further development, but I do not think that tuberculous patients in great numbers are prepared to live permanently separated from their fellow men. The one thing tuberculous patients wish to do is to live like their fellows and not be treated as we at one time treated our lepers—incidentally with apparent success.

Conclusion

I have made no new suggestions for the eradication of tuberculosis, but I am suggesting a campaign on a scale and of an intensity that have not so far been possible.

The Act gives the Minister his opportunity to appeal to the imagination of the country and make a solid contribution to the health of the people by concentrating on the elimination of a preventable infection. Nearly a quarter of our doctors served in the Forces in the late war and were brought into closer touch with preventive medicine than ever before. They have seen at first hand epidemics of typhoid, of typhus, of dysentery, of diphtheria, of smallpox, of malaria, of poliomyelitis, and a host of other diseases, and have taken an active and successful part in their prevention and suppression all over the world. They await the National Health Service with doubt and speculation. An imaginative and successful campaign against tuberculosis would show that the National Health Service means more than interference with general practice, subsidies to hospitals, and a curtailment of the liberty of the individual.

Figs. 2, 3, and 4 are reproduced from Arnold R. Rich's *Pathogenesis of Tuberculosis* (Thomas, Springfield, Ill.).

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THE HEALTH AND MUNICIPAL HOSPITAL SERVICES OF LONDON

BY

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The organized public health service of this country is just a century old. Never before in its history has such a change occurred as will happen on July 5, 1948. The background of its development may be divided into three phases. During the first phase the main attack was on environmental causes of disease, particularly the infectious diseases, including cholera. During the second the services to promote the health of school-children, of expectant and nursing mothers and young children, and to prevent the spread of tuberculosis and venereal disease were developed. During the first phase health authorities erected fever hospitals, and during the second sanatoria and maternity hospitals.

During the third phase, which began in 1930, an effort was made to integrate the public hospital service, which had grown up as part of the Poor Law system, with the preventive medical work of the major local authorities. Applying this to London, it should first be explained that

for local government purposes there are several Londons, and this article refers only to the Administrative County of London. It has a population of 3,389,680, and is increasing as those evacuated during the war return, but its pre-war population of over 4,000,000 may never be attained again. The County includes within its boundaries the City of London and the 28 Metropolitan Boroughs.

The London County Council replaced in 1889 the Metropolitan Board of Works (1855-89), and ten years later the parishes and vestries disappeared as public health authorities and the 28 Metropolitan Boroughs were created. To complete the background it must be mentioned that until 1930 there were in the County of London 25 Boards of Guardians. Among their responsibilities was the care of the destitute sick, and they had provided a considerable number of hospitals, some quite modern. They also provided a domiciliary service for the sick by means of District Medical Officers. There was also the Metropolitan Asylums Board (established in 1867), which provided hospitals for certain mental and fever cases, including smallpox, which were unsuitable for retention in the Poor Law infirmaries and for tuberculosis and long-stay cases in children. The Boards of Guardians were also the authorities for vaccination and for the registration of marriages, births, and deaths.

Reference must also be made, in order to get a complete picture of the public health and medical services of London, to the London Port Sanitary Authority, established in 1872 and administered by the Corporation of the City of London; the Metropolitan Water Board, set up in 1903; and the London Insurance Committee, formed in 1912. The development of the various services can now be given.

The County and the Boroughs.—The distribution of functions between the County and the Borough followed no broad pattern. I will say no more about the City other than that it has all the duties and powers of a Metropolitan Borough and also some of those of the County Council.

The L.C.C., 1889-1930

Until 1930 the main responsibilities of the County were the following. The Council was (and is) the main drainage authority. It is the housing authority for large schemes, both for slum clearance and for building houses, either inside or outside the County, for general housing. It makes by-laws relating to sanitary matters, but they are administered by the Boroughs. It is the town-planning authority; and it provides large open spaces and open-air swimming pools.

The above concerns the environmental services, but the personal health services were of great importance and were growing rapidly. The County Council has been the Education authority since the abolition of the School Board in 1904. In 1907 the school medical service was born. It began simply as inspection and the selection of children who needed special education because they could not profit by the education provided in ordinary schools. Thousands of children were referred for medical treatment. Their parents often could not afford private treatment. They flooded the out-patient departments of the hospitals, to the discomfort of the staff—so much so that one exasperated ophthalmic surgeon, after seeing the hordes of children overcrowding his department week after week, relieved his feelings by writing on the blackboard in the waiting-hall a phrase which ended, "Damn the L.C.C."

There was a tussle at this stage between Dr. James Kerr, the Council's school medical officer, and the B.M.A., led by Sir Victor Horsley. The former wished the Council to provide its own school clinics for the treatment of school-children. The B.M.A. urged that voluntary hospitals and

voluntary committees, to be set up to provide school clinics, should be subsidized to do the work. Horsley appealed to the Education Committee of the L.C.C., who agreed with him, and it is only quite recently that the L.C.C. has begun to provide school clinics of its own. The clinics, or special hospital sessions subsidized by the Council, were mainly for the treatment of minor ailments, the prescription of spectacles, and dental treatment. Soon, however, special arrangements had to be made for the treatment of otorrhoea, for ringworm, and for the removal of adenoids and enlarged tonsils. In 1924 Dr. C. J. Thomas was concerned at the large proportion of children whose names appeared on the list of those absent from school for three months or more because they suffered from rheumatism. As a consequence the Council arranged with the Metropolitan Asylums Board for a number of beds to be set aside for them, and this was the beginning of the Council's anti-rheumatism scheme which in 1939 provided 800 beds and 20 rheumatism supervisory centres. The Council was almost unique among local education authorities in relying largely on part-time instead of whole-time staff for school medical inspection and treatment.

Since 1902 the Council has been the supervising authority under the Midwives Act. In 1917 the Council became responsible for devising and administering a scheme for the better control of venereal disease. It operated by subsidizing special clinics at voluntary hospitals, though now it administers two clinics direct. It also provided facilities free of charge for the examination of pathological specimens for, and the free issue of arsenicals to, private doctors, the latter being limited to those who complied with the requirements, as to experience, of the Regulations of the Ministry of Health.

An important duty placed upon the Council in 1926 was the registration and inspection of nursing-homes. The Council is the authority for London under the Mental Deficiency Act. These duties include the "ascertainment" of the mentally defective and the taking of steps to bring the cases before a "judicial authority" and to deal with those under "supervision" or "guardianship."

The accident ambulance service of London was established in 1915 on the initiative of the late Sir William Collins, who had a few years previously introduced a Bill into Parliament to give the necessary authority. Until 1930, when it was transferred to the Public Health Department and combined with the "removals" ambulance services of the M.A.B. and the Metropolitan Boards of Guardians, it was administered by the London Fire Brigade. The Council was the "institutional" authority under the Tuberculosis Scheme and subsidized the Boroughs to provide dispensaries.

The Boroughs, 1899-1948

A subsequent section deals with the work of the L.C.C. between 1930 and 1948, but the functions of the Metropolitan Boroughs can be described without any break at the former year, as the Local Government Act, 1929, which brought such a heavy load of work to the L.C.C., added to the Metropolitan Boroughs only vaccination and the registration of births, marriages, and deaths from the Boards of Guardians and a few years later the following services which up to then had been the responsibility of the L.C.C.: licensing of offensive businesses, slaughter-houses, etc.; the licensing and inspection of common and seamen's lodging houses; and the Child Life Protection sections of what is now the Public Health (London) Act, 1936.

The Boroughs, however, have had very important public health duties ever since they were formed in 1899. They

administer Acts and by-laws relating to drainage, sanitation, and local sewers. They are responsible for the suppression of nuisances, including those caused by smoke and noise. They supervise health conditions in workshops. They deal with the repair of houses under the Housing and Public Health Acts. They can close insanitary houses and take action to demolish slum areas and rehouse the occupants. Usually they limit their activities to small areas and leave the large ones to the L.C.C. They can, and do, build houses for general purposes and they exercise general supervision over the construction of new houses. They provide mortuaries, burial grounds, and crematoria. They control the food supply and take samples for analysis. They deal with "unsound" food. They register and inspect dairies, cowsheds, and places where meat food products are prepared. They ensure the sanitation and hygienic condition of shops. They administer the Rats and Mice Destruction Act and the regulations about rag flock. They collect and dispose of household refuse, disinfest houses and persons, and disinfect rooms, bedding, and clothing.

The Borough Medical Officer of Health receives notifications of infectious diseases and is responsible for endeavouring to prevent their spread. Cases of food-poisoning are also notified to him.

An important part of the work of Borough Health Departments is the administration of schemes for maternity and child welfare. Notifications of births are sent to them, but in most cases they have already been in touch with the mother by her attendance at a Borough antenatal clinic. Some Boroughs provided maternity homes, and a few until 1936, when the domiciliary midwifery service was transferred to the County, employed midwives. There are 154 infant-welfare clinics controlled by Borough Health Departments, though some are subsidized voluntary agencies. They employ nearly 400 health visitors. The ramifications of maternity and child welfare are great, but the service has developed unevenly in the different Boroughs. The activities include immunization against diphtheria and whooping-cough, beds for difficult-feeding cases, subsidies to voluntary hospitals for maternity cases, provision for admission to convalescent homes, dental care of mothers and children, ultra-violet light clinics, birth-control clinics, provision of fire-guards, etc.

The Boroughs have wide powers to provide medical services. A few provide a dental service for the general public and many have established foot clinics. Provision for the treatment of rheumatism is made by some. Another activity of the Boroughs is health education, and first-class work has been done by most.

The L.C.C., 1930-48

In April, 1930, the work of the Public Health Department of the L.C.C. was increased enormously. By the Local Government Act, 1929, the Poor Law Guardians and the Metropolitan Asylums Board were abolished and their duties, with minor exceptions, transferred to the L.C.C. Seventy-seven hospitals and 20,000 staff were transferred to the Public Health Department. They included 27 acute general hospitals containing large numbers of beds for maternity cases and wards for the acute illnesses of children, 13 hospitals for the chronic sick, 15 for fevers, 9 for the tuberculous, 4 for long-stay cases in children, two colonies for the epileptic, 3 for convalescents, and 4 others. The total number of beds was 37,202. They were a very "mixed bag." Some were recently erected modern hospitals; others were the worst examples of Victorian and even pre-Victorian hospital architecture. Most, however, contained some recent extension. Staffing was equally varied, though none came up to a standard which would

satisfy their new masters. The provision of special services left much to be desired. Except for the M.A.B., which had appointed a Director of Pathology for its hospitals, the facilities for laboratory investigation were almost non-existent. X-ray departments were poor, though at Lambeth Hospital there was a modern x-ray therapy unit under Mr. Stebbing. Another common defect was the poor accommodation for out-patient work and for physiotherapy. There was a great lack of single-bedded or small wards even in the fever hospitals. The Council first took stock of the position and marshalled the facts. This was done by a series of Departmental Committees set up by my predecessor Sir Frederick Menzies. The membership was drawn from all branches of the Council's own service and often included also outside experts. The first forward move was to increase the pay and the number of nurses. Then followed a review of all other staff. The medical staff was strengthened; consultants and pathologists were appointed. Increases in the staffs of cooks and porters were not forgotten. Meanwhile building plans were prepared, largely on the advice of a Committee on Hospital Standards, which discussed at length every aspect of hospital construction and equipment. Model plans of ward blocks, maternity units, operating theatre suites, out-patient departments, x-ray departments, kitchens, laundries, and nurses' homes were prepared. Much new construction and a large amount of reconditioning were carried out. It was remarkable how greatly an old ward block with obsolete sanitation could be improved by skilful planning.

Special units were established in which the leaders of the profession worked. Lord Dawson, Dr. Mansell, and Mr. O'Shaunessy started a cardiovascular unit at Lambeth Hospital. Sir Thomas Dunhill worked at the thyroid unit at New End Hospital, Sir Comyns Berkeley continued his work at the North-Western Hospital for the radium treatment of cervical carcinoma, and Sir Harold Gillies worked at St. James's Hospital. New ward equipment was designed and obtained in large quantities. The building programme was speeded up, and in 1938 nearly £1,000,000 was spent on capital construction work. A proposal to spend £820,000 for a new 600-bed hospital at Tooting was about to be approved, after some three years' hard work on the plans, when the blow fell and all our energies had to be diverted to preparing the hospitals for war and intensive bombing.

The Impact of War

When war was declared many of the patients and staff from the central hospitals were transferred to the peripheral hospitals. But an increasing proportion of the acute civilian sick of London was admitted to the Council's central hospitals, as so many beds in the voluntary hospitals were unavailable to them.

The Council's hospitals played a noble part in dealing with air-raid casualties, of whom 16,000 of the ambulance cases were dealt with. Except Pinewood Sanatorium every single one of the Council's 98 hospitals was damaged. Altogether 660 high-explosive bombs and land-mines and many thousands of incendiaries fell on them. Hospitals had to be evacuated at short notice and restored to use again as quickly as possible. The staff showed great gallantry. Unfortunately 69 lost their lives, as did 266 patients. The material destruction was enormous: 4,456 beds (including 578 in mental hospitals) were destroyed completely. On several occasions over 10,000 beds at a time were out of action as a result of bomb damage. It is the proud boast of the service that never during the war was an acute case refused admission. During the flying bomb period some 8,000 patients were evacuated to safer areas, and at a week's notice the L.C.C. opened up and took

responsibility for the management of four complete hospitals all more than 200 miles from London. During the war the hospital service was by no means the sole preoccupation of the Department; all its other work had to be done. The school medical service, for example, continued for the school-children remaining in London.

There was a constant ebb and flow, depending on the amount of bombing, of children between London and the "receiving areas" to which children were evacuated. Doctors and nurses from London were lent to the receiving areas to help in the staffing of their school medical services and of the numerous sick-bays, maternity homes, and residential schools and nurseries which were hastily improvised.

A significant development occurred in 1941, when the administration of the Council's mental hospitals was entrusted to the Public Health Department. They comprised 22 institutions with more than 40,000 beds. At that time most of the mental hospitals contained blocks adapted for the reception of general cases as part of the E.M.S. scheme. The Council's Horton Hospital and the Leavesden Annexe were devoted entirely to general work. Though the administrative medical staff of these hospitals and units were Council officers, the clinical staff were supplied mainly by the E.M.S. from the large teaching hospitals, and thus began a very happy association between the voluntary and municipal sides. The same applied to "up-graded" convalescent, fever, and other peripheral hospitals, such as the Southern and Joyce Green Hospitals, Dartford; the Northern Hospital, Winchmore Hill; and Queen Mary's Hospital, Sidcup.

The Ministry of Health built temporary hospitals within the grounds of several of the Council's hospitals. One was used by St. Thomas's Hospital and another by the London Hospital when their own buildings were seriously damaged. The other hospital annexes were used as military hospitals by the Canadian, Australian, and New Zealand Forces.

It is, perhaps, inevitable that, writing in 1948, the upheaval caused by the war should occupy so much space, but many important trends and developments during the period 1930-48 must also be mentioned.

From the early days the Council expressed willingness to allow the vast clinical resources of its hospitals to be used for medical teaching, both undergraduate and postgraduate. All teaching on fevers was done in its hospitals, and there was a link between each of the undergraduate hospitals and a general hospital of the Council. Much teaching was given in obstetrics. The British Postgraduate Medical School was located at the Council's Hammersmith Hospital, and the Maudsley Hospital had been recognized in 1924 as a postgraduate teaching school in psychiatry.

During the war accommodation was found in the Council's hospitals for several voluntary hospitals whose premises had been destroyed. Flourishing clinical research committees were set up. One for the mental hospitals, the other for the general and special hospitals, but with a close link between them. An L.C.C. medical society was established which held frequent well-attended meetings.

In 1936 the Council became responsible for the domiciliary midwifery service. Mass radiography was started in 1943 as part of the anti-tuberculosis service, and two sets were operating in 1948. On the school health side increasing attention was paid to child guidance and to the provision of school meals and milk. With the end of the war medical staffing of the hospitals was examined and a large number of whole-time specialist positions created.

Acute difficulties arose from the shortage of nursing, domestic, and other staff. Few student nurses had joined the service during the war and some thousands of beds could not be reopened. Building labour and materials were

needed for houses, and little was available for hospitals. All these difficulties are, by almost superhuman efforts, being slowly overcome.

The Future

July 5, 1948, will see the end of the L.C.C. hospital service as such. The hospitals of the whole country will be transferred to the State and their administration entrusted to Regional Hospital Boards and Boards of Governors of Teaching Hospitals. It was the largest hospital service in the world under local administration. It is being broken down into four quarters, each of which will form part of one of the four Metropolitan Regional Hospital Boards—N.W., N.E., S.W., and S.E. There will be no "London: Hospital Service." Apart from the four Regional Hospital Boards each serving a quarter of London, there are 26 designated teaching hospitals or groups of hospitals in London which are independent of the Boards, thus making 30 separate hospital administrations.

Two of the L.C.C. hospitals—Hammersmith and the Maudsley—are designated teaching hospitals, the North-Western Hospital is to be a part of the Royal Free Teaching Group, and St. Pancras Hospital is added to University College Hospital. It is too soon to assess what the L.C.C. did for the hospitals transferred to it in 1930, nor would it be for me to attempt the assessment, but it may be said that, having regard to the fact that there were only about six years in which progress was possible, the hospital service was expanded and improved remarkably. It took two or three years for the L.C.C. to learn the service, and effective progress ceased in 1939.

The Act makes provision for a domiciliary medical and a general dental service free to all. This service will be administered by Executive Councils. There will be one for the administrative County of London.

The Act makes other important changes in the structure of the health services of London. It transfers from the Boroughs to the County the maternity and child welfare services so that they may be co-ordinated properly with the school health services. It continues and expands the domiciliary midwifery and ambulance services. It requires the County to provide home nursing, which it is doing by arrangement with the District Nursing Associations. It empowers them to provide a home and domestic help service. It must provide a health visiting service with enlarged functions. It repeals the vaccination laws and requires the Council to make arrangements for vaccination to be done on a voluntary basis as is the case in immunization against diphtheria. The V.D. service and the clinical side of the anti-tuberculosis service are to become the responsibility of the Regional Hospital Boards, but the Council remains responsible for the social and preventive work. The Council must submit proposals for the "prevention of illness, care and after-care," and for appointing "authorized officers" whose functions will be similar to those of the relieving officers who up to now have dealt with persons of unsound mind and arranged for them to be admitted to the appropriate institution. Another important duty of the Council will be to provide Health Centres for general medical and dental practice at which doctors and dentists under contract with the Executive Council will work. All these and the unchanged public health duties of the Council and the Boroughs are of immense importance to the well-being of London.

Considerable expansion of the old and development of new activities will be called for. The personal health services of a public health authority such as London need large-scale planning, but local application and the new service is to be largely administered from nine divisional

offices, just as the school health service had to be divisionalized. Close relationship with the Borough services must be maintained. The duties of the Council cannot be carried out effectively without the closest contact with the other elements of the National Health Scheme, the general practitioners and dentists, the Regional Board hospitals, and the teaching hospitals.

London presents unique difficulties in that there are four Regional Hospital Boards and 26 designated teaching hospitals. It contains a large population, yet nevertheless it is only the nucleus of the much larger "Greater London."

Good will and an earnest desire to co-operate are evident on all sides. Many new opportunities present themselves. For the first time health officers should be able to obtain information on the total morbidity in their areas. Health officers will be relieved of the time-consuming detailed administration of hospitals, though they will need to have a substantial voice in the provision made for such classes of patient as the tuberculous, the fever and maternity case, and for school and other children. Their horizon should not be limited to the communicable diseases, but should be extended to include all preventable illness.

The past achievements of British medicine are noteworthy. If our present opportunities are grasped, if the administrative machine does not become too complicated, and if full scope is given to initiative, imagination, and experiment, then the future is indeed full of hope.

THE END OF "COMPULSORY" VACCINATION

BY

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On July 5, not quite a year before the two-hundredth anniversary of Edward Jenner's birth, vaccination will cease to be obligatory in law. For 95 years parents have been under a legal duty to permit their infant children to be vaccinated, and from 1853 to 1899 the provisions of the law affecting parents changed but little. If a Board of Guardians obeyed the law, refusal to submit an infant to vaccination subjected its parents to penalties serious to poor people. In the early days of compulsion more than 60% of infants were vaccinated, and the proportion tended to increase down to about sixty years ago. Writing in 1888, the Medical Officer of the Local Government Board estimated that of children born in 1886 there survived in February, 1888, 689,323 vaccinated and 59,000 unvaccinated; a ratio of more than ten to one. From about this time opposition to the vaccination of infants hardened in some parts of the country, and by 1898 the proportion of infants vaccinated had fallen to a little more than 60%—roughly what it had been in the early days of compulsion.

In 1898 an amending Act, which came into force in 1899, not only reduced the formal harshness of the old law but required public vaccinators to visit the homes of the children. The proportion of infants vaccinated rose and remained above 70% for seven years. A further softening of the compulsion was effected by an Act which came into force in 1908, and by 1913 the proportion was about 50%. In 1937 the number successfully vaccinated was 34% of the births and 35.4% of that number *less* the number of deaths of unvaccinated infants. Over a period of 60 years more than half the infants born who survived to the age of 4-6 months were vaccinated; even now the proportion is likely to be about a third.