will be seen that they conform to the general concensus of opinion as regards the Mantoux test in children.

A negative reaction with the strongest concentration in a doubtful case is very useful in helping to exclude tubercle ; whereas the converse does not hold true. A positive reaction in a doubtful case proves nothing beyond the fact that the patient has been at some time or other infected with the tubercle bacillus in some part of the body.

Adults.

The 79 adults in which the Mantoux test was performed consisted of 57 cases of non-pulmonary tuberculosis and 16 combined cases (*i.e.*, cases of pulmonary tuberculosis with a non-pulmonary lesion) and six cases not suffering from tuberculosis.

In view of the fact that a large number of normal adults have a positive reaction it was thought unnecessary to use the weakest dilution, and only two dilutions were used, *viz.*, 1/1,000 and 1/100. The results were as follows :—

Total number of cases in series	79
Number reacting to a dilution of 1/1,000 (0·1 mgm.) ...	73
Number reacting to a dilution of 1/100 (1·0 mgm.) ...	2
Number of cases negative	4

The four cases in which the reaction was negative consisted of three definite cases of tuberculosis, two suffering from tubercular peritonitis and one combined case of pulmonary tuberculosis and spinal caries who died 15 days after the injection. The other case was one of Scheuermann's disease, a non-tubercular condition of the spine.

This was in a youth of 18 who came from a rural district where the risk of infection by tubercle would be less than if he had resided in an urban area. Five of the cases that were non-tubercular gave a positive reaction.

From this series of cases, which is admittedly small, it will be seen that the only assistance that the Mantoux test gave was in the case of Scheuermann's disease. From a practical point of view, therefore, it might be useful to use the Mantoux test in doubtful cases, and if it proved negative it would be of some assistance in excluding tuberculosis.

Summary and Conclusions.

Children.

1. The Mantoux test in a series of 85 cases was of definite help in excluding tubercle in seven children where the reaction was negative.

2. In two cases the reaction was positive in which the condition was non-tubercular, and was therefore of no assistance and possibly misleading.

3. Of the 76 cases which were clinically tubercular, the Mantoux test was positive in every case—100 per cent.

4. The Mantoux test is a useful aid to diagnosis in children ; it does not entail a great amount of extra work in an institution, and might with advantage be adopted as a routine in all cases in children's institutions where tuberculosis is treated.

Adults.

1. In the series of 79 cases a negative reaction in only one case was of value in helping to confirm a diagnosis.

2. Five cases out of six of non-tubercular conditions gave a positive Mantoux test, and three cases of tuberculosis gave a negative Mantoux test, so that the margin of error in the series was 11·4 per cent.

3. The Mantoux test is thus of very little assistance when we are dealing with adults, as a large percentage of the adult population give a positive reaction.

V.—THE AFTER-EFFECTS OF PHRENIC EVULSION AND ALLIED PROCEDURES.

By G. Jessel, M.D., Medical Superintendent, Peel Hall Pulmonary Hospital.

Between 26th April, 1931, and 3rd June, 1932, thirty men patients at the Peel Hall Hospital received operative treatment involving the phrenic nerve on one side, and it is desirable to make brief allusion to the early results. New procedures in the treatment of tuberculosis are usually associated with undue optimism on the part of their exponents and corresponding scepticism from those whose hopes in this direction have so often been disappointed. Operative treatment in pulmonary tuberculosis not only requires an expert surgeon with special experience, such as we have in Mr. Morriston Davies, but involves much additional labour and responsibility for the staff of the institution. It is natural to wonder whether the results are commensurate with the effort. An answer is obtained from examining (1) the reasons for the operation, (2) the general effect on the patients' condition, and (3) the effect on the sputum.

(1) *The reasons for performing the operation of phrenic evulsion* were as under :—

Artificial pneumothorax unsuccessful or abandoned ...	20
Disease at base	1
Fluid at base	1
Cavity at apex or upper lobe	3
Pleural thickening	1
Gas replacements following artificial pneumothorax—organisation at base	3
Gas replacements following artificial pneumothorax—to lessen refills	1

It will be seen that in two-thirds of the cases a previous attempt at artificial pneumothorax had been unsuccessful or incomplete. The reasons in the other cases were mainly disease or organisation at the base in one form or another. Special mention must be made of three cases with cavities at the apex or upper lobe. In one case the cavity disappeared after phrenic evulsion. In the other two scalenectomy was also performed with resection of a small portion of the first rib. In both cases the general results were good, although at the time of writing the cavities had not disappeared, probably owing to surrounding fibrosis.

(2) *Condition of the patients at the end of June*, 1932. One-half of the patients were working or fit for work, eleven were in hospital up and about, while four were unfit for work.

(3) *Effect on sputum.* The following Table 6 shows the sputum results before and after treatment :—

On admission.	On 30th June, 1932.		
	Pos.	Neg.	None.
Positive .. 23	10	7	6
Negative .. 7	—	5	2
Total .. 30	10	12	8

In all cases the quantity of sputum was reduced. It will be seen that of the 30 cases, 23 had tubercle bacilli prior to operation, while at the end of June bacilli were only found in 10 cases, the remainder having either no sputum or a negative sputum. This result must be regarded as important from the public health and administrative point of view, as it is clearly desirable to reduce the number of disseminators of bacilli.

Conclusion. It thus appears that the early results of phrenic evulsion and resection at the Peel Hall Hospital have been most encouraging, especially as the patients were a portion of the ordinary hospital inmates and were not specially drafted in from other institutions. It is clear that whether the institution be small or large, intensive treatment is well worth while from every point of view, and we are fortunate in having had the advantage of the experience and skill of Mr. Morriston Davies in this connection.

VI.—NOTIFICATION OF TUBERCULOSIS CASES.

It is the statutory duty of every medical practitioner to notify within 48 hours to the local medical officer of health any case of tuberculosis occurring in his practice, and the medical officer of health is charged with the duty of keeping a register of such cases reported in his sanitary district.

The Ministry of Health have issued the Public Health (Tuberculosis) Regulations, 1930, which came into force on 1st January, 1931. These regulations consolidate the regulations issued in 1912, 1921 and 1924, and they also include several minor amendments of an administrative nature.

Non-Notification.

I have continued to direct special attention to the notification of cases of tuberculosis, and have engaged in correspondence with medical practitioners, medical officers of health, and medical superintendents, over many individual cases.

The extent of non-notification of pulmonary cases in the Administrative County is shown in the following Table 7 :—

Year.	Number of deaths from pulmonary tuberculosis recorded.	Deaths not notified under Regulations during life.	
		Number.	Percentage to pulmonary deaths.
1918	1652	303	18·3
1919	1339	221	16·5
1920	1323	177	13·3
1921	1301	135	10·3
1922	1362	105	7·7
1923	1250	85	6·8
1924	1215	64	5·2
1925	1205	67	5·5
1926	1158	58	5·0
1927	1105	54	4·8
1928	1066	56	5·2
1929	1102	62	5·6
1930	1046	46	4·3
1931	1021	61	5·9 *

* Of the 61 deaths which, in 1931, escaped statutory notification as tuberculous cases during life, it should be stated that 10 were known to the tuberculosis officer, 1 had been reported to the local medical officer of health as an admission to a public institution, and 20 died in mental hospitals, public assistance hospitals, and general

hospitals. If these 31 deaths which were known otherwise than by the official primary notification under the Regulations be deducted, then the percentage of 5·9 *non-notified fatal cases would be reduced to* 2·9, which figure may be taken as the real extent of missed notifications resulting in cases escaping supervision by the health authorities.

The improvement which has been secured in recent years in the notification of cases of pulmonary tuberculosis before death would not have been practicable without the cordial co-operation of the local medical officers of health and, of course, the general practitioners who make the notifications.

There is no doubt that in this Administrative County a much smaller proportion of cases of tuberculosis escapes notification than is frequently the experience in other parts of the country. Thus, we have fewer unknown cases or unknown sources of infection remaining outside the measures for the control of tuberculosis.

For non-pulmonary tuberculosis, there were 51 non-notified fatal cases in 1931, which on the total deaths from this form of the disease equalled 19·1 per cent.

Special Enquiry into Non-Notified Fatal Cases.

Commencing in October 1920, special investigations have been carried out in regard to every individual death recorded which had not been previously notified. The procedure followed has been to examine the names of persons dying from tuberculosis given in the weekly returns of deaths sent, by arrangement, to the tuberculosis department by the district registrars. The names are compared with the notification register, and the death of every person not previously reported as a case under the Public Health (Tuberculosis) Regulations is enquired into; information as to the circumstances attending non-notification is obtained from the tuberculosis officer and, if necessary, the medical attendant.

In 1931, there were 112 such deaths, and the enquiry for that year gave the following important results :

(1) That 37 (20 pulmonary, 17 non-pulmonary) of the 112 deaths in 1931 occurred in public institutions.

(2) That of the remaining 75 deaths, the circumstances of non-notification were as stated in the following table :—

TABLE 8. *Circumstances of non-notification of fatal cases.*

	Period 1st January to 31st December, 1931		
	Pulmonary	Non-pulmonary	Total
Doctor in attendance shortly before death—			
1 week or less	2	2	4
1 to 2 weeks	3	3	6
2 to 3 weeks	—	1	1
Complicated cases, presenting difficulty in diagnosis (including 6 cases of meningitis). ..	1	8	9
Misinterpretation of Tuberculosis Regulations and notification believed to be unnecessary—			
Cases previously notified in another area ..	4	1	5
Cases known to tuberculosis officers—considerable doubt as to diagnosis in some of these cases	7	6	13
No doctor in attendance	10	—	10
Temporary residents..	2	—	2
Attended by more than one doctor, and notification believed to have been made by first practitioner	2	5	7
Notified after death—in several instances after post-mortem examination	2	3	5
No apparent reason for non-notification	5	2	7
	38	31	69
Tuberculosis not primary cause of death	1	2	3
Information not ascertainable	2	1	3
TOTAL	41	34	75

(3) *This table shows that there was no reasonable excuse for non-notification in only 7 of the 75 deaths.*

The efficiency of notification varies directly with the efficiency of the county council or county borough scheme dealing with tuberculosis. If there is no really comprehensive scheme, if there are poor and newly qualified, part-time, and badly paid tuberculosis officers, if there are insufficient means for expert diagnosis, and too few beds for treatment, then a high proportion of non-notified fatal cases will be the rule and not the exception.

Total "Known Sources of Possible Infection."

One effect of the better notification of cases by practitioners has been to add to the number of new cases in recent years and statistically to make the figures disadvantageously comparable with the earlier years when a larger number of cases escaped notification.

It is, however, possible to obtain a truer record of the number of cases of pulmonary tuberculosis occurring year by year by adding together (*a*) the notifications and (*b*) the deaths which occurred without notification being made during life ; this total gives clearly the number of known sources of possible infection as Table 1 on page 2 shows.

VII.—APPLICATIONS FOR TREATMENT.

Table 9 below shows the number of "new" patients (1,855) who applied for treatment under the County scheme during the year 1931 :—

	Number of applications received during 1931.	Diagnosis of new applicants for treatment.			
		Pulmonary cases.	Pulmonary and non-pulmonary.	Non-pulmonary cases.	Diagnosis not confirmed (non-tuberculous).
Men	773	599	24	137	13
Women ...	697	460	21	205	11
Boys	200	22	6	169	3
Girls	185	22	4	157	2
TOTAL ...	1,855	1,103	55	668	29

Applications received in previous years were :—1918–21 average, 2,294 ; 1922–25 average, 2,183 ; 1926–28 average, 2,262 ; 1929, 1,923 ; 1930, 2,090 ; compared with 1931, 1,855. Thus there were 235 fewer applications than in 1930.

During 1931, there were 2,322 cases notified under the Public Health (Tuberculosis) Regulations as suffering from tuberculosis (all forms), whereas the number of persons who applied for treatment to the County Council was 1,855, equal to 79 per cent. of the notifications.

CLASSIFICATION OF NEW PATIENTS.

(*a*) *Pulmonary tuberculosis.*

During 1931, applications for treatment were received from 1,158 new patients, and these were reported by the tuberculosis officers to be in the undermentioned stages of the disease on the first examination :—

T.B. Minus (Sputum negative or absent) ... ... 461, or 39·8 per cent.
T.B. Plus 1 (Early cases, sputum positive) ... 77, or 6·6 ,, ,,
T.B. Plus 2 (Intermediate cases, sputum positive) ... 459, or 39·6 ,, ,,
T.B. Plus 3 (Advanced cases, sputum positive) ... 161, or 13·9 ,, ,,

It is well known that, throughout the country, tuberculosis officers do not see many of the new cases in the early stage of the disease. Some patients through ignorance, others on account of economic reasons, neglect to consult a doctor when in the early stage, and so

lessen their chance of recovery. In the Administrative County we have for several years made special investigations into the reasons underlying such disastrous delay on the part of patients. These investigations have been continued in 1931, yielding the following conclusions which correspond closely with those published in previous reports :—

1.—Altogether 65·9 per cent. of the 161 advanced cases either had no doctor or had only been attending their doctor for less than two months when first examined by the tuberculosis officer or notified. The corresponding percentage in 1930 was 72.

2.—After making allowance for a percentage of fulminating cases ("galloping consumption"), a large proportion—nearly three-fourths—of patients had felt ill for one or more months before consulting a doctor.

3.—The reason for late notification and patients delaying their application until in an advanced stage of the disease is chiefly the disinclination or unwillingness of the patients to report themselves to their doctor when feeling ill. This is due mainly to the insidious onset of the disease, the discomfort being only slight at first.

4.—There does not appear to be evidence in any large number of cases of unreasonable delay on the part of family doctors referring cases to the tuberculosis officer.

5.—The initiative to seek treatment when ill rests with the patient himself, and the only feasible remedy lies in the education of the public as to symptoms and common dangers of tuberculosis and the need for securing prompt treatment. This cannot be too strongly or too often emphasised.

With regard to the last conclusion 5, there are many difficulties in the way of reaching the people who most require such education. On the tuberculosis officer rests chiefly the duty of stimulating public interest, but an increasing number of sanitary authorities and voluntary care committees are assisting in propaganda work. It was hoped that more satisfactory results would accrue with the issue in January, 1928, by the Board of Education of a "Handbook of suggestions on Health Education for the consideration of teachers and others concerned in the work of public elementary schools." Such instruction at school should be economical in regard to cost, and eventually, with the passage of years, bring about a greater measure of care in regard to the avoidance of disease.

In connection with the teaching of hygiene, the following extracts from Sir George Newman's annual report to the Board of Education for 1929 are of great interest :—

> "For many years I have endeavoured consistently to advocate in these Reports the teaching of Hygiene in all grades of schools. I have done this not only because Parliamentary Committees and Royal Commissions have urged its importance and paramount necessity and called upon the Board of Education to provide such instruction, but because I am profoundly convinced that such teaching is essential to the national health and well being. We cannot get, and we need not expect to get, a healthy people *unless our youth are trained in health.*"

"... The Board may issue a Health Syllabus such as that of the *Hygiene of Food and Drink*, or the *Handbook of Suggestions on Health Education*, but the application of these documents is almost entirely a matter for each Local Education Authority, and mainly indeed for each School or Department and its Head Teacher."

The tuberculosis medical staff have to depend very largely on the general practitioners throughout the County for bringing forward tuberculous patients, and it is satisfactory to note that 89 per cent. of new cases are sent *before notification* to the tuberculosis officers for an opinion as to diagnosis. Too much importance is still laid by some doctors on sputum examinations alone, and often too long a time is allowed to elapse in order that the sputum may be tested; or steps are not taken to report the case until it is returned as "positive."

(*b*) *Non-pulmonary tuberculosis.*

There were 668 new cases diagnosed by the tuberculosis officers as suffering from non-pulmonary tuberculosis in the following forms :—

Bones, joints and spine	158	668
Abdomen	97	
Other organs	47	
Peripheral glands	333	
Skin	33	

In 1930 the number of applications from non-pulmonary cases was 809.

VIII.—TREATMENT OF TUBERCULOSIS BY ARTIFICIAL LIGHT.

Present Position of the County Scheme.

Commencing with two experimental light centres in 1925, the County scheme has been extended, and now, with Accrington, thirteen centres have been opened at County tuberculosis dispensaries. The names of the light centres and the description of the equipment were given in the 1929 report.

The treatment of the patients has been carried out under the direct supervision of the consultant tuberculosis officer of each dispensary area and by the medical and nursing staff under him.

Results of Treatment.

Tables showing the results of treatment at each light centre have been received from the consultant tuberculosis officers of the dispensary areas, and have been summarised in the following form which represents the work done at the twelve centres (excluding Accrington, only opened in January, 1932), in the County during the year 1931 :—

Table 10.

Form of tuberculosis or part of body affected.	Number of cases on treatment on 1-1-31.	Number of cases commencing treatment in 1931.	Condition of patients whose treatment concluded in 1931.				Ceased treatment for other reasons. *	Still under treatment at end of 1931.
			Quiescent and apparently well.§	Improved.	Stationary.	Worse.		
Skin	174	49	38	4	3	1	29	148
Adenitis with abscess formation and skin involvement ...	106	152	117	9	2	—	27	103
Adenitis without softening ...	74	85	71	3	1	1	23	60
Bones, joints, and spine ...	32	38	19	4	3	1	14	29
Abdomen	15	17	13	—	2	—	6	11
Other non-pulmonary conditions	13	16	10	1	—	—	5	13
Pulmonary tuberculosis :— Lungs—sputum positive ...	4	3	—	—	—	—	2	5
sputum negative ...	1	—	—	—	—	1	—	—
Pulmonary and non-pulmonary combined	4	2	1	—	—	—	—	5
Total for 1931	423	362	269	21	11	4	106	374
	785 †							
For comparison, the total in 1930 was	410	472	288	33	18	4	116	423
	882 ‡							

* Includes : (1) Patients who did not receive two months' treatment ; (2) patients ceasing light treatment prematurely (*e.g.*, removals, unwilling or unable to continue) ; and (3) patients transferred to sanatoria or hospitals.

† Adults, 433 ; children, 352. ‡ Adults 473 ; children, 409.

§ The term "quiescent and apparently well" has been chosen to express the condition of a lesion which has been healed by artificial light treatment. By direction of the Ministry of Health no case of non-pulmonary tuberculosis is written off the tuberculosis register as "recovered" until three years have elapsed without any signs or symptoms of active disease.

During the year 42 patients, who had ceased treatment in a previous year with the disease quiescent and apparently well, relapsed and returned for further treatment; of this number 11 were suffering from lupus, 22 adenitis with abscess formation and skin involvement, seven adenitis without softening, one tuberculous elbow joint, and one abscess chest wall.

In addition to the 785 active cases dealt with in the foregoing table, there were 23 non-pulmonary cases whose condition was quiescent on commencing light treatment. The object of treatment was to prevent a possible recurrence of active disease.

The results of treatment of cases of non-pulmonary tuberculosis in 1931 may be considered satisfactory, particularly for three groups of cases, namely: (i) skin, (ii) adenitis with abscess formation and skin involvement, and (iii) adenitis without softening. Conditions (i) and (ii) are usually refractory to other forms of treatment.

Of the total patients attending the light centres, 81 per cent. were able to continue their normal occupation during the course of treatment.

The average gain in weight of the 269 patients who became "quiescent and apparently well" was as follows:—Adults 4·35 lbs.; children 6·01 lbs.

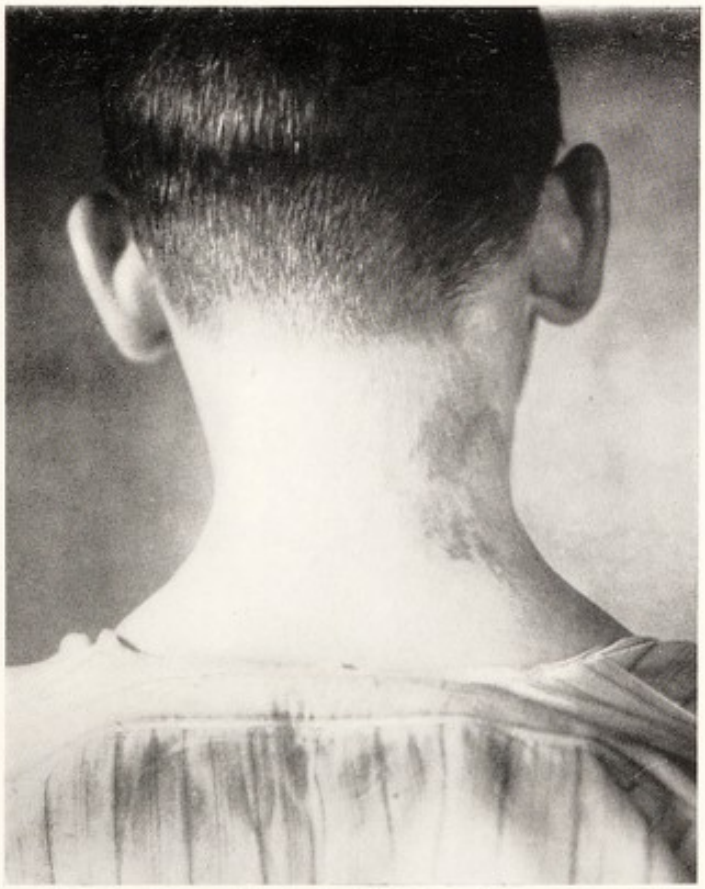
The degree of pigmentation attained in these 269 patients was: Deep 47, medium 60, light 87, none 75.

Average Duration of Treatment.

The duration of treatment has varied widely according to the type of non-pulmonary disease. Taking several groups of cases in which the disease has become "quiescent and apparently well" the average duration is as given in the following Table 11:—

Form of tuberculosis or part of body affected.	Number of cases (active on commencing light treatment) who became "quiescent and apparently well."	Average duration of light treatment.	*For comparison*: Average duration of disease *before* commencing light treatment.
		Months.	Months.
Skin	38	14·26	92·73
Adenitis with abscess formation and skin involvement ...	117	9·76	19·22
Adenitis without softening ...	71	9·08	30·92
Bones, joints, and spine ...	19	13·07	41·02
Abdomen...	13	9·90	15·28

A.L.1(*a*).—Patient J.T., aged 37, male. Lupus neck. Duration of disease prior to light treatment, 15 years. Photograph shows condition in May, 1931, at commencement of light treatment.



A.L.1(*b*).—Same patient. Condition in June, 1932, after 13 months' treatment by general carbon arc baths with salicylic acid and creosote plaster in addition. Scar partly pigmented.

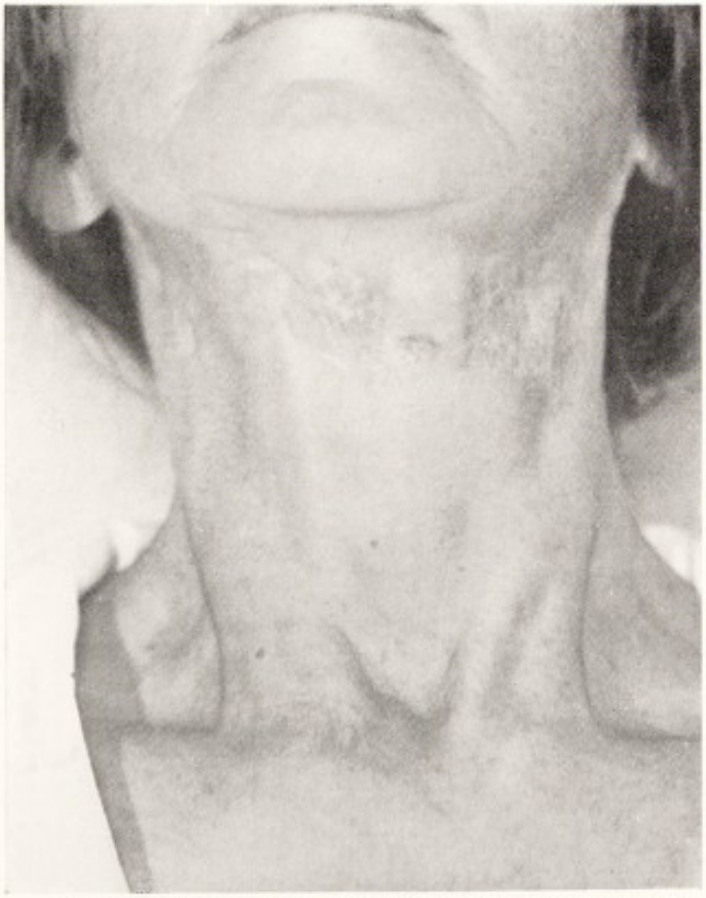
[*Photographs taken at Ashton-under-Lyne Dispensary.*]

A.L.2(*a*).—Patient N.B., aged 22, female. Lupus. Duration of disease prior to light treatment 16 years. Previous treatment at a skin hospital for one month.

A.L.2(*b*).—Same patient. Photograph taken 24/8/31 shows condition after 11 months' treatment with general carbon arc and local Kromayer. Pigmentation medium. Weight lost 2½ lbs.

[*Photographs taken at Eccles Dispensary.*

A.L.3(*a*).—Patient F.E., aged 61, female. Lupus. Duration of disease prior to light treatment many years. Previous treatment incision of abscess and some x-ray treatment three years previously.



A.L.3(*b*).—Same patient. Photograph taken 11/7/32 after six months' treatment with general carbon arc, local Kromayer and plaster. Pigmentation deep. Weight stationary.

[*Photographs taken at Eccles Dispensary.*]

The frequency of attendance of patients depends on several factors, but at ten of the centres the great majority of patients attend twice per week, and at the other centres thrice per week. Thirty per cent. of the patients were assisted by the payment of railway, bus or tram fares to the light centre.

Photographic Records.

In order to record the progress made by patients, photographs have been taken of a number of cases treated by light—at commencement, during the course of treatment, and on termination.

Cost of Light Treatment.

The cost of artificial light treatment at the centres averaged 4s. 7d. per patient per week (inclusive of standing charges and a proportion of staff salaries, etc.).

IX.—SUMMARY OF WORK DONE THROUGH THE DISPENSARY ORGANISATION.

Census of Cases under Supervision on 31st December, 1931.

Table 12 shows the total number of persons in each area who were suffering or suspected to be suffering from tuberculosis, and who were under the supervision of the dispensary staff at the end of 1931. As a matter of interest, the number of cases per 1,000 of the population has also been calculated for each area.

Table 12.—*Tuberculous cases on dispensary registers on 31st Dec., 1931 including (875 patients in sanatoria and hospitals).*

Dispensary area.	Estimated population, 31-12-31.	Number of cases under supervision on 31-12-31.						Number of cases of tuberculosis under supervision per 1,000 of population.	Number of doubtful cases on 31-12-31.
		Sex.	Pulmonary tuberculosis.		Non-pulmonary tuberculosis.		Total number of cases.		
			Under 15 years of age.	15 years and over.	Under 15 years of age.	15 years and over.			
No. 1	264,667	M	28	206	111	134	979	3·69	7
		F	14	195	126	165			
No. 2	346,624	M	7	313	85	144	1100	3·17	11
		F	9	265	100	177			
No. 3	375,024	M	18	469	123	192	1559	4·15	—
		F	20	391	112	234			
No. 4	347,473	M	19	511	143	210	1604	4·61	—
		F	8	357	119	237			
No. 5	368,873	M	69	565	221	183	1974	5·35	10
		F	78	450	168	240			
Furness	37,959	M	17	78	16	20	256	6·74	6
		F	10	74	17	24			
Fylde	63,780	M	6	104	47	44	396	6·20	8
		F	8	98	45	44			
Wigan*	—	—	—	—	—	—	—	—	—
Total	1,804,400	M	164	2246	746	927	7868	4·36	42
		F	147	1830	687	1121			
			4387		3481				

* The County Tuberculosis Committee decided to constitute, as from the 1st January, 1932, the Wigan County Sub-Area which contains the districts (population 117,294) around and near the Wrightington Hospital. The sub-area previously formed part of Dispensary Area No. 5.

The particulars of the patients on the County register at the end of the year have been further sub-divided in the following tables so as to show the classification, whether active or quiescent, age-group and sex.

TABLE 13.—*Analysis of cases on the dispensary registers on the 31st December, 1931 (Population of Administrative County 1,804,400).*

(*a*) PULMONARY TUBERCULOSIS.

Age-groups.	Sex.	T.B. minus.		T.B. plus 1.		T.B. plus 2.		T.B. plus 3.		TOTAL.	
		Active.	Quies.	Active.	Quies.	Active.	Quies.	Active.	Quies.	Active.	Quies.
0–5 years ...	M.	2	3	—	—	—	—	—	—	2	3
	F.	1	—	—	—	—	—	—	—	1	—
5–15 years ...	M.	53	100	1	1	1	1	2	—	57	102
	F.	44	92	1	1	6	—	2	—	53	93
15–25 years ...	M.	87	171	32	18	103	24	22	2	244	215
	F.	92	170	53	22	194	35	30	3	369	230
25–35 years ...	M.	51	109	58	44	186	44	26	3	321	200
	F.	66	152	65	40	175	39	25	3	331	234
35–45 years ...	M.	49	103	61	54	159	39	29	2	298	198
	F.	48	90	32	28	106	26	15	1	201	145
45–55 years ...	M.	68	91	42	44	145	35	26	3	281	173
	F.	40	57	12	20	53	18	5	3	110	98
55–65 years ...	M.	40	50	12	14	95	19	16	4	163	87
	F.	18	19	10	7	20	10	4	1	52	37
65 and over ...	M.	10	19	2	6	17	7	5	—	34	32
	F.	7	6	1	—	6	3	—	—	14	9
All Ages ...	M.	360	646	208	181	706	169	126	14	1400	1010
	F.	316	586	174	118	560	131	81	11	1131	846
GRAND TOTAL ...		1908		681		1566		232		4387	

(*b*) NON-PULMONARY TUBERCULOSIS.

Age-groups.	Sex.	Bones and joints (excluding spine).		Spine.		Abdomen.		Other organs.		Peripheral glands.		Skin.		TOTAL.	
		Act.	Quies	Act.	Quies	Act.	Quies	Act.	Quies	Act.	Quies	Act.	Quies	Act.	Quies
0–5 years ...	M.	9	9	5	1	7	7	1	4	22	17	—	1	44	39
	F.	7	5	8	—	7	2	—	2	20	22	—	—	42	31
5–15 years ...	M.	56	70	34	24	21	56	1	7	113	242	30	9	255	408
	F.	56	59	25	18	19	42	2	7	97	259	20	10	219	395
15–25 years ...	M.	61	81	22	19	10	30	9	7	71	128	37	22	210	287
	F.	39	65	18	10	24	37	7	7	69	204	44	26	201	349
25–35 years ...	M.	30	39	17	13	3	10	12	8	13	40	19	11	94	121
	F.	23	27	15	11	9	19	5	—	37	80	25	15	114	152
35–45 years ...	M.	9	17	9	3	2	2	7	13	6	11	16	7	49	53
	F.	16	8	8	9	7	3	6	3	15	22	24	12	76	57
45–55 years ...	M.	6	14	5	7	1	1	5	3	3	4	9	3	29	32
	F.	11	11	6	3	5	—	2	1	11	11	26	8	61	34
55–65 years ...	M.	11	7	—	1	—	—	3	3	1	2	2	1	17	14
	F.	7	3	3	3	3	—	—	—	3	11	13	4	29	21
65 and over ...	M.	8	4	—	—	—	—	1	2	—	1	5	—	14	7
	F.	10	—	—	2	—	—	1	—	—	2	7	5	18	9
All Ages ...	M.	190	241	92	68	44	106	39	47	229	445	118	54	712	961
	F.	169	178	83	56	74	103	23	20	252	611	159	80	760	1048
GRAND TOTAL...		778		299		327		129		1537		411		3481	

This fairly detailed analysis of the numbers of tuberculous cases would be of greater interest if other authorities published similar information and so enabled valuable comparison to be made.

From the foregoing Table 13 the following proportions have been calculated :—

	Per 1,000 of child population (0 to 15).	Per 1,000 of adult population (15 and over).
(*a*) Pulmonary tuberculosis.		
Number of *T.B. plus* cases—children	0·03	
adults		1·84
Number of *T.B. minus* cases—children	0·62	
adults		1·20
Total number of cases of pulmonary tuberculosis per 1,000 of the population on the 31st December, 1931		2·43
Number of *active* cases per 1,000 of the population on the 31st December, 1931		1·40
Number of *quiescent* cases per 1,000 of the population on the 31st December, 1931		1·02
Of the total cases of pulmonary tuberculosis 7·08 per cent. were children under 15 years of age.		
(*b*) Non-pulmonary tuberculosis.		
Number of *active* cases on 31st Dec., 1931—children	1·19	
adults		0·68
Number of *quiescent* cases on 31st Dec., 1931—children	1·85	
adults		0·85
Total number of cases of non-pulmonary tuberculosis per 1,000 of the population on the 31st December, 1931		1·92
Number of cases of non-pulmonary tuberculosis on the 31st Dec., 1931, divided according to the part affected—		
Bones, joints, and spine—children	0·82	
adults		0·51
Abdomen—children	0·34	
adults		0·12
Peripheral glands—children	1·68	
adults		0·55
Skin—children	0·14	
adults		0·25
Other organs—children	0·05	
adults		0·07

Statistics Required by Ministry of Health.

By Memorandum 37/T (Revised), issued in October, 1930, the Ministry require certain information concerning the work done at tuberculosis dispensaries. These statistics, in the compulsory Table A of the Memorandum, are given in Appendix IV. of this report.

Tuberculosis Dispensaries and Staff.

Table A, here inserted, shows the dispensary areas with the populations, present staffs, the addresses of the 24 dispensaries at present in use, and the days and times on which they are open.

Tuberculous Ex-Servicemen.

Of the 7,868 patients under supervision of the dispensary staff at the end of 1931, 214 were discharged sailors, soldiers or airmen whose disease was held by the Ministry of Pensions to be attributable to or aggravated by service in the Great War, a pension being granted for the disability. The number of these tuberculous pensioners is declining, falling from 1,017 at the end of 1922 to the figure of 214 mentioned above.

TABLE A.

Dispensary Organisation.

Areas, Medical Staff, Nursing Staff, Dispensaries, and Times of Dispensary Sessions.

Table A.—List of Tuberculosis Dispensaries in use in October, 1932, and the Tuberculosis Officers for the Dispensary Areas.

	SANITARY DISTRICTS.			Estimated Civilian Population 31/12/31.	MEDICAL STAFF October, 1932.	NURSING STAFF.	DISPENSARIES (Chief and Branch).	Days and Hours of DISPENSARY SESSIONS (Extract from Home Visiting, attending Sanatoria, Hospitals and Care Committees, etc.).
1	Adlington Blackrod Carnforth Chorley (B.) Chorley (R.) Croston Fulwood Garstang (R.), Part of, consisting of parishes of— Barnacre-with-Bonds Bilsborrow Bleasdale	Garstang (R.) *cont.* Cabus Catterall Claughton Cleveley Forton Garstang Holleth Kirkland Myerscough Nateby Nether Wyresdale Winmarleigh	Horwich Lancaster (B.) Lancaster (R.) Leyland Longridge Lunesdale (R.) Lytham St. Annes (B.) Morecambe & Heysham (B.) Preston (R.) Walton-le-Dale Withnell Acreage 303,272	264,667	Dr. A. D. Brunwin, Tuberculosis Dispensary, 8 Middle Street, Lancaster. Assistant Tuberculosis Officer— Dr. G. H. Leigh.	Nurse L. Walker Nurse F. D. Abbott Nurse G. M. Hunter Nurse J. Skelcher	LANCASTER (Chief), 8 Middle Street (Tel. No. 568). (X-ray Apparatus and Artificial Light Installation). CHORLEY (Branch), 59 Gillibrand St. (Tel. No. 263). (Artificial Light Installation). PRESTON (Branch), 22 Bolton Street (Tel. No. 4868). (Artificial Light Installation).	Monday, 11 a.m. Other days and evenings by appointment. Tuesday morning by appointment. Thursday, 11 a.m. 2nd Tuesday evening of month by appointment. Wednesday, 11 a.m. Monday evening before 2nd Tuesday of month by appointment.
	FURNESS SUB-AREA—							
	Dalton-in-Furness Grange-over-Sands	Ulverston	Ulverston (R.) Acreage 140,558	37,959	Dr. G. Leggat, High Carley Sanatorium, near Ulverston (Tel. No. 110 Ulverston).	Nurse E. A. Duston	ULVERSTON, Virginia House, Queen Street (Tel. No. 145). (Artificial Light Installation). (X-ray Apparatus at High Carley Sanatorium).	Tuesday, 10 a.m. Thursday, 10 a.m.
	FYLDE SUB-AREA—							
	Fleetwood Fylde (R.) Garstang (R.), Part of, consisting of parishes of— Great Eccleston Hambleton	Garstang (R.) *cont.* Inskip-with-Sowerby Out Rawcliffe Pilling Stalmine-with-Stainall Upper Rawcliffe	Kirkham Poulton-le-Fylde Preesall Thornton Cleveleys Acreage 72,075	63,780	Dr. G. B. Charnock, Elswick Sanatorium, near Kirkham (Tel. No. 22 Great Eccleston).	Nurse A. Tweedy	FLEETWOOD, 23 Poulton Road (Tel. No. 282). (Artificial Light Installation). (X-ray Apparatus at Elswick Sanatorium).	Tuesday, 10 a.m.
2	Accrington (B.) Bacup (B.) Barrowford Blackburn (R.) Brierfield Burnley (R.) Church	Clayton-le-Moors Clitheroe (B.) Clitheroe (R.) Colne (B.) Darwen (B.) Great Harwood Haslingden (B.)	Nelson (B.) Oswaldtwistle Padiham Rawtenstall (B.) Rishton Trawden Turton Acreage 177,578	346,624	Dr. B. MacPhee, Tuberculosis Dispensary, High Lea, 108a Whalley Road, Accrington. Assistant Tuberculosis Officers— Dr. S. C. Adam Dr. F. C. S. Bradbury	Nurse L. F. Norwood Nurse E. Watterson Nurse M. Duggan Nurse A. Munro Nurse H. M. Alcock Nurse R. Lambert	ACCRINGTON (Chief), High Lea, 108a, Whalley Road (Tel. No. 2443). (X-ray Apparatus and Artificial Light Installation). DARWEN (Branch), 20 Railway Road (Tel. No. 408). NELSON (Branch), 64 Carr Road (Tel. No. 507). (Artificial Light Installation). STACKSTEADS (Branch), Knott Hill House (Tel. No. 201 Bacup). (Artificial Light Installation).	Tuesday, 2 p.m. Wednesday, 2 p.m. 2nd Tuesday of month, 5-30 p.m. Monday, 10 a.m. Tuesday, 2 p.m. Friday by appointment. 1st Friday of month, 5-30 p.m. Monday, 2 p.m. 1st Monday of month, 5-30 p.m.
3	Ashton-under-Lyne (B.) Audenshaw Bury (R.) Chadderton Crompton Denton Droylsden Failsworth	Heywood (B.) Lees Limehurst (R.) Littleborough Middleton (B.) Milnrow Mossley (B.) Norden	Prestwich Radcliffe Ramsbottom Royton Tottington Wardle Whitefield Whitworth Acreage 87,025	375,024	Dr. G. Fletcher, Tuberculosis Dispensary, Boston House, Warrington Street, Ashton-under-Lyne. Assistant Tuberculosis Officers— Dr. C. Berry Dr. J. L. Armour	Nurse C. Guilfoy Nurse H. Dewsnap Nurse M. Sherwen Nurse M. A. Potter Nurse M. Sherwen Nurse I. F. MacDonald Nurse M. A. Potter Nurse A. Flynn Nurse M. Sherwen Nurse H. Dewsnap	ASHTON-UNDER-LYNE (Chief), Boston House, Warrington Street (Tel. No. 1775). (X-ray Apparatus and Artificial Light Installation). MIDDLETON (Branch), 71 Manchester Old Road (Tel. No. 2706). MOSSLEY (Branch), Park Lodge. OLDHAM (Branch), 25 Barker Street (Tel. No. 1671 Main). RADCLIFFE (Branch), 41 Darbyshire Street (Tel. No. 2323). (Artificial Light Installation).	Monday, 10-30 a.m. X-ray exams. Tuesday, 2-30 p.m. Friday, 10 a.m. 1st Tuesday of month, 6-30 p.m. Friday, 2-30 p.m. 2nd Friday of month, 6-30 p.m. Tuesday, 11 a.m. Monday, 2-30 p.m. Wednesday, 10 a.m. 2nd Monday of month, 6-30 p.m. Wednesday, 2 p.m. 3rd Wed. of month, 6-30 p.m.
4	Atherton Barton-upon-Irwell (R.) Eccles (B.) Farnworth Irlam Kearsley	Leigh (B.) Leigh (R.) Little Hulton Little Lever Stretford	Swinton and Pendlebury Tyldesley-with-Shakerley Urmston Westhoughton Worsley Acreage 58,747	347,473	Dr. G. Jessel, Tuberculosis Dispensary, 13 Church Street, Leigh. Assistant Tuberculosis Officers— Dr. A. B. Jamieson Dr. H. J. Villiers	Nurse W. Swift Nurse A. Flynn Nurse I. M. Corfield Nurse M. Gibson Nurse M. B. Jones Nurse H. M. Shakespeare Nurse F. G. Smith Nurse A. Dickinson Nurse K. Blakemore	ROCHDALE (Branch), 168 Drake St. (Tel. No. 3892). LEIGH (Chief), 13 Church Street (Tel. No. 258). ECCLES (Branch), 28 and 30 Gilda Brook Road (Tel. No. 3533). (X-ray Apparatus and Artificial Light Installation). FARNWORTH (Branch), 19–23 Darley Street (Tel. No. 63). PENDLEBURY (Branch), 121 Station Road (Tel. No. 1895 Swinton). STRETFORD (Branch), 14 Derbyshire Lane (Tel. No. 2010 Longford).	Thursday, 10-30 a.m. 2nd Thurs. of month, 6-30 p.m. Wednesday, 9-30 a.m. Friday, 9-30 a.m. 2nd Thurs. of month, 6-30 p.m. Tuesday, 2 p.m.: 2-30 p.m. for X-ray examinations. Thurs., 2-30 p.m. X-ray exams. Friday, 9-30 a.m. 1st Wed. of month, 6-30 p.m. Tuesday, 9-30 a.m. Friday, 2 p.m. 3rd Thurs. of month, 6-30 p.m. Monday, 2 p.m. Last Thurs. of month, 6-30 p.m. Tuesday, 9-30 a.m. Thursday, 9-30 a.m. Last Monday of month, 6-30p.m.
5	Formby Great Crosby Haydock Huyton-with-Roby Litherland	Newton-in-Makerfield Ormskirk Prescot Rainford Skelmersdale	Warrington (R.) Waterloo-with-Seaforth West Lancashire (R.) Whiston (R.) Widnes (B.) Acreage 169,021	251,579	Dr. C. W. Laird, Tuberculosis Dispensary, 7 Claremont Road, Seaforth. Assistant Tuberculosis Officer— Dr. C. H. Lilley	Nurse A. Duncan Nurse M. J. McKeown Nurse E. Walch Nurse L. Farquhar Nurse M. J. Wilson	SEAFORTH (Chief), 7 Claremont Road (Tel. No. 688 Waterloo). (X-ray Apparatus). ST. HELENS (Branch), 90, Hardshaw Street (Tel. No. 3916). (Artificial Light Installation). WIDNES (Branch), Brendan House, Widnes Road (Tel. No. 156).	Monday, 3 to 4-30 p.m. Wed. afternoon by appointment. Thurs., 10-30 a.m. X-ray exams. Friday, 10 to 11-30 a.m. 3rd Thursday of month, 6 p.m. Tuesday, 3 to 4-30 p.m. Last Tues. of month, 6 to 7 p.m. Monday, 10 to 11-30 a.m. Friday, 2-30 to 4-30 p.m. 1st Wed. of month, 6 to 7 p.m
	WIGAN COUNTY SUB-AREA—							
	Abram Ashton-in-Makerfield Aspull Billinge and Winstanley	Golborne Hindley Ince-in-Makerfield Orrell	Standish-with-Langtree Upholland Wigan (R.) Acreage, 42,613	117,294	Dr. E. H. Allon Pask, Wrightington Hospital, near Wigan (Tel. No. 38 Appley Bridge) Assistant Tuberculosis Officer— Dr J. E. Wallace	Nurse E. Walters Nurse M. J. Evans	WIGAN, 3 Mesnes Park Terrace (Tel. No. 1172). (Artificial Light Installation). (X-ray Apparatus at Wrightington Hospital).	Monday, 9-30 a.m. Thursday, 9-30 a.m. 4th Thurs. of month, 6-30 p.m.
			Total acreage of Admin. County 1,050,889	1,804,400				

Evening Sessions at Dispensaries.

As in previous years, the evening sessions have been regularly held at most of the dispensaries for the convenience of patients who are at work during the day.

Artificial Light Treatment.

A report on the work done at the artificial light centres established at twelve of the dispensaries is given in Chapter VIII.

Tuberculosis Officers' Visits to Sanatoria and Hospitals.

Periodical visits (mostly monthly) have continued to be paid by one or other of the consultant tuberculosis officers to the majority of the pulmonary hospitals, non-County sanatoria, and special hospitals treating County patients. These visits are of mutual help, inasmuch as they keep in touch the medical superintendent and the tuberculosis officer, who are able to confer on the patients' future treatment, the home circumstances, the provisions of the County scheme, and so on.

The following is the rota of visits for 1932 :—

Dr. A. D. Brunwin	Wilkinson Sanatorium, and Warwickshire Orthopædic Hospital.
Dr. B. MacPhee	Eastby Sanatorium.
Dr. G. Fletcher	Aitken and Halifax Sanatoria.
Dr. G. Jessel	East Lancashire Tuberculosis Colony.
Dr. C. W. Laird	King Edward VII. Hospital for Crippled Children, Sheffield.
Dr. E. H. A. Pask	Liverpool Open-air Hospital for Children, Leasowe ; Royal Liverpool Children's Hospital, Heswall and Thingwall Branches ; and Shropshire Orthopædic Hospital.
Dr. G. Leggat	Meathop Sanatorium.

Summary of Dispensary Work done by Tuberculosis Officers in 1931, showing comparison with 1930.

Visits by Tuberculosis Officers to Patients' Homes—	1930	1931
(*a*) Number of new persons (including new contacts) examined for diagnosis or expert opinion	1,271	1,352
(*b*) Number of re-examinations of "old" cases and "old" contacts—		
1. Respecting continued general supervision or dispensary treatment	3,786	3,793
2. Contacts respecting diagnosis	12	—
3. Other cases respecting diagnosis	174	142
4. For special forms of treatment or examinations resulting therefrom—		
Aspirations...	14	5
Adjustment of splints and surgical appliances ...	348	158
Lupus cases	34	45
Pneumothorax (induction and refills)	40	—
Other forms	9	10
	5,688	5,505

	1930	1931
Dispensary Attendances by Patients—		
(*a*) Number of new persons (including new contacts) examined for diagnosis or expert opinion	4,124	3,984
(*b*) Number of re-examinations of "old" cases and "old" contacts—		
1. Respecting continued general supervision or dispensary treatment	14,667	14,340
2. Contacts respecting diagnosis	365	305
3. Other cases respecting diagnosis	2,279	2,047
4. For special forms of treatment or examinations resulting therefrom—		
Artificial light (Lancaster, Chorley, Preston, Nelson, Stacksteads, Ashton-under-Lyne, Radcliffe, Eccles, St. Helens, Wigan, Ulverston and Fleetwood Dispensaries)	38,703	33,879
Aspirations	123	125
Adjustment of splints and surgical appliances ...	1,014	928
Lupus cases	493	577
Pneumothorax (induction and refills)	268	862
Tuberculin	199	264
Other forms	376	259
	62,611	57,570
X-ray Examinations made at County Dispensaries and Institutions—		
(*a*) Dispensary patients	6,530	7,462
(*b*) Institutional patients...	4,174	5,446
	10,704	12,908
Examinations of Sputum at County Dispensaries	5,591	6,696
Number of Recommendations by Tuberculosis Officers—		
1. Sanatorium or hospital treatment	1,894	1,749
2. Dispensary treatment or general supervision	10,048	9,173
3. Provision of special nourishment	1,662	1,424
4. Provision of surgical appliances	160	135
5. Loan of shelters	15	16
6. Diagnosis not confirmed—		
(*a*) Notified cases	182	132
(*b*) Non-notified cases	8	3
7. Cases written off the register as refusing treatment ...	33	32
8. Pulmonary cases written off the register as recovered ...	326	320
9. Non-pulmonary cases written off the register as recovered	550	578
Care Committee Meetings Attended by—		
(*a*) Tuberculosis officers	91	94
(*b*) Tuberculosis health visitors	161	160
Lectures or Addresses Given on Tuberculosis	13	10
Consultations with Medical Practitioners—		
Personal	893	767
Other	4,844	4,769
Visits by Tuberculosis Officers to Sanatoria, and Pulmonary, Special, and Public Assistance Hospitals	311	312
Special Visits by Tuberculosis Officers (*i.e.*, interviews with medical officers of health, general hospital officials, &c.) ...	83	91

	1930	1931
EXAMINATIONS OF ENTRANTS TO INDUSTRY UNDER SANDSTONE INDUSTRY (SILICOSIS) SCHEME, 1929	113	119
VISITS BY DISPENSARY NURSES TO PATIENTS' HOMES—		
Routine visits	37,313	37,610
Actual nursing	1,475	1,175
Application of surgical dressings...	1,524	1,299
Adjustment of splints and surgical appliances	1,832	1,690
	42,144	41,774
PATIENTS' DISPENSARY ATTENDANCES FOR ATTENTION BY NURSES—		
Application of surgical dressings...	2,394	2,799
Adjustment of splints and surgical appliances	712	614
	3,106	3,413

PROVISION OF SPECIAL NOURISHMENT.

Special nourishment is granted to tuberculous persons on the following conditions, which have been approved by the Ministry of Health :—

(1) That special nourishment be in no case ordered for a period of more than three months, and if in any case a continuance of the treatment is considered from a medical point of view desirable, the Central Tuberculosis Officer to report the case specially to the County Tuberculosis Committee.

(2) That special nourishment be granted to persons who are waiting for admission to sanatoria or hospitals, or have returned therefrom, when it is thought to be medically essential as part of the cure of the disease.

(3) That special nourishment may be allowed to cases not included in the foregoing, provided that particulars of the cases are laid before the Tuberculosis Committee for consideration.

(4) That each grant of special nourishment will only be allowed by the Tuberculosis Committee subject to the patient carrying out, in a satisfactory way, the medical treatment and such general hygienic measures as may be advised by the medical practitioner and tuberculosis officer.

(5) That special nourishment be limited to orders for new milk and cream, unless on special report other nourishment be found desirable.

(6) That the limit of expenditure be 7/– per week, unless an amount in excess of this sum is specially recommended on medical grounds by the Central Tuberculosis Officer and sanctioned by the Tuberculosis Committee.

During the year, 1,424 grants of special nourishment for varying periods were made to 673 individual patients as part of their medical treatment. The figures in 1930 were 1,662 grants to 764 patients.

HOUSING.

The following table shows the housing conditions of all patients under treatment or supervision at the end of 1931. Whilst every effort is made to secure that infectious cases occupy a separate room, or at least a

separate bed, no useful purpose is served by making the same insistence in regard to patients with the disease quiescent or arrested. The non-pulmonary cases are given separately, and only a very small number indeed may be considered infectious.

TABLE 14.—*Housing statistics of 7,868 County patients.*

		Patients occupying a separate bedroom.	Patients occupying a separate bed, but not a separate bedroom.	Patients not occupying a separate bed.
Number of pulmonary cases *considered infectious.*	Under 15 years	6	6	1*
	15 and over ...	1,194	449	113*
Number of pulmonary cases *not* considered infectious.	Under 15 years	48	128	127
	15 and over ...	931	509	880
Number of non-pulmonary cases.	Under 15 years	157	639	637
	15 and over ...	521	467	1,060
TOTAL ...	Under 15 years	206	773	765
	15 and over ...	2,646	1,425	2,053

* 27 of these 114 cases were isolated in sanatoria or pulmonary hospitals at the end of 1931.

It will be seen that 114 patients (including one child) suffering from pulmonary tuberculosis and considered to be infectious were not occupying a separate bed when at home at the time the census of the housing conditions was made at the end of 1931. Of this number, 27 were away from home and isolated in pulmonary hospitals or sanatoria, leaving (from a total of 1,769 infectious cases) 87, or 4·9 per cent., infectious cases at home not occupying a separate bed.

Appendix III. of this report shows the housing conditions of the patients in each dispensary area.

EXAMINATION OF HOUSE CONTACTS.

By the systematic examination of house contacts, particularly among those of patients with positive sputum, many early or unsuspected cases of tuberculosis are detected. Owing to indifference or unwillingness, considerable difficulty—which, however, is gradually being overcome—is experienced in persuading contacts to come to the dispensary for examination, or even to submit themselves for examination at all.

By direction of the Ministry of Health, Memo. 37/T (Revised), cases are regarded as contacts only if the cause of their being examined is the fact that they have recently been, or still are, living in contact with some dispensary patient or other notified case; many persons suffering, or suspected to be suffering, from tuberculosis who attend at the dispensary of their own accord, or who are referred by a private medical practitioner, may give a history of previous contact with a known case of tuberculosis, but this does not bring them within the definition of " contacts."

The following Table 15 shows the number of new contacts which have been examined in the Administrative County during 1931 :—

	Diagnosed as tuberculous.		Doubtful.	Non-tuberculous.	Total.
	Pulmonary.	Non-pulmonary.			
Examined at home ...	2	2	—	74	78
Examined at dispensary	25	10	6	716	757
Total	27	12	6	790	835
	39				

Of the 835 new contacts examined during the year, 39 were ultimately diagnosed as definite cases of tuberculosis—pulmonary 27, and non-pulmonary 12. These cases are equal to 46·70 per 1,000 of contacts examined, as against the proportion of 4·36 tuberculous persons per 1,000 of the population known to the dispensary staff in the County. Thus, the examination of selected contacts revealed many more tuberculous cases proportionately than would be found in the ordinary population.

It may be stated that of the 27 pulmonary cases, 37 per cent. were found with a positive sputum.

Provision of Bedsteads, Mattresses, and Nursing Requisites.

In each County dispensary area a small stock of bedsteads, mattresses (but not bedding), and nursing requisites belonging to the County Council is available for loan to necessitous patients undergoing home treatment.

The bedsteads and mattresses, which are held at the disposal of the consultant tuberculosis officers, have proved of valuable assistance in securing the better sleeping accommodation at home of persons with pulmonary tuberculosis considered to be infectious.

The table following shows the number of these articles owned by the County Council, and also the number of patients who have been granted the use of the articles :—

TABLE 16.

Articles.	Quantity owned by County Council, 31/12/31.	Number of patients to whom articles have been loaned during 1931.	Articles in possession of patients on 31/12/31.
Bedsteads	201	35	154
Mattresses	190	46	153
Mattress covers	138	33	109
Air beds	6	12	—
Air cushions	154	184	91
Air pillows	1	1	—
Air pumps	3	3	1
Bath chairs	6	1	—
Bed cradles	6	2	2
Bed pans	95	85	43
Bed rests	57	52	30
Bed slippers	73	27	11
Extension apparatus	15	—	—
Fracture boards	2	—	—
Ground sheets	35	3	14
Hot water bottles, rubber... ...	8	2	2
Ice bags	2	—	—
Rest chairs	4	1	—
Rubber sheeting	18 yds.	1	—
Rubber sheets	8	4	2
Spinal boxes	21	10	1
Spinal carriages	16	16	8
Splints	18	—	1
Sponge beds	1	1	—
Urinals...	111	75	34
Water beds	16	11	3

EXAMINATION OF SPUTUM.

As an aid to diagnosis, arrangements are in existence for the examination, free of cost, of specimens of sputum sent by medical attendants. At each chief dispensary a small laboratory is installed for this work, whilst, in addition, an arrangement exists with the Director of the Public Health Laboratory, Manchester, for the examination of specimens including inoculation tests.

The following statement shows the results of the examinations made in 1931, compared with the previous year :—

	At Dispensary Laboratories.		At Public Health Laboratory, Manchester.	
	1930.	1931.	1930.	1931.
Positive (*i.e.*, tubercle bacilli present) ...	1,112	1,249	146	90
Negative (*i.e.*, tubercle bacilli not found)	4,479	5,447	347	248
Total	5,591	6,696	493	338

X-ray Work.

X-ray installations for use by the tuberculosis officers for the examination of patients are provided at the following dispensaries :— Lancaster, Accrington, Ashton-under-Lyne, Eccles and Seaforth ; also at the following sanatoria or hospitals :—High Carley, Elswick, Peel Hall, Rufford, Withnell, and Wrightington.

The following statement shows the x-ray work done during 1931, compared with previous years :—

Table 17.

	1926.	1927.	1928.	1929.	1930.	1931.
At County dispensaries and institutions :						
(*a*) Dispensary patients ...	4440	5239	6191	5883	6530	7462
(*b*) Institutional patients...	351	617	1244	2160	4174	5446
Total	4791	5856	7435	8043	10704	12908

The increase in the number of examinations is mainly due to greater application of artificial pneumothorax treatment which is controlled by x-rays.

The policy of placing an apparatus in each dispensary area for use by the tuberculosis officer himself is, from experience, found to be the best method, because the tuberculosis officer, with his knowledge of the patient's history and clinical signs, is most fitted to make a correct interpretation of the skiagrams.

Special Surgical Appliances.

During 1931 the following surgical appliances were supplied to patients on the recommendation of the tuberculosis officers :—

Abdominal belts, 2 ; abduction frames, 3 ; ankle splints, 4 ; artificial arm, 1 ; artificial legs, 5 ; back splints, 2 ; back supports, 4 ; Burney Yeo inhalers, 2 ; cage splint, 1 ; caliper splints, 11 ; crutches, 10 pairs ; elbow splints, 3 ; foot splint, 1 ; gutter splint, 1 ; hand splints, 2 ; hip splints, 9 ; knee splints, 9 ; leather spicas, 7 ; pattens, 7 ; spinal cuirasses, 3 ; spinal frames, 6 ; spinal jackets, 3 ; spinal supports, 20 ; surgical boots, 26 ; Taylor's braces, 2 ; trough splint, 1 ; truss, 1 ; walking splint, 1 ; walking stick, 1 ; wrist splints, 3.

Sleeping Shelters.

There were, at the end of the year, 45 shelters in use by patients at their homes.

The loan of sleeping shelters is made to suitable cases on the recommendation of the tuberculosis officer, after careful consideration of the following points : (1) the condition of the patient and his ability to use the shelter properly ; (2) the position of the shelter ; (3) the home

conditions of the patient ; and (4) the means of communication with the nearest inhabited building in case of a sudden relapse.

The number of persons in 1931 who were allowed the use of the shelters was 59.

I have to thank medical officers of health and sanitary inspectors throughout the County for much valuable help in connection with the removal, disinfection, and re-erection of shelters used by County patients.

X.—REPORT FOR DISPENSARY AREA No. 1.
(including Lancaster Pulmonary Hospital).

Area (estimated population 264,667) embraces Lancaster, Morecambe and Heysham, Lytham St. Annes, Garstang Rural (part), Preston Rural, Walton-le-Dale, Chorley, and Horwich districts.

Consultant Tuberculosis Officer ... Dr. A. D. Brunwin.

(Dr. Brunwin will also be the visiting physician to the Lancaster Pulmonary Hospital when erection is completed.)

Assistant Tuberculosis Officer ... Dr. G. H. Leigh.

Dr. Brunwin reports :—

The work of the Lancaster and District Care Committee has been greatly helped through the kindness of the Trustees of the James Bond Trust (Mr. F. Storey and Mr. T. Helme) who have made numerous and generous donations from the Trust to the Care Committee for the relief of necessitous patients whose names are specially submitted to the Trustees. This generosity has been of the greatest help, and without it our work would have had to be considerably curtailed. The care committees at Chorley and Horwich continue to do splendid work in helping needy patients.

The new x-ray apparatus has enabled us to take much more uniform skiagrams, with a shorter exposure than was the case with the old apparatus and gas tubes. Very much time is saved in doing the work. We retained our old screening stand, but this will soon require replacement.

Tuberculin is still used in a small number of cases, chiefly cervical glands, and in the form of ointment (Santuben) in a few lung cases.

A further trial of the inhalation of calcium powder has been disappointing. Like most other forms of treatment, it has only been tried on patients who do not respond to rest and fresh air—in other words the more advanced cases.

Artificial Light Treatment.

Artificial light centres have been established at the following tuberculosis dispensaries in Dispensary Area No. 1 :—Lancaster (15th

July, 1925), Chorley (14th October, 1926), and Preston (29th November, 1927).

Lancaster and Preston. No alterations in equipment or procedure were made during the year 1931. The numbers attending still tend to fall slightly. Cases of lupus are disappointing. Several cases do not seem to respond satisfactorily though, on the whole, improvement takes place. Some form of adjuvant treatment—caustics, ointment, etc.—is usually required. The treatment of other conditions has been more satisfactory. Tuberculous cervical glands are the most common condition treated, and where discharging sinuses are present they nearly always do well. Tuberculous glands without abscess formation sometimes do very well on light treatment.

Chorley. Early in 1932 the " Alpine Sun " lamp was replaced by two " Sunrae " carbon arc lamps, so that, with the Kromayer and Jesionek mercury vapour lamps, the equipment at this centre is similar to that at other dispensaries.

The result of light treatment on the general health of the patients has been valuable. Of 17 children, 14 showed considerable gain in weight, though, of course, an allowance has to be made for the increase due to growth. Light treatment appears to be quite satisfactory for the treatment of cases of cervical adenitis, but in most cases requires regular attendance for considerable periods.

The following Table 18 shows the results for patients treated at these dispensary centres during 1931 :—

(*a*) *Lancaster Centre.*

Form of tuberculosis or part of body affected.	Number of cases treated during 1931.	Condition of patients whose treatment concluded in 1931.				Ceased treatment for other reasons. *	Still under treatment at end of 1931.
		Quiescent and apparently well.	Improved.	Stationary.	Worse.		
Skin	6	—	—	—	—	2	4
Adenitis with abscess formation and skin involvement	9	4	1	—	—	2	2
Adenitis without softening	2	2	—	—	—	—	—
Bones, joints, and spine	5	3	—	—	—	—	2
Abdomen	2	1	—	1	—	—	—
Other non-pulmonary conditions ...	2	1	1	—	—	—	—
TOTAL	26	11	2	1	—	4	8

(*b*) *Preston Centre.*

Form of tuberculosis or part of body affected.	Number of cases treated during 1931.	Condition of patients whose treatment concluded in 1931.				Ceased treatment for other reasons. *	Still under treatment at end of 1931.
		Quiescent and apparently well.	Improved.	Stationary.	Worse.		
Skin	8	2	—	1	—	—	5
Adenitis with abscess formation and skin involvement	14	7	1	2	—	—	4
Adenitis without softening	9	3	—	—	—	2	4
Bones, joints, and spine	10	4	1	1	—	1	3
Abdomen	1	—	—	1	—	—	—
Other non-pulmonary conditions ...	2	1	—	—	—	1	—
TOTAL	44	17	2	5	—	4	16

(*c*) *Chorley Centre.*

Form of tuberculosis or part of body affected.	Number of cases treated during 1931.	Condition of patients whose treatment concluded in 1931.				Ceased treatment for other reasons. *	Still under treatment at end of 1931.
		Quiescent and apparently well.	Improved.	Stationary.	Worse.		
Skin	10	1	—	—	—	1	8
Adenitis with abscess formation and skin involvement	23	7	2	—	—	2	12
Adenitis without softening	15	3	—	1	—	2	9
Bones, joints, and spine	3	1	—	—	—	—	2
Abdomen	1	—	—	—	—	—	1
Other non-pulmonary conditions ...	4	1	—	—	—	—	3
TOTAL	56	13	2	1	—	5	35

* Includes: (1) Patients who did not receive two months' treatment; (2) patients ceasing light treatment prematurely (*e.g.*, removals, unwilling or unable to continue); and (3) patients transferred to sanatoria or hospitals.

LANCASTER PULMONARY HOSPITAL.

The work of building the new isolation hospital at Lancaster was commenced by the Corporation in July, 1932. There will be a separate block for tuberculosis, and when the accommodation is ready it will meet a definite need which has existed in this area since the closing of the Luneside Hospital in October, 1927.

The consultant tuberculosis officer for Dispensary Area No. 1 will be the visiting physician of the tuberculosis block.

Summary of Dispensary Work.

Number of tuberculous cases under supervision on 31st December, 1931 (Definitely tuberculous, 979 ; doubtful, 7.)			986
Examinations by tuberculosis officer at—	Examinations of *new persons* and *new contacts* for diagnosis.	Re-visits or re-attendances of "*old*" *cases* and "*old*" *contacts.*	
Patients' homes	229	1382	
Lancaster Chief Dispensary	116	381	
Chorley Branch Dispensary	119	619	
Preston Branch Dispensary	79	455	
	314	1455	
Attendances of patients at dispensaries for artificial light treatment—			
Lancaster Dispensary		525	3988
Chorley Dispensary		2025	
Preston Dispensary		1438	
Attendances for artificial pneumothorax treatment (3 individual patients) ..			26
Care committee meetings attended by—			
(*a*) Tuberculosis officers			20
(*b*) Tuberculosis health visitors			35
Lectures or addresses given			1
Visits by tuberculosis officers to sanatoria, and pulmonary, special and public assistance hospitals			21
Special visits by tuberculosis officers (*i.e.*, interviews with medical officers of health, general hospital officials, &c.)			5
Visits by dispensary nurses to patients' homes—			
Routine visits		3924	3946
Actual nursing		12	
Application of surgical dressings		5	
Adjustment of splints and surgical appliances		5	
Sanitary defects reported to the local medical officers of health			10
Sanitary defects which after notification were remedied			4
Disinfections carried out by local sanitary authorities			167
Cases referred by medical practitioners, Pensions authorities, &c., to tuberculosis officer for an opinion as to diagnosis or treatment			438

XI.—REPORT FOR DISPENSARY AREA No. 2.
(including Withnell Pulmonary Hospital).

Area (estimated population 346,624) embraces Clitheroe, Colne, Nelson, Burnley Rural, Blackburn Rural, Accrington, Darwen, Haslingden, Rawtenstall, and Bacup districts.

Consultant Tuberculosis Officer ... Dr. B. MacPhee.
(Dr. MacPhee is also visiting medical superintendent of the Withnell Pulmonary Hospital).

Assistant Tuberculosis Officers ... Dr. S. C. Adam and Dr. F. C. S. Bradbury.

Dr. MacPhee reports :—

It is with much satisfaction that I am able to record that on the 21st December, 1931, we were able to move from 39, Avenue Parade, to the new premises at " High Lea," 108A, Whalley Road, Accrington.

The dispensary activities can now be carried on in a house which is large and commodious and which is eminently suited for the work. It will prove, I have no doubt, a great boon to the patients, as well as offering facilities for comfortable working by the staff.

The x-ray work has been transferred from Darwen Dispensary, and an up-to-date apparatus is now installed at Accrington. This is the central point for Area No. 2, and will obviate a great deal of travelling by patients.

With regard to treatment by ultra-violet radiation, two carbon arc lamps, one Jesionek mercury vapour lamp, and one Kromayer mercury vapour lamp have been installed. There is ample room for this form of treatment, and also for dressing accommodation for the patients.

I am also pleased to be able to record that the County Tuberculosis Committee held their monthly meeting at the new dispensary on the 11th May, 1932, and made an inspection of the house and the various activities carried on.

During the year 748 skiagrams were taken at Darwen Dispensary, and in the laboratory at Accrington (Chief) Dispensary, 1,156 specimens of sputum were examined with the following results :—Positive, 207 ; negative, 949. In order to assist in the diagnosis of difficult cases, 35 pathological specimens were sent to the Public Health Laboratory of the Manchester University for inoculation tests with the following results :—Positive, 9 ; negative, 26.

Under the very useful scheme for the visitation of non-County institutions, quarterly visits were made by Dr. Adam and myself to the children's hospitals at Heswall, West Kirby, Leasowe, and Thingwall, Cheshire. Monthly visits were also made to Eastby Sanatorium,

and bi-monthly visits to the Halifax Sanatorium. The Burnley Pulmonary Hospital, and the public assistance hospitals at Rawtenstall, Burnley, and Clitheroe were also visited, either monthly or as occasion suggested, in order to consult with the medical superintendents.

Assistance to necessitous cases in those districts which do not possess a voluntary care committee has again been made possible through the medium of the County care fund and, during the year under review, 52 individual patients or their dependants were assisted at an approximate cost of £195 2s. 7d.

Artificial Light Treatment.

Artificial light centres have been established at the following tuberculosis dispensaries in Area No. 2 :—Stacksteads (9th January, 1928), and Nelson (20th November, 1928).

The following Table 19 shows the results for patients treated at these dispensary centres during 1931 :—

(a) Stacksteads Centre.

Form of tuberculosis or part of body affected.	Number of cases treated during 1931.	Condition of patients whose treatment concluded in 1931.				Ceased treatment for other reasons. *	Still under treatment at end of 1931.
		Quiescent and apparently well.	Improved.	Stationary.	Worse.		
Skin	14	2	1	—	—	1	10
Adenitis with abscess formation and skin involvement	20	11	1	—	—	2	6
Adenitis without softening	13	9	—	—	—	2	2
Bones, joints, and spine	7	2	1	1	—	1	2
Abdomen	1	—	—	—	—	1	—
Other non-pulmonary conditions ...	2	—	—	—	—	—	2
Total	57	24	3	1	—	7	22

(b) Nelson Centre.

Form of tuberculosis or part of body affected.	Number of cases treated during 1931.	Condition of patients whose treatment concluded in 1931.				Ceased treatment for other reasons. *	Still under treatment at end of 1931.
		Quiescent and apparently well.	Improved.	Stationary.	Worse.		
Skin	27	7	—	1	—	3	16
Adenitis with abscess formation and skin involvement	23	11	—	—	—	1	11
Adenitis without softening	11	5	—	—	—	1	5
Bones, joints, and spine	8	—	—	—	—	2	6
Abdomen	1	—	—	—	—	—	1
Other non-pulmonary conditions ...	1	—	—	—	—	—	1
Total	71	23	—	1	—	7	40

* Includes: (1) Patients who did not receive two months' treatment; (2) patients ceasing light treatment prematurely (*e.g.*, removals, unwilling or unable to continue); and (3) patients transferred to sanatoria or hospitals.

Withnell Pulmonary Hospital, near Chorley.

Matron ... Miss D. Willman.

The County Council in December, 1924, purchased Withnell Hall (including two cottages, outbuildings, and 37 acres of land) situated on the main road from Blackburn to Chorley. The first patient was admitted on the 15th August, 1927. Accommodation is provided for 52 male patients (28 in cubicles, 18 in wards and 6 in shelters). The hospital serves mainly Dispensary Area No. 2. Three houses were erected on the estate for employees.

Dr. MacPhee reports as follows :—

During the year, 118 patients were admitted to the institution, 92 discharged, and 31 died. Included in the 118 admissions were 5 patients sent in for observation and diagnosis. The percentage of beds occupied was 96·66.

At the laboratory, 675 specimens of sputum were examined with the following results :—Positive, 257 ; negative, 418.

In the x-ray department, 539 skiagrams were taken and 342 screenings made.

As before, the ordinary routine work of the institution calls for little comment, and I have again pleasure in recording that the work has been carried on smoothly. Treatment in selected cases has been continued on the lines indicated in my previous reports.

The social side of the institution has not been neglected ; cinema exhibitions have been given at intervals throughout the year, and I should like to acknowledge the kindness of those who have brought concert parties to entertain the patients. These concert parties are very highly appreciated.

The County Tuberculosis Committee appointed the Rev. Mr. Crosby, of Brinscall, as Honorary Chaplain to the hospital. His services both socially and spiritually are much appreciated by the patients.

Summary of Dispensary Work.

Number of tuberculous cases under supervision on 31st December, 1931 (Definitely tuberculous, 1100 ; doubtful, 11.) 1111

Examinations by tuberculosis officer at—	Examinations of *new persons* and *new contacts* for diagnosis.	Re-visits or re-attendances of "*old*" *cases* and "*old*" *contacts*.
Patients' homes	312	285
Accrington Chief Dispensary	198	754
Darwen Branch Dispensary	56	130
Nelson Branch Dispensary...	211	684
Stacksteads Branch Dispensary	106	366
	571	1934

Attendances of patients at dispensaries for artificial light treatment—		
Nelson Dispensary	3077	5956
Stacksteads Dispensary	2879	
Attendances for artificial pneumothorax treatment (14 individual patients) ..		105
Lectures or addresses given		8
Visits by tuberculosis officers to sanatoria, and pulmonary, special, and public assistance hospitals		44
Special visits by tuberculosis officers (*i.e.*, interviews with medical officers of health, general hospital officials, &c.)		22
Visits by dispensary nurses to patients' homes—		
Routine visits	6520	7332
Actual nursing	299	
Application of surgical dressings	86	
Adjustment of splints and surgical appliances	427	
Patients' dispensary attendances for attention by nurses—		
Application of surgical dressings	1585	1908
Adjustment of splints and surgical appliances	323	
Sanitary defects reported to the local medical officers of health		25
Sanitary defects which after notification were remedied		25
Disinfections carried out by local sanitary authorities		2024
Cases referred by medical practitioners, Pensions authorities, &c., to tuberculosis officer for an opinion as to diagnosis or treatment		759

XII.—REPORT FOR DISPENSARY AREA No. 3.

Area (estimated population 375,024) embraces Ramsbottom, Littleborough, Radcliffe, Heywood, Crompton, Royton, Prestwich, Middleton, Chadderton, Failsworth, Ashton-under-Lyne, Mossley, and Denton districts.

Consultant Tuberculosis Officer	...	Dr. G. Fletcher.
Assistant Tuberculosis Officers	...	Dr. C. Berry and Dr. J. L. Armour.

Dr. Fletcher reports :—

During the year there was no event of special importance in this area, the work of which proceeded smoothly upon the usual lines.

In April, 1931, the dispensary was visited by Dr. P. V. Benjamin, Medical Officer, Union Mission Tuberculosis Sanatorium, South India ; Dr. M. S. Abaza, Egyptian Public Health Department ; and Dr. A. El-Agaty, Medical Officer, Egyptian Government. The various activities of the dispensary were explained to them, and they expressed themselves as pleased with their visit, which it is hoped will be of service to them in their future work.

The voluntary care committees at Ashton-under-Lyne and Prestwich, and the Radcliffe and Whitefield District Relief Fund for Consumptives, have carried out very useful work as in former years. During the twelve months they have assisted 80 patients at a cost of £406 5s. 5d. In June, the Ashton-under-Lyne Care Committee paid a visit to Rufford Pulmonary Hospital, where Dr. Laird received them and explained the working of the institution.

Patients who had received pneumothorax treatment in institutions had their refills continued at Ashton-under-Lyne Dispensary. This part of the work will probably increase in the future.

During the year, 1,960 skiagrams were taken, as compared with 1,985 in 1930.

There were 1,358 sputum examinations made at Ashton-under-Lyne Dispensary, of which 354 were positive and 1,004 were negative. Inoculation tests and Wassermann reactions were carried out at the Public Health Laboratory, Manchester.

During the health weeks at Middleton and Heywood, a tuberculosis section was provided as a part of the health exhibitions.

I have again to thank my colleagues of the medical, nursing, and clerical staffs for their assistance throughout the year, and I am grateful to the practitioners in this area for their co-operation in the work.

Artificial Light Treatment.

Artificial light centres have been established at the following tuberculosis dispensaries in Area No. 3:—Ashton-under-Lyne (11th September, 1925), and Radcliffe (20th July, 1928).

The work at the light centres at Ashton-under-Lyne and Radcliffe calls for no special comment, no change having been made in the methods of treatment or in the types of case selected. The results obtained were in conformity with those recorded during previous years.

In addition to the patients classified in the accompanying tables, 150 cases which had received light treatment with good results attended the dispensaries for observation.

The following Table 20 shows the results for patients treated at these centres during 1931:—

(*a*) *Ashton-under-Lyne Centre.*

Form of tuberculosis or part of body affected.	Number of cases treated during 1931.	Condition of patients whose treatment concluded in 1931.				Ceased treatment for other reasons. *	Still under treatment at end of 1931.
		Quiescent and apparently well.	Improved.	Stationary.	Worse.		
Skin	28	—	—	—	—	7	21
Adenitis with abscess formation and skin involvement	43	19	—	—	—	2	22
Adenitis without softening	23	12	—	—	—	5	6
Bones, joints, and spine	13	3	—	—	—	5	5
Abdomen	12	4	—	—	—	2	6
Other non-pulmonary conditions ...	4	2	—	—	—	1	1
Pulmonary and non-pulmonary combined:—							
† T.B. plus and adenitis with abscess formation	1	—	—	—	—	—	1
† T.B. minus and sternum ...	1	—	—	—	—	—	1
Total	125	40	—	—	—	22	63

(*b*) *Radcliffe Centre.*

Form of tuberculosis or part of body affected.	Number of cases treated during 1931.	Condition of patients whose treatment concluded in 1931.				Ceased treatment for other reasons. *	Still under treatment at end of 1931.
		Quiescent and apparently well.	Improved.	Stationary.	Worse.		
Skin	15	2	—	—	—	1	12
Adenitis with abscess formation and skin involvement	40	16	—	—	—	8	16
Adenitis without softening	2	1	—	—	—	—	1
Bones, joints, and spine	6	2	—	—	—	2	2
Other non-pulmonary conditions ...	6	2	—	—	—	—	4
Total	69	23	—	—	—	11	35

* Includes: (1) Patients who did not receive two months' treatment; (2) patients ceasing light treatment prematurely (*e.g.*, removals, unwilling or unable to continue); and (3) patients transferred to sanatoria or hospitals.

† Local treatment only for non-pulmonary condition.

Summary of Dispensary Work.

Number of tuberculous cases under supervision on 31st December, 1931 (Definitely tuberculous, 1559 ; doubtful, 0.)		1559

Examinations by tuberculosis officer at—	Examinations of *new persons* and *new contacts* for diagnosis.	Re-visits or re-attendances of " *old* " *cases* and " *old* " *contacts.*
Patients' homes	216	612
Ashton-under-Lyne Chief Dispensary	466	2839
Middleton Branch Dispensary	83	398
Mossley Branch Dispensary	49	200
Oldham Branch Dispensary	252	1137
Radcliffe Branch Dispensary	197	686
Rochdale Branch Dispensary	177	498
	1224	5758

Attendances of patients at dispensaries for artificial light treatment—		
Ashton-under-Lyne Dispensary	6026	8312
Radcliffe Dispensary	2286	
Attendances for artificial pneumothorax treatment (8 individual patients)		77
Care committee meetings attended by—		
(*a*) Tuberculosis officers		11
(*b*) Tuberculosis health visitors		9
Lectures or addresses given		2
Visits by tuberculosis officers to sanatoria, and pulmonary, special, and public assistance hospitals		119
Special visits by tuberculosis officers (*i.e.*, interviews with medical officers of health, general hospital officials, &c.)		9
Visits by dispensary nurses to patients' homes—		
Routine visits	8675	9721
Actual nursing	380	
Application of surgical dressings	138	
Adjustment of splints and surgical appliances	528	
Patients' dispensary attendances for attention by nurses—		
Application of surgical dressings	86	247
Adjustment of splints and surgical appliances	161	
Sanitary defects reported to the local medical officers of health		67
Sanitary defects which after notification were remedied		46
Disinfections carried out by local sanitary authorities		341
Cases referred by medical practitioners, Pensions authorities, &c., to tuberculosis officer for an opinion as to diagnosis or treatment		871

XIII.—REPORT FOR DISPENSARY AREA No. 4.
(including Peel Hall Pulmonary Hospital).

Area (estimated population 347,473) embraces Westhoughton, Atherton, Farnworth, Leigh, Swinton and Pendlebury, Eccles, and Stretford districts.

Consultant Tuberculosis Officer ... Dr. G. JESSEL.
(Dr. Jessel is also visiting medical superintendent of Peel Hall Pulmonary Hospital).

Assistant Tuberculosis Officers ... Dr. A. B. JAMIESON and Dr. H. J. VILLIERS.

Dr. Jessel reports :—

As the procedures in use at the dispensaries have been fully described in previous reports, it will suffice to call attention to special points of interest.

Attention must be drawn to the fact that clinical work is individual and personal. Doctors are not robots, and although a greater degree of scientific precision is now attainable than was possible when tuberculosis schemes were started, medicine still remains an art, requiring not only knowledge, but judgment, skill, and experience.

Co-operation with the medical practitioners of the area has been well maintained; 86 per cent. of the total number of new cases, excluding contacts, were specially referred by them, while 93 per cent. of my home visits to new cases were actually personal consultations with the patients' doctors. Full use has been made of the x-ray apparatus at Eccles Dispensary, two afternoon sessions being held weekly to which many referred patients were brought by the Peel Hall ambulance. Radiology is, however, only one factor in diagnosis, and on the morning following x-ray sessions the dispensary medical officers meet and discuss each case fully, having regard to all the available evidence. The full investigation of a case usually takes less than a fortnight, and it is an obvious convenience to patients that all the various examinations are carried out directly by the dispensary staff.

There has been a steady increase in the attendances of patients for artificial pneumothorax refills, 28 persons making 276 attendances at Eccles Dispensary for the purpose, and it has been found necessary to hold two special weekly sessions for these.

Post-graduate course. An outstanding event of the year was the holding in October of a post-graduate course for tuberculosis medical officers, under the auspices of the Joint Tuberculosis Council. Two half-day sessions were held at the Eccles Dispensary, the subjects of

my lectures and demonstrations being: "Actinotherapy in Non-pulmonary Tuberculosis," "Radiology in the Diagnosis of Pulmonary Tuberculosis," and "Chronic Inflammatory Conditions of the Lungs." Sixteen students also visited the Peel Hall Hospital, when I gave demonstrations on the methods of diagnosis and treatment.

Artificial Light Treatment.

The artificial light centre at the Eccles Dispensary was established on the 1st December, 1927.

The figures show a slight decline, as is to be expected in view of the drop in non-pulmonary cases, and the results continue to be satisfactory. No change has been made in the methods previously used, *viz.*, long exposures to plain carbons. The two 30 ampere long-flame lamps continued their good service, while the Jesionek and Kromayer lamps had each their special place, the former especially in glandular cases and the latter for the local treatment of lupus. The patients attended well, but six were discharged on account of persistent irregularity.

The best results were obtained in cases of cervical adenitis; 22 out of 39 cases of adenitis with softening, and 15 out of 32 cases without softening became quiescent during the year. The duration of treatment in both classes was about seven months. On the other hand, only 8 out of 35 lupus cases became quiescent during the year, owing to the fact that many of them had widespread lesions of several years' duration. Light treatment has been advantageously combined as heretofore with other special methods, as described in former reports.

The following Table 21 shows the results for patients treated during 1931:—

Eccles Centre.

Form of tuberculosis or part of body affected.	Number of cases treated during 1931.	Condition of patients whose treatment concluded in 1931.				Ceased treatment for other reasons *	Still under treatment at end of 1931.
		Quiescent and apparently well.	Improved.	Stationary.	Worse.		
Skin	35	8	—	—	—	11	16
Adenitis with abscess formation and skin involvement	39	22	—	—	—	4	13
Adenitis without softening	32	15	—	—	—	7	10
Bones, joints, and spine	13	1	2	1	—	3	6
Abdomen	3	2	—	—	—	—	1
Other non-pulmonary conditions ...	3	1	—	—	—	2	—
Total	125	49	2	1	—	27	46

* Includes: (1) Patients who did not receive two months' treatment; (2) patients ceasing light treatment prematurely (*e.g.*, removals, unwilling or unable to continue); and (3) patients transferred to sanatoria or hospitals.

Peel Hall Pulmonary Hospital, Little Hulton.

Matron ... Miss E. Simmons.

The Hall, with about 17 acres of land attached thereto, was presented in 1914 to the Lancashire County Council by Mr. A. Wynne-Corrie, and an additional 20 acres of land, and later 8 acres, have been purchased. The adaptation of the premises as a pulmonary hospital for the treatment of advanced and chronic cases suffering from tuberculosis—delayed owing to the Great War—was completed in 1921.

The hospital, now accommodating 56 adult males, serves principally Dispensary Area No. 4 in taking advanced, observation and educational cases.

A motor ambulance is provided, and is available also for conveying patients to and from other hospitals.

Dr. Jessel reports as follows on the year's work at the hospital :—

The existence in the dispensary area of this hospital has for several years placed the tuberculosis officer in a position analogous to the private consultant, who sees patients at an out-patient department or at home and secures their admission to hospital beds under his care. The result has been that the hospital is nearly filled by patients resident in the area. On their discharge the analogy is maintained, as the patients' treatment is continued in close association with the dispensary organisation.

It is now unusual for patients not to avail themselves of the opportunity of entering the hospital; indeed, it not infrequently happens that they are loth to leave when it is considered that they can safely return home. Otherwise, the average length of stay (24 weeks) could have been easily exceeded. Judgment and discretion are needed in the selection of patients for residential treatment. It is necessary to satisfy oneself (1) that admission is justifiable on the grounds of a reasonable length of stay, (2) that the patient is really suffering from active tuberculosis requiring treatment, (3) that where patients have reached a stage of more or less equilibrium, the home conditions, after suitable rearrangements have been made and help given, are unsuitable for home treatment. It is uneconomical to utilise the beds of a hospital as if it were a convalescent home or hostel and patients should not be admitted merely on grounds of poverty. It is more advantageous to assist such cases through the care fund or the Public Assistance Committee.

The Peel Hall Hospital has continued to treat all types of pulmonary tuberculosis, mainly, however, acute and active chronic cases. It may be likened to a miniature chest hospital where all special forms of treatment are given. In addition, the extensive grounds enable a modified sanatorium regime of purposeful light hobby-exercises, such as a good father or son is in the habit of doing at home, to be carried out by patients who are ambulant.

The following statement gives some indication of the special treatment given during 1931 :—

Artificial pneumothorax inductions (one for diagnosis in malignant disease ; one for hæmoptysis in a case of hydropneumothorax)	47
Gas replacements	12 patients, usually repeated.
Sanocrysin	13 patients had a full course.
Bismuth meals	10
Phrenic evulsions	14 (by Mr. Morriston Davies).
Lipiodols	3

Artificial pneumothorax. There has been a steady yearly increase in the number of inductions and in the percentage of cases treated by this method. In 1929, 15 per cent. of the tuberculous cases admitted received inductions ; in 1930, 23 per cent. ; and in 1931, 37 per cent. Excluding cases where the inductions were unsuccessful or were soon abandoned owing to the presence of adhesions, the percentages are reduced to 10, 13, and 24 respectively for these years, *i.e.*, the percentage of admissions who received a definite course of artificial pneumothorax treatment had risen from 10 per cent. in 1929 to 24 per cent. in 1931.

In artificial pneumothorax the aim is to get not necessarily a complete collapse of the whole of the lung, including healthy tissue, but rather a selective collapse of the diseased portion. To secure this, greater skill and judgment are required than in the earlier procedure of attempting to collapse the whole of the lung, often unnecessarily. In a number of cases adhesions interfere wholly or partly with the pneumothorax, and 35 per cent. of the inductions were abandoned or discontinued on this account. In such cases, since April, 1931, phrenic evulsion or phrenicectomy has been performed by Mr. Morriston Davies and the results have been very good, so that in comparing the after-results of cases where artificial pneumothorax was abandoned or discontinued with cases receiving this treatment, one has to remember the good results of our second line of procedure, namely, phrenic evulsion, which is often quite a good substitute in these cases. Where the lung is partly adherent, preventing a satisfactory collapse, it is natural to expect that the results of the pneumothorax will be less satisfactory, and in such cases stretching or division of the adhesions has to be contemplated.

The following statement shows the complications which occurred, together with the after-results of the cases induced during the years 1929–30–31 :—

	1929	1930	1931	Total
Number of patients given inductions	21	27	46	94
Patients with complications* :—				
Adhesions	14	13	16	43
Effusions†	16	5	6	27
Gas replacements	13	3	4	20
Treatment abandoned or discontinued owing to adhesions	7	11	15	33
Net number of patients receiving artificial pneumothorax treatment	14	16	31	61
Position at the end of 1931 :—				
Under dispensary supervision‡	5	11	11	27
Still in hospital	2	1	17	20
Left district	1	—	2	3
Dead	6	4	1	11
	14	16	31	61

* A patient may have had one or more complications. The occurrence of a complication did not necessarily cause the discontinuance of artificial pneumothorax.
† The effusions usually appeared several weeks or months after induction of pneumothorax.
‡ Of these 27 patients, 19 were fit for work.

The average age of the patients given artificial pneumothorax was :—1929, 33 years; 1930, 37 years; 1931, 31 years; average 33 years.

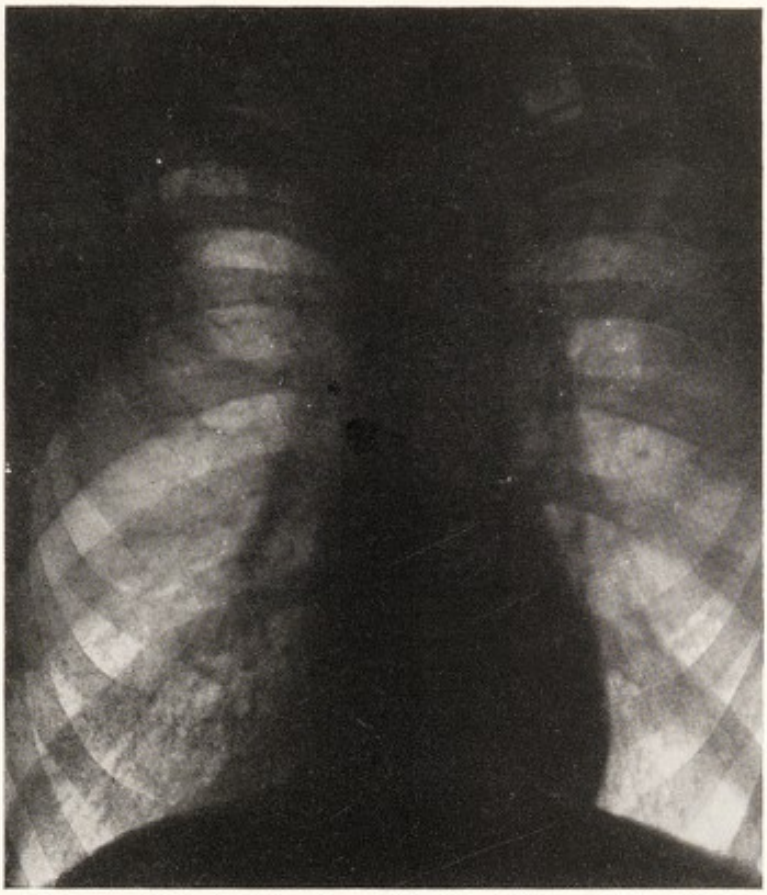
Table 22 below shows the results of sputum examinations of the 27 patients under dispensary supervision at the end of the year :—

Sputum at commencement of artificial pneumothorax treatment.	Sputum at end of 1931.		
	Positive.	Negative.	None.
Positive (19)	3	8	8
Negative (7)	—	—	7
None (1)	—	—	1

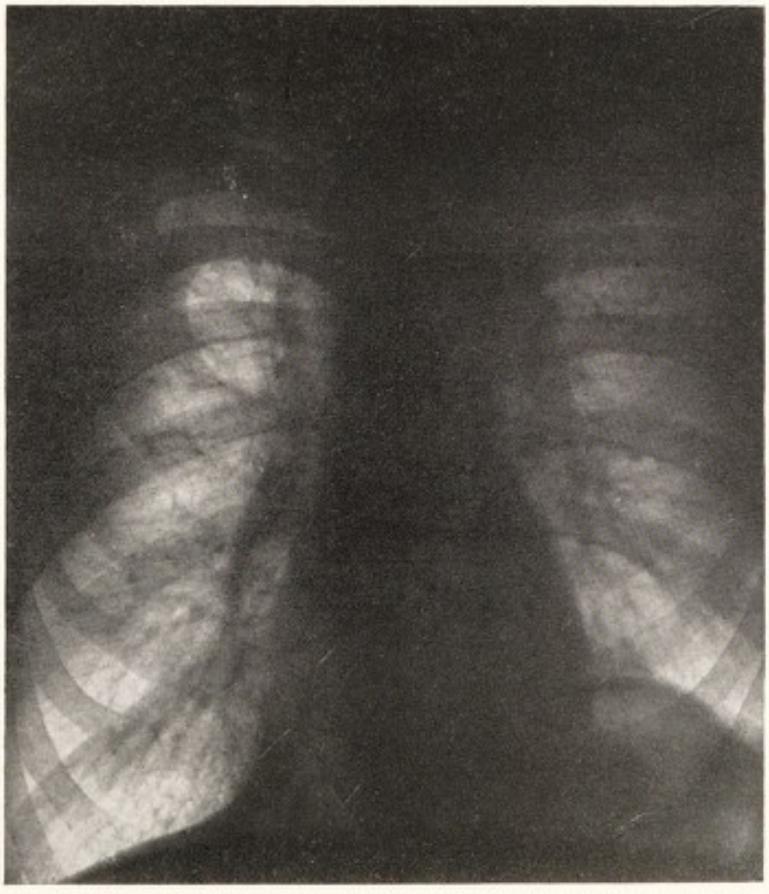
The after-results of the cases where the pneumothorax was discontinued or abandoned are shown in the following Table 23 :—

A.P. attempted in.	Position at end of 1931.				
	Under dispensary supervision.	Still in hospital.	Left district.	Dead.	Total.
1929	2	—	1	4	7
1930	5	1	1	4	11
1931	7	7	—	1	15
TOTAL	14*	8	2	9	33

* Of these 14 patients, 12 were fit for work.



P.E.1.(*a*).—Patient E.B., aged 40, T.B. plus. Skiagram taken 2/11/31 before operation of phrenic evulsion. Note infiltration left apex with cavity. Induction of artificial pneumothorax unsuccessful, and phrenic evulsion advised.



P.E.1.(*b*).—Same patient. Skiagram taken 25/4/32 after operation of phrenic evulsion on left side. Note rise of left diaphragm and disappearance of left apical cavity.

[*Skiagrams taken by Dr. Jessel at Peel Hall Pulmonary Hospital.*]

The following conclusions may be drawn :—

1. The yearly average age (33) is noteworthy, because as a rule the young adults have the worse prognosis.

2. Of the 27 cases under dispensary supervision, 19 were working or fit for work at the end of the year, which is a higher figure than one usually associates with hospital cases.

3. Of 19 discharged patients with tubercle bacilli in the sputum before pneumothorax was induced only three had bacilli at the end of the year.

With regard to conclusion No. 3, apart from the benefit to the individuals concerned this fact is important from the public health standpoint. The bacillary loss occurred in 84 per cent. of these cases, that is, they ceased to be centres of infection and were able with reasonable safety to rejoin their families.

Having regard to the rather advanced type of case usually admitted it is not surprising that adhesions caused 35 per cent. of the inductions to be abandoned or discontinued. It is in such cases that Mr. Morriston Davies has performed the phrenic evulsions with very good results ; in one case the closure of a cavity in the upper lobe (see skiagrams P.E. 1(*a*) and 1(*b*)) resulted.

Sanocrysin. This has been used less than in previous years and the qualified approval previously given holds good. It is of far less value than artificial pneumothorax and is chiefly useful in fresh exudative disease, such as is not usually seen at this hospital. It is of little use in old fibrotic and cavity cases. Thus it is possible to reconcile somewhat conflicting views and conclusions, in that the results depend upon the type of case treated.

Miss A. Jones, after nine years' excellent work as matron, was transferred to the Rufford Hospital, and a former sister, Miss E. Simmons, matron of the Chadderton Hospital, was appointed as her successor.

It remains to add that the members of the dispensary and hospital staffs have continued to work harmoniously together, and I am indebted to one and all for their cheerful and willing assistance.

Summary of Dispensary Work.

Number of tuberculous cases under supervision on 31st December, 1931 (Definitely tuberculous, 1604; doubtful, 0.)		1604
Examinations by tuberculosis officer at—	Examinations of *new persons* and *new contacts* for diagnosis.	Re-visits or re-attendances of "*old*" *cases* and "*old*" *contacts*.
Patients' homes	169	858
Leigh Chief Dispensary	242	1161
Eccles Branch Dispensary	216	1594
Farnworth Branch Dispensary	110	624
Pendlebury Branch Dispensary	62	415
Stretford Branch Dispensary	117	545
	747	4339
Attendances of patients at the Eccles Dispensary for artificial light treatment		5876
Attendances for artificial pneumothorax treatment (28 individual patients)		276
Care committee meetings attended by—		
(*a*) Tuberculosis officers		44
(*b*) Tuberculosis health visitors		54
Visits by tuberculosis officers to sanatoria, and pulmonary, special, and public assistance hospitals		87
Special visits by tuberculosis officers (*i.e.*, interviews with medical officers of health, general hospital officials, &c.)		36
Visits by dispensary nurses to patients' homes—		
Routine visits	9278	
Actual nursing	272	
Application of surgical dressings	369	10263
Adjustment of splints and surgical appliances	344	
Patients' dispensary attendances for attention by nurses—		
Application of surgical dressings	712	
Adjustment of splints and surgical appliances	95	807
Sanitary defects reported to the local medical officers of health		25
Sanitary defects which after notification were remedied		20
Disinfections carried out by local sanitary authorities		423
Cases referred by medical practitioners, Pensions authorities, &c., to tuberculosis officer for an opinion as to diagnosis or treatment		682
Sputum examinations—		
Total number of specimens examined		2191
Number where tubercle bacilli were found		302
Number of specimens sent by medical practitioners		279
Number of these where tubercle bacilli were found		26
Care work—		
Number of patients assisted by care committees and tuberculosis sections of civic guilds of help		163
Amount expended		£334/16/5
Number of patients assisted from County care fund		9
Amount expended		£15/4/6
Contacts—		
Number of selected persons examined		124
Number of cases of tuberculosis found		5
X-ray work—		
Skiagrams—pulmonary 1031, non-pulmonary 150*		1181
Screenings		320

* Spine 64, hip and pelvis 26, knee 40, ankle and foot 5, shoulder 5, femur 2, forearm, wrist, hand and finger 8.

XIV.—REPORT FOR DISPENSARY AREA No. 5: (including Rufford Pulmonary Hospital).

Area (estimated population 251,579) embraces West Lancashire Rural, Great Crosby, Waterloo-with-Seaforth, Litherland, Newton-in-Makerfield, Whiston Rural, Warrington Rural, and Widnes districts.

Consultant Tuberculosis Officer ... Dr. C. W. Laird.
(Dr. Laird is also visiting medical superintendent of the Rufford Pulmonary Hospital).
Assistant Tuberculosis Officer ... Dr. C. H. Lilley.

In December, 1931, the County Tuberculosis Committee decided to detach from Area No. 5 the districts around and near the Wrightington Hospital and to constitute the Wigan County Sub-Area with the dispensary at Wigan, such change to take effect on the 1st January, 1932. The present report is for the whole of Area No. 5.

Dr. Laird reports :—

In connection with anti-tuberculosis measures in this area, which embraces the greater part of south-west Lancashire exclusive of county boroughs, it may be said that the various activities have followed closely on the lines of previous years.

Patients were visited and re-visited from time to time in their homes by the medical and nursing staff, or seen periodically at the dispensaries at Seaforth, Widnes, St. Helens and Wigan.

At Seaforth Dispensary during the year skiagrams were taken and screenings carried out in all cases referred from each of the other branch dispensaries, as well as for those in its own vicinity.

Artificial pneumothorax refills were given to dispensary patients from various parts of the area, 249 refills being given at Seaforth and 78 at Rufford Pulmonary Hospital.

Sputum examinations for the area as a whole were made, as usual, at Seaforth, the total number being 1,483, of which 289 were positive.

The activities of the various care committees serving a large portion of the area have been highly praiseworthy, and the response to their efforts to maintain their funds—considering the state of the times—has been most gratifying. In one district, where unemployment has been unusually prevalent, a street collection resulted in raising the sum of £41 13s. 2d. This in itself is a tribute to the work of the local branch of the County organisation in the care of tuberculous patients in its vicinity. Following the example of other bodies, the members of the Prescot and District Care Committee and certain of

their friends took the opportunity of seeing at first hand something of the system adopted at County institutions for the treatment of the disease with which they are concerned. This step took the form of a visit to the pulmonary hospital at Rufford, where one had the pleasure and privilege of explaining the methods employed and of showing the party the hospital and its beautiful grounds. The interest displayed by those present was not only sufficient recompense for any little trouble involved, but it must have stimulated the Committee to renewed efforts on behalf of the cause in their own terrain. Many useful purposes are served by these small but earnest bands of social workers who, without fee or reward, undertake to render help to deserving cases in their midst, sometimes by giving a little support to a family whose breadwinner is stricken down, at other times by fitting out a needy patient with necessities of clothing to enable him to receive sanatorium or hospital treatment, or by providing him with extra sustenance to maintain improvement or to prevent relapse. The County Council, as is shown elsewhere, appreciates the disinterested service of these good Samaritans and contributes *pro rata* to the funds at their disposal. I take this opportunity of expressing my personal obligation for their wholehearted co-operation in the fight against a common enemy.

Grateful acknowledgment is made of my indebtedness to all who have loyally assisted me on the medical, the nursing, and the clerical side. It is due to their careful attention to details, and to their harmonious working together that difficulties have been largely overcome.

Artificial Light Treatment.

Artificial light centres have been established at the following tuberculosis dispensaries in Area No. 5 :—St. Helens (16th January, 1928), and Wigan (31st May, 1929).

At both centres carbon arc lamps were used for general irradiation, metal-cored carbons and short exposures being the rule while the number of patients was large, but gradually long exposures with white-flame carbons were resumed as the number of patients declined, and perhaps on the whole the effect was more satisfactory. The Kromayer lamp was used to produce a smart local reaction in the case of intractable lupus in isolated nodules, but there occurred instances in which it failed to clear the condition, and in which success was attained only after ' spiking ' with acid nitrate of mercury.

St. Helens Centre. Treatment during the year was carried out on much the same lines as in 1930 ; no additions have been made to the light equipment which consists of two 30 amperes carbon arc lamps and one Kromayer mercury vapour lamp.

During the year seven patients who had ceased treatment in a previous year with the disease quiescent and apparently well, returned for further treatment, and of this number three were lupus cases, two adenitis without softening, and two adenitis with abscess and skin lesion.

Four patients who received general hospital treatment were placed on light treatment subsequently in order to assist in healing resultant wounds.

For the year under review results are most striking in the case of children suffering from adenitis—with and without softening. Of the 12 children ceasing treatment during the year, 11 gained weight, whilst the twelfth patient's weight remained stationary.

Over 80 per cent. of the patients still under treatment at the end of the year were lupus cases, and it would appear that more prolonged treatment is required in cases of this type.

It is significant that the patients attended regularly for treatment, a fact which seems to show that they found benefit from this form of therapy.

Wigan Centre. The following notes have been compiled by Dr. G. B. Charnock who supervised the treatment at this centre during 1931 :—

The Wigan County Dispensary Light Clinic has been conducted as in former years.

The cases treated consisted of lupus, tuberculous adenitis, scrofuloderma, Bazin's disease and dacryocystitis.

Intensive exposures with iron-cored carbons have been given to the cases undergoing carbon arc radiations.

In the last report it was stated that the cases taking light exposures had been classified according to whether their respective diatheses were acid or alkaline. Ten stubborn cases were found to have an alkaline diathesis and had been transferred from the carbon arc to the Jesionek mercury vapour lamp radiations. As the result of this it has been possible to discharge three as quiescent. Of the remainder five have improved and two remain *in statu quo.* The latter happen to be the only two cases of dacryocystitis.

Further research on this subject has been temporarily suspended owing to staff changes.

Adjuvant methods have been continued as summarised in the last report with equally beneficial results.

The attendance of patients has been exceedingly good. This is in no small measure due to the refunding of travelling expenses in necessitous cases.

The following Table 24 shows the results for patients treated at these centres during 1931 :—

(a) St. Helens Centre.

Form of tuberculosis or part of body affected.	Number of cases treated during 1931.	Condition of patients whose treatment concluded in 1931.				Ceased treatment for other reasons. *	Still under treatment at end of 1931.
		Quiescent and apparently well.	Improved.	Stationary.	Worse.		
Skin	39	6	1	—	—	1	31
Adenitis with abscess formation and skin involvement	12	6	2	—	—	—	4
Adenitis without softening	15	10	1	—	—	2	2
Bones, joints, and spine	—	—	—	—	—	—	—
Abdomen	3	2	—	—	—	1	—
Other non-pulmonary conditions ...	1	—	—	—	—	—	1
TOTAL	70	24	4	—	—	4	38

(b) Wigan Centre.

Form of tuberculosis or part of body affected.	Number of cases treated during 1931.	Condition of patients whose treatment concluded in 1931.				Ceased treatment for other reasons. *	Still under treatment at end of 1931.
		Quiescent and apparently well.	Improved.	Stationary.	Worse.		
Skin	28	8	—	—	—	2	18
Adenitis with abscess formation and skin involvement	4	—	—	—	—	2	2
Adenitis without softening	20	6	1	—	—	1	12
Bones, joints, and spine	1	—	—	—	1	—	—
Abdomen	2	1	—	—	—	1	—
Other non-pulmonary conditions ...	2	1	—	—	—	—	1
TOTAL	57	16	1	—	1	6	33

* Includes: (1) Patients who did not receive two months' treatment; (2) patients ceasing light treatment prematurely (*e.g.*, removals, unwilling or unable to continue); and (3) patients transferred to sanatoria or hospitals.

RUFFORD PULMONARY HOSPITAL, NEAR ORMSKIRK.

Matron ... Miss A. Jones.

The County Council acquired, on the 18th October, 1920, Rufford New Hall, situated on the west side of the main road from Preston to Ormskirk, together with 128 acres of land adjoining the Hall. Under pressure from the Ministry of Health, a scheme was prepared for using the Hall and land for discharged sailors and soldiers, which included training the patients in several occupations. Some additional land was also obtained with a view to training in agricultural work, but

(a) South-west side of hospital before alterations and extension to verandah.

(b) Same side of hospital after provision of verandahs.
(See page 59)

all this, however, was abandoned in 1921 by order of the Ministry of Health, owing to financial stringency. The premises were first used as a pulmonary hospital on the 7th April, 1926, providing accommodation for 52 female patients.

The hospital serves as far as possible the districts in West Lancashire, so that relatives and friends will have reasonable facilities for visiting.

A motor ambulance has been provided, available for the hospital and also for conveying County patients to other hospitals.

Dr. Laird reports as follows on matters relating to the treatment of patients and the administration of the hospital :—

During the greater part of the year this hospital continued to provide treatment for female patients suffering from pulmonary tuberculosis and also for a few in whom the disease was of the surgical, or non-pulmonary, variety. The cases admitted in 1931 totalled 116; there were 19 deaths.

Towards the end of 1931, with the opening of Wrightington Hospital, near Parbold, the cases in Rufford which were mainly or wholly non-pulmonary in character were transferred there.

The completion of a new balcony above the verandah, and overlooking the rose garden on the south side, has added materially to the comfort and well-being of the patients who occupied the wards upstairs. The balcony is capable of taking about 12 beds and is protected overhead and in front by a glass roof and by sliding windows which can be opened to two-thirds of their total length. Not only does it afford an excellent vantage point for obtaining a charming view of the local scenery, but it permits patients who were previously indoors to spend the day and to sleep at night under semi-open-air conditions with protection from the weather.

The accommodation thus provided is alternative rather than additional, otherwise were the wards to be utilised for extra patients there would have been no great advantage in providing the balcony from a strictly medical point of view. The improvement in the general appearance of the west front can be best gauged by a comparison of two photographs, one of the old verandah and the other of the present structure. It will be seen from the latter that ventilation is adequately provided for, the glass screen which serves as a protection against the weather in the lower part being provided with swing windows in the upper part of each section so as to prevent the

accumulation of heated air near the ceiling under strong sunlight conditions. As regards the upper portion, or balcony proper, while the glass roof overhead reaches completely back to the side wall of the house, this feature is open to less objection in view of the ample apertures obtained by means of the sliding windows in front. Each ward on the upper floor on the western side communicates directly with the balcony by means of a doorway, and beds can be wheeled out direct from each ward as required. The success of the innovation may be best judged by the enthusiasm of the patients themselves who are most eager to leave the wards in most cases and to sleep out in the balcony.

General measures as regards treatment consist of regulated rest and exercise, a generous and suitable dietary, and life spent as far as possible in the open in an atmosphere free from dust and amid pleasant surroundings. These are supplemented as required by appropriate medicinal remedies, not least by those which may be regarded as special foods containing such vitamins as are likely to have a special bearing on the course of the disease.

Special treatment is given in a small but increasing number of cases found suitable for it, in the form of artificial pneumothorax. This method still holds the field as one of the greatest advances in the scheme of therapy, and the results obtained from it in a high proportion of cases judiciously selected have proved here, as elsewhere, highly satisfactory. Of the technique employed there is little calling for special mention. Personally I believe in the use of local anæsthetics, not only for inductions, but also for every refill. Apart from its being a humane measure it is instrumental in overcoming, amongst nervous and sensitive patients, any disinclination to undergo or to continue to have this form of treatment. Again, the liability to pleural shock is thereby considerably reduced. As regards the posture of the patient, it is desirable for the induction and perhaps for the first few refills, to have the patient recumbent until tolerance is well established and nervous apprehension has given way to perfect confidence in both the physician and his methods. Later on it may be found advantageous to have the patient in a sitting posture. The site of puncture most favoured here is that in the vicinity of the inferior angle of the scapula. Only where this is found unavailing is that of the axillary line adopted.

Effusions, other than those of academic interest and extent, discoverable only on x-ray examination, have not been very numerous ; in fact these are more exceptional than usual at Rufford. How to avoid them—or whether it is possible to avoid them—is a matter for discussion. Possibly it may be that attempts to force the pace should

not be tried without exceptional reason and after due deliberation and careful procedure.

Every case for artificial pneumothorax may be looked upon—or should be—as in some respects a law unto itself. The individual needs of the case should be studied from every point of view and in this way one may expect to get the best results. At any rate, despite effusions, if not because of them, this form of treatment has become popular with patients who have watched the progress of others undergoing it—so much so that occasionally there is keen disappointment on the part of some who would like to try it but who must be ruled out as quite unsuitable for it after x-ray examination, or on other grounds.

During the year the hospital was visited by three of the County care committees as follows :—On June 30th by the Ashton-under-Lyne and District Care Committee, accompanied by Councillor E. Broadbent and Dr. Fletcher ; on August 15th by the Horwich Care Committee, attended by Dr. Leigh ; and on October 5th by the Prescot and District Care Committee at the invitation of County Councillor W. J. Lucas, who was present with members and their friends. Each of these bodies appeared highly satisfied with the arrangements made for their reception and with the treatment of the patients and the equipment of the hospital.

An official visit by members of the County Tuberculosis Committee was made on the 20th of May. To this Committee patients and staff alike are indebted for the kind continuance of annual grants towards the provision of extra fare at Christmas, and for the hire of films for use with the Kodascope, as well as for periodicals and additions to the books in the library.

Thanks are due also the the Red Cross Organisation and to various donors of books and other articles, especially to the relatives of one patient for a handsome contribution to the entertainment fund.

Towards the end of 1931 Miss Moseley, who had acted as matron since the opening of the institution in 1926, was transferred to the new hospital at Wrightington, while Miss Stobart, who was also on the staff as sister since the opening, became matron of Chadderton Pulmonary Hospital. Their respective places were filled by Miss Jones, previously matron at Peel Hall, and by Miss Simpson, formerly sister at High Carley.

To all members of the staff I desire once more to acknowledge my obligation for their loyal co-operation.

Summary of Dispensary Work.

Number of tuberculous cases under supervision on 31st December, 1931 (Definitely tuberculous, 1974; doubtful, 10.) 1984

Examinations by tuberculosis officer at—	Examinations of *new persons* and *new contacts* for diagnosis.	Re-visits or re-attendances of "*old*" *cases* and "*old*" *contacts*.
Patients' homes	321	824
Seaforth Chief Dispensary	288	1377
St. Helens Branch Dispensary	118	620
Widnes Branch Dispensary	209	1174
Wigan Branch Dispensary	294	1762
	909	4933

Attendances of patients at dispensaries for artificial light treatment—

St. Helens Dispensary	3234	5800
Wigan Dispensary	2566	

Attendances for artificial pneumothorax treatment (32 individual patients) 327

Care committee meetings attended by—

(*a*) Tuberculosis officers	19
(*b*) Tuberculosis health visitors	62

Lectures or addresses given 3

Visits by tuberculosis officers to sanatoria, and pulmonary, special, and public assistance hospitals 76

Special visits by tuberculosis officers (*i.e.*, interviews with medical officers of health, general hospital officials, &c.) 18

Visits by dispensary nurses to patients' homes—

Routine visits	5900	6743
Actual nursing	158	
Application of surgical dressings	338	
Adjustment of splints and surgical appliances	347	

Patients' dispensary attendances for attention by nurses—

Application of surgical dressings	340	374
Adjustment of splints and surgical appliances	34	

Sanitary defects reported to the local medical officers of health 115

Sanitary defects which after notification were remedied 64

Disinfections carried out by local sanitary authorities 482

Cases referred by medical practitioners, Pensions authorities, &c., to tuberculosis officer for an opinion as to diagnosis or treatment 995

XV.—REPORT FOR FURNESS DISPENSARY SUB-AREA.

Area (estimated population, 37,959) embraces Dalton-in-Furness, Grange-over-Sands, Ulverston, and Ulverston Rural districts.

Consultant Tuberculosis Officer ... Dr. GEORGE LEGGAT.
(Dr. Leggat is also medical superintendent of the High Carley and Oubas House Sanatoria).

Dr. Leggat sends the following report :—

The work in this area has been carried out on the same lines as in previous years. Co-operation with the practitioners in the district has been well maintained, as is shown by the fact that 87 per cent. of the cases notified during the year were first referred to the tuberculosis officer for an opinion.

The number of new cases examined was 143 ; of these, 45 were diagnosed as tuberculous and 92 as non-tuberculous, while at the end of the year 6 remained doubtful.

Artificial pneumothorax refills for this area are done at High Carley Sanatorium, and three of the cases that had received this form of treatment whilst in High Carley continued to attend at frequent intervals for refills.

As a routine, all new cases are x-rayed and, during the year, 260 skiagrams were taken and 251 screen examinations made.

The examination of sputum, as in past years, has been carried out at High Carley ; 127 specimens were examined, 23 being positive and 104 negative.

The care scheme continues to be an essential part of the dispensary organisation ; during the year 11 cases were provided with clothing to enable them to accept institutional treatment.

ARTIFICIAL LIGHT TREATMENT.

An artificial light centre was established at the Ulverston Dispensary on the 5th June, 1928.

None of the cases treated during the year call for any special comment. The gland cases with abscess formation, on the whole, responded well to treatment.

The following Table 25 shows the results for patients treated at this centre during 1931 :—

Ulverston Centre.

Form of tuberculosis or part of body affected.	Number of cases treated during 1931.	Condition of patients whose treatment concluded in 1931.				Ceased treatment for other reasons. *	Still under treatment at end of 1931.
		Quiescent and apparently well.	Improved.	Stationary.	Worse.		
Skin	3	—	1	—	—	—	2
Adenitis with abscess formation and skin involvement	10	5	—	—	—	3	2
Adenitis without softening	7	3	—	—	—	1	3
Bones, joints, and spine	3	2	—	—	—	—	1
Abdomen	2	—	—	—	—	1	1
Other non-pulmonary conditions ...	2	1	—	—	—	1	—
Pulmonary tuberculosis:— Sputum positive	7	—	—	—	—	2	5
Pulmonary and non-pulmonary combined:—							
† T.B. plus and elbow	1	—	—	—	—	—	1
† T.B. minus and lupus	1	—	—	—	—	—	1
TOTAL	36	11	1	—	—	8	16

* Includes: (1) Patients who did not receive two months' treatment; (2) patients ceasing light treatment prematurely (*e.g.*, removals, unwilling or unable to continue); and (3) patients transferred to sanatoria or hospitals.

† Treatment for non-pulmonary condition only.

SUMMARY OF DISPENSARY WORK.

Number of tuberculous cases under supervision on 31st December, 1931 (Definitely tuberculous, 256; doubtful, 6.)		**262**
Examinations by tuberculosis officer at—	Examinations of *new persons* and *new contacts* for diagnosis.	Re-visits or re-attendances of "*old*" *cases* and "*old*" *contacts.*
Patients' homes	46	69
Ulverston Dispensary	97	649
Attendances of patients at the Ulverston Dispensary for artificial light treatment		1907
Attendances for artificial pneumothorax treatment (4 individual patients) ...		39
Lectures or addresses given		1
Visits by tuberculosis officer to sanatoria, and pulmonary, special, and public assistance hospitals		9
Visits by dispensary nurse to patients' homes—		
Routine visits	1893	2089
Actual nursing	52	
Application of surgical dressings	138	
Adjustment of splints and surgical appliances	6	
Disinfections carried out by local sanitary authorities		49
Cases referred by medical practitioners, Pensions authorities, &c., to tuberculosis officer for an opinion as to diagnosis or treatment		114

XVI.—REPORT FOR FYLDE DISPENSARY SUB-AREA.

Area (estimated population, 63,780) embraces Fleetwood, Thornton Cleveleys, Fylde Rural, Garstang Rural (part), and Kirkham districts.

Consultant Tuberculosis Officer ... Dr. G. Barker Charnock.
(Dr. Charnock is also medical superintendent of the Elswick Sanatorium).

Dr. Charnock reports :—

The Fleetwood Dispensary serves a fairly thickly populated district, and the work has been continued on similar lines to previous years. The number of new cases taken on the register was 83, as compared with 109 in 1930.

The co-operation with the general practitioners, school and sanitary authorities, has continued to be most cordial.

Most of the patients notified in 1931 were in quite good houses, with satisfactory home conditions, and in fact it was only found necessary in two cases to call in the aid of the sanitary authorities in this particular respect.

The County care fund has been found extremely valuable in helping deserving cases, and five received benefit from this source during the year.

During the year 166 sputum examinations were made (of which number 27 were found to be positive for tubercle bacilli), and 305 x-ray photographs were taken of dispensary cases at the Elswick Sanatorium. There were also 23 x-ray screenings done.

Artificial Light Treatment.

An artificial light centre was established in the Fylde Sub-Area at the Fleetwood Dispensary on the 25th June, 1928.

The artificial light centre at the Fleetwood Dispensary has been found very helpful in the treatment of suitable cases. Patients have attended regularly, and the results obtained have been quite satisfactory.

Certain cases that have found it very inconvenient to reach Fleetwood have been treated at the Preston County Dispensary, through Dr. Brunwin's kind co-operation.

The following Table 26 shows the results for patients treated at this centre during 1931 :—

Fleetwood Centre.

Form of tuberculosis or part of body affected.	Number of cases treated during 1931.	Condition of patients whose treatment concluded in 1931.				Ceased treatment for other reasons. *	Still under treatment at end of 1931.
		Quiescent and apparently well.	Improved.	Stationary.	Worse.		
Skin	10	2	1	1	1	—	5
Adenitis with abscess formation and skin involvement	21	9	2	—	—	1	9
Adenitis without softening	10	2	1	—	1	—	6
Bones, joints, and spine	1	1	—	—	—	—	—
Abdomen	4	3	—	—	—	—	1
Pulmonary tuberculosis:— Sputum negative	1	—	—	—	1	—	—
Pulmonary and non-pulmonary combined:— †T.B. plus and bones	1	—	—	—	—	—	1
T.B. plus and genito-urinary ...	1	1	—	—	—	—	—
TOTAL	49	18	4	1	3	1	22

*Includes: (1) Patients who did not receive two months' treatment; (2) patients ceasing light treatment prematurely (*e.g.*, removals, unwilling or unable to continue); and (3) patients transferred to sanatoria or hospitals.

† Treatment for non-pulmonary condition only.

SUMMARY OF DISPENSARY WORK.

	Examinations of *new persons* and *new contacts* for diagnosis.	Re-visits or re-attendances of "*old*" *cases* and "*old*" *contacts*.	
Number of tuberculous cases under supervision on 31st December, 1931 (Definitely tuberculous, 396; doubtful, 8.)			**404**
Examinations by tuberculosis officer at—			
Patients' homes	**59**	**123**	
Fleetwood Dispensary	**122**	**639**	
Attendances of patients at the Fleetwood Dispensary for artificial light treatment			**2040**
Attendances for artificial pneumothorax treatment (3 individual patients)			**12**
Visits by tuberculosis officer to sanatoria, and pulmonary, special, and public assistance hospitals			**6**
Special visits by tuberculosis officer (*i.e.*, interviews with medical officers of health, general hospital officials, etc.)			**1**
Visits by dispensary nurse to patients' homes—			
Routine visits		**1420**	**1680**
Actual nursing		**2**	
Application of surgical dressings		**225**	
Adjustment of splints and surgical appliances		**33**	
Patients' dispensary attendances for attention by nurse—			
Application of surgical dressings		**76**	**77**
Adjustment of splints and surgical appliances		**1**	
Sanitary defects reported to local medical officers of health			**2**
Sanitary defects which after notification were remedied			**2**
Disinfections carried out by local sanitary authorities			**80**
Cases referred by medical practitioners, Pensions authorities, &c., to tuberculosis officer for an opinion as to diagnosis or treatment			**148**

XVII.—REPORT FOR WIGAN COUNTY SUB-AREA.

Area (estimated population 117,294) embraces Ashton-in-Makerfield, Hindley, Ince-in-Makerfield, and Wigan Rural districts.

Consultant Tuberculosis Officer ... Dr. E. H. Allon Pask.
(Dr. Pask is also medical superintendent of the Wrightington Hospital.)
Assistant Tuberculosis Officer ... Dr. John E. Wallace.

In December 1931 the County Tuberculosis Committee decided to constitute, as from the 1st January, 1932, the Wigan County Sub-Area, which contains the districts around and near the Wrightington Hospital, such districts being served by the County dispensary, 3, Mesnes Park Terrace, Wigan. The administrative, x-ray, and bacteriological work will be done at the Wrightington Hospital.

The sub-area previously formed part of Dispensary Area No. 5.

XVIII.—CARE WORK.

The County care scheme was fully reviewed in the report for 1928, and as there has not been any further development, it is not proposed to recapitulate.

TABLE 27.—*Work done by voluntary care committees.*

Name of committee.	Estimated population served 1931.	Number of individual patients assisted during 1931.	Expenditure during 1931.
			£ s. d.
Ashton-under-Lyne and District... ...	68,985	65	306 0 5
Bacup and Rawtenstall	49,730	11	20 17 4
Chorley and District	73,403	61	464 7 4
Earlestown, Newton and District ...	22,753	23	41 19 5
Eccles Civic Guild of Help	44,770	9	7 9 4
Egerton, Eagley, Dunscar and District...	5,759	1	1 8 0
Farnworth and District	68,901	27	97 15 5
Golborne	7,411	11	21 12 11
Horwich	15,850	33	197 19 3
Huyton-with-Roby District	5,368	2	5 14 9
Lancaster and District	86,577	17	118 17 8
Leigh and District...	88,614	73	125 16 1
Prescot and District	20,796	15	70 8 4
Prestwich	23,980	3	10 13 8
*Radcliffe, Whitefield and District Relief Fund for Consumptives ...	36,734	12	89 11 4
Stretford Civic Guild of Help	56,940	39	69 17 8
Westhoughton	16,210	15	33 17 11
Widnes	40,980	40	85 19 3
Wigan County District	109,883	67	65 19 6
TOTAL	843,644	524	£1,836 5 7

* Relates to year ended 31st March, 1932.

The County Council has continued to make a grant of 33⅓ per cent. of the committees' expenditure on actual assistance to patients.

The following visits of voluntary care committees to County sanatoria and hospitals have taken place :—

Ashton-under-Lyne and District Care Committee	Rufford Pulmonary Hospital	30th June, 1931.
	Elswick Sanatorium	5th July, 1932.
Horwich Care Committee ..	Rufford Pulmonary Hospital	15th Aug., 1931.
Chorley and District Care Committee	Elswick Sanatorium	22nd Aug., 1931.
Prescot and District Care Committee	Rufford Pulmonary Hospital	5th Oct., 1931.

The County Tuberculosis Committee encourage these visits as they enable the members of the care committees to see at first hand the institutional side of the scheme.

Reporting on care work, Dr. Laird, the consultant tuberculosis officer for Dispensary Area No. 5, states :—

> Many useful purposes are served by these small but earnest bands of social workers who, without fee or reward, undertake to render help to deserving cases in their midst, sometimes by giving a little support to a family whose breadwinner is stricken down, at other times by fitting out a needy patient with necessities of clothing to enable him to receive sanatorium or hospital treatment, or by providing him with extra sustenance to maintain improvement or to prevent relapse. The County Council appreciates the disinterested service of these good Samaritans and contributes *pro rata* to the funds at their disposal. I take this opportunity of expressing my personal obligation for their whole-hearted co-operation in the fight against a common enemy.

The voluntary care committees only cover a little less than half the County, and there is left a balance of nearly 1,000,000 persons to be dealt with by other means, pending the formation of new voluntary committees. In the areas without care committees the County Council have charged the tuberculosis dispensary staff with the duty of carrying out the relief work. During 1931, assistance in kind was afforded through the dispensary staff to 159 individual patients, the amount expended being £549 3s. 0d.

With the transfer of the Poor Law functions to the County Council, arrangements have been made to continue co-operation with the Public Assistance Committee and their Guardians Committees so as to prevent overlapping in rendering assistance in necessitous or destitute cases.

XIX.—COUNTY SANATORIA AND HOSPITALS.

(1) High Carley Sanatorium, near Ulverston.

Medical Superintendent ... Dr. George Leggat.

(Dr. Leggat is also visiting medical superintendent of Oubas House Children's Sanatorium, Ulverston, and consultant tuberculosis officer for the Furness Dispensary Sub-Area—*i.e.*, the area around the sanatorium—containing a population of 37,959).

Assistant Medical Superintendent ... Dr. William Fettes.

Matron ... Miss E. Woosey.

(The matron is also responsible for the Oubas House Children's Sanatorium, Ulverston).

High Carley Sanatorium is situated about three miles west of Ulverston, to the south of the main road to Barrow-in-Furness. The buildings stand in 23 acres of ground, and accommodation is provided for 118 patients (62 males and 56 females).

The medical superintendent and the assistant are accommodated on the estate; and seven houses are provided in the vicinity of the sanatorium for the male employees.

Since 1929 electricity has been obtained from the public supply in replacement of the sanatorium plant.

During the year 160 County patients received some form of dental treatment from the visiting dental surgeon (Mr. A. Miller).

Changes were occasioned to the medical staff by the transfer of Dr. E. H. Allon Pask to the post of medical superintendent of the new Wrightington Hospital, and of Dr. J. E. Wallace to the post of assistant tuberculosis officer for the Wigan County Sub-Area. The new medical superintendent, Dr. G. Leggat, transferred from the Elswick Sanatorium, commenced duties on the 14th December, 1931, and Dr. William Fettes, from the City Hospital, Aberdeen, commenced duties as assistant medical superintendent on the 4th January, 1932.

Dr. Leggat reports as follows on matters relating to the treatment of the patients and the administration of the sanatorium :—

There have been no alterations in the ordinary routine sanatorium treatment during the past year. No new methods of treatment have been tried but Sanocrysin and artificial pneumothorax treatment have been continued.

Artificial pneumothorax. There were 24 patients who continued artificial pneumothorax treatment in 1931 from the previous year.

During 1931, 47 new cases were treated and in 40 a successful collapse was obtained ; in the remaining seven a collapse was unsuccessful (no oscillation 6, refused to continue, 1). There were thus 64 patents in whom a collapse was obtained and of these treatment was abandoned in 24 cases for the following reasons :—Developed fluid, 10 ; obliteration of pleura, 8 ; dyspnœa, 2 ; extension into other lung and extreme neurosis, 1 ; left for other than medical reasons, 2 ; died, 1.

This leaves 40 patients who continued with the treatment and of these 20 completed the course. At the commencement of artificial pneumothorax treatment, 15 cases had positive sputum but at the end of the course the sputum had become negative in 11. This gives a bacillary loss of 73·3 per cent., compared with a bacillary loss of 20·8 per cent. for the other cases which did not have artificial pneumothorax treatment.

At the end of the year, 20 cases were continuing with artificial pneumothorax treatment.

Sanocrysin. During the year, Sanocrysin was tried on 63 cases, 10 continuing from the previous year, and 5 being second course cases ; 39 patients completed their course, 12 discontinued and 12 were still under treatment at the end of the year.

The 12 cases discontinued treatment for the following reasons :— Pyrexia, 6 ; condition becoming worse, 1 ; loss of weight and malaise, 2 ; dermatitis, 1 ; discharged from sanatorium for other than medical reasons, 2.

Of the patients who completed the course, 36 had positive sputum at commencement, 10 becoming negative, giving a bacillary loss of 27·7 per cent.

Occupational therapy. The forms of occupational therapy practised were the same as in previous years, *i.e.*, joinery and carpentry, wattle hurdle making, leather work, boot repairing, poultry keeping, and cane chair mending.

In the joinery department all the minor repairs in connection with the institution were carried out. During the year 148 pairs of shoes were repaired. We were fortunate during the last eight months of the year to have the services of a practical boot repairer.

X-ray examinations. The number of skiagrams taken during the year was 640, compared with 646 the previous year ; 1,390 screen examinations were made, compared with 1,163 last year.

Sputum examinations. As in the past, the sputum of patients has been examined at monthly intervals, and during the year 1,382 specimens were examined, of which 755 were positive.

There were altogether 63 patients discharged during the year who were admitted with positive sputum ; of these, 21 were discharged with negative sputum, giving a bacillary loss of 33·3 per cent. A careful record of the bacillary loss has been kept for a number of years and the average for the last seven years was 21·47 per cent.

Patients' weights are taken at weekly intervals ; the following figures show the average gain in weight of those who completed two or more months' treatment :—

68 male patients, average gain in weight 11·5 lbs.
61 female patients, average gain in weight 10·5 lbs.

Social activities. The usual outdoor amusements have been provided during the summer months, bowls and clock golf for the men and croquet for the women. Whist drives have been held at fairly frequent intervals, and during the winter months the cinema entertainments have been continued and several concert parties have provided entertainment. The library continues to contribute a considerable amount of pleasure to both patients and staff. During the year about 10,000 books were loaned out. There are 32 volumes on technical subjects which are available for patients in any of the County sanatoria, and can be had on application to the medical superintendent of the High Carley Sanatorium.

Nurses' examinations. Probationer nurses are prepared by the medical superintendent and matron for the examination of the Tuberculosis Association ; four nurses sat for Part I and Part II and three of them were successful.

The construction of the new treatment block approved by the County Council in February, 1931, was commenced early in August. The block will contain on the ground floor an operating theatre, waiting and anæsthetic room, sterilising room, recovery room, and artificial light room with a room adjoining for the sister ; also a laboratory, x-ray and dark room to replace the existing x-ray room and laboratory which will be used for other purposes. On the first floor of the new block five bedrooms and a sick room will be provided for the staff. The approved cost is £4,000.

The laying of a hard court for tennis for the staff was commenced in the autumn and completed in 1932. The work was done by the staff.

I should like to take this opportunity of thanking Dr. Wallace, Miss Woosey (the matron), and the staff, for the great assistance and help they gave me in taking over High Carley.

The following Table 28 shows the condition of patients discharged during the year 1931 :—

Classification on admission to the sanatorium.	Condition at time of discharge.	Duration of residential treatment in the sanatorium.				Total.	
		Under 3 months.	3—6 months.	6—12 months.	More than 12 months.	No.	%
T.B. minus.	Quiescent	8	11	10	3	32	60·4
	Improved	4	9	1	—	14	26·4
	No material improvement ...	1	—	1	1	3	5·7
	Died in sanatorium	2	2	—	—	4	7·5
T.B. plus 1.	Quiescent	1	2	8	—	11	34·4
	Improved	1	5	4	3	13	40·6
	No material improvement ...	2	—	3	1	6	18·7
	Died in sanatorium	1	—	—	1	2	6·2
T.B. plus 2.	Quiescent	—	2	9	1	12	16·2
	Improved	8	12	20	9	49	66·2
	No material improvement ...	1	2	2	2	7	9·5
	Died in sanatorium	2	1	1	2	6	8·1
T.B. plus 3.	Quiescent	—	—	1	—	1	20·0
	Improved	1	—	—	—	1	20·0
	No material improvement ...	—	1	1	—	2	40·0
	Died in sanatorium	—	—	1	—	1	20·0
		Stay under 4 weeks.			Stay over 4 weeks.		
Diagnosis on discharge from observation.	Tuberculous	2			7	9	23·1
	Non-tuberculous	4			22	26	66·7
	Doubtful	—			2	2	5·1
	Died	1*			1†	2	5·1

*Diagnosis—bronchiectasis.
†Diagnosis—carcinoma of lung.

Total ... 203

(2) Oubas House Children's Sanatorium, Ulverston.

The medical superintendent, assistant medical superintendent, and matron of the High Carley Sanatorium are also responsible for the work at Oubas House. The sister-in-charge is Miss D. Pope, and the certificated school teacher is Miss A. Gibson.

The house, now the property of the County Council, stands in its own grounds (about one acre in extent), and accommodates 21 girls. A portion of an army hut has been adapted for use as a class-room. Educational instruction is given to the children in conformity with the requirements of the Board of Education.

Dr. Leggat reports as follows :—

The treatment of the children at Oubas House during the past year has been similar to that of previous years.

On admission each child is examined clinically and an x-ray

examination of the chest is made at High Carley Sanatorium ; on the result of this examination, and on the sputum result, depends the treatment of the child.

The admissions during the year numbered 22, of which three had positive sputum. Twenty-one patients (including four cases sent for observation) were discharged, and one died. The condition of the 17 definite cases on discharge was :—Quiescent 8, improved 5, stationary 1, worse 3.

The sputum of the Oubas House children is examined at High Carley Sanatorium ; during the year 77 specimens were examined, 33 being positive.

It is noticed that during the first few weeks of treatment many of the children gain considerably in weight and improve in general appearance ; their appetites also improve wonderfully. This seeming improvement in the case of those with positive sputum is only of short duration.

Treatment by natural sunlight has continued to be carried out under supervision and the general health of the children improved in most instances.

Several children were given injections of collosal calcium, and others Kalzana tablets for three months ; no improvement was noticed and the treatment was discontinued.

Sanocrysin was tried on a girl of 13 years of age, but was discontinued after three doses of 0·025 grams as she developed albuminuria and severe headaches, which persisted for several days ; also a rash recurred lasting several weeks.

In July there were two cases of chicken-pox, but these were sent to the isolation hospital and no further cases occurred.

Arrangements were made in June, 1932, for any child in need of dental attention to have the requisite treatment at High Carley, where there is a visiting dentist.

In the sanatorium the girls are taught simple household duties, the knowledge of which is quite useful when they return home. Light tasks in the garden are also undertaken. A good deal of useful work, including embroidery and bead work, was done in the school.

Picnics were arranged during the holidays. The children were taken to Bardsea four times ; some of the little ones had never visited the seaside before. These picnics were greatly enjoyed by everyone, including the staff.

Short walks were taken in the company of Miss Gibson (the teacher) whenever the weather was fit.

Christmas was a great time at Oubas House. Father Christmas

had this year a Scotch accent but the smile was the same as in previous years—due, no doubt, to the mask. The Christmas festivities were aided by a grant from the County Tuberculosis Committee and gifts from numerous friends, enabling every child to receive a little present from the tree and to have a well-filled stocking.

Lady Fell, a most faithful visitor to the sanatorium, was present on Christmas Day.

County Councillor B. P. Allen paid several visits to the sanatorium during the year.

(3) Elswick Sanatorium, near Kirkham.

Medical Superintendent ... ... Dr. G. Barker Charnock.

(Dr. Charnock is also consultant tuberculosis officer for the Fylde Dispensary Sub-Area—*i.e.*, the area around the sanatorium—containing a population of 63,780).

Visiting Consulting Chest Surgeon ... Mr. H. Morriston Davies.

Matron ... Miss I. G. Barclay.

This sanatorium is situated on the east side of Elswick village, and is about six miles from Kirkham station. The buildings and about 11 acres of land belong to the Fylde, Preston, and Garstang Joint Smallpox Hospital Board, and are held on lease by the County Council until 1955. The Council are under an obligation to vacate the premises in case of a severe epidemic of smallpox. Accommodation is provided for 35 males and 29 females ; total 64 pulmonary cases. An x-ray apparatus is provided in a separate building erected in 1925.

During the year 102 County patients received some form of dental treatment from the visiting dental surgeon (Mr. J. J. Ward).

Dr. G. Leggat, the medical superintendent, was transferred to the High Carley Sanatorium on the 14th December, 1931, and his place was taken by Dr. G. Barker Charnock, an assistant tuberculosis officer in Dispensary Area No. 5.

Mr. H. Morriston Davies, M.D., M.Ch., F.R.C.S., was appointed visiting consulting chest surgeon and made his first visit to the sanatorium on the 22nd January, 1931.

Dr. Charnock reports as follows on matters relating to the treatment of patients and the administration of the sanatorium :—

The routine treatment has been carried on as in former years. The treatment resolves itself into two measures, *viz.*, medical and surgical. Medical, which is chiefly conservative, involving carefully supervised rest, with lung splinting in specially selected cases. Surgical treatment embodies relapse therapy, for example, artificial pneumothorax, oleothorax, and phrenic evulsion.

As rest is of the greatest value in the treatment of pulmonary tuberculosis, this measure alone is utilised in the first instance. If,

after a certain length of time has elapsed, the patient appears to be receiving no benefit from this particular therapy, then other measures are considered.

Artificial pneumothorax is now a routine measure, and even where only small pockets have been produced beneficial effects have been noticed. In cases where artificial pneumothorax has failed, or where the lung has been held up by large adhesions, phrenic evulsion has been resorted to with advantage.

In 1931, artificial pneumothorax was induced in 25 cases, and 293 refills were given. It was found necessary to perform the operation of phrenicectomy in 13 cases. Mr. H. Morriston Davies has been responsible for carrying out the major surgical work, and his wide experience and knowledge have been invaluable.

Treatment by Sanocrysin has been continued, with favourable results in suitable cases.

Blood sedimentation tests are done as a routine in every case admitted to the institution. The results have been found very helpful from the point of view of prognosis.

The up-to-date x-ray equipment provided has been of the greatest assistance in the control of cases undergoing surgical treatment in the institution, as well as for diagnostic purposes in dispensary area cases.

During the year 548 x-ray photographs were taken, and 179 screen examinations made of sanatorium cases, whilst 305 photographs and 23 screenings were made in dispensary area cases. At the institution laboratory, 382 sputum tests made in sanatorium cases resulted in 146 being found positive for tubercle bacilli.

Able-bodied patients residing in the southern portion of the Fylde area, and within reasonable access of Elswick, have been encouraged to attend the sanatorium as out-patients.

The situation of the institution, with its extensive and well-kept gardens, makes a very pleasant environment for patients who have to remain long at rest, whilst portions of the grounds are reserved for the growing of fresh vegetables for the patients' consumption. The poultry farm is a big asset and has proved a helpful and profitable venture.

Light and pleasant occupations are found for patients suitably able to perform them, and the entertainment of the inmates has been continued as in former years. The wireless installation has been markedly improved and extended during the year. Gifts of books and periodicals from Mrs. Tod and Miss Wright have been gratefully received.

The three honorary chaplains have paid frequent visits to the institution. Their friendly advice and interest in the welfare of the patients have done much to cheer them.

The following Table 29 gives the condition of patients discharged during 1931 :—

Classification on admission to the sanatorium.	Condition at time of discharge.	Duration of residential treatment in the sanatorium.				Total.	
		Under 3 months.	3—6 months.	6—12 months.	More than 12 months.	No.	%
T.B. minus.	Quiescent	5	5	2	4	16	57·1
	Improved	8	—	2	—	10	35·7
	No material improvement ...	1	—	1	—	2	7·1
	Died in sanatorium	—	—	—	—	—	—
T.B. plus 1.	Quiescent	—	2	3	1	6	42·8
	Improved	2	3	2	—	7	50·0
	No material improvement ...	1	—	—	—	1	7·1
	Died in sanatorium	—	—	—	—	—	—
T.B. plus 2.	Quiescent	1	1	2	3	7	20·6
	Improved	4	3	4	7	18	52·9
	No material improvement ...	5	1	1	—	7	20·6
	Died in sanatorium	—	—	2	—	2	5·9
T.B. plus 3.	Quiescent	—	—	—	—	—	—
	Improved	1	—	—	1	2	100·0
	No material improvement ...	—	—	—	—	—	—
	Died in sanatorium	—	—	—	—	—	—
Bones and joints.	Quiescent	1	2	5	1	9	42·8
	Improved	1	1	3	1	6	28·6
	No material improvement ...	1	1	1	2	5	23·8
	Died in sanatorium	—	1	—	—	1	4·8
Abdominal.	Quiescent	—	—	1	1	2	50·0
	Improved	—	—	—	—	—	—
	No material improvement ...	—	—	—	—	—	—
	Died in sanatorium	—	—	2	—	2	50·0
Other organs.	Quiescent	—	1	—	—	1	33·3
	Improved	—	—	—	1	1	33·3
	No material improvement ...	1	—	—	—	1	33·3
	Died in sanatorium	—	—	—	—	—	—
Peripheral glands.	Quiescent	2	1	2	—	5	83·3
	Improved	—	—	—	—	—	—
	No material improvement ...	—	—	—	—	—	—
	Died in sanatorium	—	—	—	1	1	16·7

		Stay under 4 weeks.	Stay over 4 weeks.		
Diagnosis on discharge from observation.	Tuberculous	1	1	2	28·6
	Non-tuberculous	1	3	4	57·1
	Doubtful	—	1	1	14·3

Total .. 119

(4) Chadderton Pulmonary Hospital, near Oldham.

Visiting Medical Superintendent ... Dr. James Wood.

(Dr. Wood is also medical officer to the Chadderton, Royton, and Crompton Joint Hospital Board, and the medical officer of health of the Urban District of Chadderton).

Matron ... Miss G. Stobart.

An agreement was made on the 1st October, 1919, with the Chadderton, Royton, and Crompton Joint Hospital Board for the use of the buildings at Racefield, erected as a smallpox hospital, for the treatment of patients suffering from pulmonary tuberculosis. Accommodation is provided for 45 female patients. The County Council are under an obligation to vacate the premises in case of an epidemic of smallpox.

Dr. Wood reports as follows :—

During the year, 119 patients were admitted, 102 were discharged (including 14 who were transferred to other institutions), and 25 died. Of the patients admitted, seven were under 18 years of age and eleven between 18 and 21 years.

A small number of patients who had run high temperatures for several weeks and had given no indication of improvement with the prolonged rest were given vitamins A and D in capsules with apparent benefit in some cases.

Sputum examinations numbered 312, 140 being positive and 172 negative. One specimen was sent to be tested by inoculation and gave a negative result.

In November, the matron (Miss Simmons) left to take the matron's post at Peel Hall Pulmonary Hospital, and Miss Stobart, from Rufford Pulmonary Hospital, was appointed to fill the vacancy.

Every effort has been made by the matron and staff to attend to the various needs of the patients and to make them happy and comfortable.

The library, which contains 362 books, has been of considerable service, 789 books having been borrowed in the year.

Friends from Chadderton, Royton, and Oldham, have visited the hospital to give entertainments, which have been appreciated, and our thanks are due to them.

The patients and staff had a pleasant time at Christmas. In addition to the special fare and whist drives, a large Christmas tree was provided from which each patient received a suitable present.

(5) Heath Charnock Pulmonary Hospital, near Chorley.

Visiting Medical Superintendent ... Dr. J. W. Rigby.
(Dr. Rigby is also medical officer to the Chorley Joint Hospital Board.)

Matron ... Miss H. Sinclair.

By agreement with the Chorley Joint Hospital Board, the County Council erected, equipped, and furnished two pavilions, containing 16 and 14 beds respectively, together with a dining-hall and some staff accommodation. There are also wooden sleeping shelters for three patients. The Joint Board are responsible for the administration of the hospital, the County Council paying to them the cost of maintenance.

Dr. Rigby has kindly furnished the following report :—

During the year the administration of the hospital has not been so easy as in the past, due to the wet and stormy weather. The usual time spent out of doors, occupied in walks and in the garden, has had to be curtailed. The women have been content to occupy themselves with needlework, but although the men have a recreation room fitted out with games, and a billiards table, I am endeavouring to find more means of usefully occupying them in their leisure hours.

Our wireless installation has been changed from the loudspeakers to ear-phones. The change has been an advantage as the very ill patients did not wish the loudspeakers working whilst the ones not so ill wanted to hear the music.

The numerous methods of calcium therapy tried during the previous year have been discontinued. We are developing palliative treatment and endeavouring to obtain a quick transfer of suitable cases to sanatoria for active treatment. The hospital is not supplied with electric current, which is rather a handicap to surgical treatment, and prevents the introduction of x-ray and light therapy. Otherwise, nothing has been spared to equip the place with all the necessaries for a tuberculosis hospital, and during the past year the call on the County funds for the part payment of the cost of reconditioning the laundry and the sewage filter beds has been generously met.

We have once again to thank the organisers of the concert parties who visit us each year. The entertainments are greatly appreciated. The staff have done everything in their power to brighten the long hours and to them we owe our sincere thanks.

(6) Wrightington Hospital, Parbold.

Honorary Consulting Orthopædic Surgeon ... Sir Robert Jones.

Medical Superintendent ... Dr. E. H. Allon Pask.

(Dr. Pask is also consultant tuberculosis officer for the Wigan County Dispensary Sub-Area—*i.e.*, the area around and near the hospital—containing a population of 117,294).

Visiting Consulting Orthopædic Surgeons ... Mr. T. P. McMurray
Mr. Harry Platt.

Assistant Medical Superintendent ... Dr. E. H. W. Deane.

Junior Assistant Medical Officer ... Dr. D. I. A. Williams.

Matron ... Miss E. Moseley.

Assistant Matron ... Miss S. Holmes.

Wrightington Hall, together with outbuildings, two cottages and 159 acres of land, was purchased in 1920 for the sum of £16,500.

The Hall is situated close to the high road between Standish and Parbold, about 6 miles north-west of Wigan; altitude 300 feet above sea level.

The scheme for the adaptation of the Hall and the erection of new buildings to provide accommodation for 226 patients was adopted by the County Council on 4th August, 1927, and approved by the Ministry of Health.

The following accommodation is provided :—

Children : Three one-storey pavilions for non-pulmonary tuberculosis—each pavilion containing 40 beds (in two wards of 20 beds each), a warm ward for four beds and two single cubicles	138 beds.
Isolation block	8 beds.
Adults : Two one-storey pavilions, one for men and one for women—each with a ward for 30 non-pulmonary cases, and cubicles for 10 combined cases of pulmonary and non-pulmonary tuberculosis	80 beds.
Total accommodation	226 beds.

In addition to the patients' pavilions, there are the following buildings :—Treatment block, kitchen block, official block, power house, laundry, quarters for nurses and maids (the modern portion of the Hall and an annexe), medical superintendent's house, seven workmen's cottages, outbuildings (utilised for garages, workshops, stores, etc.).

The capital cost of the Wrightington scheme is approximately :—

	£
Purchase in 1920 of Hall and estate	16,500
New buildings and adaptation of old buildings ...	114,720
Furniture and equipment	13,600
Water supply	5,600
Clerk of works	1,200
	£151,620

The capital cost per bed works out at £671. The Ministry of Health made a grant of £180 per bed towards the capital expenditure.

The water supply is from Robin Hood well (1¼ miles distant) which was purchased by the County Council. New sewage works are installed on the estate 250 yards from the nearest pavilion. The electric light is from the public supply.

The first patients were admitted on the 14th December, 1931. Sufficient equipment has been obtained to enable one of the children's wards to be converted for use by adults in order to meet the demands of the waiting list. Such a course was adopted in July, 1932, one boys' ward being taken over by adult male patients.

(7) Peel Hall Pulmonary Hospital (Dispensary Area No. 4).
(8) Rufford Pulmonary Hospital (Dispensary Area No. 5).
(9) Withnell Pulmonary Hospital (Dispensary Area No. 2).

It has already been explained in the chapter on the dispensary organisation (pages 5 and 6), that the Administrative County, containing a population of 1,804,400, is divided into five large dispensary areas, with an average population of 320,000, each area being in the charge of a consultant tuberculosis officer who has two assistant tuberculosis officers and other staff. The aim of the County Council has been to provide in each area a pulmonary hospital containing about 50 beds for the diagnosis of observation cases and the treatment of intermediate and advanced cases of pulmonary tuberculosis near their homes, the consultant tuberculosis officer of the particular dispensary area acting as the visiting medical superintendent. In addition to the five large areas there are three dispensary sub-areas—Furness, Fylde, and Wigan County—in the charge respectively of the medical superintendent of the High Carley Sanatorium, the Elswick Sanatorium, and the Wrightington Hospital. Thus, the dispensary side of the work is not divorced from the institutional side.

The report for each of the above-named hospitals is contained in the report of the consultant tuberculosis officer for the area, *viz.*, for Peel Hall in Dispensary Area No. 4, page 50 ; for Rufford in Dispensary Area No. 5, page 58 ; for Withnell in Dispensary Area No. 2, page 43.

XX.—THE TREATMENT OF PULMONARY TUBERCULOSIS.

The Conservative Use of Institutional Accommodation.

The most expensive part of a tuberculosis scheme is the cost of maintaining patients in sanatoria or hospitals. The practice of the tuberculosis medical staff has always been conservative in regard to diagnosis, particularly in children, and every opportunity has been taken to adopt up-to-date methods of diagnosis. For this purpose the County Council have allowed their senior medical staff to attend post-graduate courses and to undertake research.

In regard to children I reported in 1930 and in 1929 on the occurrence of pulmonary tuberculosis in relation to sanatorium accommodation, and gave figures showing that, as the result of the conservative diagnosis of pulmonary tuberculosis in children, it had only been necessary to provide relatively few sanatorium beds in Lancashire for such children, with the consequent saving of public money.

With regard to adults suspected to be suffering from pulmonary tuberculosis, a similar conservative attitude has been adopted, as may be noted from the proportion (45·5 per cent.) of pulmonary cases on the register classified as T.B. minus. In contrast 4 large counties, with a population exceeding one million, show an average percentage of 51·1 T.B. minus cases. For the whole of England, the proportion (according to the Annual Report for 1931 of the Chief Medical Officer of the Ministry) was 50·1.

An exhaustive examination of patients to ensure that only cases with definite tuberculosis are taken on the register and afforded treatment undoubtedly saves a considerable amount of public money by reducing the number of beds required for the treatment of patients.

A further factor seriously affecting the number of beds required is the duration of treatment allowed to a patient. Here again every

case has to be carefully weighed on its merits, but generally the following principles have been adopted :—

(*a*) Patients who are responding to institutional treatment are given a prolonged stay (6 months and over) so long as there is a likelihood of the disease becoming quiescent. To return such cases to their homes and to work before attaining quiescence is uneconomical because of the danger of the patient breaking down and all the good of institutional treatment being wasted.

(*b*) Patients, particularly the young adult group (aged 15-25), who have been given special forms of treatment (*e.g.*, artificial pneumothorax, phrenic evulsion, Sanocrysin) are allowed a sufficient stay (say, up to 6 months) to show progress from their treatment and are retained up to 12 months or more if their condition warrants it ; cases treated by artificial pneumothorax attend at the dispensaries for a continuation of their treatment.

(*c*) Patients whose sputum has never been positive and who are not likely to make further progress or require special treatment are allowed to return home at the end of two or three months' treatment. Many sputum examinations are made in this type of case and the usual practice is to make three tests of consecutive daily specimens.

(*d*) Patients with positive sputum who are not likely to make further progress and whose home conditions are reasonably satisfactory are allowed to return home at the end of two or three months' treatment.

The tuberculosis officers when making recommendations for institutional treatment bear in mind the following questions : (1) Is institutional treatment required to improve the patient's health ? (2) Is institutional treatment desirable to secure nursing care which cannot be otherwise obtained at home ? (3) Is institutional treatment necessary to prevent the spread of infection ?

All the patients in sanatoria and hospitals receive the benefit of and training in hygiene which is advantageous to themselves and a protection to others when they return home.

The following Table 30 summarises the *immediate* results of treatment of patients discharged in 1931 from sanatoria and pulmonary hospitals :—

Classification on admission to the institution.	Condition at time of discharge.	Duration of residential treatment in the institution.												Total patients discharged.	
		Under 3 months.			3—6 months.			6—12 months			More than 12 months.				
		M.	F.	Ch.	M.	F.	Ch.	M.	F.	Ch.	M.	F.	Ch.	No.	%
T.B. minus.	Quiescent	11	12	1	16	12	6	8	9	8	5	3	10	101	36·1
	Improved	16	23	2	34	24	3	7	8	4	2	—	6	129	46·1
	No material improvement	9	8	1	3	1	—	4	1	—	2	1	1	31	11·1
	Died	8	2	1	5	—	—	1	—	—	1	—	1	19	6·7
T.B. plus 1 (early)	Quiescent	1	—	—	8	—	—	7	5	—	1	—	1	23	20·7
	Improved	10	1	—	13	12	—	11	2	1	4	2		56	50·5
	No material improvement	9	1	2	—	1	—	2	3	—	2	1	—	21	18·9
	Died	5	1	—	2	—	—	2	—	—	1	—	—	11	9·9
T.B. plus 2 (intermediate)	Quiescent	2	1	—	11	3	—	13	7	1	1	3	—	42	6·4
	Improved	41	26	—	71	56	—	58	53	—	20	26	1	352	53·6
	No material improvement	30	35	—	25	16	—	24	11	1	4	9	2	157	23·9
	Died	40	20	—	10	6	—	11	10	—	6	3	—	106	16·1
T.B. plus 3 (advanced)	Quiescent	—	—	—	—	—	—	—	1	—	—	2	—	3	1·5
	Improved	9	3	—	11	14	—	8	8	—	6	5	1	65	32·3
	No material improvement	20	8	—	11	3	1	6	2	—	2	4	2	59	29·4
	Died	24	21	—	5	9	—	9	1	—	2	2	1	74	36·8
	Total	235	162	7	225	157	10	171	121	15	59	61	26	1249	—
								Stay under 4 weeks.			Stay over 4 weeks.				
Diagnosis on discharge from observation.	Tuberculous							3	1	—	5	4	3	16	21·9
	Non-tuberculous							13	5	—	18	10	3	49	67·1
	Doubtful							—	—	1	—	2	1	4	5·5
	Died							2*	—	—	1†	1‡	—	4	5·5
													GRAND TOTAL		1,322

* Diagnosis : One case bronchiectasis, and the other chronic bronchitis and inflammation of lungs.
† Diagnosis : Carcinoma of lung.
‡ Diagnosis : Cardiac failure secondary to double pleural effusion.

The table illustrates that the best results are achieved when institutional treatment is given before the sputum becomes positive—the more advanced the disease the less satisfactory progressively are the results. This only goes to prove what has been said so often, that the earlier treatment for pulmonary tuberculosis is commenced the better the chances of recovery.

Referring to the pulmonary hospitals, they are also used for patients sent for the purpose of isolation, for observation in regard to diagnosis, and particularly for education in general methods of hygiene which, when the patients return home, can be applied much more effectively after a short period of institutional treatment.

In four of the five dispensary areas, one of these pulmonary hospitals is in the charge of the consultant tuberculosis officer, an arrangement of the highest importance because patients come to these hospitals from the area administered by the tuberculosis officer, who is, therefore, conversant with the home conditions. Further, it is of great advantage to the tuberculosis officer, because he can himself apply certain forms of treatment and carry out valuable clinical and research work.

Other patients requiring isolation are accommodated in the pulmonary hospitals (not administered by the County Council) situated in or near the area. In order that the consultant tuberculosis officers may keep themselves in touch with such cases, arrangements have been made (with one or two exceptions, where only occasional County cases are treated) for the tuberculosis officers to visit periodically the pulmonary hospitals in their area and confer with the medical superintendents on the following matters:—(1) The question of extension of patients' treatment or their return home, having special regard to the home conditions which are known to the tuberculosis officer; (2) the question as to patients' future treatment; (3) applications from patients for transfer to other institutions, or for their discharge home, and to settle, where possible, any difficulties or complaints by patients which may arise.

The foregoing working arrangements have enabled the highly infectious cases with unsatisfactory home conditions to remain at the pulmonary hospitals for long periods for the purpose of isolation, and the patients who have made good progress and are capable of light work to be transferred to sanatoria for the continuation of their treatment.

Brief particulars are given in the following Table 31 of the pulmonary hospitals available for the treatment of patients:—

Name of hospital.	1931: Number of patients—		
	Admitted.	Discharged.	Died.
Burnley	37	29	12
Chadderton, near Oldham	119	102	25
Eccleston Hall, near St. Helens	2	3	—
Heath Charnock, near Chorley	72	45	23
Hefferston Grange, Cheshire	26	18	7
Marland, Rochdale	—	4	1
Mount Pleasant, Liverpool	1	—	1
Peel Hall, Little Hulton	134	109	24
Pemberton, Wigan	4	2	2
Rufford, near Ormskirk	107	85	20
Westhulme, Oldham	1	—	—
Withnell, near Chorley	118	92	31
Wolstenholme Hall, Norden	37	28	17
Other institutions	1	1	—
TOTAL	659	518	163

By the Public Health Act of 1925, a county council or a local sanitary authority now have power to secure the compulsory isolation of infectious cases on the order of the magistrates. So far only one patient has been so dealt with.

XXI.—THE TREATMENT OF NON-PULMONARY TUBERCULOSIS.

Immediate Results of Institutional Treatment at General and Special Hospitals.

A summary of the condition on discharge of patients treated during 1931 in approved general and special hospitals and in the Manchester and Salford Skin Hospital is given below :—

Table 32.

Classification on admission to the institution.	Condition at time of discharge.	Duration of residential treatment in the institution.												Total	
		Under 3 months.			3—6 months			6—12 months			More than 12 months				
		M.	F.	Ch.	M.	F.	Ch.	M.	F.	Ch.	M.	F.	Ch.	No.	%
Bones and joints.	Quiescent	3	1	2	2	1	5	3	3	7	—	1	18	46	16·5
	Improved	41	43	18	6	9	10	10	9	12	18	10	15	201	72·3
	No material improvement ...	5	3	3	2	—	2	1	1	—	1	1	2	21	7·6
	Died in institution	1	—	1	4	—	—	—	1	—	1	—	2	10	3·6
Abdominal.	Quiescent	—	—	1	—	1	1	—	3	1	1	—	6	14	25·9
	Improved	5	9	5	—	1	1	—	1	2	—	—	3	27	50·0
	No material improvement ...	1	2	1	—	—	1	—	—	—	—	—	—	5	9·3
	Died in institution	—	4	2	—	—	—	—	2	—	—	—	—	8	14·8
Other organs	Quiescent	3	1	—	1	—	—	—	—	—	—	—	—	5	6·7
	Improved	19	15	8	3	2	—	—	—	—	1	—	2	50	67·6
	No material improvement ...	4	5	1	1	—	—	—	—	—	—	—	—	11	14·9
	Died in institution	1	2	4	—	—	1	—	—	—	—	—	—	8	10·8
Peripheral glands.	Quiescent	7	11	11	1	—	1	1	2	1	—	—	5	40	32·3
	Improved	15	24	28	1	–	3	1	—	—	—	—	—	72	60·0
	No material improvement ...	1	2	2	—	—	—	—	—	—	—	—	—	5	4·2
	Died in institution	1	—	1	—	—	—	—	—	—	1	—	—	3	2·5
	Total	107	122	88	21	14	25	16	22	23	23	12	53	526	—
								Stay under 4 Weeks.			Stay over 4 Weeks.				
Diagnosis on discharge from observation.	Tuberculous							3	—	1	2	2	3	11	40·7
	Non-tuberculous							2	2	2	1	1	1	9	33·3
	Doubtful							1	1	1	2	2	—	7	25·9
													Grand Total	553	

After-Histories of Patients Suffering from Non-Pulmonary Tuberculosis.

In 1929 the after-results of 1,159 adults and 1,455 children first treated during the five years 1920 to 1924 were recorded: 75 per cent. of the cases had recovered or had the disease quiescent. Although this year the after-histories have not been worked out again, the excellent results have continued. New after-histories will be given in a future report.

XXII.—DENTAL TREATMENT.

Patients eligible for dental treatment are those who, in the opinion of the medical superintendent or the tuberculosis officer, are unable to derive full benefit from their treatment for tuberculosis owing to defective teeth. Patients already covered by dental schemes of other bodies, *e.g.*, school children and tuberculous pensioners, are excluded from benefit. For insured persons who are tuberculous many approved societies make a contribution towards the cost of dental attention required.

At the County sanatoria of High Carley and Elswick the dental work is carried out by a visiting dentist. Early in 1932 arrangements were made for any child in Oubas House Sanatorium, Ulverston, requiring dental attention to be conveyed to the High Carley Sanatorium for such treatment. Also, in 1932, a visiting dentist commenced at the Wrightington Hospital.

The following statement shows the dental work carried out during 1931, under the scheme approved by the County Council :—

TABLE 33.

	At High Carley Sanatorium.	At Elswick Sanatorium.	At other sanatoria and hospitals.	At patients' homes.	Total.
Number of individual patients who received dental attention (any form)	160	102	39	24	325
New dentures provided—					
(*a*) Complete sets	16	3	24	18	61
(*b*) Partial sets	21	13	4	5	43
Repairs to dentures	18	2	7	2	29
Number of extractions	211	333	243	369	1,156
Number of fillings	57	59	2	1	119
Number of scalings and cleanings...	2,492	280	1	2	2,775
Number of other operations ...	327	74	2	1	404

The dental scheme, considering the benefit derived by the patients, has proved economical, and is fully justified.

XXIII.—INSTITUTIONAL ACCOMMODATION.

On the 31st December, 1931, there were altogether 875 beds at sanatoria and hospitals occupied by County patients, as compared with 906 at the end of 1930. The number of beds occupied by pulmonary cases worked out at 62 per 100 pulmonary deaths. For non-pulmonary tuberculosis the proportion was 90 beds per 100 non-pulmonary deaths; when the extra accommodation at the Wrightington Hospital is fully occupied the proportion will then be 126 beds per 100 non-pulmonary deaths.

Table 34 below gives a summary of the beds occupied at the end of 1931 at the several types of institutions, the names of which are contained in Appendix IX.

Type of institution.	Pulmonary tuberculosis.		Non-pulmonary tuberculosis.		Total.
	Adults.	Children.	Adults.	Children.	
Sanatoria	311	42	1	10	364
Pulmonary hospitals	261	1	1	—	263
Training colonies	2	—	6	—	8
Observation cases	10	4	4	1	19
General hospitals	—	1	11	3	15
Special hospitals	2	—	70	133	205
Skin hospital	—	—	1	—	1
Total	586	48	94	147	875
	634		241		

Of the 875 beds occupied, 430 were in sanatoria or hospitals belonging to the County Council, and 445 were in non-County institutions.

The Wrightington Hospital, accommodating 226 cases of non-pulmonary tuberculosis (including special provision for 20 cases with also pulmonary tuberculosis), was opened on the 14th December, 1931, and was partially occupied at the end of the year.

The number of beds in occupation by County patients on the 31st December of each year is as follows:—1926, 825; 1927, 819; 1928, 858; 1929, 874; 1930, 906; and 1931, 875.

Of the 634 beds occupied at the end of 1931 by pulmonary patients, 76 per cent. of the cases were classified as "T.B. plus," that is, sometime during treatment their sputum was positive.

The number of beds occupied fluctuates during the course of the year, there being a greater demand for beds in the summer than in the winter. The list of patients waiting for institutional treatment,

averaged at monthly periods during 1931, was as follows:— Sanatoria, adults 49, children 1; pulmonary hospitals, adults 55; special hospitals, adults 18, children 10; general hospitals, adults 9, children 2.

A return was obtained from the medical superintendents of public assistance hospitals of the number of patients suffering from tuberculosis chargeable to the Lancashire County Council who were in such hospitals on the 31st December, 1931. The following statement has been prepared from the returns so furnished:—

TABLE 35.

	Patients in public assistance hospitals on 31st December, 1931.				
	Adult males.	Adult females.	Children.	Total.	
Pulmonary tuberculosis	22	11	2	35	70
Non-pulmonary tuberculosis ...	4	12	19	35	

The foregoing total of 70 cases (compared with 102 at end of 1930) in public assistance hospitals contains those tuberculous patients whose mental condition, or other complication, does not permit of their being treated in sanatoria and hospitals. Every effort is made to transfer as soon as possible patients who require special treatment for tuberculosis to the sanatoria and hospitals provided for such treatment. This co-ordination has been more effective with the additional accommodation for non-pulmonary cases now available at the new Wrightington Hospital.

Further particulars of the residental treatment for tuberculous patients in public assistance hospitals are given in Appendix VI.

XXIV.—HOME TREATMENT AND DISPENSARY TREATMENT OR SUPERVISION.

All notified cases of tuberculosis while at home are under the supervision of the tuberculosis officers and tuberculosis health visitors, in addition to the treatment that may be obtained from their medical attendants. Ordinary medical treatment at dispensaries (as distinct from special treatment such as artificial light and artificial pneumothorax) has never been undertaken, unless the patient has no doctor or requires some special form of treatment. The number of consultations with medical practitioners in 1931 was as follows :—Personal, 767 ; otherwise, 4,769 ; total, 5,536.

The subject of this chapter was dealt with in the annual report for 1928, and there is no need to recapitulate in the present report.

XXV.—TREATMENT AND OCCUPATIONAL TRAINING ; VILLAGE SETTLEMENTS.

The subject of this chapter was reviewed in the annual report for 1928.

The following table gives particulars of the patients so far granted a course of treatment combined with training :—

TABLE 36.

Classification on admission.	Total number admitted.		Total number discharged.	Average duration of stay at colony* (months).	Patients discharged (1920 to 1931).			Still undergoing training, 31st December, 1931.
	August, 1920 to Dec., 1930.	1931.			Course of training completed.	Training terminated before completion of course.	Transferred to sanatoria or hospitals.	
T.B. minus ...	38	—	38	15·00	19	19	—	—
T.B. plus 1 ...	26	1	26	15·75	9	15	2	1
T.B. plus 2 ...	31	1	31	14·25	15	13	3	1
T.B. plus 3 ...	3	—	3	12·00	1	2	—	—
Non-pulmonary	7	1	2	22·75	1	1	—	6
Total.	105	3	100	15·00	45	50	5	8
	108							

* Average duration relates to patients who completed course.

APPENDIX I.

Death-rates for 1931 from tuberculosis in 118 urban and rural districts in Lancashire, and in the 7 County dispensary areas.

Sanitary district.	Estimated population, 1931.	Pulmonary tuberculosis.			Non-pulmonary tuberculosis.	
		Number of deaths, 1931.	Death-rate per 1,000 of population, 1931.	*Average* Death-rate 5 years, 1926-30.	Number of deaths, 1931.	Death-rate per 1,000 of population, 1931.
URBAN.						
Abram	6,757	4	0·59	0·61	3	0·44
Accrington (B)	43,380	25	0·57	0·65	5	0·11
Adlington	4,228	4	0·94	0·91	—	—
Ashton-in-Makerfield ...	20,760	12	0·57	0·42	3	0·14
Ashton-under-Lyne (B) ...	51,840	39	0·75	0·84	8	0·15
Aspull	7,266	1	0·13	0·68	—	—
Atherton	20,150	7	0·34	0·52	2	0·09
Audenshaw...	8,546	6	0·70	0·43	1	0·11
Bacup (B)	20,840	12	0·57	0·57	8	0·38
Barrowford	5,309	1	0·18	0·32	1	0·18
Billinge and Winstanley ...	5,171	6	1·16	0·60	3	0·58
Blackrod	3,646	2	0·54	0·31	—	—
Brierfield	7,766	1	0·12	0·53	1	0·12
Carnforth	3,181	1	0·31	1·01	2	0·62
Chadderton...	27,750	16	0·57	0·67	2	0·07
Chorley (B)...	31,180	11	0·35	0·51	1	0·03
Church	6,243	—	—	0·60	2	0·32
Clayton-le-Moors	7,980	5	0·62	0·54	1	0·12
Clitheroe (B)	12,070	5	0·41	0·52	1	0·08
Colne (B)	24,000	20	0·83	0·64	3	0·12
Crompton	14,950	8	0·53	0·55	—	—
Croston	1,956	—	—	0·20	—	—
Dalton-in-Furness	10,340	12	1·16	1·13	2	0·19
Darwen (B)	36,420	13	0·35	0·36	6	0·16
Denton	17,580	10	0·56	0·60	—	—
Droylsden	13,400	12	0·89	0·83	6	0·44
Eccles (B)	44,770	28	0·62	0·73	12	0·26
Failsworth	15,920	11	0·69	0·57	3	0·18
Farnworth	28,720	16	0·55	0·69	5	0·17
Fleetwood	23,430	15	0·64	0·62	6	0·25
Formby	7,922	5	0·63	0·53	1	0·12
Fulwood	6,833	—	—	0·39	1	0·14
Golborne	7,411	4	0·53	0·69	2	0·26
Grange-over-Sands ...	2,157	1	0·46	0·78	—	—
Great Crosby	18,280	8	0·43	0·52	1	0·05
Great Harwood	12,930	6	0·46	0·46	1	0·07
Haslingden (B)	16,820	11	0·65	0·96	3	0·17
Haydock	10,430	10	0·95	0·27	1	0·09
Heywood (B)	26,240	23	0·87	0·59	4	0·15
Hindley	21,800	13	0·59	0·77	5	0·22
Horwich	15,850	4	0·25	0·75	1	0·06
Huyton-with-Roby ...	5,368	3	0·55	0·64	2	0·37
Ince-in-Makerfield... ...	22,070	21	0·95	0·76	5	0·22
Irlam	13,030	7	0·53	0·63	1	0·07
Kearsley	9,846	4	0·40	0·86	1	0·10
Kirkham	4,115	3	0·72	1·07	2	0·48
Lancaster (B)	43,620	24	0·55	0·68	4	0·09
Lees	4,795	3	0·62	0·70	—	—
Leigh (B)	45,800	22	0·48	0·74	10	0·21
Leyland	10,710	3	0·28	0·33	1	0·09
Litherland	16,110	20	1·24	1·09	8	0·49
Littleborough	12,150	2	0·16	0·37	—	—
Little Crosby	1,078	1	0·92	0·30	—	—
Little Hulton	7,975	4	0·50	0·47	2	0·25
Little Lever	5,023	4	0·79	0·50	2	0·39
Longridge	4,190	2	0·47	0·47	—	—
Lytham St. Annes (B) ...	24,840	4	0·16	0·50	1	0·04
Middleton (B)	29,520	16	0·54	0·61	4	0·13
Milnrow	8,733	1	0·11	0·70	—	—
Morecambe & Heysham (B)	23,700	13	0·54	0·62	5	0·21
Mossley (B)...	12,190	6	0·49	0·39	3	0·24
Nelson (B)	38,640	15	0·38	0·56	5	0·12
Newton-in-Makerfield ...	20,370	20	0·98	0·83	2	0·09
Norden	4,296	—	—	0·64	—	—
Ormskirk	16,660	8	0·48	0·56	3	0·18

APPENDIX I. (contd.).

Sanitary district.	Estimated population, 1931.	Pulmonary tuberculosis.			Non-pulmonary tuberculosis.	
		Number of deaths, 1931.	Death-rate per 1,000 of population, 1931.	*Average* Death-rate 5 years, 1926-30.	Number of deaths, 1931.	Death-rate per 1,000 of population, 1931.
URBAN (contd.)						
Orrell	7,016	4	0·57	0·33	1	0·14
Oswaldtwistle	14,390	11	0·76	0·54	1	0·06
Padiham	11,740	8	0·68	0·57	1	0·08
Poulton-le-Fylde	3,291	—	—	0·31	—	—
Preesall	2,012	1	0·49	0·50	—	—
Prescot	9,530	8	0·83	0·79	1	0·10
Prestwich	23,980	17	0·70	0·48	2	0·08
Radcliffe	24,970	11	0·44	0·60	5	0·20
Rainford	3,508	3	0·85	0·31	1	0·28
Ramsbottom	15,050	8	0·53	0·64	—	—
Rawtenstall (B)	28,890	17	0·58	0·50	8	0·27
Rishton	6,705	9	1·34	0·60	—	—
Royton	16,890	12	0·71	0·72	1	0·05
Skelmersdale	6,235	4	0·64	0·55	—	—
Standish-with-Langtree ...	7,337	3	0·40	0·44	1	0·13
Stretford	56,940	40	0·70	0·69	5	0·08
Swinton and Pendlebury ...	32,890	17	0·51	0·61	3	0·09
Thornton Cleveleys ...	10,080	13	1·28	0·48	2	0·19
Tottington	6,585	2	0·30	0·32	—	—
Trawden	2,572	3	1·16	0·07	1	0·38
Turton	11,930	6	0·50	0·48	3	0·25
Tyldesley-with-Shakerley	15,020	10	0·66	0·60	3	0·19
Ulverston	9,082	4	0·44	0·53	2	0·22
Upholland	5,538	—	—	0·38	1	0·18
Urmston	9,339	4	0·42	0·72	—	—
Walton-le-Dale	12,810	10	0·78	0·71	2	0·15
Wardle	4,453	2	0·44	0·51	—	—
Waterloo-with-Seaforth ...	30,890	29	0·93	0·89	2	0·06
Westhoughton	16,210	10	0·61	0·44	2	0·12
Whitefield	9,222	7	0·75	0·61	3	0·32
Whitworth	8,445	5	0·59	0·88	2	0·23
Widnes (B)	40,980	40	0·97	0·87	7	0·17
Withnell	3,059	1	0·32	0·41	—	—
Worsley	14,620	5	0·34	0·45	3	0·20
Total Urban ...	1,539,260	918	0·59	0·62	231	0·15
RURAL.						
Barton-upon-Irwell ...	15,600	12	0·76	0·54	—	—
Blackburn	11,280	2	0·17	0·43	4	0·35
Burnley	17,630	10	0·56	0·47	4	0·22
Bury	8,920	3	0·33	0·46	2	0·22
Chorley	22,270	12	0·53	0·40	—	—
Clitheroe	9,089	4	0·44	0·35	—	—
Fylde	15,770	2	0·12	0·34	—	—
Garstang	11,570	2	0·17	0·34	—	—
Lancaster	9,556	6	0·62	0·40	1	0·10
Leigh	11,540	4	0·34	0·74	3	0·25
Limehurst	8,599	5	0·58	0·48	3	0·34
Lunesdale	6,520	1	0·15	0·50	—	—
Preston	30,030	12	0·39	0·33	3	0·09
Sefton	2,508	3	1·19	0·85	1	0·39
Ulverston	16,380	3	0·18	0·61	1	0·06
Warrington	16,290	7	0·42	0·63	4	0·24
West Lancashire	22,570	3	0·13	0·41	5	0·22
Whiston	22,850	7	0·30	0·41	3	0·13
Wigan	6,168	5	0·81	0·43	1	0·16
Total Rural ...	265,140	103	0·38	0·45	35	0·13
Total for Administrative County... ...	1,804,400	1,021	0·56	0·60	266	0·14
DISPENSARY AREAS.						
No. 1	264,667	112	0·41	0·52	22	0·08
No. 2	346,624	184	0·53	0·51	59	0·17
No. 3	375,024	225	0·59	0·63	49	0·13
No. 4	347,473	194	0·55	0·65	54	0·15
No. 5	368,873	252	0·68	0·65	67	0·18
Furness Sub-Area	37,959	20	0·52	0·74	5	0·13
Fylde Sub-Area	63,780	34	0·57	0·53	10	0·17

TABLES B, C AND D,

ANALYSING

NOTIFICATIONS UNDER PUBLIC HEALTH

(TUBERCULOSIS)

REGULATIONS, 1930.

TABLE B.

ADMINISTRATIVE COUNTY OF LANCASTER.

PUBLIC HEALTH (TUBERCULOSIS) REGULATIONS, 1930.

CORRECTED* SUMMARY OF NOTIFICATIONS OF PULMONARY AND OTHER FORMS OF TUBERCULOSIS DURING THE FIFTY-THREE WEEKS ENDED 2ND JANUARY, 1932.

(Collated from Weekly Returns of District Medical Officers of Health.)

NOTIFICATIONS ON SCHEDULE A—Excluding Duplicates.

	PULMONARY.						NON-PULMONARY. Bones and Joints.																	
	Lungs only.	Lungs and Larynx.	Larynx.	Bronchial Glands.	Mediastinal Glands.	TOTAL.	Head (including Middle Ear).	Trunk. Ribs and Sternum.	Trunk. Spine.	Arm. Shoulder.	Arm. Scapula.	Arm. Humerus.	Arm. Elbow.	Arm. Radius.	Arm. Ulna.	Arm. Hand and Wrist.	Leg. Hip and Pelvis.	Leg. Femur.	Leg. Knee.	Leg. Tibia.	Leg. Fibula.	Leg. Foot and Ankle.	Two or more different Joints.	Not Classified.
Thirteen weeks ended 28th March, 1931 ...	337	5	2	...	2	346	...	9	14	1	2	1	1	...	...	3	13	1	12	1	...	3	...	...
Thirteen weeks ended 27th June, 1931 ..	403	4	...	...	2	409	...	2	19	...	...	...	3	...	...	6	15	1	5	1	...	8	1	...
Thirteen weeks ended 26th September, 1931	347	5	...	1	...	353	2	1	11	...	...	...	...	...	...	2	10	1	1	...	...	4	1	1
Fourteen weeks ended 2nd January, 1932 ...	340	7	3	...	2	352	...	1	18	1	...	...	3	...	...	1	7	...	3	...	...	4	...	...
Total	1427	21	5	1	6	1460	2	13	62	2	2	1	7	...	...	12	45	3	21	2	...	19	2	1

	NON-PULMONARY (continued). Abdominal.			Genito-Urinary.										Peripheral Glands.					Total Pulmonary and Non-Pulmonary.	Total Notifications (i.e., including cases previously notified by other Doctors).
	Intestines.	Peritoneum.	Mesenteric Glands.	Bladder.	Fall. Tube.	Kidney.	Prostate.	Suprarenal.	Testicle and Epididymis.	Not Classified (two or more).	MENINGITIS (Brain).	MILIARY (Generalised).	SKIN (Lupus).	Axillary.	Cervical.	Inguinal.	MISCELLANEOUS.	TOTAL.		
Thirteen weeks ended 28th March, 1931 ...	4	30	3	...	...	3	...	...	3	2	21	1	10	1	86	...	3	228	574	624
Thirteen weeks ended 27th June, 1931 ..	3	34	3	1	...	7	1	...	4	1	22	1	11	1	118	1	6	275	684	748
Thirteen weeks ended 26th September, 1931	1	24	6	...	...	6	...	...	3	...	18	...	4	1	76	1	3	177	530	571
Fourteen weeks ended 2nd January, 1932 ...	5	18	9	1	1	6	1	1	4	...	12	...	6	4	71	...	5	182	534	598
Total	13	106	21	2	1	22	2	1	14	3	73	2	31	7	351	2	17	*862	*2322	2541

NOTIFICATIONS ON SCHEDULE A—Excluding Duplicates.

	Years.	PULMONARY. 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 upwds.	TOTAL.	TOTAL M. & F.
Thirteen weeks ended 28th March, 1931 ...	M.	...	2	1	6	22	25	49	43	35	24	4	211	346
	F.	...	1	2	3	21	23	32	26	9	12	6	135	
Thirteen weeks ended 27th June, 1931 ...	M.	1	2	5	8	28	34	40	42	51	15	4	230	409
	F.	...	...	...	10	35	27	45	37	11	10	4	179	
Thirteen weeks ended 26th September, 1931	M.	...	4	4	...	15	26	29	32	37	28	11	186	353
	F.	...	4	3	5	24	34	42	19	20	9	7	167	
Fourteen weeks ended 2nd January, 1932 ...	M.	1	...	5	4	10	33	35	42	38	22	6	196	352
	F.	...	2	5	9	19	36	39	27	17	7	4	156	
Total	M.	2	8	15	18	75	118	153	159	161	89	25	823	*1460
	F.	...	7	10	27	99	120	149	103	57	38	21	637	

	Years.	NON-PULMONARY. 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 upwds.	TOTAL.	TOTAL M. & F.	Total Pulmonary and Non-Pulmonary.	Number of Cases Notified on Form I. (Admissions). Public Assistance Hospitals.	Sanatoria.	Number of Cases notified on Form II (Discharges from Institutions).
Thirteen weeks ended 28th March, 1931 ...	M.	4	13	25	17	19	6	7	3	4	2	1	101	228	574	12	310	281
	F.	2	12	24	16	20	20	16	10	4	3	...	127					
Thirteen weeks ended 27th June, 1931 ...	M.	2	30	21	17	20	11	15	5	6	2	1	130	275	684	10	362	320
	F.	3	10	25	24	22	15	17	13	6	6	4	145					
Thirteen weeks ended 26th September, 1931	M.	4	15	16	13	12	6	13	2	1	3	1	86	177	530	9	305	317
	F.	2	19	15	14	16	7	8	6	3	1	...	91					
Fourteen weeks ended 2nd January, 1932 ...	M.	3	9	16	16	12	11	5	5	9	3	4	93	182	534	9	321	336
	F.	1	14	13	8	11	13	14	8	3	2	2	89					
Total	M.	13	67	78	63	63	34	40	15	20	10	7	410	*862	*2322	40	1298	1254
	F.	8	55	77	62	69	55	55	37	16	12	6	452					

*Corrected figures after deducting 38 pulmonary and 49 non-pulmonary cases notified in error by practitioners.

TABLE C.

ADMINISTRATIVE COUNTY OF LANCASTER.

PUBLIC HEALTH (TUBERCULOSIS) REGULATIONS, 1930.

ANALYSIS OF THE NOTIFICATIONS ON SCHEDULE A (EXCLUDING DUPLICATES) RECEIVED DURING THE FIFTY-THREE WEEKS ENDED 2nd JANUARY, 1932. († Corrected figures.)

(Collated from Weekly Returns of District Medical Officers of Health.)

AGE—YEARS.	...	0 — 1			1 — 5			5 — 10			10 — 15			15 — 20			20 — 25			25 — 35			35 — 45			45 — 55			55 — 65			65 & upwds.			TOTAL.			...
SEX.	Col.	M.	F.	Both Sexes	M.	F.	Both Sexes	M.	F.	Both Sexes	M.	F.	Both Sexes	M.	F.	Both Sexes	M.	F.	Both Sexes	M.	F.	Both Sexes	M.	F.	Both Sexes	M.	F.	Both Sexes	M.	F.	Both Sexes	M.	F.	Both Sexes	M.	F.	Both Sexes	Col.
PULMONARY—																																				
Lungs only	1	2	...	2	8	7	15	12	10	22	17	27	44	75	99	174	115	120	235	146	147	293	153	108	261	157	54	211	89	37	126	25	19	44	799	628	1427	1
Lungs and Larynx... ...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	...	2	4	2	6	5	...	5	3	3	6	...	1	1	...	1	1	14	7	21	2
Larynx	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	1	1	2	1	...	1	...	...	...	...	1	1	3	2	5	3
Bronchial Glands ...	4	...	...	...	...	...	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	4
Mediastinal Glands ...	5	...	...	...	...	...	...	1	...	1	1	...	1	...	...	...	1	...	1	2	...	2	...	...	...	...	...	...	...	...	...	...	...	...	6	...	6	5
PULMONARY TOTAL	6	2	...	2	8	7	15	15	10	25	18	27	45	75	99	174	118	120	238	153	149	302	159	109	268	161	57	218	89	38	127	25	21	46	823	637	† 1460	6
*Cases—Pulmonary and Non-Pulmonary combined		...	...	...	1	1	2	3	1	4	2	1	3	1	1	2	2	2	4	6	4	10	1	1	2	2	...	2	1	...	1	1	...	1	20	11	31	
NON-PULMONARY—																																						
BONES AND JOINTS— Head— (Incl. Middle Ear) ...	7	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	2	7
Trunk— Ribs and Sternum ...	8	...	...	...	...	...	...	1	...	1	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	8
Spine	9	...	...	...	4	6	10	3	3	6	3	2	5	5	2	7	1	4	5	3	1	4	...	1	1	...	2	2	...	2	2	...	...	...	9	4	13	9
Arm— Shoulder	10	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	31	31	62	10
Scapula	11	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	...	2	11
Humerus	12	1	...	1	...	...	...	...	1	1	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	2	12
Elbow	13	...	...	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	2	13
Radius	14	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	...	...	...	...	...	...	...	...	...	1	...	1	14
Ulna	15	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4	3	7	15
Hand and Wrist ...	16	...	1	1	...	1	1	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	16
Leg— Hip and Pelvis ...	17	...	...	...	4	3	7	5	2	7	3	1	4	5	4	9	3	3	6	3	2	5	1	2	3	2	...	2	1	...	1	...	...	...	6	6	12	17
Femur	18	...	...	...	1	...	1	...	...	...	...	...	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	1	1	2	...	...	...	2	...	2	18
Knee	19	...	...	...	2	1	3	5	1	6	1	...	1	4	2	6	...	...	...	...	1	1	...	...	...	...	...	...	1	1	2	...	...	...	14	7	21	19
Tibia	20	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	...	...	...	1	1	...	1	1	...	...	...	1	1	2	1	...	1	2	1	3	20
Fibula	21	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	...	...	...	...	...	...	2	...	2	21
Foot and Ankle ...	22	...	...	...	3	...	3	1	1	2	1	1	2	2	...	2	2	...	2	3	...	3	...	...	...	2	...	2	1	1	2	...	1	1	15	4	19	22
Two or more different Joints ...	23	...	...	...	1	...	1	...	...	...	...	...	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	...	2	23
Not Classified	24	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	24
ABDOMINAL— Intestines	25	...	...	...	2	...	2	1	...	1	1	...	1	1	1	2	...	2	2	...	2	2	...	2	1	...	1	1	...	1	...	...	...	6	7	13	25
Peritoneum	26	1	...	1	9	5	14	7	10	17	11	13	24	7	8	15	4	9	13	1	7	8	1	7	8	2	1	3	...	1	1	...	...	...	44	62	106	26
Mesenteric Glands ...	27	1	...	1	2	...	2	4	1	5	1	...	1	2	2	4	3	1	4	1	4	5	1	...	1	...	...	...	...	1	1	...	...	...	10	11	21	27
GENITO-URINARY— Bladder	28	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	1	1	2	28
Fallopian Tube ...	29	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	29
Kidney	30	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	2	...	...	...	...	...	...	...	...	...	1	...	1	9	13	22	30
Prostate	31	...	...	...	...	...	...	...	...	...	1	...	1	2	2	4	2	4	6	...	3	3	2	3	5	1	1	2	...	...	...	...	1	1	...	1	1	31
Suprarenal	32	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	...	...	...	1	...	1	2	...	2	32
Testicle and Epididymis	33	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3	...	3	2	...	2	...	...	...	5	...	5	33
Not Classified (two or more)	34	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	5	...	5	3	...	3	3	...	3	2	...	2	...	...	...	14	...	14	34
MENINGITIS (Brain)	35	5	6	11	18	13	31	2	5	7	5	7	12	2	2	4	...	4	4	...	1	1	...	1	1	1	1	2	...	...	...	...	...	...	33	40	73	35
MILIARY (Generalised) ...	36	...	...	...	...	...	...	...	1	1	...	...	...	...	1	1	...	1	1	...	1	1	...	1	1	...	2	2	...	...	...	...	...	...	...	2	2	36
SKIN (Lupus)	37	...	...	...	...	...	...	...	1	1	3	3	6	...	3	3	1	1	2	3	4	7	...	2	2	2	2	4	1	...	1	1	1	2	14	17	31	37
PERIPHERAL GLANDS— Axillary	38	1	...	1	...	...	...	...	1	1	...	...	...	2	2	4	1	...	1	...	...	...	1	1	2	...	...	...	...	...	...	...	...	...	2	5	7	38
Cervical... ...	39	2	1	3	21	23	44	45	49	94	29	32	61	26	34	60	12	25	37	10	18	28	2	11	13	2	5	7	...	3	3	...	1	1	149	202	351	39
Inguinal	40	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	1	1	2	...	...	...	...	...	...	...	...	...	...	...	...	...	2	2	40
MISCELLANEOUS	41	...	...	...	1	1	2	...	1	1	...	2	2	2	4	6	1	...	1	...	...	...	1	1	2	1	...	1	1	...	1	...	1	1	7	10	17	41
NON-PULMONARY TOTAL ...	42	13	8	21	67	55	122	78	77	155	63	62	125	63	69	132	34	55	89	40	55	95	15	37	52	20	16	36	10	12	22	7	6	13	410	452	† 862	42
GRAND TOTAL	43	15	8	23	75	62	137	93	87	180	81	89	170	138	168	306	152	175	327	193	204	397	174	146	320	181	73	254	99	50	149	32	27	59	1233	1089	† 2322	43

* Combined cases are included in pulmonary total, but are shown separately for purpose of reference.

† Corrected figures after deducting 38 pulmonary and 49 non-pulmonary cases notified in error by practitioners.

TABLE D.

ADMINISTRATIVE COUNTY OF LANCASTER.

PUBLIC HEALTH (TUBERCULOSIS) REGULATIONS, 1930.

THE FOLLOWING TABLE COMPARES THE MALE AND FEMALE NOTIFIED CASES IN THE ADMINISTRATIVE COUNTY DURING THE YEARS 1913 TO 1931, AT CERTAIN AGE-GROUPS :—

YEAR.	Sex.	PULMONARY TUBERCULOSIS.													NON-PULMONARY TUBERCULOSIS.									
		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 upwds.	Total.	Total* M. & F.	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 upwds.	Total.	Total* M. & F.
1913 ... ... (11 months)	M	1	24	97	70	129	131	311	292	228	114	29	1426		29	128	177	137	98	58	71	48	27	18	3	794	
	F	6	28	100	104	158	188	296	201	103	65	25	1274	2700	28	118	134	132	118	86	80	47	29	19	7	798	1592
1914	M	6	40	80	83	112	172	329	315	240	107	23	1507		43	111	131	95	77	36	47	23	20	14	3	600	
	F	3	32	115	107	140	181	336	225	107	47	20	1313	2820	37	88	98	89	77	44	58	27	12	6	4	540	1140
1915	M	5	47	97	79	127	138	305	303	235	117	34	1487		39	109	113	93	61	46	50	29	14	5	3	562	
	F	5	27	96	111	152	191	383	239	109	60	21	1385	2872	26	88	107	88	84	53	61	33	15	7	4	566	1128
1916	M	1	31	71	77	121	157	331	296	190	96	36	1407		20	127	135	99	65	42	47	34	12	13	5	599	
	F	2	24	81	96	165	186	345	220	98	52	13	1282	2689	8	68	122	114	85	46	65	41	19	11	2	581	1180
1917	M	4	20	77	62	113	104	262	268	190	90	30	1220		21	116	109	105	61	23	42	30	8	9	1	525	
	F	2	22	90	100	129	155	296	185	107	50	19	1155	2375	7	79	97	98	89	59	49	25	23	6	5	537	1062
1918	M	3	35	55	59	140	108	300	317	232	98	28	1375		14	75	103	65	60	19	29	16	14	7	2	404	
	F	1	24	69	74	139	166	297	207	117	52	13	1159	2534	10	75	84	92	80	46	46	29	9	6	4	481	885
1919	M	2	22	53	55	94	107	238	212	165	91	17	1056		13	50	97	80	53	26	31	22	19	12	4	407	
	F	5	14	54	80	126	161	261	184	99	41	24	1049	2105	10	59	98	76	61	43	41	29	11	7	5	440	847
1920	M	2	24	56	63	94	120	281	249	160	90	14	1153		31	62	107	108	68	26	35	23	16	11	5	492	
	F	2	20	53	71	115	122	264	147	84	36	17	931	2084	12	66	86	78	62	46	52	34	23	16	1	476	968
1921	M	1	17	43	47	94	133	222	225	162	84	19	1047		12	60	110	84	53	32	41	23	17	6	4	442	
	F	...	12	53	77	132	160	255	156	82	50	20	997	2044	15	62	89	81	65	41	53	15	21	9	6	457	899
1922	M	3	16	38	47	83	120	227	190	148	99	27	998		18	101	111	79	55	37	39	22	13	7	3	485	
	F	4	15	45	57	135	135	202	146	61	42	23	865	1863	13	77	80	95	61	45	50	24	14	7	5	471	956
1923	M	2	10	41	43	82	132	236	207	147	94	13	1007		18	115	134	105	75	35	45	22	14	15	6	584	
	F	1	14	43	60	115	149	251	149	83	49	16	930	1937	14	103	110	107	68	60	64	31	28	14	5	604	1188
1924	M	...	27	37	52	105	110	203	199	197	97	18	1045		19	123	92	92	95	35	43	25	17	12	3	556	
	F	3	12	29	55	144	139	223	169	94	49	10	927	1972	6	99	87	94	80	55	72	30	17	11	13	564	1120
1925	M	...	22	32	38	81	115	212	200	192	74	24	990		17	108	106	73	58	37	53	26	15	12	5	510	
	F	3	10	24	44	144	153	198	136	85	34	25	856	1846	9	86	84	91	82	41	57	33	18	10	6	517	1027
1926	M	1	9	27	40	91	113	210	198	158	110	23	980		10	90	97	76	75	29	35	32	16	7	3	470	
	F	2	12	41	47	114	169	224	120	68	38	13	848	1828	19	83	94	51	67	56	51	34	17	6	5	483	953
1927	M	1	11	47	39	115	111	197	187	185	85	19	997		12	101	131	87	66	38	40	18	13	4	7	517	
	F	...	13	37	49	129	128	195	113	71	51	11	797	1794	15	84	95	81	61	47	75	33	20	11	6	528	1045
1928	M	1	7	31	20	70	106	187	163	176	82	27	870		16	82	114	66	67	43	40	15	14	10	7	474	
	F	...	6	33	32	126	147	195	125	62	44	20	790	1660	13	69	100	70	56	63	50	27	21	8	5	482	956
1929	M	4	7	32	17	80	99	160	180	165	76	23	843		17	98	99	67	52	37	40	22	16	7	5	460	
	F	...	7	18	23	111	130	186	99	53	28	19	674	1517	3	65	92	51	54	43	63	36	22	15	4	453	913
1930	M	1	5	14	27	66	106	189	174	159	82	22	845		6	78	105	69	67	28	45	18	12	12	7	447	
	F	...	3	13	29	104	122	186	107	61	37	20	682	1527	12	67	100	80	63	63	71	35	28	13	3	535	982
1931	M	2	8	15	18	75	118	153	159	161	89	25	823		13	67	78	63	63	34	40	15	20	10	7	410	
	F	...	7	10	27	99	120	149	109	57	38	21	637	1460	8	55	77	62	69	55	55	37	16	12	6	452	862

* Corrected figures from 1922 after deducting the following cases found to be non-tuberculous and notifications cancelled :—1922 : 14 pulmonary, 12 non-pulmonary ; 1923 : 33 pulmonary, 31 non-pulmonary ; 1924 : 57 pulmonary, 38 non-pulmonary ; 1925 : 83 pulmonary, 49 non-pulmonary ; 1926 : 61 pulmonary, 41 non-pulmonary ; 1927 : 68 pulmonary, 51 non-pulmonary ; 1928 : 63 pulmonary, 52 non-pulmonary ; 1929 : 61 pulmonary, 44 non-pulmonary ; 1930 : 63 pulmonary, 55 non-pulmonary ; and 1931 : 38 pulmonary, 49 non-pulmonary.

APPENDIX II.

NOTIFICATION OF TUBERCULOSIS CASES.

Since February 1st, 1913, tuberculosis—both pulmonary and other forms—has been compulsorily notifiable under the Public Health (Tuberculosis) Regulations.

Tables B and C, here inserted, analyse the notifications received, giving the part of the body affected and the age-groups.

Table D, also inserted, compares the male and female notifications since 1913.

TABLE 37.—*Deaths of 318 persons notified as suffering from pulmonary tuberculosis in 1931 which took place within three months of the date of notification.*

Period between date of case notification and death.	Certified cause of death.			Total.
	Pulmonary.		Non-pulmonary	
	Primary.	Secondary.		
Under 1 week	66	4	9	79
1 to 2 weeks	33	—	2	35
2 to 8 weeks	18	1	4	23
3 to 4 weeks	31	—	1	32
1 to 2 months	89	2	2	93
2 to 3 months	52	1	3	56
Total under 3 months ...	289	8	21	318
	297			

Included in the above table are 40 deaths which occurred outside the County area.

In addition to the foregoing 318 deaths which occurred within three months of notification, in 16 instances (7 pulmonary and 9 non-pulmonary) death took place *before* the actual receipt of the notification, against 15 (9 pulmonary and 6 non-pulmonary) in the preceding year.

TABLE 38.—*Actual number of deaths from pulmonary and non-pulmonary tuberculosis since 1918 not previously notified under the Public Health (Tuberculosis) Regulations.*

Year.	Non-notified fatal cases.		
	Pulmonary tuberculosis.	Non-pulmonary tuberculosis.	Total.
1918	303	137	440
1919	221	104	325
1920	177	122	299
1921	135	96	231
1922	105	83	188
1923	85	74	159
1924	64	65	129
1925	67	57	124
1926	58	32	90
1927	54	42	96
1928	56	51	107
1929	62	61	123
1930	46	61	107
1931	**61**	**51**	**112**

The 112 deaths in 1931 of cases not previously notified under the Regulations are further analysed below :—

TABLE 39.

	Cause of death.			Total.
	Pulmonary.		Non-pulmonary.	
	Primary.	Secondary.		
Deaths of persons at private addresses	34	7	34	75
Deaths in County mental hospitals of persons belonging to County area ...	2	—	—	2
Deaths in public assistance hospitals of persons belonging to County area ...	13	3	8	24
Deaths in other public institutions of persons belonging to County area...	2	—	9	11
Total	51	10	51	112
	61			

During 1931, 108 pulmonary and 59 non-pulmonary deaths occurred outside the County area of persons usually residing in the Administrative County. Of these, 103 pulmonary and 58 non-pulmonary occurred in public institutions. In 60 instances no case notification could be traced. These are not included in Table 39.

N.B.—The tables mentioned in Appendix II. have been prepared in the County public health department.

APPENDIX III.

Housing conditions of patients in each dispensary area at the end of 1931.

	Pulmonary cases considered infectious.		Pulmonary cases not considered infectious.		Non-pulmonary cases.	
	Under 15 years.	15 years & over.	Under 15 years.	15 years & over.	Under 15 years.	15 years & over.
Patients occupying a separate bedroom :						
Area No. 1	1	143	12	112	43	91
Area No. 2	3	189	2	128	20	84
Area No. 3	—	271	4	178	33	93
Area No. 4	—	263	3	213	33	113
Area No. 5	2	265	11	188	17	95
Furness Sub-Area ...	—	31	8	50	5	25
Fylde Sub-Area ...	—	32	3	62	6	20
TOTAL	6	1194	43	931	157	521
Patients occupying a separate bed but not a separate bedroom :						
Area No. 1	1	23	13	28	102	31
Area No. 2	—	118	8	58	103	89
Area No. 3	2	119	14	118	90	95
Area No. 4	2	61	16	109	105	108
Area No. 5	—	111	56	147	165	113
Furness Sub-Area ...	—	7	13	16	26	8
Fylde Sub-Area ...	1	10	8	33	48	23
TOTAL	6	449	128	509	639	467
Patients not occupying a separate bed :		†				
Area No. 1	1*	20	14	75	92	177
Area No. 2	—	20	3	65	62	148
Area No. 3	—	13	18	161	112	238
Area No. 4	—	11	6	211	124	226
Area No. 5	—	35	78	269	207	215
Furness Sub-Area ...	—	10	6	38	2	11
Fylde Sub-Area ...	—	4	2	61	38	45
TOTAL	1	113	127	880	637	1060
GRAND TOTAL ...	13	1756	298	2320	1433	2048

* This child was in a sanatorium at the end of 1931.

† Of the adult infective patients without a separate bed, there were in sanatoria or hospitals at the end of 1931 the following patients :—Area No. 1, 3 ; Area No. 2, 5 ; Area No. 3, 2 ; Area No. 4, 4 ; Area No. 5, 11 ; and Furness Sub-Area, 1 ; Total, 26.

APPENDIX IV.

Return showing the work of the dispensaries during the year 1931.

(Tables A and B of Memorandum 37/T (Revised) of the Ministry of Health).

Diagnosis.	Pulmonary.				Non-pulmonary.				Total.				Grand Total.
	Adults.		Children.		Adults.		Children.		Adults.		Children.		
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
A.—New cases examined during the year (excluding contacts):													
(a) Definitely tuberculous ...	633	454	25	20	152	217	181	152	785	671	206	172	1,834
* (b) Diagnosis not completed	—	—	—	—	—	—	—	—	15	13	4	5	37
(c) Non-tuberculous... ...	—	—	—	—	—	—	—	—	985	878	413	354	2,630
B.—Contacts examined during the year:													
(a) Definitely tuberculous ...	8	12	2	5	2	5	1	4	10	17	3	9	39
* (b) Diagnosis not completed	—	—	—	—	—	—	—	—	3	1	2	—	6
(c) Non-tuberculous ...	—	—	—	—	—	—	—	—	168	242	193	187	790
C.—Cases written off the dispensary register as:													
(a) Recovered...	160	138	10	12	152	220	125	81	312	358	135	93	898
(b) Non-tuberculous (including any such cases previously diagnosed and entered on the dispensary register as tuberculous	—	—	—	—	—	—	—	—	1174	1139	615	549	3,477
D.—Number of cases on dispensary register on 31st December, 1931:													
(a) Definitely tuberculous ...	2246	1830	164	147	927	1121	746	687	3173	2951	910	834	7,868
(b) Diagnosis not completed	—	—	—	—	—	—	—	—	17	14	6	5	42

1.	Number of cases on dispensary register on January 1st	8201	
2.	Number of cases transferred from other areas and cases returned after discharge under Head 3 in previous years	168	
3.	Number of cases transferred to other areas, cases not desiring further assistance under the scheme, and cases "lost sight of"	474	
4.	Cases written off during the year as dead (all causes)	946	
5.	Number of attendances at the dispensary (including contacts)	23691	
6.	Number of insured persons under domiciliary treatment on the 31st December	1368	
7.	Number of consultations with medical practitioners:—		
	(a) Personal	767	
	(b) Other	4769	
8.	Number of visits by tuberculosis officers to homes (including personal consultations)		5505
9.	Number of visits by nurses or health visitors to homes for dispensary purposes		41754
10.	Number of		
	(a) Specimens of sputum, etc., examined		5158
	(b) X-ray examinations made in connection with dispensary work.		7462
11.	Number of "recovered" cases restored to dispensary register, and included in A(a) and A(b) above		44
12.	Number of "T.B. plus" cases on dispensary register on December 31st ...		2479
13.	Number of dispensaries for the treatment of tuberculosis (excluding centres used only for special forms of treatment)		
	Provided by the Council		24
	Provided by voluntary bodies		—

* *i.e.*, remaining undiagnosed on 31st December.

APPENDIX V.

Return showing the extent of residential treatment and observation during the year 1931 in institutions (other than Poor Law institutions) approved for the treatment of tuberculosis.

(Table D of Memorandum 37/T (Revised) of the Ministry of Health).

			In institutions on Jan. 1.	Admitted during the year.	Discharged during the year.	Died in the institutions.	In institutions on Dec. 31.
Number of doubtfully tuberculous cases admitted for observation.	Adults	M.	2	59	50	3	8
		F.	3	34	30	1	6
	Children.		3	18	16	—	5
	Total...		8	111	96	4	19
Number of definitely tuberculous patients admitted for treatment	Adults	M.	380	849	716	141	372
		F.	313	652	587	84	294
	Children.		205	232	233	14	190
	Total...		898	1733	1536	239	856
GRAND TOTAL			906	1844	1632	243	875

APPENDIX VI.

Return showing the extent of residential treatment provided during the year 1931 in Poor Law institutions for persons chargeable to the Council.

(Table E of Memorandum 37/T (Revised) of the Ministry of Health).

			In institutions on Jan. 1.	Admitted during the year.	Discharged during the year.	Died in the institutions.	In institutions on Dec. 31
Number of patients suffering from pulmonary tuberculosis admitted for treatment.	Adults	M.	22	130	79	51	22
		F.	19	43	28	23	11
	Children.		3	12	11	2	2
	Total...		44	185	118	76	35
Number of patients suffering from non-pulmonary tuberculosis admitted for treatment	Adults	M.	12	41	36	13	4
		F.	15	35	28	10	12
	Children.		31	40	44	8	19
	Total...		58	116	108	31	35
GRAND TOTAL			102	301	226	107	70

APPENDIX VII.

Return showing the results of observation of doubtfully tuberculous cases discharged during the year 1931 from institutions approved for the treatment of tuberculosis.

(Table F of Memorandum 37/T (Revised) of the Ministry of Health).

Diagnosis on discharge from observation.	For pulmonary tuberculosis.						For non-pulmonary tuberculosis.						Totals.		
	Stay under 4 weeks.			Stay over 4 weeks.			Stay under 4 weeks			Stay over 4 weeks					
	M.	F.	Ch.	M.	F.	Ch.	M.	F.	Ch.	M.	F.	Ch.	M.	F.	Ch.
Tuberculous	3	1	—	5	4	3	3	—	1	2	2	3	13	7	7
Non-tuberculous	13	5	—	18	10	3	2	2	2	1	1	1	34	18	6
Doubtful	—	—	1	—	2	1	1	1	1	2	2	—	3	5	3
Died	*2	—	—	†1	‡1	—	—	—	—	—	—	—	3	1	—
Totals ...	18	6	1	24	17	7	6	3	4	5	5	4	53	31	16

* Diagnosis : One case bronchiectasis, and the other chronic bronchitis and inflammation of lungs.
† Diagnosis : Carcinoma of lung.
‡ Diagnosis : Cardiac failure secondary to double pleural effusion.

APPENDIX VIII.

Return showing the immediate results of treatment of definitely tuberculous patients discharged during the year 1931 from institutions approved for the treatment of tuberculosis.

(This table is based on Table G of Memorandum 37/T (Revised) of the Ministry of Health).

Classification on admission to the institution.		Condition at time of discharge.	Duration of residential treatment in the institution.												Grand totals.
			Under 3 months.			3—6 months			6—12 months			More than 12 months			
			M.	F.	Ch.	M.	F.	Ch.	M.	F.	Ch.	M.	F.	Ch.	
Pulmonary tuberculosis.	Class T.B. minus.	Quiescent	11	12	1	16	12	6	8	9	8	5	3	10	101
		Improved	16	23	2	34	24	3	7	8	4	2	—	6	129
		No material improvement...	9	8	1	3	1	—	4	1	—	2	1	1	31
		Died in institution	8	2	1	5	—	—	1	—	—	1	—	1	19
	Class T.B. plus. Group 1.	Quiescent	1	—	—	8	—	—	7	5	—	1	—	1	23
		Improved	10	1	—	13	12	—	11	2	1	4	2	—	56
		No material improvement...	9	1	2	—	1	—	2	3	—	2	1	—	21
		Died in institution	5	1	—	2	—	—	2	—	—	1	—	—	11
	Class T.B. plus. Group 2.	Quiescent	2	1	—	11	3	—	13	7	1	1	3	—	42
		Improved	41	26	—	71	56	—	58	53	—	20	26	1	352
		No material improvement...	30	35	—	25	16	—	24	11	1	4	9	2	157
		Died in institution	40	20	—	10	6	—	11	10	—	6	3	—	106
	Class T.B. plus. Group 3.	Quiescent	—	—	—	—	—	—	—	1	—	—	2	—	3
		Improved	9	3	—	11	14	—	8	8	—	6	5	1	65
		No material improvement...	20	8	—	11	3	1	6	2	—	2	4	2	59
		Died in institution	24	21	—	5	9	—	9	1	—	2	2	1	74
Non-pulmonary tuberculosis.	Bones & joints.	Quiescent	3	1	2	2	1	5	3	3	7	—	1	18	46
		Improved	41	43	18	6	9	10	10	9	12	18	10	15	201
		No material improvement...	5	3	3	2	—	2	1	1	—	1	1	2	21
		Died in institution	1	—	1	4	—	—	—	1	—	1	—	2	10
	Abdominal.	Quiescent	—	—	1	—	1	1	—	3	1	1	—	6	14
		Improved	5	9	5	—	1	1	—	1	2	—	—	3	27
		No material improvement...	1	2	1	—	—	1	—	—	—	—	—	—	5
		Died in institution	—	4	2	—	—	—	—	2	—	—	—	—	8
	Other organs.	Quiescent	3	1	—	1	—	—	—	—	—	—	—	—	5
		Improved	19	15	8	3	2	—	—	—	—	1	—	2	50
		No material improvement...	4	5	1	1	—	—	—	—	—	—	—	—	11
		Died in institution	1	2	4	—	—	1	—	—	—	—	—	—	8
	Peripheral glands.	Quiescent	7	11	11	1	—	1	1	2	1	—	—	5	40
		Improved	15	24	28	1	—	3	1	—	—	—	—	—	72
		No material improvement...	1	2	2	—	—	—	—	—	—	—	—	—	5
		Died in institution	1	—	1	—	—	—	—	—	—	1	—	—	3

APPENDIX IX.

INSTITUTIONAL ACCOMMODATION.

The following table shows the number of beds occupied by County patients undergoing residential treatment for pulmonary and non-pulmonary tuberculosis on the 31st December, 1931 :—

Institution.	Pulmonary tuberculosis.		Non-pulmonary tuberculosis.		Total.
	Adults.	Children.	Adults.	Children.	
(a) *Sanatoria.*					
Aitken, near Bury	52	—	—	—	52
Crossley, Cheshire	1	—	—	—	1
East Lancashire, Cheshire	60	—	—	—	60
Eastby, near Skipton	—	22	—	9	31
Elswick, near Kirkham	42	—	—	—	42
Freshfield, near Liverpool	—	1	—	—	1
Halifax, Shelf	17	1	—	—	18
High Carley, near Ulverston	108	2	—	—	110
King Edward VII, Sussex	1	—	—	—	1
King George's (for sailors) Hants.	—	—	1	—	1
Liverpool, Frodsham	1	—	—	—	1
Meathop, Grange-over-Sands	21	—	—	—	21
Oubas House, Ulverston	—	16	—	1	17
Royal National, Ventnor	1	—	—	—	1
Wilkinson, Bolton	7	—	—	—	7
Total	311	42	1	10	364
(b) *Pulmonary hospitals.*					
Burnley	14	—	—	—	14
Chadderton, near Oldham	35	1	—	—	36
Eccleston Hall, St. Helens	3	—	—	—	3
Heath Charnock, Chorley	33	—	—	—	33
Hefferston Grange, Cheshire	10	—	—	—	10
Peel Hall, Little Hulton	56	—	—	—	56
Pemberton, Wigan	4	—	—	—	4
Rufford, near Ormskirk	46	—	—	—	46
Westhulme, Oldham	1	—	—	—	1
Withnell, near Chorley	41	—	1	—	42
Wolstenholme Hall, Norden	18	—	—	—	18
Total	261	1	1	—	263
(c) *Training colonies.*					
Cambridgeshire Tuberculosis Colony, Papworth	2	—	1	—	3
Derwen Cripples' College, Oswestry	—	—	5	—	5
Total	2	—	6	—	8
(d) *Observation cases.*					
Elswick Sanatorium	1	—	1	—	2
Glan Ely Hospital	1	—	—	—	1
High Carley Sanatorium	8	—	—	—	8
Manchester Royal Infirmary	—	—	2	—	2
Oubas House Sanatorium	—	4	—	—	4
Preston Royal Infirmary	—	—	—	1	1
Shropshire Orthopædic Hospital	—	—	1	—	1
Total	10	4	4	1	19

APPENDIX IX.

INSTITUTIONAL ACCOMMODATION (contd.).

Institution.	Pulmonary tuberculosis.		Non-pulmonary tuberculosis.		Total.
	Adults.	Children.	Adults.	Children.	
(*e*) *General hospitals.*					
Ashton-under-Lyne Infirmary	—	1	2	1	4
Bury Infirmary	—	—	1	—	1
David Lewis Northern Hospital	—	—	3	—	3
Manchester Royal Infirmary	—	—	1	—	1
Preston Royal Infirmary	—	—	2	2	4
Wigan Infirmary	—	—	2	—	2
Total	—	1	11	3	15
(*f*) *Hospitals for non-pulmonary tuberculosis.*					
Alton, Hants. (Lord Mayor Treloar Cripples' Hospital)	—	—	—	15	15
Coleshill (Warwickshire Orthopædic Hospital for Children)	—	—	—	17	17
East Lancashire, Cheshire...	—	—	5	—	5
Elswick, near Kirkham	1	—	20	1	22
Leasowe, Cheshire (Liverpool Open-Air Hospital for Children)	—	—	—	34	34
Oswestry (Shropshire Orthopædic Hospital)	—	—	40	5	45
Pendlebury (Royal Manchester Children's Hospital)	—	—	—	1	1
Pinner, Middlesex (St. Vincent's Orthopædic Hospital)	—	—	—	2	2
Royal Liverpool Children's Hospital—					
Heswall, Cheshire	—	—	—	23	23
Myrtle Street, Liverpool	—	—	—	1	1
Rufford, near Ormskirk	1	—	5	—	6
Sheffield (King Edward VII Hospital for Crippled Children)	—	—	—	9	9
United Services Fund—					
Heatherwood, Berks....	—	—	—	12	12
Melton Lodge, Great Yarmouth ...	—	—	—	3	3
West Kirby (Children's Convalescent Home)	—	—	—	4	4
*Wrightington, Parbold	—	—	—	6	6
Total	2	—	70	133	205
(*g*) *Skin hospital.*					
Manchester and Salford	—	—	1	—	1
Grand Total	586	48	94	147	875
	634		241		

* The Wrightington Hospital for 226 cases of non-pulmonary tuberculosis opened for patients on 14th December, 1931.

N.B.—The number of beds occupied fluctuates during the course of the year, there being a greater demand for beds in the summer than in the winter. In July, 1932, the beds occupied totalled 1,009.