

Discussion on the co-ordination of measures against tuberculosis / opened by G.A. Heron. : and, The voluntary notification of phthisis in Brighton : including a comparison of results with those obtained in other towns / by Arthur Newsholme.

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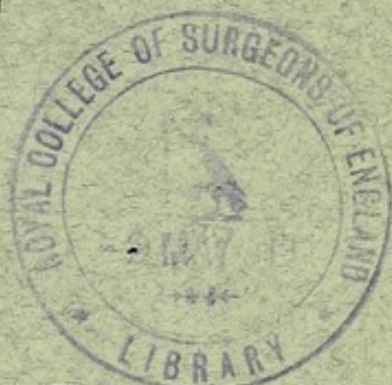
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The Royal Sanitary Institute

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DISCUSSION ON

The Co-ordination of Measures against Tuberculosis.

Opened by G. A. HERON, M.D., D.P.H., F.R.C.P.,

(MEMBER)

AND

The Voluntary Notification of Phthisis in Brighton:

Including a Comparison of Results with those obtained in other Towns.

By ARTHUR NEWSHOLME, M.D., F.R.C.P.,

~~Medical Officer of Health, Brighton.~~

(FELLOW.)

Read at Sessional Meeting at Brighton, October 27th, 1906.

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DISCUSSION ON
CO-ORDINATION OF MEASURES
AGAINST TUBERCULOSIS.

Opened by G. A. HERON, M.D., D.P.H., F.R.C.P.,
(MEMBER,)

At a Sessional Meeting, Brighton, October 27th, 1906.

BECAUSE of Sir William Broadbent's illness, I have been asked, at rather short notice, to open this discussion on the "Co-ordination of Measures against Tuberculosis." As I understand it, we are asked to discuss and, if possible, to suggest means by which the separate forces now scattered over the length and breadth of the United Kingdom, and more or less engaged in the desultory fight we now wage against tuberculosis, may be brought into orderly combination the better to carry out their common object which is to lessen, and ultimately to eradicate, that disease.

When a man of sense finds himself obliged to fight, his first care is to form as accurate an estimate as he can make of the strength of his foe. The foe whose strength we have to gauge is the most deadly of diseases. In England and Wales alone it kills in every year more than fifty thousand people. How many it disables no one knows. Even among those who outlive its onset not a few are maimed for life, never being again able to bear the strain of prolonged hard work. We know that the foe does its deadly work by passing from one victim to fasten on another, and that it cannot reach its new victim without our help. We know, too, that we give this help in no stinted measure, but in a measure that is full to overflowing. We know that overcrowding is the greatest help to the spread of tuberculosis from man to man, and we all know well that overcrowding in our cities, in our towns, and in our cottage homes, is one of the blackest blots upon our national life. All this has been common knowledge for twenty-four years! I do not speak of other nations in this connexion, because we have more than enough to do in this matter if we strictly attend to our own business. In the administrative county of London there are 1,019,546 tenements. Of these 149,524 are one-roomed tenements, and not a few of these often contain a man, his wife and children, and a lodger. Point out the part of any city or town where overcrowding of the kind just now indicated is commonest, and we know,

without further questioning, that there tuberculosis flourishes. And for years this also has been common knowledge !

The greatest destructive force of the disease springs from our neglect of the lessons taught by these three facts :

1. Tuberculosis always results from infection, and is, therefore, always preventible.

2. Overcrowding, more than anything else, fosters and spreads this infection.

3. The poor and the poverty-stricken supply the great majority of the victims of tuberculosis, because poverty drives the poor to herd together in dirty and overcrowded dwellings.

In the last three sentences I have endeavoured to indicate what I believe is the key to the stronghold of tuberculosis. This stronghold once destroyed we should, I hope, find ourselves within sight of the goal at which we aim, the extermination of tuberculosis. There would still be plenty left to be done, even when overcrowding had become impossible or infrequent. But as overcrowding becomes less dense, the mortality from tuberculosis will fall. The chief force of our attack on tuberculosis must, therefore, be directed against overcrowding.

But there are cases of tuberculosis where there is no overcrowding. These are not rare, but they are not very common. Such cases show us that the infection of tuberculosis sometimes does its work without aid from its greatest helper, overcrowding.

Now what forces have we with which to fight tuberculosis? Public opinion, education, medical science, men and women, money, legislation. These are the greatest of our forces, but they are scattered about the country and, for the most part, engaged in purely local work. One of their greatest and most pressing wants is co-ordination. By that means only can waste of force be very greatly lessened, and union among our forces secured for the attainment of the common good which we have in view, the extermination of tuberculosis.

How are we to co-ordinate public opinion? I know of but one sound answer to that question, and that is by educating public opinion. This can be done by the press, by the spoken and written words of men who have the ear of the people, by books, pamphlets, and leaflets; in Parliament; from the judicial bench when opportunity offers; from the pulpit, where opportunity can easily be made; by leaders of thought in my own profession: in short, public opinion can be brought into line on this or on any subject if men and women who have anything to say, and who can say it or write it, would but do what in them lies to open the eyes of the

people to the meaning of the fact, that more than fifty thousand people die every year in England and Wales from a disease which can be prevented.

But there is another service education can do to the cause we advocate. The elements of hygiene should be well taught to every pupil in our training colleges, and to all the older pupils in every school. Were this well done for, say, a score of years in all schools, and in all our colleges and universities, such a meeting as this would then have but to draw public attention to important facts touching the health of the people, and an educated public opinion would quickly insist on what was needful being done.

Medical science also has its part in the work, and no small part. I have said that eradication of tuberculosis is the object we have in view. It has been asserted that it is impossible to eradicate that disease. I will not now discuss that question; but I venture to say that we ought to aim at nothing short of the eradication of the disease. In this country malaria, cholera, typhus fever, leprosy, have been absolutely or practically eradicated, and the first three have been got rid of within living memory. It is, therefore, neither utopian nor unreasonable to believe that we shall, one day, eradicate tuberculosis. We do not know less about it than we know about any one of the diseases which have disappeared from our country. We know how tuberculosis spreads, and we know how to prevent its spreading. Medical science has shown that, if the disease is to be prevented, sanatoria must be provided in abundance, so that while the disease is curable those who have it in that stage may immediately be admitted to the full benefits of sanatorium treatment. I say *immediately* admitted, because to-day it is a common experience to find that people suffering from tuberculosis have often to wait six weeks or two months for admission to hospital or sanatorium. While this state of things remains a prominent fact we cannot hope to get rid of tuberculosis. Again, we must have infirmaries in which to accommodate incurable cases at short notice. The case of these poor people is hopeless; they must die and swell the huge death roll of this preventable disease. But those advanced cases are very dangerous to the healthy community, for it is from persons in this stage of the disease that infection is most apt to spread. Therefore the incurable cases should be sent to an infirmary, and there tended till they die. If this is to be thoroughly done there must be, at least, voluntary notification of the disease. By and by, when public opinion is ripe for it, we shall have compulsory notification. Dr. Newsholme has put this most important matter ably and clearly before us.

If sanatoria are to be provided in abundance, as they ought to be, people must have nothing to say to those who propose to spend £250 or more for each bed in a sanatorium, in addition to the cost of the land. The outside price of each bed ought not to exceed, in my opinion, £100.

Of what I called our greatest forces in the fight against tuberculosis, there yet remain three to be considered, men and women, money, legislation.

I am strongly of the opinion that private efforts to help on the fight are an essential part of our forces. For instance, it would, I believe, be difficult to overvalue the work of volunteer helpers, willing to go as visitors among the poor, and to tell them what to do when illness comes to their homes. The official visit from the authorities, whether medical or not, is one thing; a very different thing is the visit of the man, and still more so of the capable woman who offers help in time of sore illness, but represents no authority, but only that touch of kindness which makes the whole world kin. Sufficient help given in this spirit by tactful educated men and women would be one of the most powerful of our forces in the struggle with disease.

As to legislation: The fight with tuberculosis is far too grave and too great a matter to be thrown altogether upon the people unaided by the Government. It is among the highest interests of every man, woman, and child in the United Kingdom, or for that matter in the whole British Empire, that this preventable disease should be prevented. There is no one who is quite safe from its infection. But to try to eradicate tuberculosis means, among other things, to spend money. I submit that this money [if not all, at least much of it] should be taken out of national taxation, and the Government is the only power by which this can be done.

As I have already pointed out, we greatly need our efforts in fighting tuberculosis to be co-ordinated. We are here, I understand, to suggest some plan of co-ordination, or at least some plan by which a definite scheme of co-ordination may be laid before the country. All the points I have mentioned, and many more besides, ought to be carefully weighed and fitted into a large scheme, whose main features should be, I venture to suggest, a central body for the whole United Kingdom, in close touch with numerous local bodies, all working to the same end, the extermination of tuberculosis. The central body should consist of statesmen who are not mere party politicians, of lawyers, doctors, and last, but far from least in importance, of men of business capacity and training.

[For Discussion on this Paper, see page 40.]

THE VOLUNTARY NOTIFICATION OF PHTHISIS IN BRIGHTON:

Including a Comparison of Results with those obtained in other Towns.

By ARTHUR NEWSHOLME, M.D., F.R.C.P.,

Medical Officer of Health, Brighton.

(FELLOW.)

Read at Sessional Meeting, Brighton, October 27th, 1906.

AN essential condition of the Co-ordination of Measures against Tuberculosis is the knowledge of cases in which any action is needed as they occur. Without such knowledge all measures will be undertaken in the dark. I propose, therefore, to confine my remarks to the question of notification and the one fundamental provision, sanatorium treatment and training of patients, which, judging by the experience of Brighton, is not only indispensable to secure the success of notification, but is also the most important means of securing good results from notification. Notification of phthisis is not desired for statistical purposes. The death returns will probably always be the best index of the amount of this disease in a community. Hence I have always deprecated and nearly always refused notifications to which the condition was attached that visits to the notified case were not to be made, as such returns possess little public health value. For similar reasons, we definitely decline to accept notifications sent in respecting moribund patients, as the death returns are in such cases nearly as prompt as the notifications. These preliminary facts are stated in order that the weight to be attached to the Brighton figures given in Tables I. and II. and in Fig. 1 may be known.

In 1894 the voluntary notification of phthisis was begun in New York; and from 1898 onwards it was made obligatory on doctors in that city to notify all cases of phthisis attended by them. In this country the notifi-

cation of phthisis was advocated by Dr. Niven, then medical officer of health of Oldham, in 1893, and he presented a complete scheme to the Oldham Medical Society in that year, which unfortunately fell through owing to opposition. Voluntary notification of cases of phthisis was begun in January, 1899, in Brighton, and in September, 1899, in Manchester; and since then a number of other towns have adopted it. Table I. gives details as to some of the towns and metropolitan boroughs in which voluntary notification of phthisis has been attempted, and of the amount of notification received in proportion to population and to total phthisis.

At the beginning of 1904 compulsory notification began in Sheffield, under a local Act. In Table I. it will be observed that the notifications of new cases (in the Liverpool statistics no differentiation is named between new cases and cases renotified) are stated in terms of the population and of the total deaths from phthisis. The latter is the more accurate measure of the extent of notification; for the number of deaths from phthisis may be regarded as having a uniform ratio to the number of cases of phthisis in the different towns. Hence, in comparing one town with another, the columns giving the number of new cases notified to every 100 deaths from phthisis should be used. This is done in Fig. 1. It will be noted that New York, with its longer experience, has had the largest proportion of cases notified up to 1903. Unfortunately, I cannot give the returns since 1903, but possibly they would be higher than those for Brighton in 1906.* Sheffield, which is the only town with an experience of compulsory notification that can be tabulated alongside that of New York, has hitherto secured a much lower proportion of notified cases than New York; and, compared with towns with voluntary notification, Sheffield has a lower proportion of notified cases than Liverpool in one year of its experience, and a much lower proportion than Brighton in four years of its experience. It should be added that Sheffield has hitherto had only two complete years of compulsory notification of phthisis. The majority of the metropolitan boroughs which have adopted voluntary notification of phthisis during the last three years have not been so successful in securing notifications as the provincial towns mentioned above (*see footnote to Table I.*).

The different degrees in which voluntary notification of phthisis and

* Since this paper was read, I have received the returns for New York in 1904 and 1905, and it will be seen (Table I.), that New York in 1905 had 265 cases of phthisis notified to every 100 deaths from that disease as compared with 252 in Brighton for the first nine months of 1906, and 207 for the whole year.

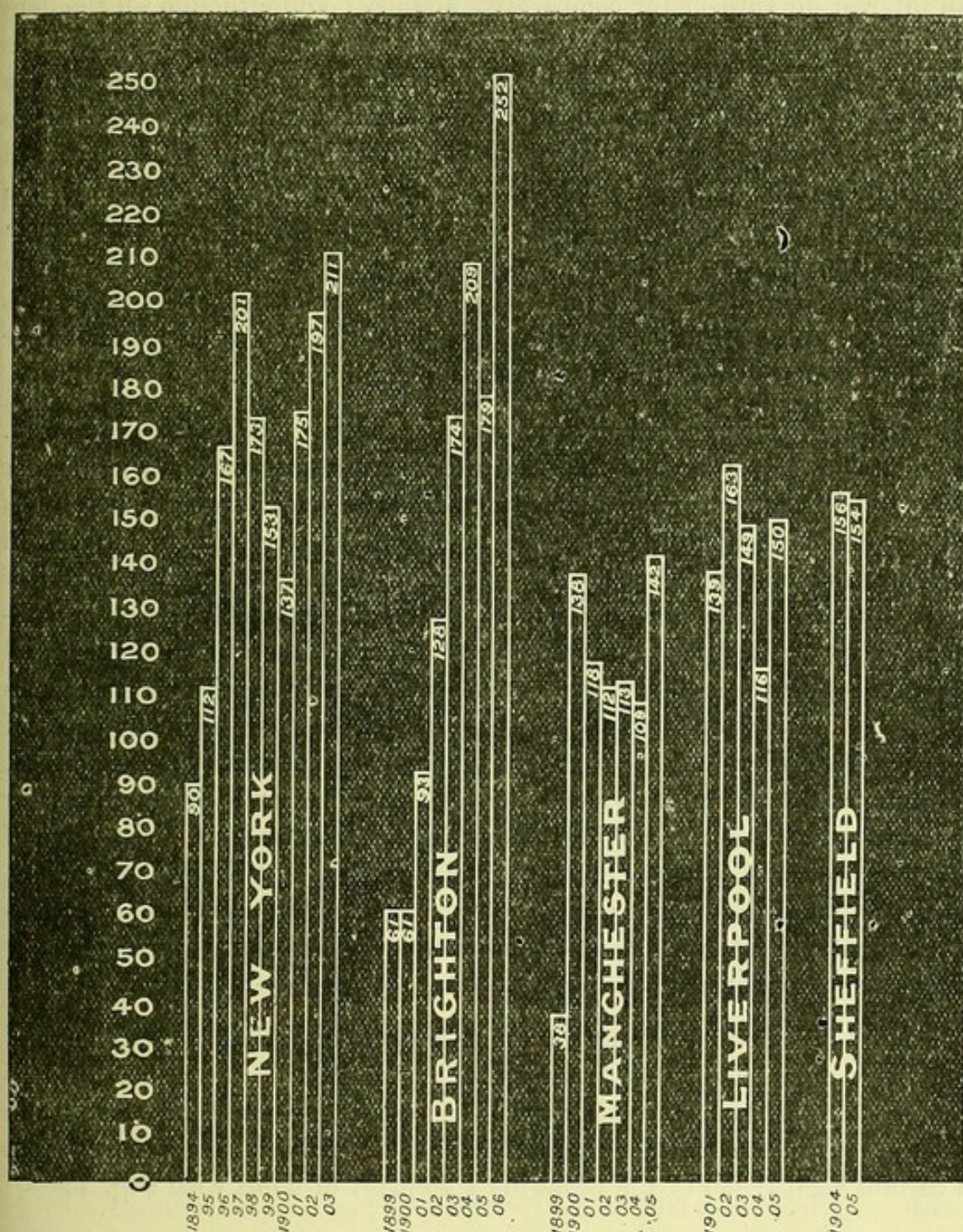


FIG. 1.—Number of cases of Phthisis notified in different towns, stated in proportion to the annual number of deaths from Phthisis in the same town.

(For continuance of the New York record during 1904 and 1905 see Table I., giving information received after this paper was read.)

still more in which compulsory notification of phthisis has succeeded, form an interesting subject for comparative inquiry; and although all the data required for an accurate judgment are not yet available, some indications may be gathered from a study of Table I. and Fig. 1. If we make the somewhat uncertain assumption that each death from phthisis means three new cases of phthisis in the same year, then Brighton in 1906 succeeded in obtaining the notification of 25 out of every 30 cases, New York in 1905 obtained the notification of 27 out of every 30 cases, Manchester in 1905 of 14 out of every 30 cases, Liverpool in 1905 of 15* out of every 30 cases, and Sheffield of approximately the same proportion of its total cases as Manchester. Probably there is in each of these towns a rather larger proportion of unnotified cases than these figures indicate.

Effect of facilities for Examination of Sputum on Notification.—Table II. sets out for the towns for which I can obtain the information the number of specimens of sputum examined for tubercle-bacilli in the laboratories which are municipally controlled or aided by the municipality. In Brighton during 1906, out of 156 specimens examined up to the end of September in which tubercle-bacilli were found, only 84 cases were subsequently notified, and the examination is regarded as strictly confidential unless the doctor sending the specimen subsequently notifies the case. As Liverpool, with very few specimens examined, has had as many cases of phthisis notified as Manchester, in which many specimens are examined, no direct relation can be traced between the use made of facilities for examination of sputum and the amount of notification.† Of the value of such examinations, when utilised freely and systematically by doctors, there is abundant evidence; and the routine examination of all expectorations for bacilli by every practitioner would go far towards securing early diagnosis and treatment of phthisis.

Effect of provision of Sanatorium treatment on Notification.—The chief reason why in Brighton voluntary notification has been as successful as compulsory notification in other towns, is because provision has been made for the sanatorium treatment of notified cases. This can be gathered from a careful comparison of the following statement of dates with Fig. 1:—

* Doubtful, because of possible duplicate certificates.

† Since the above was written, Dr. Hope has kindly supplied me with information not contained in his annual report, and the same remark applies for Sheffield (Table II.). In both these cities a large number of specimens are examined in the pathological laboratories of the Universities.

BRIGHTON.

Voluntary notification of phthisis begun	...	...	Jan. 1899.
Four beds reserved at a sanatorium outside Brighton,			May, 1902.
Four beds opened for phthisis at the borough isolation hospital	...	...	...
	...	...	July, 1902.
The number of beds for phthisis at the isolation hospital was increased to ten	...	...	...
	...	...	Dec. 1902.
The number of beds at the isolation hospital for phthisis was further increased to twenty-five	...	...	April 3, 1906.

At first the patients were admitted for only a month, the principle adopted being that of training the patients in personal hygiene, and in the general management of their illness, rather than of attempt at cure. The wisdom of this plan has been fully justified by experience. The majority of patients has been found to have extensive lung disease, often with cavitation, when admitted to the sanatorium. Such patients commonly have several years of life before them, but the experience of other sanatoria shows that prolonged treatment of many months, or even over a year, is necessary to insure anything approaching to a cure even in cases in earlier stages of the disease. It is much more to the public interest to pass a large number of patients through the sanatorium and thoroughly train them in the hygienic requirements of their disease, than to treat a smaller number for a more protracted period. It is furthermore much more convenient for the patients, who often find it difficult or impossible to leave their families and work for longer than a month. Our experience is that advice as to the deposit and disposal of sputum given at home is commonly neglected; and that it is very rarely neglected by patients who have been in the sanatorium. As shown in Table III., we welcome re-admissions to the sanatorium of patients whose health is again flagging. During the present year, 25 such patients have been readmitted. By this and other means, such as the provision of Japanese handkerchiefs, pocket spit-bottles, etc., and by quarterly visits at the home of the patient, we keep in sympathetic relationship with the patients, and insure the maintenance of precautionary measures against infection. On this point, the following card given to every patient when he leaves the sanatorium may be of interest:—

ADVICE TO PATIENTS LEAVING THE SANATORIUM.

1. The spit-bottle should always be carried in the pocket, and daily washed out with boiling water after emptying its contents down the w.c. At home if the bottle is not used, spit into paper or rag and burn this at once.
2. Be careful not to cough directly opposite to any other person. Always hold a handkerchief to your mouth when coughing. Change your handkerchief every day and put the soiled one into water.
3. In order to maintain a condition of good nourishment take a glass of milk with each of the three chief meals, in addition to the ordinary food.
4. Keep on taking cod liver oil each day until you have no cough, unless otherwise ordered by your doctor.
5. Do not take beer or other alcoholic drinks. Money thus spent is wasted.
6. Keep up the practice of sleeping with your bedroom door *and* window wide open. One of these without the other does not suffice. To keep warm wear plenty of woollen clothes.
7. It is imperative that you should sleep in a separate bed; and if possible have a separate bedroom.
8. Do not run the risk of inhaling dust if you can avoid it, either in the house or when at work, or in the street. Always insist on the "wet cleansing" of rooms, instead of dry dusting or sweeping.

Since the beginning of the present year our plans have been rearranged and extended. Under the Hedgecock Bequest to the Town Council, the interest of £20,000 has been allotted for ten years to the maintenance of Brighton consumptives in the sanatorium. We are thus enabled to devote 25 beds to this purpose. Of these 3 are for paying patients, 12 are Hedgecock patients, and 10 are directly municipal patients.

The Corporation provide the entire accommodation for the above patients in their isolation hospital, chiefly in what was formerly a pavilion for enteric fever, a very much smaller ward sufficing for the few cases of this disease which we still have.

The directly municipal patients are usually admitted for a month each, and are by preference men and women still able to work, and in connection with whom a month's rest, treatment, and training, can effect the greatest good to the patient and to others in preventing infection both of fellow-workers and of family.

The Hedgecock patients belong to the same classes. They must be unable to pay for their own maintenance in the sanatorium. Many of them are very advanced or even dying cases, for whom continuance at home is undesirable owing to difficulties as to nursing, or because there is a large

family and much danger of infection. Hedgecock patients are kept in the sanatorium for several months or for a shorter time, according to individual requirements.

We have at present under observation in Brighton 667 notified cases of phthisis. Table III. shows that the annual deaths from this disease number about 170. To every annual death four cases are under sympathetic and helpful supervision, which does not in the slightest degree interfere with the patient's ability to earn his livelihood. There has been much loose talk as to the risk of such visits to the patient's home: but with reasonable and tactful administration there is no risk. Mental confusion has arisen on the part of those unacquainted with the methods of work, because they have heard of cases where employers have discharged phthisical clerks, etc. Such an event is quite unrelated to notification. It is a natural, though lamentable and unnecessary, result of the discovery of the tubercle-bacillus by Koch and of the education of the public, which is going on whether there is notification or not.

Notification and the measures following on it in well-organised districts are the best means of preventing exaggerated fears of infection. In Brighton, for instance, out of the 667 cases of phthisis now under observation, 52 per cent. have spent at least a month in our sanatorium, and the public has the assurance that they are able and willing to take the simple precautions which alone are necessary to prevent spread of infection. This is striking evidence that infection from phthisis can be controlled, especially when it is remembered that we have only had 25 beds at the sanatorium since April last, the number for the previous four years having been only 10, for a population of about 125,000. This number, it should be added, does not include the 35 beds for advanced consumptives in the workhouse infirmary.

I am of opinion that the provision of additional sanatorium accommodation has been the chief cause of the great increase of notifications of phthisis, and also of the great increase in the number of specimens of sputum examined during 1906. Patients are eager to come into the sanatorium. Some of them even send specimens of sputum apart from medical advice. They are always referred to their doctors; or, if they cannot afford a doctor, the medical officer of health gives them an outpatient letter for the County Hospital. I take this opportunity of gratefully acknowledging the help of the assistant physicians at the County Hospital, without which the success of our system of notification would have been relatively small. A large share of each day's work of the medical officer of health and his medical assistant consists in interviewing

TABLE I.

YEAR.	NEW YORK (Compulsory notification), from 1898.			BRIGHTON (Voluntary notification).			MANCHESTER (Voluntary notification).			LIVERPOOL (Voluntary notification).			SHEFFIELD (Voluntary notification to 1904. Compulsory notification 1904-05).		
	No. of cases notified			No. of cases notified			No. of cases notified			No. of cases notified			No. of cases notified		
	No. of new cases of phthisis notified.	per 100,000 of population		No. of new cases of phthisis notified.	per 100,000 of population		No. of new cases of phthisis notified.	per 100,000 of population		No. of cases of phthisis notified.	per 100,000 of population		No. of new cases of phthisis notified.	per 100,000 of population	
		per 100 deaths from phthisis	from phthisis		per 100 deaths from phthisis	from phthisis		per 100 deaths from phthisis	from phthisis		per 100 deaths from phthisis	from phthisis		per 100 deaths from phthisis	from phthisis
1894	*4,166	231	90	...	...	...	...	...	...	...	...	...	...	...	...
1895	*5,824	312	112	...	...	...	...	...	...	...	...	...	...	...	...
1896	*8,334	436	167	...	...	...	...	...	...	...	...	...	...	...	...
1897	*9,735	502	201	...	...	...	...	...	...	...	...	...	...	...	...
1898	8,559	432	173	...	...	...	...	...	...	...	...	...	...	...	...
1899	8,012	399	153	111 ¹	91	61	425 ⁵	78	38	...	...	...	29 ⁷	8	6
1900	7,203	352	137	105	85	61	1,573	289	133	...	...	...	309	83	58
1901	9,130	436	175	153	124	93	1,339	245	118	...	...	...	282	74	49
1902	9,645	451	197	224	179	128	1,275	231	112	...	...	...	326	78	66
1903	11,089	505	211	316	253	174	1,357	245	113	...	...	...	519	122	91
1904	13,813	596	231	363	288	209	1,202	216	109	...	...	...	826	191	154
1905	15,036	629	265	308	243	179	1,406	223	142	...	...	...	741	170	152
1906	...	...	...	327 ²	326 ³	252 ⁴	...	...	...	...	...	...	...	...	...

* No statement as to duplicate certificates. After 1897 all duplicates are omitted.
 Voluntary notification 1894-97, compulsory afterwards.

¹ Notification began Jan. 7th, 1899. ² To October 13th.
³ Estimated to end of year.
⁴ To October 13th.

⁵ Notification began September 11th.

⁶ Notification began February 14th, 1903.

⁷ Notification one month during 1899.

With the above figures may be compared the following figures for Metropolitan Boroughs in which voluntary notification of phthisis has been adopted. They relate to 1903, and the number of cases notified are stated per 100 deaths from phthisis during the same year. The data are derived from Sir Shirley Murphy's Annual Report for 1903, pp. 40, 41: Kensington, 100; Fulham, 84; Hampstead, 62; Stoke Newington, 79; Finsbury, 52; City, 10; Southwark, 62; Lambeth, 80; Wandsworth, 80; Greenwich, 46; Woolwich, 95.

In 1904 the number of cases notified per 100 deaths from phthisis was: in Kensington, 81; Hammersmith, 89; Fulham, 77; Chelsea, 12; Westminster, 156; Stoke Newington, 60; Holborn, 218; Finsbury, 86; Southwark, 65; Bermondsey, 46; Lambeth, 68; Wandsworth, 41; Greenwich, 90; Woolwich, 90. (Annual Report of Public Health, County of London, 1904 p. 45. In none of these Metropolitan returns is there mention of duplication of cases.)

would-be patients, and in investigating the origin of their illness. Visits are made to each patient's home every three months; and the inspector, who carries out this work with tact and skill, distributes according to instructions a considerable number of out-patient letters for the County Hospital, for the use of any relative of the patient who shows any evidence of failing health. It may be said, then, that it is possible with a voluntary system of notification to obtain as good or even better results than with compulsory notification, if in the former case one is able, and in the latter unable, actively to help the patient. This being so, the wisdom of the cry for compulsory notification of phthisis, *when a local authority is not possessed of means to give all possible help to the notified patients*, and is unprepared to expend the necessary amount of time and skill (involving expense) on the work, is open to doubt.*

In coming to this conclusion I am largely influenced by the consideration that, as I have elsewhere† urged with great detail of evidence, the segregation of consumptives, especially of advanced consumptives, in public institutions has been in the past and will continue to be in the future a predominating cause of the continuing and increasing decline of mortality from phthisis for which we are all working.

TABLE II.

Number of specimens of Sputum examined for Medical Practitioners by the Municipal Authorities in different towns (per 100,000 of population).

Year.	New York.	Brighton.*	Manchester.	Sheffield.
1894	3	...	...	...
1895	61	...	...	...
1896	97	...	...	...
1897	136	...	...	...
1898	147	...	...	...
1899	155	39	...	...
1900	173	70	48	152
1901	211	102	95	170
1902	216	135	107	176
1903	354	180	113	212
1904	414	226	118	216
1905	478	223	122	205
1906	..	448	...	...
		Estimated to end of Year.		

* The figures for Brighton do not include the specimens examined from patients in the Sanatorium.

In Liverpool, Dr. Hope informs me that during the last four years the average annual number of specimens of sputum examined has been 798, which is about 108 per 100,000 of population. The details for Sheffield given above have been added since the paper was read.

* An Inquiry into the principal Causes of the Reduction of the Death-rate from Phthisis during the last 40 years, with special Reference to the Segregation of Phthiical Patients in General Institutions, by A. Newsholme. *Journal of Hygiene*, Vol. VI., No. 3, July, 1906, pp. 304-384.

† POSTSCRIPT.—To prevent misunderstanding, I wish to repeat that, in accordance with what I have advocated for many years, I am strongly in favour of the compulsory notification of phthisis in districts in which a local authority can fulfil the conditions the absence of which is italicised above.

TABLE III.
Particulars of Cases of Phthisis notified in Brighton.

Year.	Number of Cases notified for first time.	Number of Cases re-notified.	Total number of Deaths from Phthisis in Brighton.	Population.	Cases treated at:			Notified Cases.		Deaths of notified Cases.	Wrong address given.	Cases living and under observation, Sept. 30th, 1906	Deaths of cases notified in a given year and dying in that or a subsequent year.							Notified Cases in which death was not certified as Phthisis.		Specimens of Sputum examined.		
					Sanatorium outside Brighton.	Brighton Sanatorium.	Re-admissions.	Left Brighton.	Changed address and lost.				1899.	1900.	1901.	1902.	1903.	1904.	1905.	1906.	From Doctors in Brighton.	For Sanatorium.		
1897	}	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	} 21 for four-teen m'ths.	...
1898			47	...
1899	111	2	180	123,327	6	43	57	7	...	23	15	1	2	1	Re main der un certa in	3	1
1900	105	4	173	124,148	...	...	...	15	21	58	2	9	...	24	20	2	5	3	3	...	...	86	...
1901	153	9	164	123,478	...	...	...	22	42	62	4	23	...	...	35	16	6	3	1	2	4	125	...
1902	224	52	174	124,539	6	25	...	29	38	107	7	43	...	...	...	53	35	10	8	1	5	146	23
1903	316	82	182	125,405	...	96	3	22	69	112	9	104	...	...	...	...	62	30	16	4	5	227	111
1904	363	85	174	126,286	...	131	6	32	95	117	11	108	...	...	...	...	...	62	38	17	5	284	188
1905	308	102	172	127,183	...	130	7	31	57	82	3	135	...	...	...	...	...	...	54	28	3	279	104
1906 to Sept. 30	313	91	126	128,095	...	146	25	10	19	36	3	245	...	...	...	...	...	...	...	36	1	422 (to Oct. 11th)	196
	1893		1345		534	41	167	384	631			637	23	39	56	72	109	10*	120	89	23	1637	622	

[*This Discussion also applies to the Paper by DR. G. A. HERON, p. 26.*]

DR. E. C. SEATON (Surrey C.C.), said the co-ordination of measures against tuberculosis was a rather wider subject than that under which he proposed to make some remarks. The advantages that Brighton had in the organisation and administration of its public health work placed it in a position to afford an object lesson to many authorities. The present system of dealing with phthisis (consumption) commenced some years ago. In 1899, as lecturer at St. Thomas's Hospital, he had first brought a class of advanced students to see the system in practical operation. That system had been developed and tested since, and he had lately had the opportunity of seeing it fully in operation. The measure of first importance was the improvement of dwellings, more especially those of their slums. They could not banish their slum populations, but they could banish the conditions under which they lived, so that they might claim, as one town even larger than Brighton *did* claim, that they now had *no* slums. He was certain that such work would not suffer under Dr. Newsholme's direction, and that it would always occupy a foremost place in his scheme. He had always been on the side of voluntary notification, and was more so than ever after having become acquainted with the working of the system, and seeing what had been accomplished in Brighton. The keynote of success here had been that sick people or their friends in notifying cases of consumption to the medical officer of health felt sure they *would be helped in one way or another, and that notification would not be to their detriment*. The part of the preventive system to which he had paid special attention lately was the sanatorium treatment of phthisis, and the provision made for that purpose in Brighton. He desired to dwell on this aspect of the subject especially, because there was no use disguising the fact that sanitary authorities, who already had experience of the cost of maintenance of large numbers of scarlatina or scarlet fever children, often for several weeks together, were fairly alarmed at the prospect of what the maintenance of phthisis cases, possibly in much larger numbers and for much longer time, might mean. Now in Brighton they could see at the excellent and well managed Poor Law Infirmary, and at the Sanatorium for Infectious Diseases, as nearly a complete system of dealing, not only with scarlet fever, diphtheria, and typhoid, for which the Corporation had statutory duty to provide, but also, and in buildings alongside with those for other infectious diseases, cases of phthisis. This class of sufferers, for reasons affecting both their own health and the public health, needed sanatorium treatment for a time. He was impressed with the boldness of this innovation in municipal hospital administration, and he immensely admired the intelligence displayed by the staff and the loyalty with which precautions were observed, which made the system safe and one approved of by local medical and public opinion. It would therefore be seen from what had been said that the question of cost must be judged by the cost of the whole Public Health Department, *i.e.*, salaries of officers, laboratories for all purposes, including water analyses,

general sanitary staff, up-keep of offices, etc. Regarded comprehensively in this way it would, he believed, be found surprisingly moderate. The whole system struck him as one that worked like a machine, as the saying is, and he would add, a machine that did its work effectively at a moderate cost to the ratepayers, a consideration of the utmost importance. As an example of co-ordination of sanitary service he might venture, as a fairly old and experienced officer, and a lecturer for twenty years at one of the principal medical schools, to describe the Brighton system as both unique and instructive.

DR. F. R. WALTERS (Farnham) remarked that the chief predisposing causes of tuberculosis were probably debility from improper food, intemperance, infectious fevers, insufficient nutrition, dust, and dirt. These conditions could only be altered by incessant personal influence, and by practical object lessons such as are given at the Brighton sanatorium. People must be convinced that rooms ventilated only from one side are sure to be close, and may also be damp; that cold and draughts are not causes of phthisis; that ordinary dusting and sweeping stir up dust which may be infectious; that it is wrong to spit indiscriminately, and that all sputa should be destroyed. Much of this kind of instruction was best given in the homes of the poor by an intelligent woman. Wet cleansing should also be the rule in every railway station and place of public resort, and in every public conveyance. Every poor patient convalescing from an infectious illness should be able to go to a Convalescent Home; and his own home should meanwhile be kept up by sick pay from a benefit society or other source. Sputa should always be examined bacteriologically, whatever the ailment. By the time the symptoms of consumption are obvious the disease is already difficult to cure. Patients discharged from the sanatorium should either take up more suitable work, or the old work under more suitable conditions. Whenever a skilled worker is attacked with early phthisis, to change the old work for badly paid and unfamiliar unskilled work is a mistake, so that here the conditions of work should be changed. The chief reason why so much work is done in shop or bank behind closed windows was because the air is smutty, the worker may be insufficiently clad, and the room often overheated, and therefore draughty. Only early nonfebrile cases are fit for heavy manual labour, and not all of these, so that here the occupation would have to be changed for a more suitable one. A labour bureau is an essential part of the forces for preventing tuberculosis, and should be co-ordinated with benefit societies, sick clubs, sanatoria, and all local hygienic administration. He strongly advocated the plan of making all such preventive machinery centre round the local health authority.

DR. W. G. WILLOUGHBY (Eastbourne) said that he looked upon Brighton as the home of "co-ordination" in this disease, and was of opinion that co-ordination with regard to the measures to be taken in this disease might be summed up shortly as "notification, educational isolation, and the following up of cases

after temporary isolation." With regard to the first, notification, that in his opinion was very important; and although Dr. Newsholme had good results as showing what could be done by voluntary notification, Dr. Willoughby ventured to say that the results might have been better still had there been compulsory notification in Brighton. No doubt the public had not yet been educated up to compulsory notification of phthisis, but twenty years ago the same arguments were advanced against the compulsory notification of enteric fever, etc., as were to-day being advanced against compulsory notification of phthisis. As showing the satisfactory results of following up notified cases by co-ordinating measures in Brighton, Dr. Willoughby pointed out that according to the figures given in Sheffield with compulsory notification, there were three cases notified to every two deaths; whereas in Brighton, with voluntary notification, there were four cases notified to every two deaths; roughly equal to the compulsory notification results of New York. That they had had such a measure of success in Brighton was, in his opinion, due to the co-ordination measures described so fully that day by Dr. Newsholme. Incidentally Dr. Newsholme had objected to notification of cases where the medical officer of health was not allowed to take any steps he considered necessary to stop the spread of the disease; but it was useful, in Dr. Willoughby's opinion, to have figures as accurate as possible, and it was useful to know in what houses tuberculosis had occurred. If all cases were compulsorily notified, the disease would be so brought to the notice of the sanitary authorities that sanatoria would follow at a far greater rate than they were being erected at present. It was interesting to note in the return from Sheffield, where notification was compulsory, that in 1905, in every nineteen notified cases of consumption where death followed, one of the nineteen death certificates ascribed the cause of death to some other disease. The careful following up of the case after leaving the sanatorium was an important item in co-ordination; and suitable work should, if possible, be obtained for the patient, particularly where the patient's work had been a factor in the causation of his disease. Another important variety of co-ordination had been touched upon by a previous speaker, the co-ordination of the authorities. With regard to that, Dr. Willoughby suggested that not enough was being done. There should be co-ordination by sanitary authorities where each was too small to have a sanatorium of its own. A central body might be most useful for distributing plans and ideas, and a central nursing depot might be arranged; but this he did not intend to dwell upon, as it was "co-ordination of preventive measures" that the meeting was called upon to discuss rather than any other form of co-ordination.

MR. J. F. BLACKER (Brighton), while agreeing with all Dr. Newsholme had said, expressed the opinion that they had not begun at the beginning. In his view their preventive measures should start with the medical examination of all the children in all the schools. It struck him if that were done, and a register

kept of each child's personal and family history, they would be in a position to stamp out phthisis absolutely. The appointment of a medical officer of health for schools, and the removal of children from insanitary surroundings, were also very important in his view, although, of course, he recognised the difficulties that were in the way.

MAJOR WILKINSON (London) drew attention to the organisation of measures against tuberculosis at Lille, under the direction of Dr. Calmette. There was no notification of tubercle at Lille, but information of cases of this disease was obtained by means of a remarkable social organisation known as a "Preventorium." The chief object of the preventorium was to permit sufferers from tuberculosis to continue, as far as possible, their usual avocations, and at the same time to prevent the spread of the disease to others. With this object, arrangements were made for the discovery of cases of tuberculosis, the enquiry into the needs and circumstances of the patients and their families, their instruction in the precautions to be taken to prevent the spread of the disease, the supply of food, clothing, and even of special accommodation to necessitous patients, and the disinfection and cleansing of infected articles and rooms. For the purpose of making enquiries and of giving instruction with regard to anti-tuberculous measures, specially trained laymen, both volunteers and paid officials, were employed. These were chiefly of the working classes, as it was considered that they would be more in touch with the majority of those requiring instruction or assistance. The whole organisation was under the guidance of a medical man whose duties, besides the treatment of patients, included the bacterioscopic examination of suspected sputum. The preventorium acted as a filter for the sanatorium, for by its means patients were treated at their own homes in the earlier stages of tubercle, and in the later stages, when sanatorium treatment would be of little benefit, the preventorium protected the patients' households from infection. The expenses of the preventorium, as well as of an admirable sanatorium for consumptives at Montigny, near Lille, were defrayed by voluntary donations and subscriptions.

DR. HUGH STOTT (M.O.H., East Sussex Combined Districts) spoke of the advantage that would accrue from the medical officers in the boroughs working in harmony with the medical officers in the rural districts, so that when there was a chance of a patient being sent from the town into a rural district, the medical officer in the latter might follow up the treatment that had already been adopted. A great deal of effort was lost through lack of co-ordination.

MR. NIELD COOKE (Calcutta) said that it was encouraging to see the progress that had been made at Brighton, where the Corporation had provided for the treatment and education of the earlier cases and the segregation of the more advanced ones, all on a purely voluntary system without compulsion of any kind.

In the part of India where his work lay some of the controversial factors were absent, for there was practically no bovine tuberculosis; most of the people did not eat beef, they boiled their milk, and their infants were almost invariably breast-fed. In spite of this there were about 6,000 deaths a year in Calcutta from respiratory diseases, a large proportion of which was due to tubercle. So if, as had been said, sanatorium treatment formed an indispensable factor in the co-ordination of measures for dealing with the disease of the United Kingdom, where the question of causation had not been finally settled, it was *a fortiori* the line to follow in a Province where there could be no doubt that the infection passed from case to case in the house or workshop by the spray in coughing, tubercle-laden dust, and other subsidiary causes, apart from the predisposing cause of overcrowding, which could only be dealt with by a proper scheme of town improvement which would take years to carry out. For these reasons he advocated the establishment of a tubercular village on the outskirts of the town with an administrative block, some open tiled sheds for pauper patients, and cottages which could be rented by such as could afford to pay and where they could strictly observe the ordinances of their caste. Of course native opinion would have to be educated, as the co-operation of the people was essential to complete success, but the cases that the hospitals turn away for want of room would form a nucleus, and the Medical Officers of the Corporation could recruit others. The free ventilation of a sanatorium had no terrors in a warm climate, and there was nothing in the system incompatible with native life and custom, so he saw no reason why a start should not be made in Calcutta. The principal difficulty would be want of funds, but Brighton was an object lesson of what could be done from small beginnings, as he believed Dr. Newsholme commenced with only two beds.

DR. J. ROBERTSON (Birmingham) said there were many points in the paper which he could not agree with, and as it was more useful for the purpose of a discussion he would raise these, without mentioning the many points in which he was in agreement with Dr. Newsholme. In the first place it was implied, although not stated, that voluntary notification was as satisfactory as (indeed, that it was more satisfactory than) the compulsory notification of phthisis. Other things being equal, he did not think that that was the case. The facts on which this inference was based appeared to him to be insufficient. Dr. Newsholme had compared the results of certain sanitary administration in what might be regarded as a comparatively small town, and also a health resort, with several of the larger Midland manufacturing towns. His own experience was that it was possible in towns of, say, 100,000 inhabitants to have such intimate relationships with all the medical men in the town as to secure their willing co-operation and help in sanitary administration, while this was almost impossible or exceedingly difficult in the larger towns. For this reason alone it was probable that a successful medical officer of health would get good

results in a small town with voluntary notification as he would in a large town with voluntary notification. Compulsory notification was introduced into Sheffield mainly to protect the notifying medical men from liability to action for damages. During his experience in that town with voluntary notification, which was a distinct success, no friction arose; but in a large district it would be certain to arise sooner or later, and when it did it meant that a very great deal of damage would be done to the efforts for phthisis prevention. Such cases would occasionally crop up, and to prevent them compulsory notification was necessary. It was also unwise to compare their experience in this country with that in New York, where the methods of administration were so different. As to the effect of facilities for examination of sputum on notification, the statement made that apparently very few or no examinations of sputum were made in the municipally controlled laboratories in Liverpool or Sheffield was somewhat misleading. As far as Liverpool was concerned, probably few towns had done more to facilitate accurate diagnosis by means of such examinations, while with regard to Sheffield in 1901 641 examinations were made. He fully recognised the necessity of free use being made of such a laboratory, and for this purpose medical men were supplied with convenient apparatus for sending to the laboratory without having to call for them. He very strongly deprecated the statement in regard to the cry for compulsory notification. There was, he believed, a very large amount of information yet to be obtained in reference to phthisis administration, and notification must be, as Dr. Newsholme pointed out, the first step, and by itself it would be useless and a waste of money unless action were taken, but he did not think there were sanitary authorities so profoundly stupid as to rely upon notification without other action. The other steps which would have to be taken would gradually increase in number. During the seven or eight years that he had been dealing with notification in one form or another the preventive measures had increased enormously in variety and scope. In the prevention of phthisis while the active measures that follow notification are important, much more important were those indirect measures which had for their object the better nutrition (in the widest sense) of the individual. He was certain that a very large amount could yet be accomplished in bettering the health conditions under which the people lived and worked. The variations in mortality which took place among the different towns and among the different groups of workers were extremely suggestive. When dealing with these differences attention must be paid to many sources of error. In the case of Birmingham, for instance, the tubercular mortality figure of 184 represented the mortality among the central half of a population of a million. The city had overflowed its boundaries to the extent of nearly half a million people, who represented the healthiest part of the population. To a large extent these people appreciated what healthy living was, and were able to get away from the more central districts. This was only one of many examples of points which had to be taken into consideration in comparing towns. There was, of course, a differ-

ence between the central and outer districts of all towns so far as tubercular mortality was concerned, and this gave them an indication as to the cause of the high mortality. In the central districts they had to a larger extent than elsewhere the thriftless and dirty part of the population, and until something was done to effectually deal with thriftlessness and dirt, he felt that there would always be areas with high tubercular mortality in our towns.

Note by DR. F. G. BUSHNELL (Brighton) who was unable to be present:—

Underlying the question of the co-ordination of measures for the combatting of tuberculosis is the large question of the co-ordination of all public health administration. The medical world has expressed in no uncertain voice its opinion at great meetings at Bradford, Exeter, Brussels, Paris and elsewhere, that the scientific problems of preventive medicine have such a bearing on our social life, not only from their special nature, but from their magnitude and their importance to the community as to call for a separate Public Health Department, with an expert minister of Cabinet rank at its head. There is, however, no sign of a translation of our wishes into practical effect, and that despite the fact that no substantial argument is ever brought forward to dispute the validity of our claim. The question of expense has been given in Paris as militating against such a creation, but when it is seen that such an organisation is merely an insurance against disease, it is clear that the price of insurance is worth paying, not only from the point of view of coin of the realm, but from that of far more important causes. It is, in short, an economic necessity, for the cost to the community is heavy when wage-earning individuals are incapacitated. History bears me out in saying that the individual with adequate powers at the head of a well organised department, who is a true advocate of his cause, will effect more in a year than has been achieved before in a dozen.

DR. NEWSHOLME (Brighton), in reply, said he agreed with Dr. Robertson in his opinion of the value of compulsory notification when local authorities had the means of following up the notification with proper measures: but he did not believe in indiscriminate notification to local authorities who were not in a position to help the patients. He agreed as to the importance of nutrition, but this was not a matter for the direct intervention of the local authority, except incidentally by the provision of sanatoria. With regard to what had been said about the proximity of the diphtheria wards to the consumptive wards at Brighton Hospital, there had never been a case of cross infection, so that there was really no risk. Referring to Dr. Seaton's remarks, he said that the Brighton Sanitary Authority had for many years past been working hard at the housing problem in the poorer and older parts of the town. They had cleared three areas under Part I. of the Housing of the Working Classes Act at a cost of £71,000, and 2,158 persons had been dishoused and rehoused. Under Part II. of the Act they had similarly dishoused and rehoused over 1,044 persons. In Brighton

during the last fifteen years one out of every twenty of the working classes had been rehoused in better houses than they had lived in formerly, and he doubted if any town could show a better record than that. Dr. Seaton's remarks as to the necessary considerations of expense were very important: but the experience of Brighton had been not only that it was the cheapest plan to spend money on those things, but in Brighton the cost had not been great. The total cost to the rates of the Health Department was 1·02d. in the £; the total cost of the isolation hospital, with debt charges, 1903 to 1904, was 2·28d., or 2¼d. in the £; and the clearance areas meant a debt to the town of 1 1-10 pence in the £ for about the next twenty years. Education cost 15·7d. in the £ in Brighton, not a penny too much; and the police cost 5·7d. in the £, so that sanitary and hospital administration was not being carried out on extravagant lines. Their twenty-five beds for consumptives were worked at a cost of about £1 a bed per week, not including expenditure which would go on whether the beds were utilised for consumptives or not. A large proportion of the annual expenditure came from the Hedgcock bequest. Overcrowding was, of course, at the bottom of the prevalence of phthisis, as had been said. There were two ways of reducing overcrowding or its effects: one slow, tedious, and often unsuccessful. This consisted in steadily enforcing the laws against overcrowding by domiciliary inspection. In practice it failed in a large proportion of cases, although it ought to be pursued with the utmost diligence. The second method of diminishing the evils of overcrowding was to remove those capable of conveying infection from overcrowded homes to public institutions, where their possibilities of mischief were minimised. This was being done by nearly all local authorities for the acute infectious diseases; it was being done in Brighton also for all the consumptives who lived in unfavourable homes. It should be remembered that in addition to the intentional accommodation for consumptives, most Boards of Guardians had during the last forty years or more been providing unintentionally a large amount of accommodation for the segregation of consumptives in workhouse infirmaries. In Brighton they had 30 beds for consumptives in the infirmaries, and these with the 25 beds in the sanatorium represented one bed for every 2,000 inhabitants, always occupied by consumptives. Such provision operated immediately in ameliorating overcrowding; the enforcement of the law against overcrowding acted slowly and imperfectly; and consumption spread when there was no legal overcrowding. Both means of abating overcrowding should be adopted with the utmost zeal.
