1948-49 [Cmd. 7734] **Report of the Ministry of Health for the year ended 31st March 1948 including the report of the chief medical officer on the state of the public health for the year ended 31st December 1947**

REPORT OF THE MINISTRY OF HEALTH for the year ended 31st March 1948

including the Report of the

CHIEF MEDICAL OFFICER

on the State of the Public Health
for the year ended 31st December 1947

Presented by the Minister of Health to Parliament
by Command of His Majesty
July 1949

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REPORT

To the King's Most Excellent Majesty

MINISTRY OF HEALTH
WHITEHALL, S.W. 1.
June, 1949

May it please Your Majesty

I beg leave, as Minister of Health, to present to Your Majesty a Report on the work of the Ministry of Health during the year which ended on the 31st March, 1948.

This was a period in which intensive preparations were in hand for the inauguration on 5th July of the National Health Service. A brief account of those preparations is given here; but the telling of the story of how this great enterprise was launched, and how it fared in the first nine months, must await the 1948-49 Report.

It was also the year which marked the Centenary of the first Public Health Act; and not only I as Minister, but also the Ministry's staff, the members and officers of local authorities throughout the country, and all voluntary workers in the field of health and welfare were deeply gratified that Her Royal Highness The Princess Elizabeth was able to perform the opening ceremony of the Health of the People Exhibition, shortly after the period now under review. The Princess's tribute to " the firm basis on which our health as a nation is founded ", and to " the selfless day-to-day work of those men and women who are largely responsible for these achievements—the Medical Officer of Health, the District Nurse, the Health Visitor, the Midwife and the Sanitary Inspector ", will long be treasured.

I have also to report that although the difficulties of the national economic situation affected the Housing activities of my Department during most of the year, there was a steady rise in the rate of completion of houses. A quarter-of-a-million families were provided with new homes.

This Report again includes the Chief Medical Officers' Report on the State of the Public Health for the year 1947. Once again he is able to say that the country's vital statistics remain excellent, and many of the low records of mortality which were set up in 1946 were again lowered.

For the first time the Report includes a chapter on Mental Health, formerly contained in the Annual Report of the Board of Control. This is a result of the integration of physical and mental health services under the National Health Service Act, and the establishment of a Mental Health Division of the Department.

I should like to take this opportunity of recording the gratitude of myself and my Department for the support given during the year by the local authorities, and by the British Red Cross Society, St. John Ambulance Brigade, Women's Voluntary Services and other voluntary organisations.

ANEURIN BEVAN
MINISTER OF HEALTH

WM. S. DOUGLAS,
Secretary.

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PART I

THE REPORT OF THE CHIEF MEDICAL OFFICER ON THE STATE OF THE PUBLIC HEALTH

FOR THE YEAR ENDED 31st DECEMBER 1947

INTRODUCTION

To the Right Honourable ANEURIN BEVAN, M.P.,
Minister of Health.

SIR,

I have the honour to submit a statement on the work of the Medical Department of the Ministry of Health during 1947, this being the 24th Annual Report of the Chief Medical Officer. Like its immediate predecessors it forms the first section of a combined report, the remainder of which deals with the more administrative sides of the work of the Ministry of Health.

As I have before pointed out, the two sections of this report refer to different periods. Because vital and medical statistics are, and always have been, prepared for calendar years the medical staff have to base their annual report upon the calendar year, while the administrative side must measure all administrative affairs by the financial year, and therefore have to report upon a period of 12 months which begins a quarter later than the calendar year. Any apparent discrepancies in figures between the two parts or repetition are to be ascribed to this cause.

The National Health Service Act received the Royal Assent on the 6th November, 1946, and throughout 1947 a large part of the time of the medical staff was again occupied in the preparations and discussions relating to the Act, which came into force on the 5th July, 1948.

I have again to pay tribute to the great help and cordial co-operation of the Registrar General, the Government Actuary, the Medical Research Council, the Medical Directorates and Branches of the Fighting Services and other Departments, especially the Ministries of Education, Food, Labour and National Service, Supply, and National Insurance, and the Post Office. Liaison with the Department of Health for Scotland and with the London County Council has been close, and the Department has again had the help and long experience of the Central Medical War Committee acting through its Services Sub-Committee. This country has always been fortunate in having at its disposal the help of experienced voluntary organisations and of an army of able and enthusiastic voluntary workers. Never was voluntary service more welcome than it is now, and I would make special acknowledgement of the great assistance the medical side of the Ministry has received from such sources during my term of office.

The eighth year of austerity, 1947, was a testing year. Its first three months formed a winter of exceptional severity, which had to be endured by a people who in addition to rationing of food were faced with an unprecedented scarcity of fuel. These three months of snow and bitter cold were followed in April by the heaviest floods for 53 years, which did great damage, killed thousands of sheep and lambs, delayed spring sowing and threatened the prospect of a good harvest, which was so urgently needed. Immediately after

these four months of disastrous weather there followed a period of economic crisis with an ever-increasing dollar deficiency. So acute was the crisis that restrictions more rigorous than any in the war years became necessary. Bread had to be rationed for the first time late in 1946 ; in September, 1947, the meat ration was reduced ; in October, the bacon ration was halved ; and in November, potatoes were rationed. A summer drought accentuated the previous flood damage to the harvest. A steep rise in the prices of foodstuffs and cattle food followed disappointing harvests in many European countries, due to the hard winter and hot dry summer, and in certain crops, notably corn for animal food, in America. Affairs abroad were as depressing as conditions at home.

Nevertheless, the British people with their accustomed resilience, cheered by a warm summer and in the late autumn by the enthusiasm aroused by the Royal Wedding, made a great recovery in the later months. Production increased, and the year closed more hopefully than might have been expected. Vital statistics remained excellent and many of the low records of mortality set up in 1946, were again lowered.

The official returns of these statistics furnish the indisputable data upon which any real assessment of the health of the people of England and Wales must rest and it is fitting that this report should, once again, open with them.

In Chapter I and the Appendices A and B, Dr. Percy Stocks, Chief Medical Statistician of the General Register Office, summarises the *vital statistics* for 1947. There was an increase of 1,191,000 persons in the civil population, three-quarters of it due to continued demobilisation and rather more than one-quarter due to the excess of natural increase over the loss by migration.

The birth rate, rising again, reached 20·5 per thousand—higher than in any year since 1921. The crude civilian death rate was 12·3 per thousand, compared with 12·0 in 1946 and 12·6 in 1945. Most of this increased mortality was due to the diseases specially associated with old age, malignant disease, intracranial lesions, diseases of the heart and circulatory system and all forms of respiratory disease, except influenza. The exceptionally severe winter was probably partly responsible for this increase in old age deaths and in the slight increase in deaths from tuberculosis. Later I refer to all the new low records in infant and maternal mortality.

The 244 deaths from diphtheria were barely half those in 1946, and may be compared with 2,641 in 1941. Cases of diphtheria numbered less than half those in 1946. This new record in the prevention of diphtheria seems almost entirely due to the intensive immunisation campaign, to which I refer later.

There was a welcome further reduction of dysentery notifications which were half those of 1946 and not a quarter of those in 1945, while the deaths fell from 121 in 1946 to 81.

Diabetes, the mortality from which has been falling since 1940, reached a new low level, its Comparative Mortality Index being 0·63 compared with about 1·03 in the years before the war. The combined death rate in children under 15 from rheumatic fever and heart disease reached a new low record of 39 per million compared with 197 in 1901–10 and 130 in 1931–35.

Chapter II is the work of several medical officers of Med. 3 under the general direction of Dr. W. H. Bradley. The three outstanding features of the epidemiology of 1947 are first, the great reduction in the mortality and incidence of diphtheria, due to the intensive immunisation campaign ; secondly, the threatened invasion by variola major in the first half of the year ; and thirdly, the unexpected and distressing epidemic of poliomyelitis, by far the most extensive that has ever visited this country. I shall refer to these in some detail later.

The numbers of corrected notifications (78) of, and deaths (15) from, *smallpox* were the highest for many years. These seem to have been due to two importations, one by a soldier direct from India, the other, probably seaborne and by a sailor via a French port. Both were of variola major and the case mortality of about 19 per cent. showed how virulent was the infection. Cases occurred in the areas of 13 local health authorities, but in 6 areas only one case occurred and in only three areas were double figures reached—Grimsby (15), Barnsley (18), and Bilston (24). An unsatisfactory feature of the year was that 6 of the cases (8 per cent.) occurred in persons who, before all others, should have been, and were not, protected by recent vaccination—a doctor, a sanitary inspector, a nurse and a kitchenmaid in a hospital, a disinfector and a medical student. Health departments should review the state of their employees annually as regards immunity. In many cases the clinical features and rash were so much modified by previous vaccination as to present great difficulty in diagnosis. The new laboratory methods proved of great help and should be invoked in all cases of doubt. These thirteen outbreaks were successfully limited, without *mass* vaccination, by the arduous labours of the various health staffs in listing, surveillance and vaccination of contacts.

Vaccination by the multiple pressure method was recommended by the Ministry as the method of choice late in 1947. It is almost completely painless, involves a minimum of trauma and is less likely to be associated with unduly severe local reactions or septic complications. It is hoped that the use of this method will increase the percentage of infants vaccinated during their first year, for the importance of primary vaccination in infancy to the child and to the community is well established. Postponement of primary vaccination to a later age or until it becomes necessary for foreign travel or military service or from contact with smallpox probably entails far more inconvenience and leaves the community quite unnecessarily vulnerable to smallpox.

The figures relating to *diphtheria* are indeed remarkable. For the sixth successive year the number of deaths was the lowest yet recorded. Moreover, the 244 deaths at all ages which occurred in 1947 numbered but a little more than half those (472) in 1946, and less than one-tenth of the average annual number in the ten-year period 1931–40. The death rate under 15 years in 1938, the last year of peace, was 305 per million—in 1946 it was 40 and in 1947 23, less than one-thirteenth of the 1938 rate. The number of cases (5,598) in 1947 is also the lowest ever recorded, less than half the number in 1946. For the ten-year period 1931–40, the average annual number of *original* notifications was about 55,300. The total of original notifications (10,448) for 1947 therefore is nearly 45,000 below that average. This meant a great saving of hospital beds and staff. It released some 2,500 nurses for other work and the financial saving was considerable. Such are the fruits already reaped of the intensive immunisation campaign. Its main object is to secure that each generation of infants receives protection at the earliest suitable age. Last year 450,000 children under the age of five years were immunised ; this, however, was 140,000 short of the "target" figures of 590,000, and owing to the continued rise in the birthrate during 1947 the "target" figure for 1948 will be 635,000 children under five. To immunise this large number will entail great efforts in organisation and persuasion, but the prizes already won—the saving of so many lives and the relief of so many parents from such dire anxiety, not to mention the easement of pressure on hospital beds and nurses—will, I am sure, encourage all responsible to press on to the final goal—the virtual extinction of this once dreadful disease.

Dr. Percy Stocks in Appendix D reviews the many difficulties—and the elaborate calculations required—in estimating the general position as regards immunisation. The proportion of children aged 5–15, who have been

immunised, may have reached almost 75 per cent. The most pressing need now is to raise the proportions of children immunised in their second, third, fourth, and fifth years to about 70 per cent., instead of the present proportion somewhere less than 58. He shows that the protection afforded by immunisation against dying from diphtheria was considerably greater than the protection against contracting the disease. The practice of administering " boosting " doses, particularly at entry to school, would markedly increase the protection against attack.

Notifications of *scarlet fever* numbered 58,027 ; the number of deaths (42) made a new low record. The death rate per million at ages under 15 years remained about $\frac{1}{760}$ of what it was in the decade 1860–70. The case mortality was 0·07 per cent.

The work of Hamburger and his colleagues has shown that the persistent nasal carrier is the chief source of infection and that nasal swabs are of even greater importance than throat swabs in the control of scarlet fever and tonsillitis. Edwards and his colleagues showed that of 648 patients with scarlet fever 60 per cent. were still carrying *Str. pyogenes* either in throat or nose shortly before their discharge. Even after 10 weeks, 20 per cent. were still carrying and 24 per cent. of home contacts after the patient's return were carrying the same type. The wonder is not that occasional " return " cases occur but that they are not more numerous.

The practice of notifying scarlet fever only in the presence of a rash becomes more and more anomalous, though it sometimes has the limited advantage of providing an indicator of widespread infection with *Str. pyogenes.* Thus " dropping " cases of scarlet fever in schools are often associated with a high carrier rate of *Str. pyogenes.**

Case fatality in *measles*, which has been exceptionally low since, eight years ago, notification came into operation, fell once more and was 0·16 per cent. alike for England and Wales and for London and the great towns. This is the lowest annual measles case fatality recorded. The mean monthly rates for March and April (0·35 per cent. in London and the great towns) formed the only serious departures from a relatively uniform and remarkably low case fatality. This decline in case fatality has not been accompanied by any evidence of decline in incidence.

The value of notification lies in the opportunities it affords for the improved and extended care of those affected. To this the very low mortality attributable to measles in recent years may be largely ascribed. The appropriate employment of the resources of the expanded National Health Service should result in still further reductions in the sequelae and mortality of this disease, which up to comparatively recent years was responsible for much permanent invalidity and a high proportion of the total mortality among children.

There were 92,662 corrected notifications and 905 deaths in 1947 from *whooping cough*, giving an apparent fatality rate of 0·98 per cent. If Butler's more accurate method of estimating the " batch fatality " rate be employed, whooping cough in 1947 had an annual average batch fatality rate of 1·02 per cent., six times that of measles, 0·16. Its age distribution is lower than that of measles ; it is a frequent cause of death in infants under one year and is often followed by chronic chest disease in those children it does not kill. The search for a reliable prophylactic against it continued, for whooping cough vaccination has not yet achieved the status of immunisation against diphtheria. Extensive field trials of British and American vaccines were carried out by the

* Glover, J. A., and Griffith, F., B.M.J., 1931, ii, 521.

Medical Research Council. The use of a combined diphtheria and whooping cough immunisation has many advocates, but the Ministry, in view of the excellent results given by the distribution and dosage of diphtheria prophylactic as now used, and feeling that nothing should be done which might conceivably interfere with the success of the present immunisation campaign against diphtheria, and not wishing to pre-judge the issue, have so far not made arrangements for the free supply of prophylactics against whooping cough. The Ministry, however, has no desire to interfere with the liberty of medical officers of health to recommend the use of such prophylactics obtained from commercial sources.

As regards *influenza* 1947 was a fortunate year and the 3,310 deaths ascribed to it were, except for 1945 (2,686), fewer than in any year since 1915. The disease was of mild type ; virus A was isolated in a few outbreaks in the earliest months of the year.

For eight years now the incidence of *cerebrospinal fever* has remained abnormally high, both in winter and summer, and in 1947 notifications numbered 2,282, twice those of the pre-war years 1937 and 1938. Eight years after the 1915 epidemic the disease reached a nadir of 301 notifications and 284 deaths, less than one-fifth of those in each of the peak years 1915 and 1917. Notifications and deaths seven years after the epidemic of 1940 are again roughly one-fifth of those in that peak year. This persistence at a high level is an ominous feature, the endemic level of incidence seeming to increase after each successive epidemic. The case mortality, thanks to sulphonamide therapy, has greatly fallen.

Dr. Arthur Gale describes in detail that feature of 1947, which will undoubtedly distinguish it in the epidemiological history of this country. The unexpected outburst of *poliomyelitis* began in the end of May, at least six weeks before the usual time, and had the unprecedented incidence of 18 per 100,000, four and a half times that of the largest epidemic (4 per 100,000 in 1938) previously recorded. The peak occurred in the first week of September when 708 notifications were received. In the calendar year 7,766 notifications (including polioencephalitis) were made, and 707 deaths were ascribed to the disease. The case fatality was 9·1 per cent., the lowest on record, though probably this figure was reduced by the well recognised tendency to notify mild and non-paralytic cases when the disease is prevalent. Poliomyelitis is no new disease, but this was our first large scale experience of it. No disease presents more numerous or more difficult problems and no disease causes more family or communal distress. On the other hand, probably many patients suffer mild, unrecognised and almost unnoticed attacks without even transient paralysis. Little is known about the precise portal of entry or the exact method of spread. Quarantine of any sort appears useless, and most people appear to have a considerable degree of immunity to the disease. Carriers are probably numerous. Amidst all that is unknown or uncertain about this dreaded disease, some facts seem to have emerged recently. The age distribution alike of incidence and fatality is undoubtedly changing and there seems to be a progressive relative reduction in the susceptibility of children, especially in those under five. Only one-third of the cases occurred in children under five, one-third in children between five and fifteen and one-third of the patients were over fifteen. Nearly two-thirds of the deaths were in persons over fifteen.

Dr. Gale describes the measures taken by the Ministry to secure sufficient beds, orthopaedic treatment and respirators, to give advice by memorandum and film and to collect information from hospitals.

The important memorandum by medical officers of the Ministry issued in July emphasised *inter alia* the importance of rest in the early stages of the disease and of prompt orthopaedic treatment for all patients with paralysis, and urged the advisability of postponing tonsil and adenoid operations during the epidemic season.

The numbers of cases (275) of *typhoid fever* and of *paratyphoid fever* (412) were much fewer than in 1946. Two considerable paratyphoid epidemics occurred ; the first with 58 cases (17 in urban and 41 in rural districts) in rural Bedfordshire in August and September ; the second in Ipswich and the vicinity in December and January, with some 50 cases. In the Bedfordshire outbreak it seemed possible that the outbreak was due to a carrier infecting the surface of meat distributed from a central slaughterhouse. No carrier was, however, traced. The source in the Ipswich cases seemed probably to have been confectionery and the examination of food handlers discovered a carrier who had been handling confectionery at the appropriate time. An unusual feature in the Bedfordshire epidemic was that eight patients, who had been sent to infectious diseases hospitals far from their homes, discharged themselves before they had been pronounced free from infection and by so doing drew attention once more to the very limited powers which health authorities have over carriers.

Outbreaks of *epidemic diarrhoea of infants* in which no specific bacterial or other infective agent could be demonstrated were again reported in maternity homes and hospital units. These outbreaks often seem related to the overcrowding and understaffing of the maternity units, accentuated by the sharp increase in the birth rate. Residential nurseries and the children's wards of general hospitals were also affected by similar outbreaks in which no known pathogens were detected. This form of enteritis in infants has, in 1946 and 1947, been most fatal in the first quarter of the year, thus contrasting in seasonal incidence with the " summer diarrhoea ", so destructive of infant life in the nineties and early years of this century, which remains a tragic memory in the mind of any who then worked in a hospital out-patient department in a great city.

The increase in outbreaks of *food poisoning* reported to the Ministry continued, their number reaching 765 (compared with 598 in 1946 and 422 in 1945). Among these were 668 known to have been due to salmonellae. Some outbreaks, in which the syndrome was similar to that produced by salmonellae, were due to the sonne dysentery bacillus. Moreover, *Salm. paratyphosi A, B* and *C*, which usually produce illness with the clinical picture of enteric fever, may, in certain cases, cause outbreaks of acute gastro-enteritis. Fifty-five of the outbreaks were due to staphylococci or their toxins. These are usually to be differentiated clinically from the salmonellae type of food poisoning by the extremely short incubation of 2 to 4 hours, which usually precedes the acute symptoms, generally without pyrexia; the attack ends in a rapid recovery.

It must be remembered that the Public Health Laboratory Service, by its expert assistance so readily given to medical officers and practitioners, has greatly stimulated the reporting to the Ministry of outbreaks of food poisoning of all types. So many people nowadays eat communally in canteens that an infected article of food is likely to cause illness among a considerable number of persons in any one outbreak. The importance of scrupulous personal cleanliness in food shops and kitchens cannot be over-emphasised.

The incidence of *epidemic hepatitis*, that most elusive war-time disease, has declined. In region 4, where it continued to be compulsorily notifiable in a population of some 2,700,000, the attack rate was 0·4 per 1,000, it having fallen from 1·3 during the three years since notification began in 1944. The severe

type in adult women described in Denmark was not seen here. There is reason to believe that *Weil's disease* is less rare than has been thought. Half the cases diagnosed serologically may have no jaundice.

Homologous serum jaundice has continued as a risk in the use of dried plasma and serum. Measures to reduce this risk are discussed in Chapter II (p. 58) and at greater length by Dr. Maycock in Chapter IV (p. 94).

Five cases of indigenous *malaria*, all due to the benign tertian parasite, occurred during the year, a number which compares well with that recorded in the corresponding period following the first world war. The Ministry's Malaria Laboratory at Horton has continued to supply material for the practice of malaria therapy throughout the United Kingdom, and to carry out mosquito surveys in various parts of the co ntry. Since 1925 the staff of the Laboratory, in addition to undertaking routine work of this nature, has made many valuable contributions to the study of malaria, including a series of investigations relating to the action of quinine and various synthetic drugs in the prophylaxis and treatment of the disease. Among these was the important discovery that striking variations may exist in the response of different geographical strains of the same species of parasite to a particular drug, thus emphasising the necessity for testing any new remedy against strains of malaria originating in different parts of the world before pronouncing on its efficacy as a prophylactic or therapeutic agent.

During the year the study of a strain of malignant malaria from the Belgian Congo was completed, and further researches were carried out regarding the action of paludrine on the gametocytes of a Rumanian strain of the same species. In the latter part of the year, a strain of malignant tertian malaria was imported from Lagos, West Africa, as the result of a special mission, and investigations were commenced as to the prophylactic and therapeutic action of paludrine on this strain, with a view to determining the optimum dosage for each purpose.

Major-General Sir Gordon Covell, C.I.E., formerly Director, Malaria Institute of India, was appointed Adviser on Malaria to the Ministry and Director of the Ministry's Malaria Laboratory, Horton, in March, 1948.

A marked fall in new cases of *syphilis* and *gonorrhoea* in 1947 suggests that the war-time tide of venereal infections may now have turned and that efficient and rapid treatment, as well as a growing public awareness of these diseases, will result in a progressive decline in their prevalence. The efficacy of modern treatment is well shown by a decrease in infantile congenital syphilis in spite of the record birth rate in 1947 and the large increase in acquired syphilis during the previous year. Well over half the patients attending the clinics for the first time were found not to be suffering from a recognised venereal disease, though many of them needed treatment for various conditions which might well have had a venereal background.

Cancer deaths totalled 77,850, an increase of 2,079 over 1946 ; of these deaths 77,649 were of civilians, an increase of 2,242 over 1946. The crude civilian death rate did not change. In his report of the Liverpool Cancer Control Organisation for 1947–48, Dr. J. S. Fulton writes that, of the patients referred to him for treatment, one-third are beyond effective treatment, one-third are suitable merely for palliation, while only one-third are fit for radical curative treatment. As a considerable proportion of all these patients suffer from cancer in quite accessible sites, the proportion of those suitable for radical curative treatment could be much increased either by the patient seeking advice earlier or by the doctor being more " cancer conscious."

On 1st October, 1947, the compulsory notification of *acute rheumatism* in children under 16 years of age (which had been in force for many years in four areas, three of them metropolitan boroughs) became operative in three other specially selected areas. In November, 1947, the special hospital unit for juvenile rheumatism at the Canadian Red Cross Memorial Hospital, Taplow, began work.

Several university teaching hospitals in London and the provinces now give special attention to *chronic rheumatic diseases,* and, as for example at Manchester, co-operate with other hospitals, spa hospitals and clinics in a team investigation of the many difficult problems these diseases present. Hardly any other group of diseases exacts so heavy a toll from working capacity in all occupations and in every social grade.

In Chapter III we are reminded that the death rate from tuberculosis fails to tell the entire story, because tuberculosis, unlike cancer or heart disease, is a disease that kills in young adult life or in middle age. In addition, account must be taken of the many years of activity lost by tuberculous patients before death or recovery ensues. The ever mounting waiting list for beds could be halved, were enough nursing and domestic staff available. The increased number of new cases diagnosed to be tuberculous is evidence of activity and awareness on the part of both general practitioners and tuberculosis officers. More than 650,000 civilians were examined by mass radiography during the year, bringing the total so examined since October, 1943, to 2,019,670, of whom more than 94 per cent. were found at the time of examination to have no abnormal chest condition. The finding by mass radiography of 257 cases of intrathoracic malignant disease is reported. Arrangements to make B.C.G. available are approaching completion. There has been much activity in the treatment of certain types of tuberculosis with streptomycin. No attack can be too carefully planned or too thoroughly carried out upon a disease of such great social importance, and it is good to know that a complete review of our general arrangements for the diagnosis, treatment and after-care of tuberculous persons and of our measures for the prevention of the disease is in hand.

During the year the *Public Health Laboratory Service,* directed by the Medical Research Council on behalf of the Ministry, made considerable progress towards the goal of providing an effective laboratory and field service for the health authorities in England and Wales. New laboratories were established at Shrewsbury and Southampton, and existing laboratories under local authority control were taken over at Bradford, Exeter, Ipswich, Luton, Newburn, Newcastle, Staffo d and Wakefield. Further expansion was limited by shortage of adequately trained staff, buildings, and equipment. In Section A of Chapter IV Dr. G. S. Wilson describes the work of the Service. He draws attention to the high incidence of salmonella infections, and the part that imported spray-dried egg is still playing in their propagation. Food poisoning of the staphylococcal type was fairly common, and numerous outbreaks of gastro-enteritis were investigated following the consumption of food supplied by communal kitchens to schools and canteens. The new methylene blue test was used for the bacteriological grading of ice-cream, and revealed a deplorably low standard of quality of much of the ice-cream offered for sale to the public. The special field trials of whooping-cough vaccine were continued at Oxford, London and Manchester, and were extended to Leeds. Favourable results were obtained in the treatment of diphtheria cases and carriers with penicillin, but the attempted cure of chronic typhoid carriers by the combined action of penicillin and sulphathiazole proved on the whole disappointing. Laboratory tests for smallpox carried out at Colindale and Liverpool were in great demand and helped considerably in the diagnosis of doubtful cases of the disease. On

the other hand, the laboratory investigation of poliomyelitis was hampered by lack of suitable accommodation for the Virus Reference Laboratory at Colindale and the inability to obtain the necessary supply of monkeys.

In Section B of the same chapter Sir Philip Panton gives a résumé of the development of the *Hospital Laboratory Service* during the war years and up to the present time. During 1947, every effort has been made to provide adequate staff, premises and apparatus to meet the local and general needs of the national service, and all the arrangements have been made in close co-operation with those responsible for public health bacteriology and the blood transfusion service.

Dr. Maycock, in Section C, describes the rapid growth of the *National Blood Transfusion Service* in 1947. During the year there was a great increase in the quantities of blood and dried plasma issued to hospitals ; in particular of Rh negative blood and concentrated red cells, the amounts issued being approximately twice those provided in 1946. The help given by our great voluntary organisations, more particularly in connection with blood donors, is beyond praise.

Attention is drawn to the need for the closest co-operation between the National Blood Transfusion Service and the hospital pathological laboratories on the one hand and between the National Blood Transfusion Service and the medical schools on the other. Now that the limitations and potential dangers of transfusion are becoming more clearly understood, especially in so far as the complexity of the various blood group systems is concerned, it is of great importance that the medical student should be fully acquainted with them before qualification. The staff of the National Blood Transfusion Service can play a useful part in giving instruction in this subject to medical students.

Blood transfusion is by no means free from danger and should be used with great discrimination. Dried plasma, in particular, carries a risk of transmitting homologous serum jaundice. The necessity of giving only transfusions which are homologous in both ABO and Rh systems with the group of the recipient cannot be over-emphasised. But before this ideal can be universally achieved adequate supplies of Rh grouping serum must be ensured and the reasons for this strict compatibility must be widely known and appreciated. To reach this state of affairs the closest co-operation between clinicians, pathologists and the transfusion service is needed.

The *vital statistics* relating to *mothers and infants* again showed much heartening progress, even on those for 1946, itself a year of many low records.

Notwithstanding the highest *birth rate* (20·5) since 1921, the *infant mortality* fell to 41 per 1,000 live births, compared with 43 in 1946. We may measure the progress made by recalling that in 1921—which, like 1947, had a hot summer—it was 83.

There were also substantial falls in the *stillbirth rate* (24), the *neonatal death rate* (22·7), and the *maternal mortality rate* (1·17 per 1,000 total births, compared with 1·43 in 1946 and 1·80 in 1945, both in their time low records).

These rates, in the face of the difficulties presented by the high birth rate, great pressure on maternity accommodation and shortage of staff, reflect much credit on all concerned. The enlightened food policy, pursued since austerity began, whereby the nutrition of expectant and nursing mothers, infants and young children, has been maintained by such valuable priorities and supplements, has had no small share in this continual improvement.

The number (43,683) of women who, in their own homes, had gas and air analgesia given by midwives, was more than double that (20,507) in 1946.

Dr. Dorothy Taylor foreshadows the gradual reorientation of the medical staffs of maternity and child welfare centres leading to greater specialization in obstetrics and in paediatrics.

The chapter ends as usual with a summary of confidential reports on individual maternal deaths, 696 reports having been received in 1947. Nearly one-fifth (19·2 per cent.) were due to associated diseases. Excluding these, as well as deaths from abortion and ectopic gestation, 192, or more than one-third, were due to haemorrhage and shock, and in many of these cases the aid of emergency obstetric or transfusion services was not obtained, or was apparently not available.

In many of the 166 deaths due to toxaemia, it seemed possible that inadequate ante-natal care, including insufficient ante-natal beds, had been a factor. The number of deaths from pulmonary embolism increased somewhat, but the deaths from frank sepsis were far fewer.

In Chapter VI, dealing with *child care*, Dr. Taylor summarises a critical examination of the working of child welfare services in two industrial county boroughs.

The increasing attention to the *premature infant*, of whom 42,212 were born during 1947, is a fruitful and life-saving feature of recent preventive medicine. The results of special investigations into the fate of premature children in Birmingham and Newcastle are described, and an outline given of the follow-up survey of the Joint Commitee of the Royal College of Obstetricians and Gynaecologists and the Population Investigation Committee. The original survey was of 15,000 babies born in the week 3rd–9th March, 1946. Some 900 premature infants were included, and the aim of the follow-up is to compare their progress up to two years of age with that of a controlled group of mature infants.

An important section deals with the still disproportionate death rate of *illegitimate infants*. This rate, greatly reduced as it has been, was 58·04 per thousand live births compared with 40·43 for legitimate children. In certain areas, however, it remained in 1947 nearly twice that of legitimate children, recalling the bad old days when, for example, in 1918, the legitimate rate was 91 and the illegitimate 186, for the country as a whole.

In areas where this relatively high illegitimate infant mortality still persists, authorities should consider how it can be reduced, and ensure that the best arrangement is made in each case. To this end, close co-operation between the trained social worker and the health visitor seems especially desirable.

The nation's food supply, so far as energy-giving foods were concerned, was made worse in 1947 than in earlier years, by the addition in November of potatoes to the list of rationed foods. As bread had been rationed late in 1946 this meant that all the main sources of energy were now rationed. The rations, however, of both bread and potatoes were fairly generous and no evidence came to hand of real privation, although there was doubtless much inconvenience. Before potato rationing began it was realised that certain groups of the population with high calorie requirements would be particularly liable to suffer from the new restriction. These were adolescents, e.g., university students, nurses, apprentices and others living in communities, who, not having access to restaurant meals, had only their ordinary rations. Adolescents falling within these categories were accordingly given as a supplement the equivalent in rationed foods of five canteen meals weekly. This allowance gave much satisfaction. In addition special attention was paid in the clinical surveys to groups of adolescents working in factories with and without facilities for canteen meals. Nothing of a disturbing nature was, however, observed. Indeed the nutritional

state of the great majority of the adolescents examined was very satisfactory. In view of this finding it seemed likely that the brunt of any food shortage in families of adolescents and grown-ups was being borne by the housewife. An attempt was accordingly made in London and other cities to assemble for nutritional assessment representative groups of mothers of families of adolescent age and over. It was not found possible to secure representative groups, and while this made any general statement about the nutritional state of this class of mother impossible, the nutrition of those examined was certainly less satisfactory than that of any other group of the population.

The nutritional state of school children appeared to compare favourably with that of earlier years, but the anthropometric data from 17 areas in different parts of the country showed for the first time since 1941 a slight but definite decline in weight. The rations and allowances for the school child, including school meals, had not changed materially since 1945 and the proportion of children taking school meals had increased from 36·3 to 50·4 per cent. and that of those taking school milk from 73 to 87·5 per cent. In view of these facts the cause of the decline in the weight of school children is not clear.

For some time the Ministry has been giving attention to the feeding of old people, especially those living by themselves. A conference was called at the Ministry in the autumn of 1947 of the chief national voluntary organisations. The outcome of the conference was that these organisations agreed to take steps in consultation with the local authorities to organise assistance for old people which would take the form of helping them to shop or to cook, or in case of need of supplying them with cooked meals. It is understood that arrangements along these lines have already been made in a number of places.

The incidence of *anaemia* does not seem to have increased, and the average haemoglobin levels found in large samples of expectant mothers in London and Manchester were quite satisfactory.

The visits of the *dieticians* to hospitals and public assistance institutions have resulted in much improvement in the dietary standard, particularly noticeable in the latter. Shortage of qualified staff in senior posts, and the lack of modern equipment in kitchens, of conveyors and of adequate ward kitchen facilities remain outstanding defects. Except where there was a special diet department arrangements for the provision of light diets were far from satisfactory. The poorest dietaries were found in the children's homes, which have now been taken over by the Home Office. The dietaries in day nurseries were generally of a better standard.

Chapter VIII begins with a section dealing with *hospital function, planning and construction.* Dr. Maitland outlines the suggestions made as to how best to overcome the difficulties which continued—and will continue—to beset the hospitals. Shortage and obsolescence of buildings, restrictions on new building, shortage of nursing and auxiliary staffs, combined with an ever increasing demand for in-patient treatment and for the newer diagnostic and therapeutic methods, are among the main difficulties.

He shows how, to some extent, they were or could be lessened by improvement in out-patent facilities, by the provision for some classes of patients of simpler in-patient accommodation less heavily staffed and by hostels. The impact of building restriction and shortage of nursing staff upon hospital design and standards is discussed. Single-bed wards, so much to be desired for some reasons, add to the difficulties of supervision and nursing and may thus so accentuate the shortage of nurses as, in some instances, to compel their use for the less rather than for the more acutely ill patients, for whom they were intended.

Sir Francis Fraser reports that the *Emergency Medical Service* released 4,574 beds during the year ; there were 329 hospitals remaining in the scheme with 18,000 staffed beds at the end of the year. That the reduction in the service during the year was relatively small was mainly due to the retention of many of the Special Treatment Centres for which there was a continuing demand for civilian, as well as for service cases.

Dr. Balme, emphasising the increasingly preventive aspect of *rehabilitation*, records that there are now more than 300 hospitals in England and Wales where trained teams of rehabilitation medical officers, physiotherapists, occupational therapists, remedial gymnasts and almoners, are operating. Progress in setting up new departments has been hampered by lack of accommodation and shortage of trained staff. There is an increasing demand for physiotherapists, remedial gymnasts, occupational therapists and almoners, a demand which is certain to grow in view of the new opportunities for comprehensive hospital treatment under the National Health Service Act. The intensive courses in remedial gymnastics for ex-service physical training instructors have been most successful.

Sir Francis Fraser reviews the effects of the Ministry's scheme for the *post graduate education of medical officers on release* from the Forces which, at the end of 1947, had been in operation for 2½ years. 5,746 officers had participated in one or other of the forms of post graduate training provided on behalf of the Ministry by the universities of England and Wales. Of these, 2,946 officers had been given hospital appointments of the registrar type for specialist training.

1947 was the last full year of the *Insurance Medical Service*. In it 19,342,240 of the 20,693,774 persons entitled to medical benefit were on the lists of insurance practitioners, 147,023 on the lists of approved institutions and 11,912 making their own arrangements. The cost of medical benefit apart from administration was £21,719,990, including £6,305,069 for medicines and appliances. The average number of prescriptions per person for the 16,767,333 persons on the prescribing lists was 4·048 compared with 4·287 in 1946. The average cost of the ingredients, however, was much higher, even allowing for a 30 per cent. addition awarded in January. In part this increase was due to a larger use of certain expensive drugs such as penicillin, synthetic glandular preparations and sulphonamides. There were only six cases in which money was withheld from practitioners for breaches of the terms of service and the high level and efficiency of the service rendered was shown by the very small number of complaints made against insurance practitioners.

The chapter concludes with a section on the trend of short-term sickness, which I owe to Sir George Maddex, the Government Actuary. This continues the section in my last report (page 93), and brings the series to an end, as no more quarterly expenditure figures will be available now. The improvement in the trend, which began to be noticeable in the middle of 1945, has been even more pronounced in these quarters. As I pointed out last year, this is a matter of great importance in the national recovery, and moreover, this further information seems to establish that short-term sickness, broadly speaking, had returned to the pre-war level before the beginning of the new National Insurance Scheme.

In Chapter X Mr. H. A. Mahony describes the winding-up of the dental benefit scheme and the work of the dental staff of the Ministry since the inception of the regional dental service twenty years ago.

The activities of the dental units in the E.M.S. plastic and jaw centres are described and the treatment provided for repatriated prisoners of war and civilian internees is analysed.

Attention is drawn to the need for comprehensive dental treatment for the population and the importance of setting up dental units in general hospitals.

Mr. Mahony emphasises the value of the priority dental services for expectant and nursing mothers and children under five years and gives a short description of clinical surveys carried out by one of the Ministry's dental officers.

Reference is made to the serious shortage of dentists and to the urgent need for extending the accommodation for students in dental schools and for increasing the staffs of teaching hospitals, and a short account is given of the value to dental surgeons of the assistance of dental hygienists and dental attendants.

In Chapter XI Dame Katharine Watt shows the efforts made to overcome the shortage of nurses. Although the numbers of student nurses and the " output " of state registered nurses rose, the wastage in the training years and after training was so severe that in many hospitals, especially sanatoria, beds had to be closed and the ratio of nurses to occupied beds dropped. The intake of male student nurses and the output of registered male nurses steadily increased, and male nurses began work in a field of nursing new to them—district nursing of male patients and children. Much improvement was made in the accommodation for nursing and midwifery staffs in many hospitals, often in converted hotels or large houses.

In Chapter XII Dr. Percy Stocks reviews the results of the *monthly survey of sickness*, conducted by the Social Survey, in 1947. The chief effect of the unusually severe winter was not seen in any abnormal rise in the numbers of sick persons, but in large increases in the average days of incapacity experienced by those who were ill. As regards percentages of persons who had a new illness, the year as a whole did not compare unfavourably with 1946.

In Chapter XV Dr. Melville Mackenzie describes the many-sided international work of the *Interim Commission of the World Health Organisation*, upon which he and I again represented the United Kingdom. The Interim Commission (described in the last report) has its headquarters in New York City. A technical office in Geneva and the Epidemiological Intelligence Station in Singapore have replaced respectively the Central Office and the Eastern Bureau of the League of Nations Health Organisation. Liaison with the United Nations Organisation and other specialised agencies is maintained through the Headquarters Office.

To the Interim Commission have been transferred the work of the League of Nations Health Organisation and of the Office International d'Hygiene publique, and the functions entrusted to UNRRA under the International Sanitary Conventions of 1944.

Close working relations between the Interim Commission and the United Nations Secretariat were established and its Director-General has taken part in the Secretary-General's co-ordinating committee working at Lake Success, its observers having attended practically all the meetings of the Economic and Social Council and of those Commissions where matters relating to health were under consideration. The groundwork has therefore been laid for effective collaboration between the United Nations Organisation and the World Health Organisation when the latter is established.

Practical co-operation with the United Nations Organisation was begun in several fields. A consultant psychiatrist was appointed in November to assist the Social Commission on the prevention of crime and the treatment of offenders. At the request of the International Children's Emergency Fund the Interim Commission agreed in April to recommend governments to set aside 10 per cent. of the World Health Organisation fellowships for specialists in child health. In October it appointed an expert in public health to serve as liaison officer with the Fund and seconded a paediatrician to it.

With the Food and Agriculture Organisation it set up in Washington an *ad hoc* Joint Committee on Child Nutrition. The report of this Committee provided the technical basis for the child feeding programmes of the Fund. It is also co-operating with the Fund in the B.C.G. campaign, to be undertaken jointly by the Fund and the Danish Red Cross with its Scandinavian associates, the aim being the testing of some 50,000,000 children and adolescents in nine European countries and the immunisation of some 15,000,000 with B.C.G. vaccine. The Expert Committee on Tuberculosis of the World Health Organisation will advise on the medical aspects of this work, and the Interim Commission has accepted responsibility for the statistical analysis of the results.

The Interim Commission has established eleven expert committees, which were enumerated in the last report. Dr. Melville Mackenzie summarises their work. Of especial interest to epidemiology is that of the *Expert Committee for the Preparation of the Sixth Decennial Revision of the International Lists of Diseases and Causes of Death*, of which Dr. Percy Stocks was chairman. This revised the previous single classification, took account of comments received from governments, and approved a proposed Sixth Revision of the International Statistical Classification of Diseases, Injuries and Causes of Death for submission to the Sixth International Revision Conference, which was held in Paris in April, 1948. In addition to a detailed list of some 800 categories, the Sixth Revision contains a tabular list of the included diseases, with many optional sub-categories and explanatory notes. Appendices set forth shortened lists for special tabulations of mortality and morbidity data, and rules for selecting the principal and contributing causes of death where more than one cause is listed.

The Commission helped the Egyptian Government during the cholera epidemic to procure vaccine, two million cubic centimetres being sent to Egypt and a million and a half cubic centimetres to Syria.

Perhaps the most outstanding field activities of the Interim Commission are the malaria control projects in Greece and Italy, the campaigns against tuberculosis in China and Greece, the training of medical personnel in China and Ethiopia, and the special projects for the control of certain epidemic diseases in China.

The Commission had a very extensive programme of fellowships : 203 fellows, most of whom were experienced specialists engaged in teaching, were selected for three to six months of study abroad ; 106 went to the United States and Canada, and 97 to Great Britain and European countries. A second group consisting of specialists in the technical and administrative public health services undertook courses of study while on leave from responsible posts in their own countries. In addition nineteen doctors came to the United Kingdom to study special subjects. With regard to future work, the Interim Commission has recommended that priority be given to four programmes : Malaria Control ; Tuberculosis Control ; Control of Venereal Diseases ; and Maternal and Child Health.

In Chapter XV Dr. Stock reviews the problems that confronted the port health authorities. The severe epidemic of cholera in Egypt (which was described in the last report) in the last quarter of the year brought this disease nearer home than for many years. Small outbreaks of smallpox in Calais and Paris early in the year required special vigilance at the cross-channel ports. One case of murine typhus was notified, the patient being an egg-tester at the London docks ; the source of the infection was not traced.

In conclusion, this—the 24th Annual Report of a Chief Medical Officer to the Ministry—follows precedent in being the work of many hands. There has been complete collaboration throughout the numerous sections and Dr. Glover has again been editor. While the views expressed in many instances are those of my colleagues, I concur in them and am responsible for the whole. Some of the writers I have named, and to them and to the many unmentioned, I render my grateful acknowledgement.

I have the honour to be,

Sir,

Your obedient Servant,

WILSON JAMESON

I

VITAL STATISTICS

(i) Population

The mean population of civilians, which for 1947 can be taken as the estimated population at the middle of the year, was 41,786 thousand, an increase of 1,191 thousand compared with that of 1946. The total population inclusive of the armed forces and mercantile marine at home and overseas increased by little more than a quarter of that amount through excess of natural increase over loss by migration, most of the increment in civilian population being due to continued demobilisation. As in 1946, the addition of large numbers of physically selected men to the population on which most of the death rates are based must necessarily have affected some of the vital indices for the year and needs to be borne in mind.

Since publication of the report for 1946 the first estimates of the civilian population for that year have been revised, in the light of a count of the National Register, to 40,595 thousand, so the comparisons made above and at different ages below refer to the revised population (as published in the Registrar General's Statistical Review for 1946, Table 1). In some tables of civilian death rates in the present report consequent corrections have been made to the rates for 1946, which may differ slightly from those published last year.

Children under 5 years of age numbered 3,522 thousand, an increase of 259 thousand compared with 1946; at the school ages 5–15 the total was 5,589 thousand compared with 5,529. At ages 65 and over the population increased from 4,445 to 4,523 thousand, the proportion of this group in the civilian population falling from 10·9 to 10·8 per cent. The proportion of children under 15 in the total population, inclusive of non-civilians, was 21·2 per cent., compared with 20·6 in 1946; and for people over 65 it was 10·5 per cent. compared with 10·4.

England and Wales: Estimated Mean Population in thousands by Age and Sex in 1947 *(excluding non-civilians), and proportion per* 1,000 *at all ages*

Age	Population (thousands)			Proportion per 1,000
	Males	Females	Persons	Persons
0–	1,806	1,716	3,522	84
5–	1,444	1,392	2,836	68
10–	1,399	1,354	2,753	66
15–	1,098	1,424	2,522	60
20–	1,075	1,531	2,606	62
25–	3,045	3,311	6,356	152
35–	3,259	3,410	6,669	160
45–	2,580	2,974	5,554	133
55–	2,001	2,444	4,445	107
65–	1,359	1,755	3,114	75
75–	489	738	1,227	29
85 and over	57	125	182	4
All ages	19,612	22,174	41,786	1,000

(ii) Births and Deaths

The table on page 17 summarises the principal vital statistics of England and Wales from 1871 to 1947 as reported by the Registrar General.

The increase in the number of live births to 821 thousand in 1946, which was commented on in the last report, was followed by a further rise to 881 thousand

in 1947, giving a birth rate of 20·5 per 1,000 total population (including Armed Forces at home and abroad). This rate was higher than in any year since 1921. In 1941 the average quarterly number of live births had fallen to 145 thousand, but in 1946 it reached 205 thousand and in the first quarter of 1947 the number exceeded 239 thousand. This was the peak of the wave associated with demobilisation and may be compared with the 271 thousand birth registrations recorded in the first quarter of 1920 after the first world war.

England and Wales: Births, Deaths, Population, Infant Mortality
1871 *to* 1947

Period	Birth rate per 1,000 living (mean annual rates 1871–1935)	Number of Births (1) registered (annual averages 1871–1935)	Estimated population(2) (annual averages 1871–1935)	Number of Deaths registered (3) (annual averages 1871–1935)	Death rate per 1,000 living (3) (mean annual rates 1871–1935)	Infant mortality rate i.e. deaths of children under 1 yr. of age per 1,000 live births (4)
1871–1880 ..	35·4	858,878	24,225,271	517,831	21·4	149
1881–1890 ..	32·4	889,024	27,384,934	524,477	19·1	142
1891–1900 ..	29·9	915,515	30,643,316	557,538	18·2	153
1901–1910 ..	27·2	929,821	34,180,052	524,877	15·4	128
1911–1920 ..	21·8	809,622	35,682,500	518,805	14·4	100
1921–1930 ..	18·3	712,907	38,960,000	472,299	12·1	72
1931–1935 ..	15·0	604,573	40,330,200	485,287	12·0	62
1936 ..	14·8	605,292	40,839,000	495,764	12·1	59
1937 ..	14·9	610,557	41,031,000	509,574	12·4	58
1938 ..	15·1	621,204	41,215,000	478,996	11·6	53
1939 ..	14·8	614,479	41,246,000	499,902	12·1	51
1940 ..	14·1*	590,120	39,889,000	581,537	14·4	57
1941 ..	13·9*	579,091	38,743,000	535,180	13·5	60
1942 ..	15·6*	651,503	38,243,000	480,137	12·3	51
1943 ..	16·2*	684,334	37,818,000	501,412	13·0	49
1944 ..	17·7*	751,478	37,785,000	492,176	12·7	45
1945 ..	15·9*	679,937	38,157,000	488,108	12·6	46
1946 ..	19·2*	820,719	40,595,000	492,090	12·0	43
1947 ..	20·5*	881,026	41,786,000	517,615	12·3	41

(1) The births are the numbers registered in years prior to 1939 and the numbers of occurrences from 1939 inclusive.

(2) Civilians only in 1915–20. Mid-year estimates for 1936–38; mean annual estimates for 1939–47, excluding non-civilian males after September 3rd, 1939, and non-civilian females after June 30th, 1941.

(3) Deaths include those of non-civilians registered in England and Wales throughout. Death rates correspond with the populations, that is they are for civilians only in 1915–20 and after September 3rd, 1939.

(4) Rates for periods before 1939 are per 1,000 live births registered in the same period. Rates for 1939–47 are per 1,000 " related births ", the deaths at ages 0–, 1–, 3–, 6–, 9–11 months being related to the children who were born in the appropriate calendar months and the 5 partial rates aggregated. The purpose of this is to eliminate the disturbing effects of the rapidly changing birth rate and the shortened average time interval between births and their registration which resulted from food rationing.

* Rates in these years are based upon total population including Armed Forces at home and abroad.

Deaths registered in England and Wales totalled 517,615, a number exceeding those in any of the five years preceding. The crude civilian death rate was 12·3 per thousand, compared with 12·0 in 1946 and 12·6 in 1945. The bulk of the increase in deaths over the preceding year occurred at ages 65 and over. Females of each age group between 20 and 65 and at 10–15 and males between 10 and 25 registered small decreases, as may be seen by comparing the details in Table II of Appendix A with the corresponding figures in 1946 report.

The principal certified causes of death in each year 1943 to 1947 are shown in the following table, which includes non-civilians.

Cause of death (classified by 1938 Revision of International List)	Number of deaths (including those of non-civilians) registered in England and Wales				
	1943	1944	1945	1946	1947
Cerebrospinal fever	780	592	555	509	534
Whooping cough	1,114	1,054	689	808	905
Diphtheria	1,371	934	722	472	244
Tuberculosis	25,649	24,163	23,955	22,847	23,550
Syphilitic diseases	2,825	2,591	2,395	2,462	2,315
Influenza	12,616	3,900	2,686	5,290	3,310
Cancer, malignant disease	72,155	72,110	74,291	75,771	77,850
Intracranial lesions of vascular origin	48,945	50,877	52,169	54,358	58,248
Other diseases of nervous system and sense organs	7,912	7,808	7,557	7,124	7,271
Diseases of the heart	120,737	124,143	128,323	133,564	144,751
Other diseases of circulatory system	15,041	15,577	16,057	17,511	19,464
Bronchitis	31,420	27,186	29,665	28,209	31,474
Pneumonia (all forms)	24,763	20,040	19,984	20,215	22,695
Other diseases of respiratory system	6,344	5,903	6,118	6,130	6,626
Enteritis and diarrhoea	4,927	5,018	5,337	4,939	5,860
Other diseases of digestive system	16,637	16,226	15,832	15,585	15,304
Non-venereal diseases of genito-urinary system	21,280	20,912	20,527	20,514	20,470
Premature births, congenital malformations and diseases of early infancy	18,845	19,679	18,317	20,922	21,388
Other defined diseases	21,677	20,032	20,617	18,294	18,928
Old age, senility	16,673	16,325	16,982	16,013	15,468
Violence (accidents, suicide, homicide, war)—					
Operations of war	8,978	16,286	5,239	609	143
Road vehicle accidents	4,906	5,338	4,572	4,538	4,415
Other violent causes	15,123	14,820	14,952	14,874	15,942
Ill-defined causes	694	662	567	532	460
Total	501,412	492,176	488,108	492,090	517,615

The only groups not showing increases compared with the preceding year were diphtheria, syphilitic diseases, influenza, digestive diseases other than enteritis, genito-urinary conditions, operations of war, road vehicle accidents, senility and ill-defined causes.

In the table below are given the percentage contributions to total deaths made by nine important groups of causes, deaths of non-civilians being again included.

—	1942–43	1944	1945	1946	1947
Diseases of heart and circulatory system and old age	30·5	31·7	33·1	34·0	34·7
Cancer, malignant disease	14·5	14·7	15·2	15·4	15·0
Bronchitis, pneumonia and other respiratory diseases	11·8	10·8	11·4	11·1	11·7
Intracranial lesions of vascular origin	9·9	10·3	10·7	11·0	11·3
Violent causes (including operations of war)	6·1	7·4	5·1	4·1	4·0
Tuberculosis, all forms	5·2	4·9	4·9	4·6	4·5
Diseases of digestive system	4·4	4·3	4·3	4·2	4·1
Non-venereal disease of genito-urinary system	4·4	4·2	4·2	4·2	4·0
Premature birth, congenital malformations and diseases of early infancy	3·9	4·0	3·8	4·3	4·1

Infant and Child Mortality

Infant mortality improved from 42·9 in 1946 to 41·4 in 1947, establishing a new low record. In Table III of Appendix A it is seen that the fall occurred at each period of the first year of life up to six months, slight increases occurring at 6–12 months. The neonatal rate of male infants fell from 27·8 to 25·4, and of female infants from 21·0 to 19·8, illegitimate infants showing no appreciable change (Table IV of Appendix A). Causes of infant mortality not sharing in the improvement were tuberculosis, measles, enteritis, birth injury, asphyxia and haemolytic disease.

The excess of mortality amongst illegitimate infants, whose rate was 58·0, was due to respiratory diseases, enteritis, prematurity, birth injury, asphyxia in male infants, haemolytic disease in female infants, convulsions, congenital debility and causes not distinguished in Table V of Appendix A.

Stillbirths accounted for 24·1 per 1,000 of all births, compared with 27·2 in 1946, 38·3 in 1938 and 41 in 1935, this proportion for 1947 being 3 per 1,000 below any previously recorded.

Death rates at ages 1–2 and 2–3 were above those of 1946 but below the rates of any other year, being only about a third of the mean annual rates in 1931–35. At ages 3–4 and 4–5 the downward trend, which has occurred without interruption since 1941, continued in 1947, these rates being likewise about a third of 1931–35 levels.

Period.	Per 1,000 live births.*	Per 1,000 living at age specified.			
	0–1	1–2	2–3	3–4	4–5
1871–75 ..	153·10	59	28	19	14
1876–80 ..	144·61	58	27	17	13
1881–85 ..	138·54	53	23	15	12
1886–90 ..	144·92	53	22	14	10
1891–95 ..	150·51	52	21	14	10
1896–1900 ..	155·99	49	19	13	9
1901–05 ..	137·82	41·06	16·24	10·63	7·87
1906–10 ..	117·08	34·78	14·07	8·88	6·60
1911–15 ..	108·70	35·09	14·26	8·67	6·38
1916–20 ..	90·90	29·64	14·02	9·13	6·94
1921–25 ..	74·90	20·91	8·92	5·50	4·01
1926–30 ..	67·57	18·24	7·89	4·85	3·74
1931–35 ..	61·92	13·09	5·84	4·10	3·35
1936	58·71	10·72	4·98	3·37	3·00
1937	57·68	9·72	4·47	3·32	2·83
1938	52·81	8·41	4·05	3·14	2·62
1939	50·57	6·17	3·14	2·39	2·14
1940	56·77	8·43	4·55	3·42	2·78
1941	60·04	9·27	4·90	3·84	3·20
1942	50·62	5·95	3·10	2·57	2·23
1943	49·12	5·80	3·12	2·40	2·02
1944	45·44	4·57	2·56	2·15	1·80
1945	46·00	4·20	2·40	2·00	1·65
1946	42·85	3·49	1·85	1·51	1·33
1947	41·37	4·04	2·01	1·43	1·17

* For years 1926–47 the rates are per 1,000 related births (see page 17).

(iii) Notifiable Infectious Diseases

The following table shows the numbers of notifications of, and deaths from, the notifiable diseases in England and Wales in 1947, with the corresponding figures in 1946. Some of the diseases are dealt with in greater detail in other parts of this Report.

Starting from 1944 each local authority has made quarterly returns to the Registrar General of the corrected total of notifications after revisions of diagnosis have been made by the notifier or by the Infectious Diseases Hospital, details of sex and age being also given. The original notifications, which are reported and published every week, are given for the complete year in the first two columns of the table and the amended totals after diagnosis revision are shown in the next two columns. At present revised figures cannot be ascertained for cases which were notified by Port Health Authorities, and such notifications are included only in the first two columns.

Notifications and Deaths in England and Wales in each year 1946 *and* 1947, *including those of non-civilians*

Disease	No. of original notifications		Totals after diagnosis revision (4)		No. of deaths at all ages	
	1946	1947	1946	1947	1946	1947
Cerebrospinal fever	2,673	3,146	2,010	2,282	509	534
Continued and relapsing fevers	4	3	3	1	—	—
Diphtheria	18,283	10,465	11,967	5,598	472	244
Dysentery (all forms)	8,459	4,168	7,870	3,761	121	81
Encephalitis lethargica(1)	90	84	78	68	437	426
Erysipelas	9,243	7,956	9,067	7,845	82	61
Malaria (2)	13	10	6	5	20	14
Measles	160,493	394,190	159,866	393,739	204	644
Ophthalmia neonatorum	3,441	3,290	3,416	3,245	6	1
Paratyphoid fevers	805	477	730	412	16	5
Plague	—	—	—	—	—	—
Pneumonia (acute primary) / Pneumonia (influenzal)	36,688	33,393	36,570	33,186	20,215	22,695
Poliomyelitis (acute)	694	8,752	611	7,207	91	500
Polioencephalitis (acute)	61	583	62	559	37	207
Puerperal pyrexia	7,237	6,606	7,179	6,534	3	—
Puerperal and post-abortive sepsis	—	—	—	—	261	233
Scarlet fever	58,194	59,542	56,701	58,027	43	42
Smallpox	55	95	47	78	14	15
Tuberculosis (respiratory) (3)	42,173	43,137	—	—	19,365	20,156
Tuberculosis (other forms) (3)	9,116	8,589	—	—	3,482	3,394
Typhoid fever	596	385	479	275	38	29
Typhus fever	1	1	1	1	—	1
Whooping cough	93,261	93,036	92,912	92,662	808	905

(1) For deaths acute infectious encephalitis and sequelae thereof.

(2) For notifications the figures are for malaria contracted at home only, and exclude such notifications as were not confirmed on investigation.

(3) Formal notifications only.

(4) Excluding cases from Port Health Districts for which no revision of diagnosis is received.

The next table analyses the notifications for 10 diseases in England and Wales during 1947 according to sex and age, distinguishing those of non-civilians.

England and Wales: Total Corrected Notifications by Sex and Age, excluding Port Health Districts, 1947

	Scarlet fever		Whooping cough		Diphtheria		Measles		Acute poliomyelitis and polio-encephalitis	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
Civilians										
0– ..	111	103	5,426	5,574	54	35	8,405	8,481	163	139
1– ..	1,900	1,699	11,462	12,393	288	180	42,590	40,739	602	474
3– ..	4,726	4,415	12,595	14,362	429	335	58,742	56,174	576	438
5– ..	11,283	13,427	12,887	14,272	827	776	76,184	73,716	964	642
10– ..	4,781	7,333	840	982	364	504	7,369	7,953	641	473
15– ..	1,795	2,686	128	299	264	588	2,575	4,022	611	607
25 & over	1,035	1,641	202	702	260	539	1,417	2,713	636	622
Unstated	141	170	247	286	19	30	1,003	1,033	34	24
All ages	25,772	31,474	43,787	48,870	2,505	2,987	198,285	194,831	4,227	3,419
Non-Civilians										
15– ..	688	48	3	—	76	9	447	100	91	7
25 & over	43	2	2	—	15	—	62	14	22	—
All ages	731	50	5	—	91	9	509	114	113	7

	Typhoid and paratyphoid fevers		Dysentery		Cerebro-spinal fever		Acute pneumonia		Erysipelas	
Civilians										
0– ..	46	36	474	355	565	373	4,214	3,299	63	50
5– ..	76	61	201	126	299	259	2,451	1,886	91	102
15– ..	151	159	557	561	272	245	4,999	3,380	963	1,223
45– ..	29	72	395	511	55	83	4,816	2,782	1,496	2,086
65 & over	10	11	207	297	15	15	2,520	2,402	698	939
Unstated	3	6	9	18	8	7	128	129	44	57
All ages	315	345	1,843	1,868	1,214	982	19,128	13,878	3,355	4,457
Non-Civilians										
15– ..	24	1	43	6	81	4	163	7	24	4
45 & over	2	—	1	—	1	—	9	1	5	—
All ages	26	1	44	6	82	4	172	8	29	4

Compared with the corresponding figures for 1946, scarlet fever showed a slight decrease at ages under three but little change at other ages amongst civilians. Whooping cough cases increased at ages under one year from 9,368 to 11,000, but decreased at 1–5. Diphtheria cases, which totalled 5,592 at all ages compared

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with 11,967 in 1946, decreased by 45 per cent. in the first three years of age, 44 per cent. at 3–5, 54 per cent. at 5–10, 59 per cent. at 10–15 and 56 per cent. at ages 15 and over. Estimates will be found in Appendix D of the degree of immunisation attained at different ages by the end of 1945 and 1947, and of the relative attack rates and death rates amongst children who had been immunised and those who had not.

Acute poliomyelitis and polioencephalitis cases totalled 7,766 in 1947 compared with 673 in 1946, the ratios at different ages being 11·6 at 0–1, 12·8 at 1–3, 13·2 at 3–5, 10·4 at 5–10, 11·6 at 10–15 and 11·3 at ages 15 and over. The epidemic of this disease is discussed on pages 40–48.

Dysentery notifications fell from 7,870 to 3,761, the relative decrease being most pronounced amongst children aged 5–15.

The table which follows gives either death rates at age under 15, or comparative mortality indices at all ages, for certain infectious diseases, cancer, diabetes, rheumatic fever and heart diseases as far back as the records allow.

The C.M.I. for respiratory tuberculosis increased slightly from ·925 to ·929, this being due to a considerable rise in the female index which more than compensated for the fall in the male index (Table XII of Appendix B). For this disease the C.M.I., based as it is on civilian death rates which were greatly affected by selection for the Services, is not a good measure of the trend of male mortality in times of war. The death rates based on total populations including non-civilians increased from 1946 to 1947 amongst males aged 10–35, 40–50 and 55–75, females at every age above 15 and for children under five years.

For cancer the C.M.I. increased again to about the level at which it stood between 1921 and 1938, but here the increase was confined to males, whose index was 1·047, compared with figures ranging from 1·006 and 1·024 during 1940–46, when it seemed that male mortality had reached its maximal level. The female index did not change and has remained below 0·95 during the four years 1944–47, whereas in no year from 1931–36 did it fall below unity (Table X of Appendix A).

The diabetes index, which has been falling since 1940, reached a new low level of 0·63 compared with about 1·03 in the years before the second world war.

For pneumonia the C.M.I. increased slightly to 0·70, being 42 per cent. below the level of 1931–35 and half that of 1926–30.

The last two columns show how the death rate of children under 15 from rheumatic fever and heart disease has changed during this century. The combined rate in 1947 was 39 per million compared with 197 in 1901–10 and 130 in 1931–35.

Mortality from certain diseases according to 1940 classification

Period	Comparative Mortality Indices (1938 unit basis)										Death rates per million at ages under 15 years						
	Typhoid and paratyphoid fevers	Cerebrospinal fever	Dysentery	Influenza	Encephalitis lethargica	Tuberculosis (all forms)	Tuberculosis of respiratory system	Cancer	Diabetes	Pneumonia (all forms)	Measles	Scarlet fever	Diphtheria	Whooping Cough	Acute poliomyelitis and polioencephalitis	Rheumatic fever	Heart diseases
1851–60.. ..	—	—	—	—	—	5·673	5·744	0·312	—	—	1,082	—	—	1,319	—	—	—
1861–70.. ..	—	—	—	—	—	5·457	5·374	0·380	—	—	1,148	2,282	1,122	1,372	—	—	—
1871–80.. ..	84·371	—	—	—	—	4·725	4·662	0·469	—	—	976	1,664	747	1,316	—	—	—
1881–90.. ..	51·938	—	—	—	—	4·005	3·809	0·591	—	—	1,153	787	804	1,171	—	—	—
1891–1900 ..	45·780	—	—	4·391	—	3·294	3·006	0·749	—	—	1,144	383	873	1,037	—	—	—
1901–10.. ..	23·842	—	2·703	2·536	—	2·696	2·445	0·853	0·839	—	915	271	571	815	—	55	142
1911–15.. ..	12·429	0·813	2·790	2·002	—	2·309	2·162	0·923	0·966	1·756	1,043	161	434	633	14	55	137
1916–20.. ..	6·020	1·069	5·160	9·534	—	2·376	2·250	0·923	0·821	1·844	625	84	439	473	12	50	115
1921–25.. ..	3·270	0·464	1·524	3·769	1·543	1·741	1·698	0·994	0·847	1·560	420	79	302	448	11	55	101
1926–30.. ..	2·449	0·698	0·933	3·543	1·861	1·508	1·495	0·995	0·897	1·414	357	48	294	360	12	55	88
1931–35.. ..	1·352	1·480	0·851	2·850	1·335	1·287	1·288	0·999	0·980	1·199	270	50	293	223	11	46	84
1936	1·594	0·974	0·642	1·292	1·079	1·095	1·099	1·006	1·043	1·113	281	38	311	210	7	44	75
1937	1·271	1·074	1·020	3·916	1·167	1·097	1·098	0·997	1·048	1·155	106	27	305	179	8	34	67
1938	1·000	1·000	1·000	1·000	1·000	1·000	1·000	1·000	1·000	1·000	169	27	305	119	18	44	68
1939	0·693	0·765	0·794	1·830	1·114	1·001	1·005	0·985	1·048	0·841	34	15	228	140	10	34	56
1940	0·826	3·829	1·611	2·519	1·419	1·140	1·162	1·002	1·098	1·036	95	12	266	78	9	30	49
1941	0·983	3·287	2·917	1·507	1·407	1·201	1·202	0·994	0·988	0·941	128	11	280	279	9	22	45
1942	0·555	1·825	1·750	0·734	1·178	1·090	1·091	0·992	0·887	0·733	53	9	192	94	7	18	39
1943	0·458	1·191	1·051	2·649	0·993	1·115	1·130	0·994	0·843	0·855	86	11	134	129	4	27	40
1944	0·358	0·891	1·284	0·805	0·832	1·055	1·071	0·975	0·777	0·679	28	9	92	121	4	28	42
1945	0·300	0·809	1·300	0·545	0·912	1·033	1·056	0·982	0·753	0·658	80	7	67	79	4	26	34
1946	0·318	0·713	0·922	1·039	0·799	0·904	0·925	0·986	0·674	0·643	22	3	40	91	5	18	27
1947	0·180	0·717	0·604	0·635	0·765	0·903	0·929	0·998	0·632	0·696	69	3	23	99	33	19	20

Notes—The C.M.I. is defined as follows. If m is the death rate at a particular group of ages, and r is the ratio of the population at those ages to the total population at all ages, in the year for which the C.M.I. is required; and if m′ and r′ are the corresponding values for the base-year 1938, then

$$\text{C.M.I.} = \Sigma \frac{m(r+r')}{2} \Big/ \Sigma \frac{m'(r+r')}{2}$$

where Σ denotes summation of the products for all the age groups. For years 1940 onwards deaths in the base year 1938 are first adjusted to the 1940 method of classification. Indices for those years have been recalculated and differ slightly from figures given in previous reports (*see* Statistical Review for 1947). In years 1931–39 revised age distributions derived from 1931 census and the National Register of 1939 have been used (*see* Statistical Review for 1942, Part I, Appendix). In 1940–46 civilian death rates and age distributions have been used, derived from the deaths and populations in Tables 1 and 21 of the Registrar General's Statistical Reviews for those years.

II

GENERAL EPIDEMIOLOGY

Smallpox

Incidence.—139 cases of suspected smallpox were notified to the Ministry, and were seen by medical officers of the Ministry, or by members of the panel of smallpox consultants, during the year : in 79 of these 139 suspected cases, the diagnosis of smallpox was confirmed. One patient was already in an infectious diseases hospital, and in this case formal notification was not received.

The 78 notifications is the highest recorded since 1934 when 179 cases, which were nearly all cases of variola minor, were reported.

The incidence and number of deaths from smallpox in the last 9 years is given below :

	1939	1940	1941	1942	1943	1944	1945	1946	1947
Cases	1	1	—	5	—	14	4	47	78
Deaths	—	—	—	—	—	3	—	14	15
No. of Importations ..	1	1	—	1	—	1	1	15	2

Epidemiology.—It is well known that the most exhaustive enquiries do not always enable either the infecting person to be traced or the mode of spread determined in every link of the chain of a smallpox outbreak.

In 1947 all the cases seem to have derived their infection from one or other of two importations, and in the following tables the evidence for calling a particular source " presumptive " is, in some instances, circumstantial only.

Importation No. 1

Place of Occurrence	Source Presumptive	Onset of Rash		No. of cases	No. of deaths
		First case	Last case		
Grimsby	France ? ..	13th February	9th March ..	15	6
Stepney	Grimsby ? ..	9th March ..	21st March ..	2	—
Scunthorpe ..	Grimsby ..	22nd March	12th April ..	7	—
Doncaster ..	Scunthorpe	31st March ..	31st March ..	1	—
Sheffield	Scunthorpe	4th May ..	20th May ..	3	—
Barnsley	Scunthorpe	13th May ..	11th July ..	18	3
Bermondsey ..	Barnsley ..	16th May ..	16th May ..	1	—
Wakefield ..	Barnsley ..	31st May ..	31st May ..	1	—
			Total ..	48	9

Fatality Rate 18·7 per cent.

Importation No. 2

Place of Occurrence	Source Presumptive	Onset of Rash		No. of cases	No. of deaths
		First case	Last case		
Bilston	India ..	6th March..	2nd July ..	24	5
Birmingham ..	Bilston ..	6th May ..	6th May ..	1	—
Coseley	Bilston ..	7th May ..	29th May ..	4	1
Dudley	(Hospital)	19th June ..	19th June ..	1	—
Willenhall ..	Bilston ..	6th July ..	6th July ..	1	—
			Total ..	31	6

Fatality Rate 19·3 per cent.

Importation No. 1.—The infecting agent in the first Grimsby case has never been discovered but it is probable that he came from, and was infected in, France—as three vessels docked at Grimsby and two at Immingham from French ports at about the same time as the beginning of an outbreak in Paris, and the common lodging house in Grimsby in which the first recognised patient lived, was frequented by merchant seamen.

Similarly, the first case in Stepney occurred in an attendant at a hostel for seamen, who may have been infected by an untraced contact of the Grimsby patient, or by another direct importation from France.

Next the disease appeared, again in a common lodging house, in Scunthorpe, 28 miles by road from Grimsby ; in this house two contacts who had absconded from surveillance at Grimsby were staying.

The origin of the infection in Doncaster, Sheffield and Barnsley is placed, by conjecture, on the Scunthorpe series—as geographically Grimsby, Scunthorpe and Doncaster are within easy distance of each other, and are on a route frequented by tramps and vagrants to the Midlands.

The single case in Bermondsey occurred in a Salvation Army Hostel in a man who was almost certainly infected in Barnsley.

The Barnsley series is interesting in that, after the initial outbreak caused by the admission of a then unsuspected case to a general ward of a hospital, it was nearly four weeks before a case was notified or discovered. Then on 25th June a woman who lived within ½-mile of the hospital at which the smallpox patients were being nursed, sickened, and she developed a rash on 28th June. Her contact with any known case could not be proved.

The Sheffield outbreak was limited to one household.

Importation No. 2.—The source here was a sergeant in the Army, who was flown home on compassionate leave from India.

The disease was greatly modified, both in him and in the early cases, by vaccination : and a diagnosis of variola major was only confirmed in retrospect by the occurrence of typical smallpox in third generation cases.

In this series of cases in the Black Country, the disease in the first three generations occurred only in known contacts.

In subsequent generations there was some scatter, in which the chain of infection was not discovered, though the new focus was not far distant from a known case. Cases had been occurring in Bilston from 6th March, yet the first case in Coseley occurred in an old lady of 78 years who had been ill in bed for two months before the onset of her rash on 6th May. She had had many visitors from Bilston, and her general practitioner had visited some of the Bilston series, but no single person could be incriminated.

The next Coseley case was a kitchen maid in the Moxley Isolation Hospital. Here again the mode of infection is not definitely established, but, on circumstantial evidence, the case is strong for the infection having originated from the smallpox hospital at Bilston.

These Coseley cases gave rise, as far as is known, to only one secondary case each ; both contacts.

Incidence in public health staffs

There is a salutory lesson to be learned from the fact that, in these two outbreaks, 6 persons belonging to public health staffs or connected with the

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medical profession contracted the disease ; none was protected by recent vaccination and in some instances there was a delay to get revaccinated after a known exposure.

Details are given below :—

Place	Age	Duties	Vaccinal state	Date of onset	Date of rash
Grimsby	37	Disinfector ..	Infancy .. .. Re.V.19.2.	27.2	1.3
	34	San. Inspector ..	Unvacc. .. .. Prim.V. 19.2.	27.2	1.3
Scunthorpe	45	Doctor	Infancy .. .. Re.V.2.4.	6.4	8.4
	24	Nurse	Unvacc. .. .. Prim.V.3.4.	6.4	7.4
Birmingham	22	Med. Student ..	Infancy .. .. Re.Vav.24.4.	2.5	6.5
Coseley	19	Kitchen maid ..	Unvacc. .. .. Primary 6.5.	13.5	15.5

These cases form 8 per cent. of the total recorded in 1947. It is fair comment to say that they should not have occurred.

It must again be impressed on all persons whose duties may lead them to deal with smallpox, or for that matter, with other infectious diseases, to avail themselves of all protective vaccinations and inoculations and it is the responsibility of medical officers of health to provide the facilities and the opportunity for their staff—nurses, sanitary inspectors and persons employed in and around hospitals—to maintain their immunity at the highest possible level by appropriate methods of inoculation. Health departments should review the vaccinal state of their employees annually.

A clinical review of the disease

Although, owing to the clinically mild character of the illness and the extreme modification of the rash, the early cases in the Bilston series were thought to be variola minor—it subsequently became clear that both importations were variola major.

The case-fatality rates in the two series were 18·7 per cent. (Grimsby) and 19·3 per cent. (Bilston), but with three exceptions the deaths occurred in senile and debilitated patients.

In the three exceptions, two patients were unvaccinated, and the third had been vaccinated 49 years previously : unfortunately a vaccination which might have prevented her death suffered delay in maturation and so failed to modify the disease.

Interesting features

The outbreaks have been discussed at greater length by Bradley (1948) and Murray (1948).

The main point of clinical interest was the extreme modification, by vaccination, of the disease and rash in many instances : the sergeant, who had passed through the Health Control at the airport had, on landing, been given a yellow warning card (which is handed to all air passengers on landing in this country and which specifically mentions the dangers of modified smallpox). Yet, when

he suffered some mild indisposition within 12 days of landing and had gone to his doctor with a few spots, and even after his doctor and the medical officer of health had entertained the diagnosis of smallpox, the disease was confidently diagnosed by a consultant to be varicella. The occurrence of two cases of mild illness, with spots after 12–14 days, in the same household seemed to support the diagnosis of chickenpox, but the third generation in this series consisted of 5 cases, two of which were classical variola major ; two exhibited only 5 and 6 lesions respectively, which were unlike the rash of smallpox. The fifth case occurred in an old lady, who died of haemorrhagic smallpox before the typical rash appeared.

It is of great importance to record that vaccination not only modified the severity of the illness and the individual lesions, but also modified the distribution of the lesions in the mild cases with scanty exanthem.

For this reason it is urged that laboratory assistance should be sought in any case in which the diagnosis of smallpox can be entertained. Smallpox reference laboratories have been established at the Central Public Health Laboratory, Colindale Avenue, N.W.1 (Colindale 6041), and at the Department of Bacteriology, Mount Pleasant, Liverpool (Royal 6301). The laboratory cannot always give an unequivocable decision, but only in exceptional cases and in the face of strong conflicting evidence should a positive laboratory diagnosis be disregarded.

During 1947 smallpox was responsible for a number of localised incidents in certain foreign towns which seldom experience outbreaks of the disease. It is interesting to note that these recorded outbreaks all started in the early months of the year :—

United States of America ..	In New York in February—13 cases.
France	In Paris, February and March—33 cases.
Belgium	In Liège, February and March—22 cases.

Outbreaks also occurred in Spain (13 cases), Portugal, Italy (26 cases)—coincident in time with the appearance of the disease in England. The main items of interest in these outbreaks, apart from the possible significance of the first importation arising at Grimsby (which has a definite shipping link with French ports) at the same time as the Paris cases, are the mass vaccination scheme instituted by the public health authorities in New York and the occurrence, in the Paris outbreak, of smallpox in five persons connected with the handling and care of the patients, out of eight cases in the third generation.

The frequency with which medical attendants were affected reflects the experience in the series of cases in England, and should serve as an example of the state of unpreparedness of public health staffs, the more so when it is appreciated that such occurrences are entirely preventable.

The mass vaccination campaign undertaken in New York is in marked contrast with the methods taken in this country to deal with an outbreak. In New York 6,350,000 persons were vaccinated in less than one month—of these 5,000,000 were done in the first 14 days. This is undoubtedly a remarkable achievement, and one with which we cannot compete. Since all 12 of the secondary cases in the New York series were in direct line of contact, and the outbreak terminated in the second generation, we doubt if mass vaccination on such a gigantic scale was necessary. In this country we did not resort to it during 1947. In fact, the following principles emerge from our experience during the year and have been discussed elsewhere (Bradley, 1947).

(1) Careful investigation and close listing and surveillance of contacts of smallpox, with vaccination, can be depended upon as the main control measures in outbreaks of variola major.

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(2) Mass vaccination (as distinct from routine infancy vaccination and re-vaccination at school entry) is not encouraged in this country, and it should only be considered when an outbreak appears to be out of control: even then it cannot replace the three primary measures of contact listing, surveillance and vaccination.

(3) Contacts should be vaccinated without delay—if possible within 24 hours of known exposure: after this the chances of preventing the disease decrease rapidly. Re-vaccination of contacts should be done by two separate insertions using 30 pressures on each by the multiple pressure method.

(4) Persons employed by local authorities, who in the course of their duties may be exposed to, or have to deal with, a case of smallpox, should at all times be maintained in a state of immunity: to achieve this it is recommended that doctors, nurses, sanitary inspectors, disinfectors and ambulance staff should be re-vaccinated at yearly intervals by the multiple pressure method (1 insertion: 30 pressures) (*see next page*).

(5) Material should be sent to the laboratory in all cases in which the diagnosis is doubtful: and pending the report of the laboratory, the administrative machinery—listing, surveillance and vaccination of contacts, admission of the suspected patient to hospital—should be set into operation.

Experience in these outbreaks suggests that it is wise to regard a positive laboratory report as overruling a hesitant clinical opinion and, in such circumstances, to treat the case as one of smallpox.

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Vaccination

In 1807, only nine years after the publication of Jenner's discovery, the Royal College of Physicians expressed the hope that "the general concurrence of mankind in vaccination would at length put an end to the ravages at least, if not to the existence, of the smallpox". In Europe and America the ravages of smallpox are now a thing of the past, but even in this country the disease still occurs and, as shewn in the previous section, occasionally presents a serious threat. This danger has been increased by the rapidity and popularity of air travel.

Acceptance of Vaccination, 1937–1946

	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946
Per cent. of births vaccinated .. (England and Wales)	34·0	34·0	32·1	31·5	35·0	39·6	40·2	39·9	40·5	41·6

Although vaccination is now generally accepted as a necessary accompaniment of military service or of foreign travel, an active public demand for it is unusual except in the presence of an outbreak of smallpox. The figures for acceptance of infant vaccination under the Vaccination Acts show that for some years not more than 40 per cent. of children have been vaccinated during the first year of life. After July, 1948, when the Vaccination Acts were repealed and the compulsory element thereby removed, it may be that the parents of young children will become even more indifferent or opposed to infant vaccination than they are at present. Although it is to be hoped that this will not occur, every opportunity should be taken, e.g. through the family doctor and the health

visitor, to explain to parents the advantages of primary vaccination in infancy, and to warn them that the full measure of protection against smallpox which vaccination can afford the community will not be obtained unless every healthy child is provided (by means of a first vaccination done during infancy) with a basic immunity against smallpox which should, with little or no subsequent trouble, be maintained by re-vaccination on entering and leaving school, on joining the armed forces or on undertaking foreign travel.

Opposition to infant vaccination, as distinct from indifference to it, is sometimes based on remembrance by the parent of some pain or discomfort personally experienced from a vaccination or re-vaccination done in adult life. The technique of vaccination has some importance in this connection. A conference of medical men with practical experience of vaccination, comprising university teachers of vaccination, public vaccinators and medical officers of the armed forces, which met at the Ministry of Health in 1946, unanimously recommended the *multiple pressure* method as being almost painless, causing a minimum of trauma, and less likely to cause unduly severe local reactions or septic complications. Practical details of this method together with other recommendations on vaccination against smallpox have been published in the Ministry's Memorandum No. 312/Med, 1948, and their general adoption may make vaccination more acceptable to parents.

A more active type of opposition to infant vaccination arises from an exaggerated fear of its risks, especially as regards consequent disease of the central nervous system. Records of the reported cases of encephalomyelitis after vaccination, admittedly incomplete but probably sufficient to enable its relative importance to be assessed, have been maintained by the Ministry since the condition was first described in 1922. These have been published in the two reports* of the Rolleston Committee on Vaccination and regularly since 1930 in the annual reports of the Chief Medical Officer. A recent review of the information available from these sources for a period of twenty years (Conybeare, 1948) and a recent summary of the evidence from other countries (Stuart, 1947/48) support the impression that the mortality from this cause is extremely small, and that it is less when primary vaccination is done during infancy than when it is done at school age. Postponement of primary vaccination to a later age or until there is a local smallpox emergency, an obligation to undertake military service or foreign travel does not achieve any reduction of the small risks associated with the procedure, which are minimal during infancy. Such postponement may, on the other hand, cause much inconvenience to the individual from loss of time at work (McGee, 1947) or from a temporary limitation of recreational activities, and leave the community as a whole unnecessarily vulnerable to outbreaks of a pestilential disease which can and should be prevented.

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Post-Vaccinal Encephalomyelitis

During 1947 six cases of this condition, four of them fatal, were reported to the Ministry of Health. Two of the cases, one fatal and one not, suffered from chronic disease of the central nervous system which was attributed to primary vaccination performed in earlier years. The details are as follows :—

A.W., a female aged 5 weeks was primarily vaccinated on 29th April, 1947. She remained well until 7th May by which time the typical pustule of a primary vaccinia had developed. On this date, 8 days after vaccination, she developed a high temperature, had convulsions and became comatose. She died on the morning of 8th May. At post mortem the brain and pons were found to be hyperaemic and histological preparations of these parts of the central nervous system showed lymphocytic cuffing of the vessels.

C.F., a female aged 7 months was primarily vaccinated on 24th May, 1947. The typical pustule of primary vaccinia had developed when on 1st June, 8 days after vaccination, after several fits of screaming she became comatose with fixed pupils. This condition continued until her death two days later. There was no post mortem.

T.O., a male aged 4 months was primarily vaccinated on 21st June, 1947. Four days after vaccination he became flushed and drowsy and the following day developed a morbilliform rash with pyrexia. Two days later with the rash still present his temperature was 103° F. and he was admitted to hospital where some neck rigidity and head retraction were noted. Lumbar puncture gave a cerebro spinal fluid with a normal protein content and a cell count of 5 per cu. mm. (all lymphocytes). The temperature remained high for several days but no further signs of a lesion of the central nervous system developed and by 9th July the temperature was normal. The local reaction to vaccination was not severe. This patient was discharged from hospital on 16th July having apparently completely recovered.

I.P., a male aged 35 years was primarily vaccinated on 24th June 1947, owing to an outbreak of smallpox in the neighbourhood in which he lived. By 4th July the typical pustule of primary vaccinia had developed on the right arm and there was a tender palpable lymph gland in the right axilla. The next day which was the eleventh after vaccination he complained of headache and his temperature was found to be 100° F. Later the same day he became drowsy and was incontinent of urine. Admitted to hospital on 9th July he was drowsy but not comatose. Nystagmus was present and also some evidence of lesions of the 7th, 11th and 12th cranial nerves. A lumbar puncture was performed. The cerebrospinal fluid obtained contained 55 mgms of protein per cent. and 140 cells per cu. mm. of which over 90 per cent. were lymphocytes. Two days later he was deeply comatose. He was treated with hypertonic solutions of glucose given intravenously and by injections of penicillin. After a temporary improvement he died on the 15th day. At post mortem the brain and cervical cord were found to be intensely congested. Histological examination of tissues removed from these parts of the central nervous system showed narrow zones of demyelinisation with partial destruction of axons and infiltration of the microglia around small venules.

B.H., a female was primarily vaccinated in August, 1944, at the age of three months. About nine days after vaccination she had a pyrexial illness from which she recovered. Subsequently she made no efforts to walk or talk and was difficult to feed. She also suffered from occasional epiletiform convulsions and died after one of these seizures on 20th November, 1947, at the age of three years. There was no post mortem.

M.G., a female, was primarily vaccinated on 26th September, 1946, at the age of three months after two previous attempts had been unsuccessful. Two typical vaccinia pustules about 1 cm. apart subsequently developed at what appeared to be the ends of the single scratch insertion. On the morning of 1st October, the fifth day after vaccination, after having apparently been quite well the night before, the child was found unconscious in bed slightly cyanosed and with bleeding from the left nostril. On admission to hospital the same day dyspnoea and cyanosis were noted. On 2nd October lumbar puncture was done after an epileptiform convulsion. The cerebrospinal fluid obtained contained numerous red cells. On 3rd October the child was still lethargic with a rapid respiration and X-ray of the chest showed a generalised broncho-pneumonia. A blood count showed 15,000 white blood cells with 52 per cent. polymorphs, 30 per cent. lymphocytes and 15 per cent. eosinophils. On 5th October the temperature, which had ranged from 100° F. to 101° F. since 1st October, became normal. A further blood count on 9th October showed 8,500 white blood cells. On 10th October it was stated that the child seemed to have an expressionless stare and did not seem to fix stationary objects or follow moving ones. The fundi were examined but found normal. The subsequent history was one of increasingly obvious mental defect associated with blindness and occasional epileptiform convulsions. In July, 1947, when the case first came to the notice of the department, the child had reached the age of 13 months and there appeared to be little prospect of improvement. Medical opinion was divided as to whether the cause of this condition was an acute encephalitis associated with the vaccination done in September, 1946.

Four of the cases were in infants after primary vaccination and histological examination done post mortem confirmed that encephalomyelitis was the cause of one of the two deaths in this group. A recent review of the Ministry's records of this disease over a period of 20 years (Conybeare, 1948) suggests that the mortality from this complication of primary vaccination in infants is very small, probably about 5 per million infants. It is almost certain that some non-fatal infant cases are not reported, but in a number of those which come to light, as, for instance, in the case of T.O. recorded above, the illness suffered

appears to be nothing more than a mild meningeal reaction from which there is a rapid and complete recovery. In other non-fatal infant cases, such as those of B.H. and M.G. above, the histories suggest encephalitis causing severe cerebral damage which only partly recovers and leaves permanent impairment of the central nervous system. Where vaccination is done at an early age it is, however, particularly difficult to distinguish a primary amentia or chronic encephalitis unconnected with vaccination from the sequelae of post vaccinal nervous disease. For instance in the case of M.G. the balance of medical opinion, including that of a consultant neurologist, was against post-vaccinal encephalomyelitis being the cause of the severe degree of mental impairment which became evident as the child grew older.

One of the four fatal cases was an adult primarily vaccinated at the age of 35 years as a result of an outbreak of smallpox in the district in which he lived. There were more cases of smallpox in England and Wales during 1947 than in any year since 1934 and the number of emergency and other vaccinations performed in the localities affected must have been large and have included many primary vaccinations of adults. I.P. was, however, the only case of encephalomyelitis reported to the Ministry of Health from the areas in question as being connected with vaccination undertaken as a direct result of local outbreaks of smallpox.

Diphtheria

The corrected notifications (including non-civilians but excluding port health cases) at all ages numbered 5,592 as compared with 11,967 in 1946. The number of deaths at all ages was 244 as compared with 472 in 1946. The remarkable decline in the death rate at ages under 15 is shown in the table on page 23. Apart from cyclical variations, the rate remained almost constant, from about 1920 to 1941 but after that a spectacular decline occurred. The rate in 1947 was less than one-thirteenth of what it was in the five years 1921–25.

England and Wales

Corrected Notifications of Diphtheria, 1945, 1946 and 1947

(Civilians)

Age	1945		1946		1947	
	Males	Females	Males	Females	Males	Females
Civilians—						
0–	106	82	100	61	54	35
1–	610	476	494	354	288	180
3–	1,067	934	725	637	429	335
5–	2,884	3,064	1,754	1,706	827	776
10–	1,581	1,886	926	1,196	364	504
15–	846	1,961	545	1,378	264	588
25 and over ..	445	1,508	533	1,122	260	539
Age unknown ..	48	82	22	48	19	30
Total Civilians ..	7,587	9,993	5,099	6,502	2,505	2,987

Other countries in Europe have had a very different experience(1). Incidence was rising in Germany for fifteen years before the war and the main centre of the disease was in the north. It followed the German armies into the occupied

countries ; in the Netherlands, for example, there were 219,772 cases in the six years 1941–46, compared with 8,649 cases during the previous six years. Denmark and Hungary managed largely to protect themselves by vigorous immunisation campaigns.

The experience of European countries shows how important it is to keep the immunity of the population at a high level and it is therefore disquieting that the total number of children immunised was less in 1947 than in 1946. The numbers immunised in the age-groups 0–4 years were : 1946, 490,968, and 1947, 478,248. The numbers immunised in the age group 5–14 years were : 1946, 160,931, and 1947, 111,095.

Further details concerning immunisation in relation to age are given in Appendix D on page 176 of this report and from this it will be seen that an accurate calculation of the percentage of the population under 15 at the end of 1947 who had been immunised cannot be made immediately. Nevertheless the round figures provided by the returns made by the Medical Officers of Health can be related to the estimated child population. The results given in the following table suggests that the immunisation campaign is losing momentum.

	Number of children under 15 who have been immunised at some time before the 31st December	Percentage of population under 15	Deaths from diphtheria under 15	Deaths from diphtheria in children who had had a full course of immunisation
1945 ..	5,243,902	59·9	584	33
1946 ..	5,468,704	62·2	351	15
1947 ..	5,638,357	61·9	207	14

The number of live births in 1946 was 820,719 and in 1947 it was 881,026. This great increase in the births, from about 600,000 a year before the war, means that many more susceptible babies are added to the child population every year and increases the need for the establishment of a high level of immunity in the child population. Although much has been accomplished by the immunisation campaign much remains to be done and every possible step should be taken to make immunisation easily available to every child and to encourage parents to accept it.

Reactions.—Reactions in children are known to be very rare but two papers on reactions following injections of antigen in adults appeared in the Monthly Bulletin of the Ministry of Health and the Public Health Laboratory Service.

The first[2] describes the reactions seen among 40 adults who were given T.A.F. alone and among 210 who were given T.A.F. plus antiserum. The proportion of reactions was much the same in the two groups and, in all, 51 per cent. had a local reaction and 46 per cent. a general reaction. Cockburn's conclusion is that adults should not be immunised even with T.A.F. without a preliminary Schick test to eliminate Schick-negative and pseudo-reactors, except in case of emergency. The second paper[3] deals with reactions from A.P.T. and T.A.F. when used for immunising adults. The conclusions were that while A.P.T. appeared to have a slight advantage over T.A.F. in effectiveness it produced rather more reactions. The rate of Schick conversion was relatively low with both antigens compared with the usual experience with children.

These authors recommend that adults should not ordinarily be immunised without preliminary Schick testing and that unless the risk of contracting diphtheria is high it is probably best not to immunise pseudo-reactors and those who have a history of having had diphtheria.

The search for improved antigens has gone on and Holt (1947) (6) and Bousfield(4) (5) have reported favourably on the results obtained with purified toxoid, aluminium phosphate, precipitated (P.T.A.P.). The results of further trials of this antigen are awaited with interest.

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(4) Bousfield, G. 1947a. Lancet, i, 286.
(5) ibid. 1947b. Pub. Health, **60**, 121.
(6) Holt, L. B. 1947. Lancet, i, 282.

Scarlet Fever

During the last decade the annual incidence of scarlet fever has shown considerable fluctuations, but the number of deaths shows an overall decline. The reduction in the case mortality figure coincides with the advent of sulphonamide treatment, but there are without doubt other causes.

Year	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947
Cases ..	99,278	78,101	65,302	59,433	85,084	116,034	92,582	73,622	56,701	58,027
Deaths ..	311	181	154	133	104	134	107	84	43	42
Case Fatality ..	0·31%	0·23%	0·24%	0·22%	0·12%	0·12%	0·12%	0·11%	0·08%	0·07%

While this table seems, at first sight, to be a full presentation of the incidence and mortality from scarlet fever, the great volume of routine and special laboratory and field investigations which are being done suggest that there are still many clinical and administrative difficulties to be overcome before the solution to the complex problem of the ecology of *Str. pyogenes* is found.

The practical application of the results of the work of Hamburger *et al* in 1945(1) in the detection of the "dangerous carrier" has much shortened the time needed to discover the causal carrier in some outbreaks, and so has prevented unnecessary hardship as a result of the segregation of many harmless temporary carriers of the causal organism. Often the dangerous carrier is the persistent *nasal* carrier, and in investigating an outbreak it is not enough to examine throat swabs only. Clinical examination of contacts is desirable but the "dangerous carrier" of *Str. pyogenes* may not show any sign of nasopharyngeal abnormality, such as often distinguishes the chronic carrier of the meningococcus(2).

In 1946, Hamburger and Lemon(3) published results of work undertaken, following earlier investigations, in the treatment of the dangerous carrier: 1 grm. of sulphadiazine per diem by mouth eliminated, or reduced, the sulphonamide susceptible streptococci and inhibited dispersal in 80 per cent., but unless treatment was continued for 10 days, the streptococci returned, to be found on throat swabs, in 95 per cent. When treatment was carried out for 23 days, all but 23 per cent. were cleared. A daily intramuscular injection of 300,000 units of calcium penicillin in 1 c.c. of beeswax peanut oil for 5 to 7 days gave rather better results in a small series, but the carrier state returned if the treatment was terminated too soon. While these results show that the "dangerous carrier" state cannot be cured in every case, they suggest that the usual practice of searching for the carrier and, when he is found, of segregating him without treatment, should be supplemented by an attempt to end his carrier

state by thorough and active sulphonamide treatment, which should alternate every 3 to 4 days with penicillin therapy, to prevent the development of resistance in the causal organism.

Many outbreaks of scarlet fever and streptococcal sore throat in isolated or semi-isolated communities have been investigated during the year. In some the responsible carrier has been discovered, but in the majority, large scale swabbing of the community merely produced carrier rates of from 20 per cent. to 60 per cent. Mass treatment of the carriers with sulpha compounds appeared to reduce the carrier rate temporarily but had little effect on the tonsillitis incidence. The details of one incident are worthy of record as illustrating the persistence of the carrier state after apparent clinical cure, and the effects that a dangerous carrier may produce in a compact community.

During the first week in May, 17 cases of scarlet fever were notified in one large borough; the patients were all attending the same day nursery school. Investigation showed that one child, whose convalescence after tonsillectomy early in March had been interrupted by scarlet fever and subsequently also by measles, had returned to the school 14 days after discharge from the isolation hospital. She then was well and had no nasopharyngeal discharge, but on the 3rd May in the nursery school she was found to have a profuse nasal discharge from which Group A, Type 2, haemolytic streptococci were isolated. Organisms of the same type were grown from 10 of the associated cases of scarlet fever.

The details of another small outbreak in which the dangerous (causal) carrier was not discovered, are worthy of record. Seven children were admitted to a hospital ward for tonsillectomy on the following day ; all were apparently fit on admission. The operations were performed and the children were discharged 48 hours later. Soon after arrival at their respective homes, two of them became ill and scarlet fever was diagnosed when the rash appeared. A check on the remaining five children showed that 3 had developed typical scarlet fever the day following discharge ; one, though suffering no acute illness, was found to be desquamating at a later date. The seventh child, though never sick herself, was the source of infection of her mother and young brother who developed sore throats a few days after her return, and of her sister who developed typical scarlet fever 3 weeks later. Group A, Type 11/27, haemolytic streptococcus was grown from the nasopharynx of four of the patients and from the two patients who developed sore throats in the house of the seventh child after she returned home. Investigations failed to place the responsibility for the outbreak on any one person : the surgeon unfortunately was not swabbed, but he had conducted tonsillectomy sessions immediately before and after this incident without untoward results. Swabs from the nursing and operating theatre staff were negative.

In other outbreaks of this type overcrowding in the recovery ward has been the most frequent cause. Transference of infection has also been traced to the communal use of the clinical thermometer without adequate sterilization between patients.

The anachronism of notifying only scarlet fever with a rash is again exposed in a recent article, by Ranz *et al*, 1947([4]). In the same article substance is given to the growing doubt of the infallibility of the Dick test as an indication of susceptibility to scarlet fever.

Specimens of the blood from 342 patients suffering from haemolytic streptococcal sore throat were subjected to serial antibody estimations and the results correlated with clinical findings. Twenty-six different types of Group A were encountered : but only six types (3, 17, 19, 30, 36, 46) were each responsible for more than 15 patients : Patients with Types 17, 19, 30, developed a moderate streptolysin titre, and, in half, an antifibrolysin titre was also discovered. Those patients with a positive Dick test *usually* exhibited a rash. In patients with type 3 infection a much greater antistreptolysin reaction was found, but less antifibrinolysin, than in the previous group—and although a scarlatiniform rash occurred in only one patient, the Dick positive reactors were reversed to negative. Infections with Type 36 and 46 caused neither rash nor conversion of the Dick test : both of these type infections caused some antistreptolysin formation, but whilst Type 46 gave a sharp antifibrinolysin reaction, Type 36 did not.

Our knowledge, both of the epidemiology and the prevention of the acute infections caused by the haemolytic streptococcus, cannot be complete until the significance of the wide dispersal of the organism in everyday life is appreciated and understood, and until the individual response to infection can be easily determined.

An investigation by Edwards *et al*, 1947(5), into a series of 648 patients suffering from scarlet fever produced results from which the size of the problem which awaits solution can be inferred.

> 60·3 per cent. of patients were still carrying haemolytic streptococci either in nose or throat shortly before discharge from hospital ; by the tenth week of the disease, when all clinical signs had long since disappeared, 3·2 per cent. of uncomplicated cases and 25·8 per cent. of those which had become cross-infected in hospital (20 per cent. of the total) were still carrying the causal organism. Swabbing of home contacts at the time of the patients admission to hospital showed that one or more contacts of 25 per cent. of the cases harboured the same type of Str. pyogenes as that which had infected the patient : 12·8 per cent. of all contacts swabbed were positive. Swabs from home contacts after the patient's return from hospital showed that 24 per cent. carried the type that had been harboured by the patient while in hospital.
>
> Types 1–4 were responsible for 56·9 per cent. of the cases. Types 11 and 8/25 were the only others often encountered.

It is generally accepted now that the patient suffering from scarlet fever should not, as a matter of routine, be admitted to hospital, provided that adequate comfort and care can be provided in the home.

Medical opinion now generally recognises the anomaly of the present practice of notifying scarlet fever only when there is a rash, and also that little is to be gained either clinically or administratively by separating those manifestations of acute infection with the haemolytic streptococcus which are accompanied by a rash from those which are not.

Two questions seem therefore to arise : First, should all cases of haemolytic streptococcal infection be notified ? The answer to this seems to be " no " : they are too numerous and too variable to permit full epidemiological investigation of each notification.

The second question is : Should we continue the anomalous present practice of notifying only scarlet fever with rash ?

Here the answer seems to be " yes ", for it has, with all its deficiencies; the limited value of providing an indicator of the trend and incidence of one of the most striking manifestations of haemolytic streptococcal infection—(*a*) a manifestation, which in the decade 1861–1870 had an average death rate of 2,282 per million at ages under 15, contrasted with 3 in 1947.

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Measles

Notifications of measles in 1947 numbered 393,739 (when corrected) and there were 644 deaths, giving a case fatality rate of 0·16 per cent. The report for 1946 stated that the biennial epidemicity of measles has been sustained consistently since notification of measles began in 1939. In this period there have now been four epidemics, each of which, for its development and subsidence, has been spread over two consecutive years. The even years 1940–2–4–6 have been the commencing years of the respective epidemics, while the odd years 1941–3–5–7 have contained their peaks and subsidences. Thus the epidemic features of the even years are comparable one with another, as also are those of the odd years, of which 1947 is, of course, one.

While all these four epidemics have well marked resemblances, there have also been notable departures from the prototype. The epidemic of 1940–41 conformed to type the least of all, its peculiarities being almost certainly due to the effects of evacuation. That of 1947, however, has shown an even more interesting aberration. From its beginning in 1946 until February, 1947, its course, alike in England and Wales and in London and the great towns, closely conformed to the mean of the three preceding epidemics. At this point, however, instead of pursuing the usual course of rising to its maximum in March, it proved to have attained its full height in February and thenceforward fell, its fall being interrupted by a second lesser peak in May, after which the fall was resumed and continued with minor variations its usual course.

Thus, instead of the typical March peak there appears a novel V-shaped depression in the curve.

So striking a departure from customary behaviour—the substitution of an inverted for an upright pyramid at what should have been its zenith—while unique since measles became notifiable, is not wholly without precedent in the records of deaths in pre-notification days. Notches in curves of incidence are notable epidemiological features, which in measles denote some interruption of spread *prior* to such an exhaustion of susceptibles as would end an increasing epidemicity, and differ from the terminal fall in which there is no resumption of such activity during the life of the epidemic and in which abatement continues without a break to the end. Dr. William Butler suggests that in this 1947 epidemic a main contributory factor to this late winter notch was the extremely severe weather, which in February and March operated by immobilising both affected and vulnerable people and particularly by keeping at home children in the early unrecognised infectious stages of the disease.

No phenomenon is ever simple in its causation, and the migratory progress of epidemics from recently affected (and exhausted) centres to others more remote from previous infection may also be an element in the causation of such features as the late winter notch of 1947. Thus Dr. Ian Taylor[1] has noted that, whereas certain of the larger centres of population experienced their peak figures during January or February and thereafter showed a declining incidence, other areas exhibited in those early months a low but rising prevalence and attained their maxima as late as May and June.

Smaller units of population often fail to show those biennial and other features of the epidemiology of measles characteristic of England and Wales and the great towns. Local peaks in various parts of the country are found to occur in nearly all months of the year except August and September—the period of the autumnal notch—a season of low incidence which occurs with remarkable constancy not only in this country but also in America, Canada and most European countries.

During the year, in response to an inquiry from the Ministry, the Society of Medical Officers of Health expressed the desire of the majority of its members that compulsory general notification of measles under the Measles and Whooping Cough Regulations, 1940 (S.R.O. 1940, No. 204), should continue. Following the subsequent decision that these regulations should remain in force, notification of these two diseases was brought into line with that of other diseases by the Measles and Whooping Cough Amendment Regulations, 1948, which prescribe a fee of two shillings and sixpence for each notification in private practice instead of the previous fee of one shilling.

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[1] Mthly. Bull. Min. of Hlth. and P.H.L.S. 1948. 7, Dec., 254.

There are good prospects that a gamma globulin fraction of human blood with a high prophylactic activity against measles will soon be in production in this country. The practical value of notification will be considerably increased when a reliable prophylactic of this nature for the protection of infant contacts is available. The greatest value is obtained from notification in those districts where an organised system of follow-up of cases exists and where cases suitable for hospital treatment can be selected and home nursing assistance provided for cases in need of it. Inquiries made after apparent recovery may lead to the detection of the early signs of chronic ear trouble or chronic pulmonary disease, and the course of these diseases may often be arrested by timely advice and treatment.

Whooping Cough

There were 92,662 corrected notifications of whooping cough with 905 deaths, giving an apparent fatality rate of 0·98 per cent.

Whooping cough does not show the regularly recurring epidemicity of measles and it is difficult to find any system or rhythm in the rise and fall of notifications in England and Wales since 1940. This may be due in part to the masking of local epidemics in the overall figures for this country, and in certain districts a biennial periodicity is experienced which may alternate with that of measles. Both diseases have their highest fatality rates in the colder months.

Case fatality from whooping cough appears to be about six times that of measles, but its notification is probably not so complete. As with measles, the fatality rate is highest in the youngest age groups. Whooping cough differs from measles in age distribution, having a higher proportion of cases in children under the age of five (e.g. 68 per cent. compared with 54·5 per cent. in 1946), and in the very much greater risk of infection and death in children under the age of one year.

Extensive field trials of British and American vaccines are being carried out by the Medical Research Council, but the investigators are not yet in a position to report. It is not proposed, therefore, to make whooping cough vaccine a free issue under section 26 (iv) of the National Health Service Act, 1946, but local authorities may promote schemes for immunisation against whooping cough in their areas under section 26 (ii) if they so desire. The public have come to recognise diphtheria immunisation as a reliable and safe procedure. Whooping cough vaccination has not yet reached the same status, and to protect the reputation of diphtheria immunisation it is recommended that where provision is made for immunisation against both diseases a clear distinction should be made between the two procedures. If combined immunisation is practised the two antigens should never be mixed in the clinics.

Improved therapeutic methods have played their part in producing the comparatively low case fatality from whooping cough in recent years, but such methods have been directed more against the secondary invading organisms that produce bronchopneumonia than against *H. pertussis* itself. Recent research has, however, raised the possibility of a more direct clinical attack on the disease itself by the new antibiotic aerosporin.* The *in vitro* tests of aerosporin suggest that it is active against *H. pertussis*, and this evidence has been supported by that of a small clinical trial in ten cases, all of which showed a response in 48

*1947. Nature. London. 160. 263.
1948. Lancet. i. 127.
1948. Lancet. i. 133.

hours. The ultimate benefit obtained seemed to depend upon the duration of symptoms before the commencement of treatment rather than upon the severity of the disease or the patient's age. The suggestion was made that early cases of the disease might respond to aerosporin alone, whereas in later cases a combination of aerosporin and sulphonamide might be more effective. This new antibiotic was, at the end of the year, still available only in limited quantities.

In response to an enquiry from the Ministry the Society of Medical Officers of Health has expressed the desire of the majority of its members that general notification of whooping cough should continue. It is felt that notification has been especially useful to health departments in giving information from which a follow-up of cases by health visitors can be arranged, and in enabling a close surveillance over morbidity trends to be maintained. Pertussis, even more than measles, in children may be the starting point of chronic pulmonary disease in adolescence or adult life, much of which can be prevented by the organised follow-up of cases in convalescence. Following the decision that the Measles and Whooping Cough Regulations of 1940 should remain in force, the notification procedure was brought into line with that for the notification of other infectious diseases by the Measles and Whooping Cough Amendment Regulations, 1948, which prescribe a fee of two shillings and sixpence in respect of each notification in private practice.

" Influenza "

Attention has frequently been directed in these reports to the fact that statistics of influenza and pneumonia relate to an ill-defined group of diseases which includes many other conditions in addition to true virus influenza and pneumococcal pneumonia. Statistics are therefore merely a rough guide to the underlying epidemiological events. Further, a report for a calendar year includes parts of two consecutive respiratory diseases seasons ; the major prevalence, usually in January and February, of one season and then, as the year draws to its close, the commencement of the next period of high prevalence. Stuart Harris* (1947) suggests that years may be classified into three main types so far as incidence of " influenza " is concerned. First, there are the winters in which sharp peaks of mortality occur when there are more than 1,000 deaths per week in the Great Towns ; secondly, there are those with an irregular plateau of mortality in excess of 100 and usually with a maximum between 200 and 400 deaths per week ; thirdly, those when the weekly deaths never exceed 100 at any time. On this classification the early part of the year 1947 showed some signs of being in the second class in that deaths which were 36 in the first week of the year rose to 211 in the sixth week. After this they fell rapidly and were under 100 from the tenth week to the end of the year. They showed little tendency to rise in December and were only 35 in the last week of the year. Deaths in England and Wales for the year 1947 were 3,310 which, except for 1945 (2,686), is the lowest figure recorded since 1915. On the whole, therefore the year 1947 was a very favourable one for mortality from " influenza " and there is reason to believe that part only of this mortality can be attributed to influenza virus.

In January a number of outbreaks occurred in military camps and civilian residential communities. They were intense but localised. Virus A was recovered in some of them, but in others the identity of the virus was not definitely established, though it appeared to be related to virus A. Clinically the type of case was mild, and the temperature came down quickly, usually within three days.

* Stuart Harris, C.H. 1947. Lancet, i. 201.

Cerebrospinal Fever

Original notification with deaths (in parentheses)

1938	1939	1940	1941	1942	1943	1944	1945	1946	1947
1,288 (655)	1,500 (517)	12,771 (2,584)	11,077 (2,163)	6,029 (1,206)	3,303 (780)	2,982 (592)	2,739 (555)	2,673 (509)	3,146 (534)

Notifications and deaths in each year 1929 *to* 1947 *distinguishing between civilian and non-civilian in the years* 1939–45

Year	No. of Notifications*		No. of Deaths (1940 classification)		Deaths per 100 notifications	
1929 ..	667		590		88·5	
1930 ..	674		635		94·2	
1931 ..	2,216		1,446		65·3	
1932 ..	2,136		1,218		57·0	
1933 ..	1,695		946		55·8	
1934 ..	1,094		732		66·9	
1935 ..	883		619		70·1	
1936 ..	994		638		64·2	
1937 ..	1,140		701		61·5	
1938 ..	1,288		655		50·9	
	Civilians	Non-civilians	Civilians	Non-civilians	Civilians	Non-civilians
1939 ..	1,414	86	503	14	35·6	16·3
1940 ..	11,185	1,586	2,459	125	22·0	7·9
1941 ..	9,893	1,184	2,065	98	20·9	8·3
1942 ..	5,286	743	1,143	63	21·6	8·5
1943 ..	2,976	327	746	34	25·1	10·4
1944 ..	2,018*	288*	570	22	28·2	7·6
1945 ..	1,829*	231*	527	28	28·8	12·1
1946 ..	2,010*		509		25·3	
1947 ..	2,282*		534		23·4	

* Corrected notifications, excluding Port Health Districts, are given from 1944 onwards ; the civilian ratios of deaths to notifications in previous years need to be increased by about three-tenths of their values for comparability.

Since 1930 this country has seen two periods of high incidence of cerebrospinal fever, the first being in 1931–32 and the second in 1940–41. The second of these two epidemics was by far the greater, the notifications during 1940 and 1941 being 12,771 and 11,077 respectively as compared with 2,216 and 2,136 in 1931 and 1932. An ominous feature of the prevalence of the disease during recent years has been its seeming reluctance to return to previous levels after each epidemic, with the result that the endemic level of incidence increases step by step after each epidemic. The total of notifications in 1947 was rather larger than that in 1946, which was the smallest figure recorded since the 1940–41 epidemic, but the annual notifications are nevertheless at the same level as at the height of the 1931–32 epidemic and much above those of the years between

that epidemic and the one of 1940–41. Case fatality from the disease was between 60 and 70 per cent. during the period 1931–37, but the use of sulphonamides in the following years led to a reduction in these figures by about half. During the war years the case fatality of the disease in the Armed Forces was considerably lower than that among civilians. This is due in part to the fact that the Services form a selected group of physically fit persons with no one at the extremes of life ; but it is also possible that in the Services patients received, on the average, more prompt and adequate treatment than did civilian patients. Early diagnosis and adequate treatment of all cases offer the best hope of further diminution in fatality from this disease.

Epidemics of cerebrospinal fever are most likely to occur in military units and residential institutions where large numbers of people live together in communities. The most valuable safeguard is the prevention of overcrowding. Experience during the late war showed, however, that a timely attack on the meningococcus by general sulphonamide prophylaxis in a threatened community when the carrier rate had reached high levels was the most certain method of reducing the carrier rate and aborting an epidemic.

Reference may be made to two less common manifestations of meningococcal infection, namely, chronic meningococcal septicæmia which occurs chiefly in adults at times of prevalence of cerebrospinal fever, and meningococcal ophthalmia. This latter condition may occur in a primary form which may or may not be followed by meningitis, or in a secondary form complicating an attack of meningitis. Shuttleworth and Benstead* reported two primary cases in Leeds school children and Stuart and McWalter† described six sporadic primary cases occurring in infants and young children in Glasgow, drawing attention to the importance of full bacteriological investigation of such cases in order to avoid confusion with gonococcal ophthalmia. The condition responds well to sulphonamide medication.

Acute Poliomyelitis (including Acute Polioencephalitis)

I. *Notifications and Deaths in England and Wales*

Acute Poliomyelitis

Year	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947
Cases :										
Original ..	1,489	744	951	876	581	410	523	827	694	8,752
Corrected‡ ..	—	—	—	—	—	—	458	779	611	7,207
Deaths	174	95	107	113	82	63	87	97	91	500

Acute Polioencephalitis

Cases :										
Original ..	96	88	128	83	93	46	67	77	61	583
Corrected‡ ..	—	—	—	—	—	—	68	74	62	559
Deaths	82	48	54	47	50	27	22	42	37	207

* B.M.J. 1947, ii, 568.

† Lancet 1948, i, 246.

‡ Excluding cases from Port Health Districts.

The outstanding epidemiological feature of 1947 was undoubtedly the epidemic of poliomyelitis. Its incidence in 1947 was about 4½ times greater than in any previous year since compulsory notification began in 1912. The crude death-rate was just under three times the highest previously recorded. Thus case fatality was probably rather lower in 1947 than in any previous year, though the increasing recognition of non-paralytic cases makes this uncertain.

Statistics of poliomyelitis are subject to difficulties of comparability which are greater than for most other infectious diseases. Some being due to difficulties of diagnosis are inherent, but others due to differences of classification in different countries and even in different parts of one country are avoidable. The statistics of England and Wales are unique in that since 1919 notifications and deaths have been classified under two headings " acute poliomyelitis " and " acute polioencephalitis ". The distinction has never been clear, and in what follows the figures under the two headings have been added together, except where a definite statement to the contrary appears. In Sweden a distinction is now made between " paralytic " and " non-paralytic " cases, and this seems to be the most satisfactory classification, which might well be adopted universally. The information about the epidemic of 1947 has been derived from two main sources, the official returns made to the Registrar General and a special survey of hospital cases (Bradley, W. H., and Gale, A.H., 1948) for the Ministry of Health. The hospital survey covered the cases admitted to about 270 hospitals in all parts of the country in the period January 1st to October 11th, 1947. During that period, which included the peak of the epidemic (in the week ended September 6th), 6,762 patients were admitted with a tentative diagnosis of poliomyelitis or polioencephalitis ; the diagnosis was confirmed in 4,717 of these cases. The number of corrected notifications made to the Registrar General in the whole year was 7,766, so that it is reasonable to suppose that the hospital survey included a sample of the total number of cases large enough to justify certain general conclusions about the relative frequency of paralytic and non-paralytic cases, at any rate during the first half of the epidemic. Information about the sequence of events in earlier years in England and Wales is chiefly derived from the publications of the Registrar General (R.G.) and the Annual Reports of the Chief Medical Officer of the Ministry of Health (C.M.O. Min. of H.) and the Medical Officer of the Local Government Board (M.O. L.G.B.). These abbreviations are used in referring to these publications. Reference is also made, under the name of the author, to a number of special reports by medical officers of the Ministry of Health and of the Local Government Board, the latter being particularly useful for the years before compulsory notification began in 1912. For the period 1912–1920 the Local Government Board received special reports on individual cases so that information about the age distribution of cases and the incidence of paralysis in these years is fairly comprehensive. This practice appears to have been discontinued about 1919 and for subsequent years information is less and relates to individual outbreaks rather than to the country as a whole.

Incidence in Past Years

II. Poliomyelitis and Polioencephalitis in England and Wales

Incidence, Mortality and Case Fatality, 1911–1947. *Rates based on corrected notifications from* 1944

Year	Cases per 100,000 living	Deaths per million living	Case fatality per cent.	Year	Cases per 100,000 living	Deaths per million living	Case fatality per cent.
1911 ..	—	6	—	1930 ..	1	4	28
1912 ..	—	5	—	1931 ..	1	2	25
1913 ..	2	6	28	1932 ..	2	4	24
1914 ..	1	5	35	1933 ..	2	5	25
1915 ..	1	5	33	1934 ..	2	3	20
1916 ..	2	4	27	1935 ..	2	4	21
1917 ..	1	5	47	1936 ..	1	3	18
1918 ..	1	6	100	1937 ..	2	4	18
1919 ..	2	5	30	1938 ..	4	6	16
1920 ..	1	4	41	1939 ..	2	3	17
1921 ..	1	4	32	1940 ..	3	4	15
1922 ..	1	4	35	1941 ..	2	4	17
1923 ..	2	3	19	1942 ..	2	3	20
1924 ..	2	4	18	1943 ..	1	2	20
1925 ..	1	4	37				
1926 ..	3	6	18	1944 ..	1	3	21
1927 ..	2	5	20	1945 ..	2	3	16
1928 ..	1	4	31	1946 ..	2	3	19
1929 ..	2	4	23	1947 ..	18	16	9

Table II shows the number of annual notifications in England and Wales per 100,000 living, the number of deaths per million and the case fatality per 100 cases for past years. Figures for 1911 and 1912 are incomplete but the death rates suggest that incidence was relatively high in those years. The figures from which these rates are calculated are those given in the Registrar General's Annual Reviews and are derived from notifications and from death certificates. When special inquiries have been carried out case fatality has been found to be substantially lower ; for example, in the years 1912–1919 (C.M.O. Min. of H. 1919–20, p. 257) the case fatalities per cent. for the cases investigated by the Local Government Board are stated to have been :—

1912 ..	13	1916 ..	14
1913 ..	14	1917 ..	17
1914 ..	17	1918 ..	27
1915 ..	14	1919 ..	15

These figures are very different from those given in Table II. The high and divergent figures for case fatality in the year 1918—100 per cent. in Table II and 27 per cent. (as shown above) in cases investigated by the L.G.B.—suggest that some special confusion was caused in that great epidemic year probably by some deaths due to influenza, and some due to encephalitis lethargica (then first identified and prevalent) being certified as due to polioencephalitis.

Incidence in other countries

Stowman[1] (1947) discusses the trends of incidence of poliomyelitis in different parts of the world and concludes that there has been a very considerable increase in many countries in recent years. Our continental neighbours, Holland and Belgium, both had years of high prevalence during the war, Holland with approximate attack rates of 21 per 100,000 in 1943 and 13 in 1944, Belgium with

an approximate rate of 10 in 1945. France in 1943 and 1946 had rates comparable with that of 1938 in England and Wales, but has not suffered a major epidemic. Switzerland was a country of relatively low incidence up to 1936, but there were serious epidemics in 1936, 1937, 1941 and 1944, the rate in 1944 being approximately 42 per 100,000 living. In 1947 there were epidemics in Berlin and in Austria, as well as in England and Wales. Iceland, with a population of 132,000, has had a most unusual experience of poliomyelitis. Large epidemics occurred in 1924 and 1935. From 1941 to 1944 only one case per year was reported, but from June, 1945, to February, 1946, there were 373 cases. The disease then disappeared for six months except for one case in July. In September, 1946, there was a new outbreak which lasted into the summer of 1947. There were 625 cases which in the small population gives an incidence of 473 per 100,000. Both the incidence and the fact that the epidemic was largely a winter one, with the peak in December, are remarkable. The Scandinavian countries have for many years experienced far greater prevalences of poliomyelitis than the countries of Western Europe, and this position was maintained in the war years, particularly in Sweden and in Norway since 1941. Thus the high incidence in England and Wales in 1947 seems to have been part of a European or world-wide increase in prevalence.

Comparison with Previous Epidemics in England and Wales

General and Local Incidence.—As has been said the total incidence was about four and a half times that of 1938, the year of highest incidence up to 1947. The disease was more widespread than it had ever been before.

III. *Counties in which incidence was higher than that in the country as a whole in* 1938 *or* 1947 *or both. Rates are per* 100,000 *living and for* 1947 *are based on corrected notifications. (Rates below the national average are not given.)*

County	1938	1947	County	1938	1947
England and Wales ..	3·8	18·3	Southampton	6·5	—
London	—	21·5	Suffolk East	5·0	—
Bedford	—	32·1	Suffolk West	17·4	—
Berkshire	14·0	—	Surrey	—	26·1
Cumberland	—	29·3	Sussex East	6·0	25·8
Dorset	4·0	24·8	Sussex West	16·2	18·6
Durham	—	24·0	Warwick	—	19·5
Essex	10·3	—	Westmorland	—	41·3
Gloucester	4·3	—	Wight, I. of	16·3	50·4
Hereford	—	34·0	Yorks, E.R.	6·4	28·6
Hertford	4·3	22·2	Yorks, N.R.	6·8	—
Kent	—	20·5	Yorks, W.R.	—	19·8
Leicester	8·1	—	Brecon	3·8	—
Lincs. (Holland) ..	9·4	52·4	Cardigan..	5·8	—
Lincs. (Kesteven) ..	7·9	25·9	Carmarthen	23·7	27·9
Lincs. (Lindsey).. ..	14·7	27·8	Flint	—	23·0
Northumberland ..	—	20·1	Glamorgan	7·7	—
Oxford	21·8	20·5	Montgomery	—	33·5
Rutland	16·8	—	Radnor	25·6	50·8

Table III shows the counties which had higher rates than the average for the whole country in 1938 or in 1947 or in both years. It will be seen that the counties which had rates of 40 per 100,000 or more in 1947 were sparsely populated areas where few cases give high rates. The highest rate in a county with a population of over 200,000 was in Bedfordshire (32·1) and the lowest was in Devonshire (9·7). There was no close correspondence between the

areas principally affected in 1938 and in 1947, but Lincolnshire, Oxfordshire, Sussex East, Isle of Wight, Yorks. E. Riding, Carmarthenshire and Radnor had relatively high rates in both years. In Essex there was some indication that different parts of the county were affected in the two years. In 1926 the counties chiefly affected were Leicestershire, Essex, Lancashire, Kent, Warwickshire, Nottinghamshire, London, Middlesex and Rutland.

There is little information about the distribution of cases in the earliest epidemics of 1910–13 (M.O. L.G.B. 1915–16) but what there is suggests that distribution was even more localised than in 1926. There seems indeed to have been a tendency for a wider distribution in each successive year of high prevalence. Side by side with this tendency the local intensity of epidemics seems to have declined. For example, in the outbreak in Devon and Cornwall in 1911 (Reece[2] 1912) there were 45 cases, nearly all paralytic, with 10 deaths in Holsworthy Rural and Urban Districts—a case incidence of about 5 per 1,000. In the small villages of Cerne and Up Cerne in 1910, Farrar[3] reported 16 cases of which 15 were paralytic and two were fatal. The population of the two villages was about 500. In 1947 the highest case incidences in individual areas were considerably lower and generally speaking more non-paralytic cases were notified. In the reports of early epidemics there are frequent references to the rarity of multiple cases in households, but careful scrutiny shows that multiple cases in families may have been more common than they are now. At Cerne and Up Cerne (1910) three paralytic cases occurred in one household and two in each of two others, and in Devon and Cornwall (1911) together there were one instance of 6 cases in one house and four instances of 4 cases in one house. The later experience of MacNalty[4] (1918) in the epidemic in Esher and the Dittons in 1917 and that of the same investigator (C.M.O. Min. of H. 1926) in the residential schools of Broadstairs supports this view. Among the 908 cases reported by Daley[5] (1948) in London in 1947 there were only 23 families or communities with 2 cases, 3 with 3 cases and one with 4 cases. How far this trend may have been due to the general decrease in the size of families it is not possible to say.

Changes in Case Fatality.—Case fatality is a particularly difficult subject to investigate because of the difficulty of diagnosis in the non-paralytic case. If the number of mild non-paralytic cases included is large, case fatality will be low, and vice versa. The recorded case fatality in England and Wales from 1913 to 1947 is shown in Table II. It will be seen that in the years of high prevalence 1926, 1938, 1940 and 1947 case fatality was, on the whole, lower than in years of low prevalence, and that in 1947, it was lower than it had ever been before. A check on the figure for 1947 is provided by the hospital survey (Bradley and Gale[6], 1948) in which there were 4,717 confirmed cases with 360 deaths. Thus civilian case fatality calculated on " corrected " notifications and deaths was 9·1 whereas calculated on the results of the hospital survey it was 7·6. This difference is unexpected and the explanation of it not clear. It may, perhaps, be due in part to a tendency for practitioners to ascribe deaths of obscure cause to a prevalent illness. It may be also that a few cases were so rapidly fatal that they never reached hospital.

Change in Age Distribution. A feature of the epidemiology of poliomyelitis which has been reported in many civilised countries is the gradual shift of incidence from the younger to the older age groups. In the great Swedish epidemics of the first decade of the century and in the early American and Australian epidemics the attack rate was very high in the age group 0–5 and very low in adolescents whereas in recent epidemics the attack rate has been lower in infants and higher in children of school age and adolescents. In communities with less advanced sanitation the earlier type of age distribution is still found, e.g. in Malta in 1943 (Seddon, H. J.[7]), Mauritius in 1945

(McFarlan, A. M.(8) *et al*) and in Japan (Paul, J. R.(9)). Information about age distribution is not very complete for the whole period in England and Wales, but Table IV, compiled from various official reports, gives an idea of the general trend of change.

IV. *Change in Age Incidence of Poliomyelitis (including polioencephalitis)*

	1908–11(1)		1912–13(1)		1926(2)		1938(3)			1947(4)	
Age Groups	Cases	Per Cent.	Cases	Per Cent.	Cases	Per Cent.	Cases	Per Cent.	Age Groups	Cases	Per Cent.
0–1	22	6·3	157	10·1	108	39·0	24	26·1	0–1	302	3·9
1–	178	51·2	948	60·8					1–	2,090	26·9
5–	89	25·6	281	18·0	86	31·3	34	37·0	5–	1,606	20·7
10–	26	7·5	80	5·1	45	16·2	14	15·2	10–	1,114	14·3
15–	9	2·6	33	2·1	16	5·8	12	13·0	15–	1,316	16·9
20–	10	2·8	33	2·1	19	7·0	6	6·5	25 and over	1,280	16·5
30 and over	14	4·0	27	1·7	2	0·7	2	2·2	Unstated	58	0·8
	348	100·0	1,559	99·9	276	100·0	92	100·0		7,766	100·0

(1) Compiled from M.O. L.G.B. 1915–16 App. 4.
(2) C.M.O. Min. of H. 1926, p. 95.
(3) Cases admitted to Halstead Isolation Hospital.
(4) Registrar General.

There are no national figures for the years 1926 and 1938, and so the age distribution of samples has been given. It will be seen that in 1912–13, 71 per cent. of patients were under 5, 23 per cent. between 5 and 15, and 6 per cent. over 15, whereas in 1947 30·8 per cent. were under 5, 35·0 per cent. were between 5 and 15, 16·9 per cent. were between 15 and 25, and 16·5 per cent. over 25. In other civilised countries this change in age distribution has reached much the same stage as in England and Wales. For example, in the epidemic in Minnesota of 1946 (Flemming, D. S.(10), 1947) 27·4 per cent. of patients were under 5, 45·3 per cent. between 5 and 15, 16·1 per cent. between 15 and 25, and 11·2 per cent. 25 and over.

There was no consistent difference in age distribution of cases in urban and rural areas in the epidemic of 1947. The proportion of cases in children under 5 was lower in Greater London (26 per cent.) and in the rural districts (24 per cent.) than in the County Boroughs (37 per cent.) or in the urban districts (34 per cent.). Table 26 of the Registrar General's Statistical Reviews shows that on the whole there have been no great differences between urban and rural incidence in England in past years, but that the rates in rural areas in the epidemic years 1926, 1938 and 1947 were a little higher than those in urban.

V. *Notifications: Rates per* 100,000 *living in urban and rural aggregates*

	England	*London Administrative County*	*C.Bs.*	*U.Ds.*	*R.Ds.*
1926	3	2	3	3	4
1938	4	3	3	4	6
1940	3	1	3	3	3
1947	19	22	16	19	22

It is interesting that the rather higher rates in 1947 were recorded in London A.C. and in the rural districts. There is a widespread impression that when poliomyelitis first appeared as an epidemic disease it was largely found in rural areas, but this was not so noticeable in England and Wales as in the Scandinavian countries. The epidemics in Bristol (1909), Carlisle (1910) and Barrow-in-Furness (1910) are examples of early urban outbreaks, though they have perhaps been rather overshadowed by the rural outbreaks in the Midlands (1910) and in Devon and Cornwall (1911).

In England and Wales in 1947 there was some evidence of an increase in the proportion of cases in rural areas in the second half of the year. In the first quarter 16 per cent. of cases were in the rural districts, in the second 15 per cent., in the third 22 per cent., and in the fourth 24 per cent.

VI. *Poliomyelitis (including polioencephalitis)*

Weekly Notifications (uncorrected) throughout the years 1926, 1938 *and* 1947

Weeks	1926	1938	1947	Weeks	1926	1938	1947
1	6	7	10	27	6	7	88
2	5	9	16	28	10	9	126
3	4	8	10	29	19	30	193
4	7	7	6	30	25	40	336
5	8	7	13	31	24	63	487
6	6	10	11	32	40	88	624
7	2	6	8	33	53	84	691
8	5	7	15	34	42	72	676
9	6	7	10	35	43	81	657
10	6	4	10	36	53	78	708
11	4	6	5	37	77	83	614
12	1	4	4	38	44	64	594
13	4	7	7	39	68	55	473
14	5	7	5	40	51	68	429
15	2	3	11	41	78	86	364
16	5	6	10	42	89	86	288
17	5	5	7	43	87	74	280
18	3	5	10	44	40	76	243
19	7	6	14	45	32	54	210
20	7	3	11	46	51	47	201
21	4	5	13	47	61	41	145
22	3	5	21	48	45	37	106
23	10	5	24	49	43	30	76
24	9	0	34	50	31	30	84
25	10	7	46	51	29	32	60
26	4	4	67	52	14	17	48

Seasonal Incidence. The seasonal behaviour of poliomyelitis as shown by the numbers of weekly notifications has been remarkably consistent in the last twenty years. In every year there has been some indication of a summer rise in notifications though in 1928, 1931, 1944 and 1946 it was not very noticeable. The rise occurs nearly always in the last fortnight of July but the fall is less consistent in time. The year 1947 was unusual in that notifications were about 10–15 per week in January and February, and it was unique in that the summer rise started in the week ending 31st May with 21 notifications. After that week the rise went on fairly steadily until the peak of 708 notifications in the week ended 6th September. (The figures include notifications of polioencephalitis.) The relatively high figures in January and February were not seen in 1926 or 1938. A search in the annual reports of the Medical Officer of the Local Government Board and of the Chief Medical Officer of the Ministry of Health

has not brought to light a single instance of a substantial epidemic starting in the winter months though in 1926, 1938, and particularly in 1947, high prevalence persisted into the winter. Two instances have been found of outbreaks in residential schools in winter or spring. Both were in boys' public schools, one in December, 1938 (Lambert, 1939), and the other in March, 1945 (Report of C.M.O., 1945, 28). The majority of residential school outbreaks begin either towards the end of the summer term or about three weeks after the beginning of the autumn term. Table V shows the trend of weekly notifications of poliomyelitis in 1926, 1938 and 1947.

The origin and early spread of poliomyelitis in 1947.—In the first quarter of 1947 sporadic cases occurred in many areas but the chief groupings of cases were in the London, Birmingham, W. Riding, E. Lancashire and Tyneside areas. A number of other centres appeared in April, May and June, that in the neighbourhood of Barrow-in-Furness being conspicuous, and the general impression was rather one of simultaneous radial spread from large centres of population than of an epidemic spreading from only one centre. After June the disease became widespread, but, generally speaking, the Eastern Counties, the South-West and Central and North Wales remained comparatively free until late in the epidemic. In Cornwall, for example, there were no cases in July, only scattered ones in August–October and not until November, 1947, to January, 1948, did groups of cases appear.

The epidemic in the County of London, which has been described by Sir Allen Daley(5), was comparatively explosive. It began at the end of June, rose to a peak of 121 cases in the week ended 23rd August, and thereafter declined though rather more slowly than it had risen. The level of notifications in December was only slightly higher than usual.

Conclusion

An attempt has been made in this study of the epidemiology of poliomyelitis in England and Wales in 1947, to set out the facts and not to give explanations. There are so many theories about the epidemiology of poliomyelitis and many of them are so speculative that a full discussion of them would occupy much space.

The principal features of the epidemic of 1947 were :—

(1) *Size.*—It was four-and-a-half times greater than any previous experience.

(2) *Widespread distribution.*—Although the local intensity was greater in most counties than it had ever been before, the size of the epidemic as a whole was due more to its extent than to high incidences in certain places.

(3) *Early onset.*—This was about six weeks earlier than the usual summer rise.

(4) *High age distribution.*—This was seen in both incidence and fatality. About one-third of the cases were under 5, about one-third were between 5 and 15, and about one-third over 15. Nearly two-thirds of the deaths were in persons over 15.

Special measures taken in the epidemic of 1947

It is generally agreed that measures designed to restrict the movements of contacts are not of much use in the control of the disease. The general policy adopted was, therefore, not to recommend any major interference with the ordinary life of the population. A memorandum by medical officers of the Ministry of Health appeared in the medical press on 26th July as it was felt that this would be the quickest way of giving information to the largest possible number of doctors. Emphasis was laid in the memorandum on the importance of rest in the early stages of the disease and on the desirability of postponing operations on the ear, nose and throat, in children. A recommendation to

discourage assemblies of children and young people was made in general terms only, as it was felt that the decision in particular areas should rest with the medical officer of health and depend largely on local circumstances. Attention was drawn to the importance of securing early orthopaedic treatment for all patients with paralysis.

When it became clear that a major epidemic was probable, an informal meeting of clinicians and epidemiologists who had had particular experience of the disease was held at the Ministry of Health. This meeting was held on 1st August and gave an opportunity for an exchange of the most up-to-date information on the disease and for discussion of the best methods of dealing with the situation.

As poliomyelitis had, in the past, been a comparatively rare disease it was thought that general practitioners would welcome a film directed to the main points of early diagnosis. A short 16-mm. film was hurriedly prepared in August, and was seen by 17,000 doctors, and 16,000 nurses and medical auxiliaries throughout the country. A more ambitious film drawing attention to the importance of after-care and rehabilitation was commissioned and became available for exhibition to medical audiences at the end of June, 1948.

Special arrangements were made for the care of patients by a number of local authorities, and in London, where the problem of accommodation became particularly difficult, a number of teaching hospitals generously set aside special wards for the reception of patients with acute poliomyelitis. The generosity of Lord Nuffield had made available a large number of Both type respirators and some hospitals had Drinker or Bragg-Paul machines. The respirators were scattered in a very large number of hospitals and were the property of the individual hospitals. The Regional Medical Officers of the Ministry reminded hospital authorities of the importance of having their machines maintained in working order and encouraged measures for mutual aid between hospitals. In London the Emergency Bed Service and the London County Council co-operated to facilitate the borrowing of respirators by those hospitals which needed them.

In October the Ministry, through its Regional Medical Officers, distributed a short questionnaire to a larger number of hospitals to get information on the relative frequency of different clinical types of cases. The results of this survey were published (Bradley, W. H., and Gale, A. H., 1948).

In selected areas an epidemiological enquiry was undertaken by the Public Health Laboratory Service, in co-operation with medical officers of health. In this enquiry a detailed questionnaire was completed for patients and for contacts. The analysis is being carried out at the Institute of Social Medicine and the Bureau of Health and Sickness Records at Oxford. As the questionnaire was a very detailed one analysis will take some time and it is unlikely that any results will be published for some time.

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Enteric Fever

The number of notified cases (corrected) of enteric fever during the year—275 of typhoid fever and 412 of paratyphoid—showed a considerable reduction on that for 1946. Single cases and small family outbreaks accounted for the majority of the notifications, although twice when infected food-handlers had presumably passed the infection to food for others more widespread dissemination took place.

During the last week of 1947 and the first week of 1948 there were 22 notifications of paratyphoid B in Ipswich, and 8 persons among the contacts were found to be excreting the organism. During the same period 26 cases were notified in the county of Suffolk within a few miles of Ipswich. Thereafter single cases continued to occur for a few weeks. The organism isolated from all the cases was a strain of Vi-phage Type 1. Investigation showed that most of the early patients had been infected in the latter part of the first week in December, and suggested that confectionery was the most likely vehicle of infection. Examination of food handlers brought to light a carrier who had been handling such foodstuffs during the first three weeks of December.

In spite of improvements in bacteriological technique in recent years it is not always possible to determine the origin and mode of spread of infection during an epidemic. Although the epidemiological evidence may be very suggestive the final bacteriological proof may be lacking. This is particularly the case with paratyphoid fever.

An outbreak of paratyphoid fever, also due to a strain of Vi-phage Type 1, involving four sanitary districts occurred in Bedfordshire. Exhaustive inquiries were made, but the only suggestive fact that emerged was that fresh meat and offal were distributed from a central slaughterhouse to an area corresponding to the area in which the cases occurred. The circumstances were consistent with the possibility that infection of the surface of the meat by a carrier had taken place in the slaughterhouse, but it proved impossible to show that this had occurred or to find the carrier.

During this outbreak some difficulty was experienced in finding isolation hospital accommodation, and the situation was made more difficult by the fact that the poliomyelitis epidemic was in progress. At quite an early stage of the paratyphoid epidemic patients had to be accommodated in twelve different hospitals. The fact that some were removed to hospitals remote from their homes was one of the causes of an unusual incident in which nine patients walked out of the hospital before they were declared to be free from infection, an occurrence which raised in a striking fashion the relationship of the enteric carrier to the community and the law.*

The power of compulsory removal to hospital conferred by the Public Health Act, 1936, is limited to persons suffering from the disease, and there is obviously a limit to the period during which a patient may be said to be actually suffering from the disease. After that time statutory powers are confined to measures directed towards the prevention of carriers from engaging in the preparation of food or drink. (Public Health (Infectious Diseases) Regulations, 1937 ; Milk and Dairies Order, 1926.) The chronic carrier should be given the necessary advice and instruction about personal cleanliness and management in regard to his excreta, and thereafter should be subject to supervision by the local authority, who can prevent him from engaging in the occupation of food handler. One cannot, and should not attempt to, prevent such persons from leading as normal a life as is compatible with the safety of others. The fact that a certain number may afterwards be dangerous to others has to be recognised, and, if

* Lancet, 27 Sept. 1947, 474.

evidence of that danger is forthcoming, the individual carrier must be dealt with either by persuasion or by the use of statutory powers so that he or she does not again put others in peril.

The chronic carrier presents difficulties both to the clinician and to the administrator. It is too early to say yet whether treatment with penicillin and sulphathiazole will fulfil its early promise in the treatment of the enteric carrier. It is reasonable to think that an actively bactericidal form of treatment used in the acute stages of the disease would reduce the number of ensuing carriers.

Certain countries on the continent of Europe have in recent years experienced a level of incidence of enteric fever which is much higher than in this country. It is therefore to be expected that European immigrants to this country, both those who come privately and those who come in officially sponsored parties, will include in their midst a small proportion of chronic enteric carriers. A few have already been discovered, but in only one case during 1947 has the transmission of infection to others been shown to occur, this resulting in an outbreak of five cases of typhoid in a nursery for refugee children. Measures which might conceivably be directed towards preventing the entry of enteric carriers into the country would involve the setting up of a huge medical and administrative organisation out of all proportion to the resulting benefits, which could never be completely effective. It is probable that the number of imported enteric carriers is small compared with the large number of known enteric carriers in the country, but medical officers of health and those dealing with European immigrants should be on the look out for such carriers.

The Central Enteric Reference Laboratory now plays an indispensable part in the control of enteric fever, and the technique of Vi-phage typing has on many occasions shown the possible association between isolated cases in different areas, thereby increasing the scope of field epidemiology in these diseases. Steps were taken during the year to safeguard the value of these bacteriological procedures by standardisation of the techniques used in this and other countries.* Their usefulness depends to a great extent upon the co-operation of all clinicians and bacteriologists dealing with enteric cases, the former making every effort to isolate the responsible organism from all patients instead of relying upon serological evidence for the diagnosis, and the latter ensuring that all enteric strains isolated are submitted for Vi-phage typing. The medical officer of health can play a considerable part in promoting these aims, and will be rewarded by his increased knowledge of the behaviour of enteric fever in his district.

Dysentery

The total of corrected notifications for the year was 3,761. This is a considerable decrease on the totals for 1945 and 1946, which were 16,247 and 7,870 respectively. The total of deaths due to dysentery in 1947 was 81, which may be compared with 165 in 1945 and 121 in 1946.

The table below shows that *Sh. sonnei* was found in more than half the instances in which dysentery organisms were isolated from material submitted during the year to the Public Health Laboratory Service.

	Total Isolations	*Sh. sonnei*	*Sh. flexneri*	*S'i. newcastle*	Amoebic	Miscellaneous Organisms
1st Quarter ..	185	93	75	9	6	2
2nd Quarter	150	85	46	3	9	7
3rd Quarter..	171	111	42	6	10	2
4th Quarter..	409	219	172	10	4	4
Totals ..	915	508	335	28	29	15

* Craigie, J., and Felix, A., Lancet, 1947, i, 823.

In this disease, particularly when it occurs in epidemic form in residential institutions, convalescent human carriers may present a considerable problem, as in the following example :—

In November, 1947, an explosive outbreak of dysentery occurred in a mental hospital where 300 patients and 9 staff were affected. *Sh. flexneri* type 103 was isolated from the cases. Sulphonamide drugs were effective in treatment, and there were no deaths, but three months later 38 of the cases were found still to be excreting organisms of the strain which caused the outbreak.

It is inevitable at the present time that, on occasion, cases of dysentery should be notified as food poisoning.

Epidemic Diarrhoea of Infants

The report for 1946 gave some account of a group of diseases of unknown cause with diarrhoea as the main clinical feature, which are apparently highly infectious among new born infants in maternity homes and the maternity units of general hospitals. A description was given of outbreaks of these diseases, which occurred during 1946, of varying clinical severity and occasionally associated with simultaneous outbreaks of non-specific diarrhoea affecting adults in the same environment. Similar outbreaks displaying a wide range of clinical severity, some with, and some without, an associated non-specific diarrhoea in adults, were again reported from a number of maternity homes and hospital units during 1947. Several of these were specially investigated by members of the staff of the Public Health Laboratory Service in association with such medical officers of the department as seemed appropriate to the circumstances. In none could a specific bacterial or other infective agent be demonstrated.

The overcrowding and understaffing of institutional maternity accommodation which seemed to be of considerable significance in association with the outbreaks which occurred in 1946 were again important features in those investigated in 1947. The birth rate showed a sharp increase in the first quarter of 1946 and continued to increase until the first quarter of 1947. During the last quarter of 1947 it was still 16 per cent. above the level of the corresponding quarter of 1945. Throughout 1947 the demand for accommodation in maternity homes and hospitals was very great.

Although it is in maternity homes and hospital maternity units that this group of diseases produces its most striking manifestations, other institutions such as residential nurseries and the children's wards of general hospitals appear to be affected more frequently than is generally realised. For example :—

A.—Within four weeks during July and August, 1947, there occurred in a nursery party composed of 20 infants under two years of age and eight adults resident in a country house in the South of England six cases of a severe illness with pyrexia and diarrhoea as the main features. No adults were affected but three of the children died. Laboratory examination of stools and post mortem examination in the fatal cases failed to disclose any specific bacterial cause for this outbreak. During and before the time of the outbreak there were frequent changes of the infants and adults composing the nursery party concerned.

B.—During a period of five weeks at the end of 1947 in the children's unit of a general hospital in a midland town 16 children developed a severe illness with pyrexia and diarrhoea as the main clinical features. The disease attacked just over a third of all the children in the unit at the time but no adults were affected. The ages of the children attacked ranged from 14 days to seven months. Four of them, including two very young infants, already had diarrhoea as a part of the illness for which they were admitted, but two were healthy children sent into hospital for surgical operations. Several of the older children had mainly respiratory signs and symptoms on admission but subsequently developed diarrhoea. Bacteriological and other pathological investigations failed to reveal any recognised pathogenic organisms.

In their clinical features and bacteriological findings these two outbreaks closely resemble those which have occurred in maternity homes and hospital maternity units. They are almost certainly due to communicable disease, and yet neither clinically nor bacteriologically can they be ascribed to infection with known pathogens such as the dysentery bacilli or the food poisoning (Salmonella) group of organisms. Such outbreaks of diarrhoeal disease of unknown aetiology appear to occur for the most part in institutions where the susceptible population of young children at risk is continually changing and where for the simple but, in many ways, closely circumscribed relationship of one mother and one infant which obtains in the private house, there are substituted the more complex but less circumscribed relationships of several nurses or nursery attendants and many infants. Unless there is an elaboration of nursing equipment and technique so excessive as to be generally impracticable it is difficult to see how the infant placed in an institutional environment can fail to encounter repeated invasions at least of the naso-pharynx, intestine and, possibly, also of the skin by strains of bacteria ordinarily regarded as non-pathogenic but to which the infant's capacity for adaptation may be poor and the passive immunity derived from the mother non-existent.

The impression that this group of diseases is only prevalent in epidemic form among children in maternity homes, hospital maternity units, residential nurseries, hospital paediatric units and the like may not be correct. In a statistical investigation of diarrhoea and enteritis among infants in the London area 1930–38 which was based upon records maintained by medical officers of health there was found (Wright and Wright, 1946) to be some evidence that from time to time outbreaks of diarrhoeal disorders similar to those which affect institutions do occasionally occur among babies in the private houses of urban communities. It seems, however, that such outbreaks are uncommon and that, except when multiple fatal cases occur in short streets or in nearby houses, they receive but little attention.

If the quarterly totals given by the Registrar General for deaths from enteritis and diarrhoea under two years of age in the 126 Great Towns of England and Wales (Table V Quarterly Return) are tabulated for the three years 1945–47, together with those for live births during the same period and also the ratios of the quarterly totals of deaths to the totals of the live births for a period of

	Live Births Registered in Quarter	Live Births Registered in 12 months preceding end of quarter	Enteritis and diarrhoea deaths (under 2) in quarter	Enteritis deaths per 1,000 live births preceding 12 months
1945 1st Quarter ..	87,123	355,597	697	1·96
2nd Quarter ..	87,152	346,233	634	1·83
3rd Quarter ..	85,388	344,959	737	2·14
4th Quarter ..	85,762	345,425	627	1·82
1946 1st Quarter ..	95,634	353,936	730	2·06
2nd Quarter ..	109,179	375,963	650	1·73
3rd Quarter ..	114,625	405,200	497	1·23
4th Quarter ..	120,236	439,674	796	1·81
1947 1st Quarter ..	130,537	474,577	1,092	2·30
2nd Quarter ..	126,176	491,574	1,016	2·07
3rd Quarter ..	115,812	492,761	899	1·82
4th Quarter ..	103,521	476,046	885	1·86

12 months preceding the ends of the quarters, it will be seen that the ratios for the first and second quarters of 1947 were substantially higher than those for the corresponding quarters of 1946 and 1945. These data lend some support to

the suggestion, frequently made at the end of 1946 and the beginning of 1947, that there was in progress an epidemic of a severe form of infantile enteritis which was particularly prevalent in maternity homes and hospital maternity units.

It has been noted elsewhere (Wright and Wright, 1946) that the fatal diarrhoea of infants, which before the 1914–18 war had a seasonal epidemic prevalence so marked as to give rise to the synonym " summer diarrhoea ", is no longer distinguishable in the weekly returns published by the Registrar General and that more recently in London and some of the larger cities the greater proportion of infant deaths from enteritis and diarrhoea has occurred in winter and spring. There is, however, no evidence from the corresponding figures for deaths from respiratory diseases, such as bronchopneumonia and influenza, that enteritis fatal to infants during the winter months is secondary to other infections, i.e., that it is of so-called *parenteral* origin. At present the best interpretation of the available evidence appears to be that relatively often in residential communities such as hospitals or maternity homes, and occasionally in the ordinary urban environment, there occurs a widespread dissemination of one or more strains of some common micro-organism only virulent in infants.

Food Poisoning

The total number of outbreaks reported to the Ministry during 1947 was 765. The table shows these classified by cause and compares them with the corresponding totals for 1946 and 1945.

Attributed to	1945	1946	1947
(i) Salmonella Infections ..	387	555	668
(ii) Staphylococci (or their toxins)	10	22	55
(iii) Other Bacteria	10	6	18
(iv) Chemical Agents	—	2	—
(v) Cause not ascertained ..	15	13	24

The figures for 1947 and the two previous years show the rise in the number of reported outbreaks of food poisoning from all causes except chemical agents, which has been going on since 1941. The outbreaks reported to the Ministry necessarily form only an unknown proportion of the total which occur, so that the significance of the rise cannot be determined. Since 1941, the establishment of the Public Health Laboratory Service has much improved the facilities available for the bacteriological investigation of these outbreaks, and this service by its expert assistance, so readily given to medical officers of health and private practitioners, has probably caused an increase in the number of outbreaks reported to the Ministry.

Salmonella Infections

In 1947 there were 668 outbreaks due to salmonellae as compared with 555 in 1946 and 387 in 1945. Of 21 deaths in these outbreaks 13 were due to *Salm. typhi-murium*, 2 to *Salm. newport*, and 1 each to *Salm. enteritidis*, *dublin* and *oranienburg*; in 3 the type was not identified.

Salmonellae of 19 different types were identified as causing illness in comparison with 20 in 1946. In 112 outbreaks with 145 patients the type was not identified.

Salmonella Types Identified in 556 outbreaks of Food Poisoning Comprising 1,387 Cases

Type of Salmonella Identified	Number of Outbreaks (Cases)	Type of Salmonella Identified	Number of Outbreaks (Cases)
S.typhi-murium	411(971)	*S.tennessee*	3(3)
S.bareilly	30(42)	*S.anatum*	2(2)
S.enteritidis	20(27)	*S.st.paul*	1(1)
S.dublin	11(262)	*S.oregon*	1(1)
S. thompson	11(22)	*S. san diego*	1(1)
S. oranienburg	11(19)	*S. worthington*	1(1)
S. newport	9(17)	*S. manhattan*	1(1)
S. montevideo	7(8)	*S. bredeney*	1(1)
S. senftenberg	4(4)	*S. meleagridis*	1(1)
S. bovis-morbificans	3(3)		

Examples of different sources of infection by salmonellae are given below.

Duck eggs caused 14 outbreaks (110 cases) of which 13 were due to *Salm. typhi-murium* and 1 due to *Salm. enteritidis*. In almost all instances it was proved that the ducks from which the eggs were taken produced further infected eggs, or on post-mortem that their oviducts and ovaries were infected with salmonellae.

Dried Egg.—An outbreak in which a trifle was suspected as the cause followed a supper ; the cream of the trifle was found to contain *Salm. typhi-murium*, which was also isolated from the unused remainder of the carton of dried egg with which it had been made and from several patients. The cream was probably the infecting agent as it had been beaten up in the same mixing machine as that used for the sponge cake and added after the sponge cake had been thoroughly baked. The refrigerator having broken down the trifle and cream was kept in the bakehouse.

In another outbreak *Salm. oranienburg* was isolated from 8 patients and also from the dried egg which had been used in the making of a Yorkshire pudding which they had consumed.

A recent report of the Medical Research Council* states in the final sentence of an appendix by the Ministry of Food : " It may be concluded that if dried egg is effectively cooked immediately after reconstitution, the risk of salmonella infection does not arise ".

Human carriers were suspected in one outbreak in which *Salm. typhi-murium* was isolated from cartons of ice cream, from the man who made the ice cream (cold mix) and also from 8 persons among members of the staff of the cafe where the ice cream was prepared. In another outbreak in a hotel *Salm. typhi-murium* was isolated from salame sausage and from the chef who prepared the hors d'oeuvres containing it.

Rodents.—The exposure of food to infected mice was suspected as the cause of several outbreaks.

In a national service hostel in which 71 residents and 3 of the staff were affected by an outbreak due to *Salm. typhi-murium* it was stated that, although a month previously large numbers of mice had been present, they had recently disappeared. The same strain of salmonella had been found in patients, members of the staff, an opened bottle of meat extract and from a mouse caught on the premises.

* M.R.C. Special Report Series No. 260. 1947. The Bacteriology of Spray-dried Egg with special reference to food poisoning.

In a household of 5 children and 4 adults a virus preparation was used three times for the extermination of mice. About 10 days after it was last used 4 of the children were found to be infected with *Salm. enteritidis* (*var. jena*). The first of the children to become ill, a boy aged 3½ years, had been seen playing with an empty bottle which had contained virus, and from which the same organism was isolated. The instructions on the bottle gave no indication that the contents could be dangerous to man, or that the utensils used for the preparation of the bait should not be used for the preparation of human or animal food.

In several outbreaks of food poisoning *Salm. typhi-murium* or *Salm. enteritidis* have been isolated from the rat and mice droppings collected on the premises, a finding which accentuates the importance of protecting food from these vermin.

Cattle.—Milk infected with *Salm. dublin* caused two large outbreaks. In another outbreak, where this organism was conveyed by sausage meat, there were 18 patients with severe symptoms. Specimens of faeces from the patients yielded *Salm. dublin*, as did portions of sausage meat and faggots prepared in the same factory. It was found that 5 bovine carcases, 3 from "emergency slaughtered" cattle and 2 from animals rejected from a collecting centre, were shared between two manufacturers of the infected sausages, and it is reasonable to suppose that the infection must have come from one of these carcases.

Pigs.—Salmonella organisms were found in 8 batches of *porcine mesenteric lymph nodes* examined by the Public Health Laboratory Service. In 5 of these the organism was identified as *Salm. typhi-murium*, in one it was *Salm. thompson*, in another *Salm. kentucky*. The organism from the remaining batch could not be identified.

Sewage.—Sludge from sewage works was found to contain salmonella organisms on 23 occasions, *Salm. typhi-murium* was identified in 11 samples, *Salm. montevideo* in 4, *Salm. newport* in 2, and *Salm. thompson*, *Salm. enteritidis*, *Salm. tennessee*, *Salm. lexington*, were each found once. The salmonellae found in two of the samples could not be identified.

Outbreaks due to Staphylococci

Next to salmonellae, coagulase positive staphylococci are undoubtedly the most common bacterial cause of food poisoning. During 1947 staphylococci of this type were identified in 28 of the 97 outbreaks not attributable to salmonellae. In 27 other outbreaks the illness was clinically of the kind caused by the enterotoxin produced by staphylococci. It is also possible that this toxin was the cause of some of the 24 outbreaks in which no clinical or bacterial agent could be identified. The following are brief accounts of outbreaks which it is believed were caused by staphylococci or their toxins :—

(i) Following a mid-day meal in a canteen 40 persons were taken ill with vomiting, diarrhoea and collapse. The food implicated was braised lamb tongues. These had been boiled for 2½ hours at 3 p.m. one day and afterwards placed in a faulty refrigerator, which registered 52° F., until 9 a.m. the next day, when they were sliced and placed on a hot plate that on one shelf reached a temperature of only 108° F., where they remained until eaten at the mid-day meal. The tongues were heavily infected with coagulase positive staphylococci and organisms of the same phage-type were found in swabs from the nose of one of the kitchen staff and from the hands of four who handled the tongues.

(ii) In a hotel cases of illness occurred in 20 persons out of 58 at risk, after a lunch at which they had eaten a hot meat dish of guinea fowl and Vienna sausage. *Staph. aureus* was isolated from the patients' stools and from the unconsumed sausage. One of the three tins of unopened sausage contained the same phage-type of staphylococcus that had been found in the patients.

(iii) A widespread outbreak involving at least 171 persons was due to eating trifle manufactured in a central kitchen and sold to various shops in neighbouring towns. The phage-type of staphylococcus isolated from the trifle was the same as that isolated from two of the staff who had prepared the trifle. A refrigerator not being available the trifle had been kept in hot steamy weather for 24 hours before being eaten.

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(iv) A 6-lb. tinned tongue was opened in a butcher's shop and sold two days later. The same phage-type of staphylococcus was recovered from patients' stools as from the unconsumed portion of tongue, also from an assistant, who had a boil on his nose, a septic rash on his face and a history of a sore throat.

(v) Liver sausage manufactured in an Eastern County caused outbreaks of food poisoning in many places extending from Newcastle to London. Fortunately this was soon discovered and the manufacturers of the sausage at once took steps to recall all of the infected batch that remained unsold. The sausage implicated had been made on the 7th and 8th May and the first cases were reported in London on the 10th. When from many places all over the country similar outbreaks were reported, all the laboratories receiving samples of the suspected liver sausage isolated staphylococci which later proved to be of the same type. The sausage had been contaminated by workers who had prepared it. Six of eleven workers were found to be harbouring the phage-type of staphylococcus causing the outbreak. It was isolated from the nose and hands in two instances, from the nose only in one, from the hands only in two and in one from a septic spot on the face. The chief criticisms of the process of manufacture were that there was much too frequent handling of the ingredients, that the temperatures employed in their preparation were too low to sterilise them and that the methods of cleaning and sterilising the apparatus employed were not adequate. The manufacturers stopped making the sausage until these points had been attended to, and the infected workers ceased work until they no longer harboured staphylococci.

Outbreaks due to other Bacteria

Seven outbreaks were thought to be due to streptococci (in 5 instances *Str. faecalis* was isolated and in one *Str. viridans*, and one was due to a non-haemolytic strain). Four outbreaks were attributed to *Cl. welchii*, three to *B. coli*, and four to paracolon bacilli.

The following are brief accounts of two outbreaks attributed to *Cl. welchii* :—

(i) An outbreak affecting about 90 persons out of 184 at risk occurred in a railway canteen due to the consumption of a meat and kidney stew. Eaten at a mid-day meal this caused diarrhoea and abdominal pain the following night. *Cl. welchii* type A was recovered from the stew, but there was no evidence as to how it became infected.

(ii) A goose, killed by its owner because it was not doing well, was eaten by his family, all of whom became ill. A heavy growth of *Cl. welchii* was obtained from the goose.

Chemical Agents.—No case of food poisoning attributed to a chemical agent was reported in 1947.

Preventive Measures

From evidence collected in various inquiries into the cause of food poisoning outbreaks, it is clear that in many instances it is the human element that introduces bacteria into the offending food. The infecting bacteria can be derived from a carrier who may never have suffered from any gastro-intestinal trouble and be entirely unaware that he or she harbours an organism that may cause illness if introduced into food. Catarrhal conditions of the nose and throat or trifling sores on the hands and arms may be the source of staphylococci of a type which if given a chance to multiply in food generates an entero-toxin that is a cause of food poisoning. To prevent food poisoning outbreaks the two most important points to insist on, besides the elementary one of scrupulous cleanliness, are (*a*) that all food handlers should thoroughly wash their hands and lower arms before touching the food, not only when they begin work but also every time their work is interrupted, and (*b*) that as far as possible the food should be eaten as soon as it has been prepared. This latter precaution is often difficult to secure in canteens where meat, trifles, custard and puddings, cooked the day before, are often reheated before consumption. Unfortunately the reheating does not destroy staphylococcal entero-toxin. If food has to be kept after cooking it should be placed in a refrigerator as soon as possible to prevent the multiplication of any bacteria it may contain. Several outbreaks have been due to defective refrigerators and to the present difficulties of getting them repaired or obtaining new ones.

Jaundice

Deaths (including Non-Civilians) assigned to Hepatitis and Jaundice in each Quarter of 1946 and 1947

International List Groups and Sub-divisions		1946				1947			
		March	June	Sept.	Dec.	March	June	Sept.	Dec.
Acute Yellow Atrophy	M.	18	9	12	15	19	19	13	11
(without pregnancy)	F.	13	20	20	9	14	13	17	15
(with pregnancy)	F.	13	10	10	21	12	8	19	6
Hepatitis (in No. 125b)	M.	49	42	32	30	58	41	30	37
	F.	35	36	29	32	36	37	26	28
Jaundice (in No. 125b)	M.	4	4	2	3	5	1	2	4
	F.	3	2	3	2	4	4	1	1
Catarrhal Jaundice (in No. 217b) ..	M.	3	2	2	4	2	4	3	3
	F.	3	5	1	5	4	2	2	1
Other diseases of Liver (in No. 125b)	M.	2	4	9	6	6	10	6	9
	F.	6	2	7	6	4	5	5	7
Weil's disease	M.	4	5	3	2	1	2	6	4
	F.	—	—	1	1	1	2	1	—
Total Acute Yellow Atrophy, Hepatitis, Jaundice, Catarrhal Jaundice ..		141	130	111	121	154	129	113	106
		503				502			

Epidemic hepatitis.—Compulsory notification of jaundice in Region 4 continues to provide valuable information on the epidemiology of this disease. During 1947 the number of notifications was the lowest in the four years during which notification has been in force, the attack rate being 0·4 per 1,000 of the population. The disease presents many problems to the epidemiologist, its mode of transmission and the factors which determine the occurrence of local epidemics being largely conjectural, while the difficulty experienced in obtaining a true estimate of the incidence of the disease is increased by the fact that, as jaundice is absent in many cases, the diagnosis is often missed. Nevertheless important facts are emerging on the age and sex incidence, and on the comparative attack rates in urban and rural communities.

Thus the Medical Officer of Health for Southend-on-Sea in his Annual Report for 1946 stated that there was an increase in incidence of the disease between 1944 and 1946, and a steady increase in the notifications in persons over the age of 15.

Number and percentage (in brackets) of cases in age groups

	0–	5–	10–	Over 15	Total
1944 ..	2 (1·8)	25 (22·4)	41 (36·6)	44 (39·2)	112 (100)
1945 ..	7 (4·6)	31 (20·3)	32 (20·9)	83 (54·2)	153 (100)
1946 ..	17 (3·6)	77 (16·1)	65 (13·6)	319 (66·7)	478 (100)

Institutional outbreaks are often recorded. In nurseries it generally happens that both staff and children are attacked during an outbreak, and in this respect a small epidemic in a residential nursery for 200 children in the London area was unusual.

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A single case of jaundice in a member of the nursing staff on 30th August was followed by an attack in another member of the staff on 5th October. Between 31st October and 4th November there were seven further cases, all the patients being members of the staff. Supervision of the children in the nursery was such that mild cases occurring among them would certainly have been noticed, but the disease remained confined to the staff. This incidence upon the staff to the exclusion of the children was also observed in a small outbreak of poliomyelitis that occurred during the year in the same institution.

In last year's report reference was made to a severe form of jaundice, mainly attacking adult women, that had appeared in Denmark. More recently a similar type of disease was reported in Basle.* In the years before 1946 epidemics of infective hepatitis here had shown the usual features, but in the epidemic of that year there was a striking change, the case fatality rate rising to 20 per cent. At the same time there was a marked change in age and sex incidence and the heaviest attack rate was in women over the age of 30. Fortunately there is at present no sign of hepatitis of like severity in England and Wales.

Weil's disease is by no means the rarity that was at one time thought. In the report for 1945 (p. 33) reference was made to the estimate by Gardner and Wylie of the number of cases diagnosed serologically in Britain. They found that in seven laboratories, which were those most likely to be concerned with the disease, 488 cases had been diagnosed serologically in the period 1940-45, and concluded that Weil's disease is neither a rare disease nor a negligible cause of disability.

As only about half of the cases are jaundiced many are likely to be missed unless careful attention is given to other symptoms, and it seems likely that the disease is recognised more frequently by those who, having already seen cases, are therefore on the look out for further cases.

The occupational hazard is shown by the fact that the disease is most frequent in colliers, farm workers, sewermen, butchers and fish-workers. Bathing or accidental immersion is a frequently antecedent event.

A series of cases was reported† in which thirteen persons were attacked during a period of eight months, all being Free French naval personnel, stationed in the Isle of Wight, living in unhygienic circumstances in contact with rats.

Buzzard and Wylie‡ have described five cases of leptospiral meningitis, three of whom had been river bathing before the onset of the disease, and they suggested that leptospirae gain access to the bloodstream via the conjunctiva, nasal mucosa and fauces during bathing, and that such an entry might predispose to the meningeal form of the disease. They feel that meningitis leptospirosa does occur in this country but that, in the absence of other characteristic signs of Weil's disease, the diagnosis may be overlooked.

Two of the sera reported by Gardner and Wylie in the article mentioned above were obtained from dogs. In each of these cases there was presumptive evidence that the dog had been infected by rats. During the year a case of infection with *Leptospira canicola* was reported in the North of England. The dog of this patient was found to agglutinate *L. canicola* to 1/3000. The dog had been ailing for time time, but was not acutely ill.

Homologous serum jaundice continues to occur following the administration of transfusion fluids. Estimates of the incidence in this country were given in the Report for 1945, p. 35, and by Bradley.§ In America a follow-up of 649 transfusions with dried plasma disclosed subsequent jaundice in 4·5 per

* Schweiz. med. Woch. 1947, July 26. V.77. No. 30. 796.
† Jauld, W. R., Lancet, 1947, i, 216.
‡Lancet, 1947, ii, 417.
§ Bradley, W. H. 1946. Proc. R. Soc. Med., **39**, 10, 649.

cent. of cases, with a higher attack rate in those over 50 years of age.* In another survey reported in the same article, 51 deaths from acute hepatitis were investigated and a history of transfusion within the preceding six months was obtained in fifteen.

In another section of this report reference is made to the steps that are being taken in this country to reduce the risk of transfusion jaundice. It is of the utmost importance that *batch numbers should be recorded on the case notes of all patients who are given transfusions* in order that unused stocks can be withdrawn from circulation on the occurrence of a subsequent case of jaundice.

In a recent paper an outbreak of fulminating hepatic necrosis in soldiers of the British Army of the Rhine is described.† Of 154 cases of "infective hepatitis" dealt with in one British military hospital during this outbreak 58·44 per cent. were suffering from venereal diseases, 60·38 per cent. were having injection therapy and 75·98 per cent. had injections of some sort during the preceding six months. The inference is drawn that the majority of these cases were syringe-transmitted jaundice. The importance of proper sterilisation of syringes and needles in all types of clinic where injections are given cannot be exaggerated.

Malaria

Following the general demobilisation of the Armed Forces, and the consequent scattering throughout the country of large numbers of persons who had served abroad in malarious areas, it was expected that not only would the number of persons suffering from periodical relapses of malaria increase over a period of from one to three years, but also, that the number of cases of indigenous infections would show a sharp rise as was the case after the cessation of the first world war.

In view of these circumstances it was forecast that the peak of this increase would occur in 1946, and that for 1947 the figures would also be higher than normal.

While, as was anticipated, there were very large numbers of relapses among persons recently returned from malarious areas, the low rate of indigenous cases was maintained in 1947.

The number of notifications received during the past three years and, for comparison, the figures for 1938 are given in the following table :—

Notifications	1938	1945	1946	1947
Malaria contracted abroad ..	354	515	1,504	406
Indigenous malaria	2	7	6	5

During the war years much publicity was given to malaria, and to the possible effects of the introduction into the country of gametocyte carriers, in the persons of our ex-Service men, and the Ministry issued a number of memoranda and circulars on the subject.

It is probable, however, that the freedom of England from indigenous malaria has been largely due, not to the absence of human carriers, or our mild unsettled summer temperatures, but to the fact that the potential insect vectors (*Anopheles maculipennis* var. *messeae* and var. *atroparvus*, and *A. claviger*) are primarily zoophilic, i.e., they feed by preference on animals rather than on human beings.

* J. Amer. Med. Ass. 1947. 135, 268.
† R.A.M.C. Jl. 1947, 89, 290.

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Of the five cases of indigenous malaria notified, two were persons living in the same road in a Worcestershire town, one was a child admitted to a Surrey hospital, whilst another child developed the disease in Suffolk. The fifth case was a man living in London, a doubtful infection, diagnosed on clinical grounds. The confirmed cases were infected with the parasite of benign tertian malaria. *A. maculipennis* var. *atroparvus* was probably the insect vector.

One incident worthy of record occurred when two children, who had spent a holiday in Holland, developed benign tertian malaria several months after their return to this country, and it would be well if the possibility of such occurrences was more widely known.

The work of the Ministry's Malaria Laboratory

Major-General Sir Gordon Covell, C.I.E., formerly Director, Malaria Institute of India, was appointed Adviser on Malaria to the Ministry of Health and Director of the Malaria Laboratory at Horton in March, 1948.

Some 518 persons were infected with malaria, for therapeutic purposes, with material supplied by the Laboratory.

The mode of transmission and the species of parasite are shown together in the following table, but as blood is often sent to hospitals for several cases the figures do not necessarily indicate the total number of patients treated with malaria therapy.

Species of Parasite	Transmission by					
	Blood Inoculation			Mosquito Infection		
	1947	1946	1945	1947	1946	1945
Pl. falciparum	11	6	18	7	8	32
Pl. vivax	350	340	263	122	127	150
Pl. malariae	28	43	26	—	—	—
Pl. ovale	—	1	2	—	—	—

Malaria material (*P. vivax*) for therapeutic purposes was also sent to Scotland, Northern Ireland and Eire, and mosquitoes infected with benign tertian malaria were despatched to Glasgow for the treatment of several patients suffering from disseminated sclerosis.

The practice in vogue before the second world war of assisting foreign malaria institutes by supplying established strains of malaria parasites has been continued. Material was sent to the United States, France, Holland and the Philippines ; mosquitoes infected with benign tertian malaria were taken to the Tropical Institute in Antwerp, and a strain of malignant tertian malaria originating in the Belgian Congo was brought back to Horton. This strain was subjected to intensive study and was found to differ in certain characteristics from strains of the same species of parasite found in other parts of the world. A paper describing the results of the investigation(1) was published in *Annales de la Société Belge de Médécine Tropicale*, and excited considerable interest among members of the Society when it came up for discussion at one of their meetings. Attempts to infect mosquitoes (*Anopheles maculipennis* var. *atroparvus*) bred at the Horton Laboratory with this strain were not successful, and Mr. Shute, Assistant Malaria Officer, afterwards visited Nigeria, at the request

of the Medical Research Council, to carry out further transmission experiments with African strains of the malaria parasite. A strain of malignant tertian malaria was brought back to Horton and arrangements were made to test the action of Paludrine on this as a prophylactic and therapeutic agent.

Studies on the action of Paludrine on the gametocytes of a Rumanian strain of malignant tertian malaria, begun in 1946, were completed during the year. An investigation was also carried out with the object of ascertaining whether the parasites of human malaria are likely to become resistant to the effects of Paludrine as the result of its routine use for the prophylaxis and treatment of the disease. No evidence was forthcoming from these experiments, which extended over a period of eight months, that this is likely to occur.

Many specimens of mosquitoes were received from various parts of England and Wales for identification. A number of surveys were undertaken at the request of medical officers of health and service departments, and recommendations were formulated for the eradication or abatement of the mosquito nuisance.

REFERENCE

(1) Shute, P. G. and Maryon, M. (1947). *Ann. Soc. Belge Méd. Trop.*, **27**, 4.

Yellow Fever

No large outbreaks of yellow fever were reported during 1947 but cases continue to arise in parts of South America and West Africa. According to the information received at the Ministry, there were two deaths from yellow fever in Brazil and two in Peru, but 59 deaths were reported from Columbia during the year. In Africa one native death in the Belgian Congo and one in Nigeria were recorded. Two uninoculated natives and one European also died from yellow fever in Bamako, French Sudan.

During the year the number of centres in the United Kingdom was increased, where travellers can obtain free inoculation against yellow fever and the international form of certificate which exempts them from quarantine restriction on account of this disease. Complete figures are not available, but over 34,000 certificates were issued to civilian travellers.

The Ministry continued to participate in the work of the Inter-departmental Committee on Yellow Fever, who recommended the discontinuance of the practice of issuing certificates of urgency under Article XIV(3) of the International Sanitary Convention for Aerial Navigation of 1944. The issue of such certificates, but only in the most exceptional circumstances, was instituted as a war measure to facilitate the passage of non-inoculated persons whose unobstructed passage was absolutely and immediately essential on grounds of high policy. Few certificates were ever issued and most of the countries concerned were reluctant to accept them.

The Committee also considered the position which has arisen owing to blood tests having shown that there were persons in certain areas in Northern Bechuanaland who had suffered from yellow fever. The evidence available does not prove that the disease is endemic in these areas, but indicates the possibility that yellow fever might again occur and that the areas must be regarded as dangerous. The Committee decided to bring the matter to the notice of the World Health Organisation with a view to the areas being brought into the endemic yellow fever zone. They realised the practical difficulties arising from the creation of " islands " of comparatively small endemic yellow fever areas and felt that the position should be reviewed and that further investigation should be undertaken into the epidemiology of yellow fever in Southern Africa.

Leprosy

In 1947 the problem of leprosy in this country was reconsidered and an inquiry made concerning all cases known to the Ministry. The number of patients was 26, of whom 11 were in the only leper colony in this country, which is a charitable foundation for British subjects only. The remainder, most of whom are non-infectious, are under medical surveillance by the health authorities in whose districts they reside. The British Empire Leprosy Relief Association has been prominent in giving its help in dealing with the problems that arise.

The question of providing another leper colony in this country is under consideration. Leprosy not being a notifiable disease, very difficult problems are apt to arise, both in finding suitable accommodation when a patient in an infectious stage is discovered, and also in returning alien lepers to their own countries when they have been discovered during their stay in this country. The embassies of the various countries and shipping companies have been most helpful in this connection.

Research both as regards sources of infection and treatment is being carried on in leper colonies scattered all over the world, and there is hope that the use of one of the new sulphone derivatives, which has proved successful in early cases, may lead to further discoveries.

Rabies

During 1947 there were one human and three canine cases of rabies in this country. Five dogs suspected of rabies proved negative. The brains and spinal cords of all the dogs were examined at the Weybridge Veterinary Laboratory both microscopically and by animal inoculation.

The human patient was an R.A.F. officer who had been bitten in Karachi, India, on the right wrist and left buttock and underwent at once a full course of anti-rabic treatment. Two months later while on leave at his home in London he noticed irritation in the scar left by the bite in his right wrist and numbness extending up the ulnar side of the forearm. He died in hospital six days later after developing all the classical signs and symptoms of rabies. Four home contacts of the patient and two porters in the hospital who had restrained the patient were given a course of anti-rabic treatment. None developed the disease.

Three dogs developed rabies in quarantine kennels, one eight months after admission from Italy, one a month and the third two and a half months after admission from India. Three persons who had been in contact with the dogs were given a prophylactic course of anti-rabic treatment. The vaccine for this purpose can always be obtained from the Central Public Health Laboratory (Telephone: Colindale 6041).

Venereal Diseases

Syphilis.—The number of new infections of syphilis is the best index of the venereal disease position of the country. This steadily declined between the two wars but rose sharply after 1939, reaching a peak of 17,675 in 1946. During that year very large numbers of men were released from the services to civil life, many of them straight from overseas.*

In 1947 the clinic figures for early syphilis fell to 14,166 and it is encouraging to note that the proportion of women to men who come for treatment is now far greater than at any time before the war, though in many areas the disproportion is still far too great. With few exceptions this fall has been constant

* Table B, page 174.

throughout the country, as is well shown by the figures for six large inland cities and six large seaports. In London (L.C.C. area), however, though the total number of new infections dealt with at the clinics fell from 3,078 in 1946 to 2,729 in 1947, in some centres the fall was insignificant, while in others, notably some of those in the West End and dockland, there was in fact an appreciable rise. In these areas foreigners form a not inconsiderable proportion of the total number of patients.

Early syphilitic infections (i.e., those of less than one year) dealt with for the first time at six large inland cities and six large seaports in England in 1946 *and* 1947

	Male 1946	Female 1946	Total 1946	Male 1947	Female 1947	Total 1947
Inland Towns—						
Birmingham	380	199	579	255	140	395
Sheffield	148	123	271	70	82	152
Leeds	235	171	406	298	139	437
Bradford	151	100	251	117	93	210
Nottingham	241	161	402	181	98	279
Leicester	157	118	275	108	55	163
Totals	1,312	872	2,184	1,029	607	1,636
Ports—						
Merseyside (Liverpool, Bootle, Birkenhead, Wallasey)	770	375	1,145	573	279	852
Manchester and Salford	896	562	1,458	749	435	1,184
Hull	135	100	235	144	85	229
Bristol	139	93	232	120	60	180
Newcastle on Tyne	324	214	538	251	146	397
Southampton	130	99	229	166	60	226
Totals	2,394	1,443	3,837	2,003	1,065	3,068
London (L.C.C. Area)—						
Albert Dock Hospital	43	—	43	86	—	86
Endell Street Clinic	73	24	97	61	34	95
Guy's Hospital	76	46	122	60	26	86
King's College Hospital	35	36	71	41	39	80
Lock Hospital	242	53	295	129	26	155
Metropolitan Hospital	19	19	38	23	17	40
Miller General Hospital	30	16	46	15	13	28
Royal Free Hospital	—	97	97	—	70	70
Royal Northern Hospital	119	52	171	75	38	113
St. Bartholomew's Hospital	40	29	69	41	17	58
St. George's Hospital	76	54	130	136	68	204
St. John's Hospital	22	12	34	43	19	62
St. Mary's Hospital	264	150	414	278	159	437
St. Thomas's Hospital	216	98	314	205	79	284
Salvation Army Mothers Hospital	—	2	2	—	4	4
Seamen's Dreadnought Hospital	78	—	78	92	—	92
South London Hospital for Women	—	23	23	—	22	22
University College Hospital	126	48	174	111	59	170
West London Hospital	225	71	296	144	44	188
Westminster Hospital	70	33	103	82	45	127
Whitechapel Clinic	332	129	461	227	101	328
Totals	2,086	992	3,078	1,849	880	2,729

In spite of a record birth rate in 1947 and a large increase in early syphilis in 1946, it is remarkable that infantile congenital infections have fallen from the low figure of 363 in 1946 to the still lower one of 343 in 1947. This suggests that the great majority of infected mothers are adequately treated before the birth of their children.

Gonorrhœa.—The clinic figures for this disease also show a substantial reduction, the male infections declining from 36,912 in 1946 to 29,647 and the female from 10,431 to 7,019. The hidden nature of chronic gonorrhœa in women and the difficulty of its certain diagnosis explain, to some degree, why the men outnumber the women by four to one. It is, however, likely that not a few of the consorts of men known to be infected were in fact treated solely on clinical grounds though the diagnosis was not confirmed bacteriologically. These patients would necessarily be shown as " other than venereal " in returns from the treatment centres. Many women are unaware that they are infected and these form a reservoir of infection for this disease.

Other conditions dealt with at the Treatment Centres.—More than half the patients attending the treatment centres for the first time were found not to be suffering from a recognised venereal disease, but many of them needed treatment for such conditions as non-gonococcal urethritis in the male and trichomonas infestation in the female. The treatment of these and other minor genito-urinary conditions is a continuing charge on the time and skill of the venereologist. Non-gonococcal urethritis is an increasingly common condition of a yet uncertain ætiology. In most cases it seems to have a venereal origin, though the findings in the female consort are generally inconclusive. The disease reacts capriciously to treatment and there is need for research into its cause and cure.

The present position.—Though the 1947 figures are encouraging, there is no room for complacency. For a fully employed people at peace, the number of new infections is still far too high and, considering the efficacy of modern treatment, the fall should have been greater than it has been. Penicillin maintains its early promise as a powerful curative agent in both gonorrhœa and syphilis and there are still no signs that the causative organisms of either disease are becoming resistant to treatment. Nevertheless, the very speed of its action and the ease with which, especially in gonorrhœa, it banishes signs and symptoms, too often breeds a spirit of unhealthy optimism leading the patient to desert the clinic, sometimes recklessly to expose himself with an unknown consort, before there has been time for adequate tests of cure and the certain exclusion of a double infection. In such circumstances it is often impossible to distinguish between a true relapse and a reinfection.

Though British venereologists are agreed that penicillin possesses the twofold advantages of speed and safety in the treatment of early syphilis and the prevention of congenital infection, many of them are still reluctant completely to abandon its well tried predecessors, on the ground that it will not be possible to assess the true value of the new agent for many years to come. In the United States, however, where well over half a million civilians with early syphilis have been intensively treated with penicillin alone, results superior to those obtained by the older and more prolonged methods are already claimed, the traditional arsenical and bismuthial preparations being generally reserved for cases of failure or relapse. It is encouraging to note an increasing optimism and enthusiasm for the new agent in a country where a high incidence of syphilis is combined with good facilities for treatment and follow-up. The progress of the careful nation-wide study by the Syphilis Study Section of the National Institute of Health, United States Public Health Service, is being watched in this country with interest and admiration.

Meanwhile here there is almost universal agreement that all cases of early syphilis should be given pencillin in addition to, if not in complete substitution for, other forms of treatment, though it is not yet possible for therapy to be standardised and an optimum treatment agreed. If it may now be said, as it almost certainly can be, that the great majority of these patients can be made permanently non-infectious in about a week, the public health potentialities of penicillin are obvious.

The tracing of contacts.—Defence Regulation 33B was allowed to lapse at the end of 1947, as it was considered that further continuance of such compulsory powers could not be justified in time of peace. It was recognised, however, that a useful indirect result of the Regulation has been to encourage the patient, the venereologist and the Medical Officer of Health to co-operate in the tracing of contacts, many of whom have been persuaded to undergo examination voluntarily when one report only has been received. It is important that this co-operation should continue and most clinics pursue a policy of active contact tracing with the official encouragement of the Ministry.

World Health Organisation.—At one of its earliest meetings the Interim Commission of the World Health Organisation named the venereal diseases in company with tuberculosis and malaria as one of the three greatest enemies of the human race, the combating of which deserved the highest priorities. An advisory committee of four experts, including one from the United Kingdom, was appointed at the end of 1947 and held its first meeting in January, 1948.

Propaganda and Education.—Despite the paper shortage and the difficulty of obtaining space in the attenuated newspapers and periodicals of to-day, the importance of the subject has been kept before the public through the medium of press and posters, in response to which many thousands of enquiries have been dealt with by the Medical Secretary of the Central Council for Health Education in the course of the year.

The Council has also continued to arrange public meetings on behalf of many Local Authorities, where lectures have been given and films shown, as well as to organise courses on sex education, including the facts about the venereal diseases, for teachers, youth leaders and young people.

It is realized, however, that necessary though *ad hoc* propaganda may be, its ultimate value will always be limited, so long as sexual cynicism prevails. The very speed and simplicity of modern treatment may indeed foster this attitude if basic ideals and values are neglected and are not inculcated early in life.

Cancer

Mortality from Cancer in England and Wales (excluding non-civilians), 1938–1947

Year	No. of Deaths			Crude death rate per million living		Comparative Mortality Index (1938 basis)*	
	M.	F.	Total	M.	F.	M.	F.
1938 ..	31,899	34,685	66,584	1,612	1,619	1·000	1·000
1939 ..	32,077	35,056	67,133	1,629	1,626	·983	·984
1940 ..	33,135	35,605	68,740	1,816	1,645	1·010	·985
1941 ..	33,486	35,488	68,974	1,944	1,649	1·013	·969
1942 ..	34,011	36,128	70,139	2,024	1,685	1·012	·964
1943 ..	34,952	36,862	71,814	2,140	1,716	1·022	·961
1944 ..	34,881	36,807	71,688	2,155	1,704	1·006	·941
1945 ..	36,258	37,495	73,753	2,209	1,724	1·024	·937
1946 ..	37,120	38,287	75,407	1,994	1,742	1·018	·949
1947 ..	38,748	38,901	77,649	1,976	1,754	1·047	·949

* *See* note below table on page 23.

Cancer deaths according to site in England and Wales (including those of non-civilians), 1947

International No.	Sites	Number of Deaths registered		Per 1,000 total Cancer deaths	
		Males.	Females	Males	Females
45	Buccal cavity and pharynx ..	1,804	508	46	13
46	Digestive organs and peritoneum	20,725	18,464	532	474
47	Respiratory system	8,642	2,019	222	52
48	Uterus	—	4,270	—	110
49	Other female genital organs ..	—	2,661	—	68
50	Breast	70	7,738	2	199
51	Male genital organs	3,175	—	82	—
52	Urinary organs	1,914	1,001	49	26
53	Skin (scrotum excepted)	558	456	14	12
54	Brain and other parts of the nervous system	570	388	15	10
55	Other and unspecified organs ..	1,485	1,402	38	36
	Total	38,943	38,907	1,000	1,000

Cancer deaths among civilians numbered 77,649, an increase of 2,242 over 1946 ; the increase being 1,628 for males (37,120 in 1946 to 38,748) and 614 for females (38,287 in 1946 to 38,901). The crude death rate for males has again fallen—from 1,994 per million living to 1,976, but for females it has risen from 1,742 to 1,754 per million living. The fall in the male rate can, once more, be attributed to demobilisation, with its consequent increase of young civilian males. The C.M.I. showed an increase for males but no change for females.

Cancer Services

Some progress was made in improving the cancer services in the West of England. A director was appointed at Plymouth, whose services will be available throughout Devon and Cornwall, including the two county boroughs of Exeter and Plymouth. Further, radiotherapists have been appointed to Exeter and to Plymouth, who work as far as possible in co-operation with each other. The Camborne and Redruth Miners and General Hospital also appointed a radiotherapist. This hospital has for a long time been carrying out some form of radiotherapy, but it has hitherto not been approved for treatment. After a visit paid in April of this year it was found that conditions had so improved that approval could be given. The new radiotherapist, who is well trained and experienced, is setting up his department on the right lines and co-operating willingly with Exeter and Plymouth. Furthermore, the Camborne and Redruth Hospital is now co-operating with the Royal Cornwall Infirmary, Truro. Some of the staff have been appointed to both hospitals, and there is now a possibility that the two hospitals will work together as one.

The cancer services in the South West suffered a severe blow in the death of the Director of the Bristol Centre, Dr. Bryan Adams, under whose care Bristol was beginning to take its place as the centre for the whole of the South West.

Further progress has been made at Birmingham, where a committee of local authorities have almost completed a scheme for the area. Proposals have also been made for a scheme to cover Wessex, with Bournemouth and Southampton. The radiotherapist at Southampton is working closely with the smaller centre at Bournemouth, and there are hopes that Portsmouth also will be willing to play its part.

No further big steps have been taken under the Cancer Act. Several authorities have put forward interim or temporary arrangements for improving the service in their own areas. With the forthcoming repeal of the Cancer Act and the merging of its work in the National Health Service Act, the outline of the future scheme for the treatment of cancer is becoming plainer.

One of the most difficult areas to co-ordinate is London and the Home Counties. The presence of 12 teaching hospitals, covering an area of about eight million people, appeared at one time to offer an insuperable obstruction to any reasonable form of centralisation of treatment. Each teaching hospital wished to have its radiotherapy block, as much for teaching value as for prestige, but it is being realised that this would be undesirable and some grouping of the teaching hospitals is taking place. In the meantime, a scheme to cover Essex by the services of the London Hospital is well advanced, and there have been discussions between the teaching hospitals south of the Thames as to how best to provide the centre for a service which will finally extend to Hampshire.

The change over from the present to the new system will have its difficulties. In the past one of the strong points of the cancer services in this country has been the limited centralisation imposed by the presence of the Radium Commission and the Minister's Advisory Sub-Committee on Cancer. In the future, while there will probably be a Central Advisory Committee on Cancer, each Regional Hospital Board will have its own cancer advisers, and care must be taken that the present useful degree of centralisation is not lost in a welter of decentralisation, from which might ultimately ensue a deterioration in the cancer services.

Acute Rheumatism

Notification.—It was mentioned in the last report that the Acute Rheumatism Regulations, 1947 (S.R. & O. No. 1828), by which cases of acute rheumatism under 16 years of age were made notifiable in the administrative County of Lincoln (parts of Lindsey) and the County Boroughs of Bristol, Grimsby, Lincoln and Sheffield, came into force on 1st October, 1947.

Acute Rheumatism. Cases notified under S.R. & O. No. 1828.
October–December, 1947

Notification Area	R.G.'s estimate of Child Population 0–14 years June, 1947	Total Notified Cases	Classification of Notified Cases			
			Acute Rheumatism	Chronic Rheumatic Valvular Disease	Not Rheumatism	Not Classified
Bristol C.B. ..	90,180	32	21	—	9	2
Sheffield C.B. ..	111,860	97	44	21	26	6
Lincolnshire (parts of Lindsey) Grimsby C.B. and Lincoln C.B.	102,050	26	15	2	3	6
Total ..	304,090	155	80	23	38	14

The table gives the totals of the cases notified in the three areas to which the Regulations apply, together with their classification after clinical examination and, in some instances, a short period of observation. The Regulations have not been in force sufficiently long to make the clinical and other data so far obtained significant, but it is hoped that in due course it will be possible by means of a detailed analysis of the figures to increase our knowledge of the epidemiology of rheumatic fever as it occurs in school-children.

During the year the Rheumatic Fever Committee of the Royal College of Physicians published a brochure on rheumatic fever* which was distributed through public health departments in all areas where notification is now in force. This Committee also approved a form of case record designed by one of its sub-committees (chairman, Professor J. A. Ryle) for use in an investigation into the social aspects of rheumatic fever which will be undertaken in connection with notified cases.

A Special Research Unit.—In November, 1947, the special unit for research on juvenile rheumatism at the Canadian Red Cross Memorial Hospital, Taplow, began work under the direction of Dr. E. G. L. Bywaters. For the time being this unit provides only 80 of the 200 beds which it is hoped will eventually be available at Taplow for the treatment and investigation of children suffering from rheumatic fever. In addition to the Director, the staff so far appointed comprises a consulting paediatrician, a consulting cardiologist, four junior clinical officers and a Director of Pathology with assistant pathologists and a biochemist. Physiotherapists and social service officers have also been appointed, and full educational facilities of a special school with a head teacher and assistants are available. For the time being children showing the acute manifestations of rheumatic fever or those of juvenile rheumatoid arthritis (Still's disease) are accepted for treatment.

The research work to be undertaken in this unit will be based on clinical observations of the course of acute rheumatic disease. Follow-up studies are to be made and the results of treatment critically assessed.

Chronic Rheumatism

The Sub-Committee on Chronic Rheumatism, appointed by the Minister's Medical Advisory Committee in 1944, recognised that the interest and co-operation of the teaching hospitals was of the greatest importance for solving the problem of the chronic rheumatic diseases. In recommending a scheme for the establishment, at first under the Emergency Hospital Service and later under the National Health Service, of a number of regional centres for the diagnosis and treatment of these diseases the Committee emphasised that the main centre in each hospital area or region should, as far as possible, be located at a teaching hospital. The Committee thought that this would ensure better opportunities for research on rheumatism to be conducted in a suitably critical atmosphere than had previously been available.

One of the main functions of a teaching hospital is undergraduate medical education. In such a hospital the setting up of a new special out-patient or in-patient department, which involves the collecting together of patients suffering from a particular disease or group of diseases, is no easy matter. However, when the various difficulties likely to be encountered by teaching hospitals endeavouring to act as the main centres in regional schemes for the treatment of chronic rheumatism are carefully considered,† it does not seem

* Lancet, 1947, i. 606.
† Lancet, 1948, i, 486.

that they need be insuperable. The experience of two of the teaching hospitals in London and of four in the provinces, which have already established special departments for the diagnosis and treatment of chronic rheumatism, shows that they can be overcome. The chief activities of these six departments during 1947 were as follows :—

London

The Royal Free Hospital Rheumatism Unit.—The report for 1946 referred to the in-patient unit for the specialised treatment of ex-Service men with arthritis and other rheumatic disorders that was established by the British Legion at the Three Counties Hospital, Arlesey, Bedfordshire, under the direction of Dr. C. B. Heald. Over three hundred patients were admitted during the course of a year's work, which came to an end on June 1st, 1947, when the unit was transferred to London and became the Royal Free Hospital Rheumatism Unit at the Lawn Road Hospital, Hampstead.

At Arlesey much experience was gained of the clinical and administrative problems likely to be met in special units of this kind and one of the main findings was that at least 50 per cent. of patients suffering from arthritis with contracture could be restored to useful work if sufficient time and beds were available ; another was the unexpectedly large proportion of patients, some 10 per cent., in whom a chronic arthritis, usually of the rheumatoid or atrophic type, was found to be complicated by other diseases, often more serious than the arthritis and altogether undetected and untreated before admission.

A few months after removal to Hampstead the number of beds in this unit was reduced from 50 to 40, of which 20 are for men and 20 for women. In a report on the work of the unit for the seven months ending 31st December, 1947, the present Director, Dr. E. T. D. Fletcher, pays tribute to the sound clinical foundations laid by his predecessor, Dr. C. B. Heald, at Arlesey, and emphasises the value to patients with chronic locomotor disorders of the competition in self help which, wisely used, can promote recovery in a special unit of this kind, but which is not usually available as a stimulus to such patients when nursed in a general medical or surgical ward. The number of patients of all types discharged during the seven months was 132. Among these were 59 patients with rheumatoid arthritis, of whom 34 returned to full work. The results of 19 patients with osteo-arthritis, most of them over 50 years of age, were not so encouraging, and their powers of recovery seemed limited. Only five of this group returned to full work, but over half of them on discharge had improved as regards pain and disability. Eleven cases of ankylosing spondylitis were treated with X-rays, seven with success sufficient to enable them to return to work. As at Arlesey, it was found that some 10 per cent. of the patients admitted with symptoms suggesting a chronic rheumatic disorder either had no locomotor lesion or were suffering from other conditions, e.g. pulmonary tuberculosis, multiple myelomatosis, tabes dorsalis and carcinoma of the bronchus, which had not been diagnosed before admission.

The pathological service of one of the L.C.C. Group Laboratories was made available to this unit, and this was of great assistance in the beginning of a programme of research. Among the investigations in progress are an attempt to assess the results of the transfusion of the blood of pregnant women in cases of rheumatoid arthritis and studies of the cerebro-spinal fluid in the same disease along the lines initiated by Sundelin in Sweden.

The West London Hospital Rheumatism Department.—The rheumatism department under the direction of Dr. W. S. C. Copeman, established at this hospital before the war, was reopened in January, 1946, and has been working

to the limit of its capacity ever since. It is chiefly an out-patient department but there are 15 in-patient beds attached to it, some of them in the wards of the West London Hospital and others in the Empire Rheumatism Council Unit at the St. John and St. Elizabeth Hospital. During 1947 the total of new patients dealt with was 953, of whom one-quarter were suffering from rheumatoid arthritis or ankylosing spondylitis and another quarter from osteo-arthritis. Conditions such as fibrositis accounted for all but 5 per cent. of the remainder. A wide range of treatments has been used, including the intra-articular injection of solutions containing lactic acid into hip joints affected by osteo-arthritis, a method first advocated by Waugh(2) in 1945. This treatment and others, such as the injection of the stellate ganglion with local anaesthetic introduced by Steinbrocker of New York for certain painful chronic conditions of the arm and shoulder, have been under investigation by Dr. Copeman and his assistants.

Over 60 per cent. of the patients referred to this department are from the surrounding London areas, such as Kensington, Hammersmith and Fulham. To relieve the pressure on the limited facilities for physiotherapeutic treatment of the parent hospital a subsidiary clinic was opened under local authority auspices in 1946 at Westway in the Borough of Hammersmith, to which patients resident in the locality have been referred for treatment after investigation and diagnosis in the main department. This may be regarded as an example of one type of the " peripheral " or outlying clinic which, as recorded in the report for 1945, was recommended by the Minister's Medical Advisory Committee as a useful adjunct to the diagnostic and research centres for chronic rheumatism at teaching hospitals. In this instance the clinic has been served by a mobile physiotherapy van presented for the purpose by the British Red Cross Society.

This special department is at present part of an undergraduate teaching hospital and each winter a formal course of lectures on the rheumatic diseases is given to medical students by its staff. Many post-graduate students attend this department, which through these and other educational activities has already made an outstanding contribution to a national attack on the problem of the rheumatic diseases.

Manchester

The Manchester Royal Infirmary.—This hospital has allocated ten beds to the Manchester University Rheumatism Research Centre, which commenced work during 1947 under the direction of Dr. J. H. Kellgren who is a member of the staff of the University Department of Medicine. A special consultative out-patient clinic for chronic rheumatism is held weekly at this hospital. Other units of the regional scheme associated with the Manchester University centre are one with 35 beds at the Devonshire Royal Hospital, Buxton, where Dr. H. S. Barber is in charge, and another with 12 beds which will be available early in 1948 at the Withington Hospital, which will also provide a special weekly out-patient clinic for patients with chronic rheumatism. Records of cases of rheumatism treated in all the units attached to this University centre are to be collected for reference and research at a special office.

Also associated with the Manchester University centre is a special clinic to be established at Walkden with the co-operation of the Miners Welfare Commission and the Nuffield Department of Occupational Health. The physician in charge of this clinic, of which the cost is to be borne by the Miners Welfare Commission, will be a member of the staff of the University Rheumatism Centre. Under the joint direction of Dr. Kellgren and Professor R. E. Lane and using the Walkden clinic as a base, he will undertake a field survey of the incidence and causation of rheumatism in the local mining community.

(2) Waugh, W. G. Brit. Med. J. 1945, 1, 823.

Leeds

Leeds General Infirmary.—In the out-patient department of this hospital a weekly clinic held by Professor S. J. Hartfall and Dr. W. Yeoman forms a regional centre for the treatment of chronic rheumatism. Patients from this centre needing in-patient treatment are sent either to Meanwood Emergency Hospital, where there are 20 beds for women patients, or to the Harrogate Royal Bath Hospital, where the existing allocation of 33 beds for non-ambulatory patients is shortly to be increased. During the year a clinic for rheumatism, associated with the Leeds centre, was held on two days each week at the York County Hospital under the supervision of Dr. E. S. Vergette and at the Dewsbury and District General Infirmary there was a weekly rheumatism clinic under the direction of Professor S. J. Hartfall.

The special unit for research on rheumatism which Leeds University has decided to establish will be closely linked with the Leeds centre and its associated arrangements. Dr. G. N. Myers has been appointed as Director of this unit with Mr. H. Petty and Dr. D. N. Ross as research fellows. Laboratory accommodation for these workers will probably be provided at Harrogate, where it is hoped that they will be able to begin work early in 1948.

Bristol

The Bristol Royal Hospital.—During the year Dr. G. D. Kersley was appointed physician in charge of rheumatic diseases. A fortnightly out-patient clinic was held at this hospital and patients needing in-patient treatment were admitted to the Royal National Hospital for Rheumatic Diseases at Bath. It is anticipated that additional beds for in-patient treatment will eventually be available for the use of this regional centre at the Manor Hospital, Bath. An associated out-patient clinic was held weekly at the Royal United Hospital, Bath. Other associated consultative clinics are projected at Devizes, Weston-Super-Mare and Wells, together with further beds for in-patient treatment at Taunton.

Liverpool

The Liverpool Royal Infirmary, which, by reason of restricted accommodation, has been unable to provide special facilities for the treatment of chronic rheumatism has, however, co-operated closely with the regional centre established at the Broadgreen Hospital under the direction of Dr. G. Sanderson. At this centre a weekly out-patient clinic for rheumatic patients has been held and from 20 to 25 beds, mostly for women, have been available for in-patients. Orthopædic and surgical work was a feature of the work of this centre during 1947, and in several cases the operation of sympathectomy was performed with good results. During the year just over 100 in-patients were admitted for treatment.

Summary

These developments in teaching hospitals and their regional satellites open up an encouraging prospect for a more direct attack on chronic rheumatism in the manner advocated by Höjer(8) of Sweden, a country where much attention has been given to this problem.

It has long been the rule in the fields of cardiac and pulmonary disease that one doctor, who is a specialist as well as a sound general physician, should be responsible for every phase of treatment, and not only for the initial diagnosis. An extension of this principle to the field of the rheumatic diseases now appears desirable as well as possible. Such a development will be greatly helped by the

(8) Höjer, J. A. Annals of the Rheumatic Diseases, 1946, 5, 183.

opportunities for the training of specialists in these diseases resulting from the establishment of regional centres in association with a number of the teaching hospitals, and by the generous offer which has been made by the Nuffield Foundation of medical fellowships for doctors who, after a sound general medical training, elect to make a special study of the rheumatic diseases. Other benefits to be anticipated from the future development of the regional centres will be an improvement in the amount and quality of the teaching hitherto given to medical students on the recognition and management of the commoner rheumatic diseases, and an increase in the opportunities for general practitioners to attend revision courses and demonstrations which will help them to deal effectively with these conditions in their earliest stages, and to make the best use of specialist advice.

Pediculosis Capitis

During the last four years the treatment of pediculosis capitis has been much improved by the introduction of various hair oils and emulsions, medicated severally with lethane, D.D.T. or gammexane. Such oils and emulsions are easy of application, not unæsthetic, strongly lethal to living lice and nits (though they do not detach the latter from the hair) and have a comparatively long-lasting protective effect against re-infestation. These preparations have been used largely in the school medical service, are included in the National Formulary and have been put on the market at reasonable prices. It was therefore hoped that any investigation would show a considerable improvement in the proportion of persons whose hair was infested. The opinion of many school medical officers and nurses expressed in school medical reports and elsewhere has been generally in favour of such an improvement having taken place and, moreover, that the number of children with heavy infestations had much decreased. On the other hand, medical officers inspecting entrants to employment in factories have reported that pediculosis has remained numerically by far the greatest cause of rejection, and that in some localities the rate of rejection for this cause has been high.

It was decided to investigate the question on the same lines and in the same hospitals as those used by Dr. Kenneth Mellanby in 1938–40. His report had been based on the records of the examination by the nursing staff of the heads of all patients on admission to certain hospitals, nearly all infectious diseases hospitals. The records related to 1938, 1939 and the first four months of 1940, and the hospitals were grouped as follows : First, those in seven large industrial cities, each having a population over 400,000 ; the second, those in four county boroughs (three industrial) ; and the third, those in six county areas.

The records of the examination of 55,448 heads were obtained ; in 16,826 of these, or 30·3 per cent., the presence of lice or nits had been recorded. The average rate among females at all ages was 34·9 per cent., among males 25·2 per cent. Rates in the cities and county boroughs were much higher than those in the county areas.

That nearly all the hospitals were for infectious diseases tended to give rates above the real average, because such hospitals admit a larger proportion of poor patients, and the great majority of their patients, both male (nearly 91 per cent.) and female (87 per cent.) were under 14. This second factor particularly exaggerated the male rate. More than one-third of all the male patients were boys of 1 to 4 years, and at this age infestation is nearly as high

in boys as in girls and reached 41·7 per cent. Another factor which tended to make the total rates shown too high to be representative of the country as a whole was that patients from the seven great industrial cities over-weighted the sample, forming 72 per cent. of the total.

In a later investigation Mellanby (December, 1943) reported that, despite a slight change for the better, the proportion of children whose heads were infested had altered very little during four years of war, and that nearly 50 per cent. alike of pre-school age children of both sexes and of school girls were verminous, and, moreover, that older girls and women were the only section of the population which had become more lousy during the war.

The investigation of 1947

Similar reports relating to admissions in 1947 were summarised by Maddock* in all the hospitals from which the 1938–40 data had been obtained, with but one exception suitably compensated for. In spite of understaffing and other current difficulties the hospital authorities gave all possible help, which is gratefully acknowledged.

The records of 33,677 patients were examined and it was found that of 17,045 males, 2,566, or 15·1 per cent., were infested with lice or nits, and of 16,632 females, 3,549 or 21·3 per cent. These percentages compare favourably with the corresponding 25·2 and 34·9 in the previous investigation.

The ratio of "nits only" infestations to "lice" infestations fell from 1 : 1·14 to 1 : 0·67.

The infestation rate of all ages has decreased in each of the three groups. The relative decreases compared with 1938–40 being

		Males	Females
Group I	7 cities	38 per cent.	36 per cent.
Group II	4 county boroughs ..	46 per cent.	30 per cent.
Group III	6 county areas	69 per cent.	57 per cent.

The improvement has thus been greater in males than in females and in county areas than in large towns. Analysis of the various hospital returns show a wide variation in rate in different localities within each of the three groups, both in 1938–40 and 1947.

It is obvious that the problem of infestation is very much greater in the large cities than in the country, and the following table compares the percentage infestations found in 10 industrial cities in 1938–40 and in 1947 respectively. It will be observed that there is a considerable difference in the age distribution of the 1940 and 1947 populations at risk, and that, in the 1947 sample, the proportion of patients in those two age groups which had the lowest infestation rates and which had shown the highest percentage reductions, the infants under one and the adults over 19 years had much increased, forming 30·3 per cent. in 1947, compared with 10·8 per cent. in the 1940 sample. Such a difference in age-distribution made the comparison in the all-age average infestation rates too favourable in comparison with 1940, and the real improvement is somewhat less than that suggested by direct comparison of the all-age percentages.

* Maddock, E. C. G., 1949, Mthly. Bull. Min. of Hlth., 8, Feb., 26.

Percentage Infestation with Head Lice in 10 Industrial Cities

A. MALE

Age Group	1938–40 figures			1947 figures			Difference in per cent. infested	Percentage reduction
	Total Number	Total Infested	Per cent. Infested	Total Number	Total Infested	Per cent. Infested		
Under 1 ..	1,876	206	11·0	3,115	124	4·0	— 7·0	64
1–4 ..	8,280	3,351	41·7	4,582	1,103	24·1	—17·6	42
5–8 ..	6,266	2,053	32·7	3,112	696	22·3	—10·4	32
9–13 ..	3,744	990	26·4	1,980	524	26·4		0
14–18 ..	1,457	170	11·6	498	57	11·6		0
19 and over	637	11	1·7	1,106	8	0·7	— 1·0	59
Total ..	22,260	6,781	30·5	14,393	2,512	17·5	—10·3	42·6

B. FEMALE

Under 1 ..	1,425	176	12·3	2,089	101	4·8	— 7·5	61
1–4 ..	7,826	3,720	47·5	4,037	1,192	29·5	—18·0	38
5–8 ..	6,778	3,363	49·6	2,652	926	34·9	—14·7	30
9–13 ..	4,262	2,120	49·7	2,132	882	41·3	— 8·4	17
14–18 ..	2,028	539	26·5	629	171	27·1	+ 0·6	+ 0·2
19 and over	1,002	104	10·3	2,232	113	5·1	— 5·2	50
Total ..	23,321	10,022	43·0	13,771	3,385	24·6	—18·4	42·8

Summary

1. In 1938–40 out of 55,448 patients on admission to certain selected hospitals (mainly those for infectious diseases) 30 per cent. were found to be infested. In 1947 out of 33,677 patients admitted to the same hospitals, 18 per cent. were infested. Owing, however, to differences in the age, sex and locality distributions between the two sample populations the improvement is somewhat less than is suggested by these figures.

2. The number of " gross " infestations has been considerably reduced.

3. As before the infestation rate was highest in the cities and lowest in the county areas. The county areas all-ages rate for males, 2·1 per cent., is only one-eighth that in the great cities, 17·9 per cent., and the county areas all-ages female rate, 5·9 per cent., is less than one-quarter that in the great cities, 24·8 per cent.

4. In both series it was higher in females than in males, though in infancy there was a close approximation.

5. The rates for infants showed the greatest improvement, those for children up to 8 considerable improvement, those for children between 9–18 practically none.

6. Welcome as these improvements are, it is disappointing to find that in the industrial cities, where, of course, improvement is most needed, girls still show rates of 41·3 at 9–13, and 27·1 at 14–18, the latter rate indeed slightly worse than in 1938–40. Moreover, boys from 9–18 show no improvement, and women still have a rate between 5 and 6 per cent.

7. With the more effective methods of treatment and prevention now available a far greater improvement might reasonably have been expected, and a renewed attack on this anti-social pest both in the school and in the national health service is called for. Better education of the public in the care of the hair seems essential in the industrial areas, and the co-operation of hairdressers should again be sought.

III

TUBERCULOSIS

Mortality

Total deaths from all forms of tuberculosis in 1947 showed a slight increase (3 per cent.) over those recorded in 1946, when a new low record was established. Deaths from non-respiratory forms continued to decline but there was an increase of 4 per cent. in the number of deaths from respiratory tuberculosis. This increase was confined almost entirely to the first quarter of the year (9 per cent. increase over the corresponding quarter of 1946) and to certain age groups of the population, namely persons over the age of 55, females of every age above 15, and children under the age of 5. The association of this sharp but short rise with climatic conditions is of interest. Year by year about one-third of the annual deaths from respiratory tuberculosis occur in the first quarter and in 1947 exceptionally severe conditions were experienced, January bringing snow and intense frost, February persistently very cold weather with snow, and March unprecedented floods. It may be that the mortality figures represent no more than an exaggeration of the normal pattern.

The Dispensary Service

The number of new cases diagnosed to be tuberculous during 1947 showed a further increase. This is, in part, evidence of activity and awareness on the part of both general practitioners and tuberculosis officers. Doubtless the reference of suspicious cases from mass radiography units is a factor that will become of increasing importance as the number of units is multiplied. The value to the public health of bringing ever more tuberculous patients and their contacts under some measure of supervision and control cannot be over-estimated.

Number of new cases diagnosed to be tuberculous (both respiratory and non-respiratory) by the dispensary service.

England and Wales

Year		*Year*	
1936	41,070	1942	44,453
1937	41,430	1943	46,366
1938	40,742	1944	46,872
1939	(Returns interrupted by outbreak of war)	1945	45,641
		1946	45,909
		1947	47,186
1940	38,259		
1941	40,835		

Institutional Accommodation

Throughout 1947 there were at any one time approximately 27,500 tuberculous patients receiving institutional treatment. This represents an increase of 2 per cent. over the number recorded for 1946.

Date	(a) Beds provided	(b) Beds empty but temporarily not available	(c) (b) as percentage of (a)	(d) Beds empty and ready for use	(e) Waiting List
31st December—					
1944	29,625	1,911	6·5	1,815	4,273
1945	30,800	3,461	11·2	996	5,382
1946	32,065	4,944	15·4	756	7,025
1947					
31st March ..	32,586	4,618	14·2	638	6,882
30th June ..	32,801	4,295	13·1	541	7,949
30th September ..	32,823	4,090	12·5	627	8,669
31st December ..	32,590	3,757	11·5	794	8,269

This table shows that the number of beds provided during 1947 was greater and the number of beds empty but temporarily not available was less than in 1946. Shortage of staff continued to be the main (88 per cent.) reason for empty beds being temporarily not available, although there was a slight improvement from the position in 1946, when one bed in every six or seven was so closed. These slight gains, however, are overshadowed by the steadily mounting numbers of patients awaiting admission.

Date	Relationship of the number of beds empty but temporarily not available to the numbers on the waiting list
	Per cent.
1944	
December	45
1945	
March	46
June	50
September	61
December	64
1946	
March	56
June	52
September	58
December	70
1947	
March	67
June	54
September	47
December	45

These beds, if adequately staffed, would absorb about half the patients on the waiting list. Meanwhile all measures for the welfare of patients, whether admitted to institutional beds or not, and the protection of their associates should be pursued with unflagging zeal.

The Standing Advisory Committee on Tuberculosis

This Committee met four times during the year. Problems on which considered advice was offered included the possible effect of the National Health Service Act on the working of the country's tuberculosis services ; the risk of infection with tuberculosis in offices ; the value of preventoria in the control of tuberculosis ; the Report of the Working Party on Nursing Services ; diet in tuberculosis. At the November meeting the United Kingdom representative on the Interim Commission of the World Health Organisation presented a detailed account of the Report of the Expert Committee on Tuberculosis. This was discussed at length and comments from the Committee and from individual members were invited.

Mass Radiography

During 1947 the number of mass miniature radiography units operating among the civil population in England and Wales was 23. This was only a small increase over 1946 but during the year much was done in preparation for a substantial addition to the number of units to be brought into use in 1948 (in the first half of which ten new units were put into operation). The facilities for mass radiography will continue to be steadily extended as further equipment and staff become available, so as to build up as soon as possible a network of units sufficient to meet the needs for this service in every part of the country, including the examination of tuberculosis contacts and of any groups in which it may be judged particularly desirable to take special measures for early detection of respiratory tuberculosis. All the units will gradually be made completely mobile and capable of operation inside or outside a van, which contains a dark-room and tows a 25-kW. generator. Photo-electric timers will also be added as they become available. Exhaustive tests have been made with the various types of mirror cameras. These tests show that for the purposes of mass radiography the mirror camera at present offers no material advantage over the lens system.

The following paragraphs refer to the aggregated findings of all units since the beginning of the scheme.

The total number of persons examined in England and Wales up to 31st December, 1947, was 2,019,670 (1,145,997 males and 873,673 females). In this number were represented all the 31 basic occupational classifications forming the Registrar General's standard code with the addition of some 102,000 children of school-leaving age. Ninety-two per cent. of the persons examined were between the ages of 15 and 59. Among the largest groups represented were clerical, metal workers, electrical apparatus makers, professional occupations, makers of textile goods, transport and communication, personal service, warehousemen and storekeepers.

Of the total numbers examined more than 94 per cent. were found at the time to have no abnormal chest condition. Previously unsuspected active tuberculosis of the lungs was revealed in slightly less than 4 per 1,000 (7,892 persons). In the majority of these activity was proven at once. Of the post-primary cases 50 per cent. were unilateral and 50 per cent. bilateral. Inactive and observation tuberculosis, exclusive of calcified primary lesions, was found in 2 per cent. of all persons examined, the rate for males exceeding that for females in the ratio of 5 to 4. A number of these cases break down and become clinically active while under observation by the tuberculosis officer. These are not all recorded as being detected by mass radiography. A number of the units, however, have facilities for a long-time follow-up of inactive cases and the

break-down rate should be established within the next few years. Acquired cardiovascular lesions have been detected in the same proportion as active tuberculosis but it must be remembered that rheumatic heart disease cannot always be found by mass radiography.

Of other intrathoracic abnormal conditions the comparatively small numbers do not warrant firm conclusions but the following findings show that points of practical interest may emerge as the scope of this service is increased.

Intrathoracic malignant disease.—A total of 257 cases has been detected (231 males, 26 females). The rate per 100,000 examined was 20 for males, 3 for females. The average age was 54 for males, 50 for females. But it must be remembered that the age groups examined differed markedly in the sexes. Of all males examined 30 per cent. were aged 45 and over, the corresponding figure for females being no more than 12 per cent. An attempt to obtain fuller details of these cases by correspondence, after a lapse of not less than six months from the date of diagnosis, has met with success in respect of 198 of the 257 cases, analysis of which gives the following picture :—

Carcinoma of the lung	169
Metastases	14
Lymphadenoma	5
Lymphosarcoma	4
Malignant tumours of the chest wall	4
Carcinoma of the thyroid	1
Carcinoma of the œsophagus	1
	198

Intrathoracic tumours detected by M.M.R. units are referred at once to their local doctor and the nearest appropriate hospital for investigation and treatment. As most of the units are mobile, they are not in a position to follow up these cases. The largest returns have been made by units which were static for long periods. It is hoped that under the new regional set-up the director will be in a position to make a complete follow-up of all non-tuberculous cases. Even with the limited number of cases available, two facts emerge : (1) Carcinoma of the lungs occurs more frequently in the northern half of the United Kingdom. This confirms Dr. Stocks's findings from analysis of the mortality figures. (2) Mass radiography detects a fair number of early operable cases of carcinoma of the lungs.

Retrosternal thyroid has been found in 121 cases (80 males, 41 females). The average age of the males was 50, of the females 45. None was found by 10 of the 23 units. Localisation of incidence is marked.

Bronchiectasis.—Some 2,000 cases have been found, the incidence among males being twice that among females. The age distribution continues to show marked difference between the sexes.

It is again satisfactory to record that over 97 per cent. of persons recalled for further examination responded.

B. C. G.

A representative committee was set up in December, 1947, to advise the Ministry on the scientific, technical and administrative problems inherent in the conduct of clinical trials designed to evaluate the usefulness of B.C.G. vaccine in protecting selected groups of the population of this country against tuberculous infection. The committee recommended the use of one strain only

of B.C.G. in the first instance, to be obtained from Copenhagen. A memorandum also was prepared setting out the minimum requirements in the composition of B.C.G. designed for the protection of the public. It was further agreed that, for the purposes of Mantoux tests, the use of the same batch of old tuberculin as that used in the Prophit Survey should be recommended.

Arrangements are approaching completion for B.C.G. to be made available in each region to tuberculosis specialists wishing to administer it on their own responsibility. The intention is not to encourage general inoculation of the public at large, but in the first instance, to concentrate on those groups considered to live at more than average risk of tuberculous infection, because it is realised that no certain claim can yet be made for this type of inoculation in the conditions prevailing in this country.

Streptomycin in the Treatment of Tuberculosis

Last year's report referred to the organisation by the Ministry of wider clinical trials of streptomycin in the treatment of tuberculous meningitis and acute miliary tuberculosis. Acknowledgment is due to the staff of the Emergency Bed Service who throughout the period of extreme shortage of streptomycin supplies undertook the task of answering enquiries and allocating patients to beds in hospitals where streptomycin was available under the scheme. In September, 1948, the allocation and distribution of streptomycin was placed upon a regional basis. The groups established by teaching hospitals in different parts of the country, as well as by the Department of Health for Scotland and the Ministry of Health and Local Government of Northern Ireland, have not only worked steadily in the field, but have also made it their business to attend regularly the quarterly meetings held under the chairmanship of Sir Weldon Dalrymple-Champneys. In addition, two important reports, (1) (2) to the Medical Research Council brought to a focus many of the problems which beset the use of this drug. Research abroad has also contributed much valuable evidence, notably a comprehensive Survey and assessment by Feldman and Hinshaw.(3)

Although finality has not been reached in the assessment of the dosage, value and limitations of streptomycin in certain types of clinical tuberculosis, there is already general agreement on certain broad principles. Thus, although it is still too early to pronounce upon long-term results, there is no doubt it is a powerful weapon against those forms of tuberculosis (meningeal and acute miliary) which hitherto have been almost invariably fatal, and every patient so diagnosed should receive it. Furthermore, it is a useful adjuvant in some other forms of the disease, notably ulcerative tracheobronchitis and laryngitis* and ulceration of the tongue and pharynx. On the other hand, all who are likely to use the drug should be aware of certain limitations and dangers associated with its use. It should not be used indiscriminately in every form of tuberculosis. Toxic effects, of which the most important is irreversible vestibular damage, and the emergence of streptomycin-resistant strains of tubercle bacilli are the two main obstacles limiting the use of the drug at the present time, and much work remains to be done to find for each form of the disease the best scheme of dosage which will combine therapeutic effectiveness with low toxicity and will

(1) Streptomycin Treatment of Tuberculous Meningitis. Streptomycin in Tuberculosis Trials Committee, Medical Research Council, Lancet, 1948, i, 582.
(2) Treatment of Tuberculous Meningitis with Streptomycin. Smith, Honor V., Vollum, R. L., Cairns, H. ibid, 1948, i, 627.
(3) Streptomycin : A Valuable Anti-Tuberculosis Agent. Feldman, W. H., Hinshaw, H. C. Brit. Med. J., 1948, i, 87.

* In July, 1948, Regional Hospital Boards, at the invitation of the Ministry, set aside beds for these forms and streptomycin was made available. At the same time a sub-committee of the Minister's Standing Advisory Committee on Tuberculosis was set up to give current advice on clinical priorities in the use of streptomycin.

delay or prevent the emergence of resistant strains. This latter eventuality must be borne in mind in planning long-term treatment, in which the occurrence of this phenomenon may prevent further streptomycin treatment being effective in the event of a recrudescence or a fresh lesion at a later date. From the public health point of view there is clearly a risk, particularly in advanced cases with copious sputum, of the dissemination of resistant strains, so that patients infected by them cannot hope, in their turn, to be benefited by streptomycin treatment.

Streptomycin in the Treatment of Non-Tuberculous Infections

In December, 1946, the Medical Research Council appointed a Committee to arrange clinical trials of streptomycin in non-tuberculous infections. These trials were begun at five centres in London and later were extended to eleven centres throughout the country and a report of this Committee was published in September, 1948.† In view of the evidence contained in this report the Ministry thereupon arranged, in October, 1948, that streptomycin should be made available for distribution in the regions for the treatment of meningitis and septicæmia due to Gram-negative bacilli and other penicillin-resistant organisms found to be streptomycin sensitive.

Note.—The Therapeutic Substances Streptomycin Regulations (No. 1735) which came into operation on the 1st August, 1948, brought streptomycin within the scope of the Penicillin Act, 1947, which controls the sale and supply of the substances to which it applies.

† Lancet, 1948, ii, 445.

IV

LABORATORY SERVICES

A. Public Health Laboratory Service Directed by the Medical Research Council for the Ministry of Health

The year saw a gradual expansion in the work of the Public Health Laboratory Service. New laboratories were established at Shrewsbury and Southampton, and existing laboratories under local authority control were taken over at Luton, Newcastle, Newburn, Wakefield, Stafford, Exeter, Ipswich, and Bradford. Arrangements were made for building fresh laboratories in a number of other places, but little progress was made in actual construction. In addition to building difficulties, laboratory equipment became increasingly scarce and the delivery time more and more prolonged ; properly trained medically-qualified staff was so scarce that the opening of new laboratories had to be postponed, and the directors of many laboratories had to carry an unjustifiably heavy load of work and responsibility without any deputy to afford them relief from the continuous strain.

Establishment of the Service on a permanent basis as part of the normal public health organization of the country has led medical officers of health to use the facilities afforded for laboratory and field inquiries to an increasing extent. It need hardly be reiterated that the Service exists primarily to assist medical officers of health in the execution of their duties. Under the National Health Service Act responsibility for preventive medicine is largely in the hands of the local health authorities, and it is believed that, if their medical representatives take full advantage of the assistance which the Laboratory Service can give them, considerable advance may be made in the prevention and control of infectious disease.

Bacteriological Examination of Water by Public Analysts

A free service to local authorities for public health laboratory examinations was introduced in April by all the constituent laboratories, and at the same time, or slightly later, by the associated laboratories. Some of the public analysts were disturbed at the prospect of losing private work, particularly in relation to the bacteriological examination of water supplies. The Royal Institute of Chemistry and the Society of Public Analysts accordingly sent a deputation to the Ministry of Health to state their case. The Parliamentary Secretary, who received it, made it clear that it was desirable for epidemiological purposes that the bacteriological examination of " consumer " samples of water should be undertaken by the Public Health Laboratory Service, and that the public analysts should restrict their bacteriological work to the control of water supplies during the process of purification. The Public Health Laboratory Service will therefore in future be prepared to examine free of charge all samples of water taken by authorized officials of sanitary authorities at any point between the distributing reservoir and the tap in the consumer's house. Waters from wells and other natural sources that are consumed in the raw state will also fall within the free schedule.

Ice-Cream

Following the issue by the Ministry of the Ice-Cream (Heat Treatment, etc.) Regulations, 1947, and the description by a special sub-committee of the Public Health Laboratory Service of a methylene blue reduction test for the purpose of grading samples according to bacterial cleanliness, many sanitary authorities displayed great interest in the methods of production and distribution of ice-cream. The poor hygienic quality of a large proportion of the samples submitted for examination came as a shock to medical officers of health, and the test itself was submitted to a certain amount of criticism. Most of this proved, on investigation, to be unfounded ; and experience showed that when a laboratory director visited the processing plant with the sanitary inspector and pointed out sources of contamination, it was generally possible to improve the grade of the ice-cream considerably. Some of the larger firms with modern processing plants suffered from contamination of their product at the distributing end. Spoons and servers kept in a jar of water were found in hot weather to be teeming with bacteria ; and the methods of collecting the sample of ice-cream were not always above suspicion.

Trouble sometimes arose from executive action being taken against producers on the basis of a single unsatisfactory report. It cannot be emphasized too strongly that, owing to the numerous factors which influence the bacterial quality of such articles as water, milk, ice-cream and food, and to the impossibility of standardizing completely any biological test in the laboratory, opinion on hygienic quality should be based not on one sample, but on a series of samples. Though an adverse report may call for investigation and advice, it should rarely, if ever, justify serious executive action. There is reason to believe that, in a number of laboratories not belonging to the Service, the methylene blue test was not being carried out properly. Dry incubators running at too high a temperature were being used instead of thermostatically controlled water-baths, which were difficult to obtain, with the result that undue bacterial proliferation occurred and the grade of the sample was reported as being lower than it really was.

Central Enteric Reference Laboratory and Bureau

The Vi-phage typing of typhoid and paratyphoid B bacilli has become of increasing value to the epidemiologist in helping him to trace the origin of infection. For many years Dr. Craigie in Toronto, and Dr. Felix in the Public Health Laboratory Service, have been perfecting their technique, and in June, 1947, they published a paper in the *Lancet* recommending a standardized method of carrying out the tests and recording the 24 separate types of typhoid bacilli that they had been able to define by its use.

At the fourth International Congress for Microbiology held at Copenhagen the following month, it was recommended that Craigie and Felix's standardized technique should be adopted universally, and that the Central Enteric Reference Laboratory at Colindale should act as the International Central Reference Laboratory for enteric phage typing.

After discussions between members of the Ministry's staff and representatives of the Public Health Laboratory Service, it was agreed that the Central Enteric Reference Laboratory should also act as a Bureau for the purpose of collecting information about the distribution of cases and carriers of typhoid and paratyphoid in Great Britain. It is proposed to compile a register of the patients with a note on the particular phage type with which each of them is infected. Medical officers of health are asked to co-operate in providing the information necessary to render this register as complete as possible. In return, they will be able to make full use of the centralized records when investigating fresh cases in their districts.

Epidemic Disease

Typhoid and paratyphoid fever

During the year cases of typhoid fever were few and mainly sporadic. The only two small outbreaks investigated were those in Thedwastre R. D. in July, in which laboratory examination showed that the suspected carrier was infected with a different Vi-phage type (A) from that responsible for the cases (E1), and at a nursing home in Pinner where infection was introduced by a refugee nurse employed at Bishop's Stortford who was the mother of one of the children.

Outbreaks of paratyphoid fever were investigated at Blaydon, Oxford, Ipswich, East Bedfordshire, and in the Lea Valley.

Salmonella infections

One of the most interesting features of intestinal disease during the year was the large number of *Salmonella* infections and the very low prevalence of dysentery. *Salmonella* infections reached their maximum during the hot months of July, August, and September, and fell off gradually as autumn came on. Dysentery, on the other hand, was at a minimum during the summer, but began to increase slightly towards Christmas. The curves of these two groups of infections were almost completely inverse. The *Salmonella* infections came from many different sources. *Salm. typhi-murium* was unusually active, and caused numerous outbreaks of food poisoning. One of these, at Aldershot, was shown to be due to ice-cream. *Salm. dublin* cropped up in a number of places, and in Somersetshire caused two milk-borne outbreaks of gastro-enteritis. This organism is primarily responsible for causing enteritis in calves and older cattle, and it was isolated from these animals by several laboratories, particularly in the south and west of the country. The danger of its getting into milk through fæcal contamination is of course considerable.

Numerous infections occurred with types of *Salmonella*, such as *oranienburg, montevideo, bareilly, senftenberg, and tennessee*, that were not met with in this country before the war. There is little doubt that these were derived directly or indirectly from imported spray-dried egg. The evidence incriminating this article of food as an important cause of the great increase in *Salmonella* infections during the later years of the war was recorded in a special report by the Medical Research Council ("The Bacteriology of Spray-dried Egg with particular reference to Food Poisoning" *Spec. Rep. Ser. Med. Res. Coun.*, 1947, No. 260). During 1947, the Public Health Laboratory Service examined 1,055 samples of dried egg and found salmonellae in 14·7 per cent. of them. The organisms belonged to 15 different serological types, of which the commonest were *oranienburg, montevideo, tennessee, senftenberg*, and *bareilly*, that is, the very types that were responsible for food poisoning. Infection of man, it may be pointed out, is not always direct. For example, one outbreak of food poisoning at Newbury described by Cook and Costobadie (*Mon. Bull. Min. Hlth., Lond.*, 1947, **6**, 177), which was due to *Salm. typhi-murium*, followed the consumption of a sponge-cake trifle made by a fairly large firm of confectioners. *Salm. typhi-murium* of Vi-phage Type 1 was isolated both from the patients and from the dried egg with which the trifle was made. The sponge cake itself could not have been responsible, because of the thorough cooking it received. It was found, however, that the synthetic cream in the trifle had been prepared in the same mixing machine as that used for the sponge cake and had therefore been exposed to indirect contamination from the dried egg. Until the organisms are destroyed by pasteurization of the egg mélange during processing, food poisoning in sporadic or epidemic form is almost bound to occur among those who do not take the precaution of cooking reconstituted dried egg thoroughly before it is eaten.

Other types of food poisoning

Food poisoning of staphylococcal origin was prevalent during the summer. The largest outbreak was that traced to a meat product known as liver sausage. This was prepared by a reputable firm and was distributed over a wide area of the east of England. The number of cases was probably about 2,000. Contamination of the gelatin used as one of the ingredients apparently occurred directly or indirectly from a nasal carrier of *Staphylococcus aureus* during the course of preparation. Three other handlers of the gelatin glaze were found to be carrying the infecting strain on their hands. Owing to the unusually hot weather prevailing at the time, abundant multiplication of the organisms took place, with the resultant production of a potent gastro-intestinal toxin. Gelatin is a particularly favourable medium for the growth of staphylococci. Glazing should always be carried out with freshly prepared gelatin heated to about boiling point, and the glazed articles should be cooled at once and kept in a cold chamber or refrigerator. Experience of this and of other outbreaks serves to confirm the increasing value that serological and bacteriophage typing of staphylococci are proving in the investigation of outbreaks of food poisoning.

Food prepared in school canteens and at communal feeding centres was related to a number of outbreaks of poisoning. Recognized pathogenic organisms could not always be found, and the length of the incubation period, which tended to be intermediate between that of staphylococcal and that of salmonella infections, and the character of the symptoms, suggested that there was some other cause. Experience of this type of outbreak during the past few years suggests that poisoning is frequently due to a toxic substance formed as the result of prodigious bacterial multiplication in the food. The particular type of organism concerned varies in different outbreaks, the commonest being streptococci, aerobic spore-bearers, and anaerobic spore-bearers. Such foods as gravy are commonly made up in large quantities the day before they are to be eaten. After being cooked, they are left to cool down slowly in large containers. These conditions are admirable for the germination and growth of spore-bearing organisms, which by the following morning may be present in enormous numbers in practically pure culture. Even if put in the refrigerator the food may still be slightly warm. There is a general failure to realize that the main purpose of a refrigerator is not to cool food down, but to keep it cool. Since few canteen or restaurant kitchens are equipped with special cooling plant, it follows that foods such as gravy, custard, trifles, synthetic cream and other articles that serve as good nutrient media for bacteria should be prepared on the day on which they are to be eaten. Many common practices are justifiable in the individual household that are dangerous under communal conditions, and instruction of canteen staffs in the preparation and serving of food is badly needed. Already the Central Council for Health Education has arranged for courses of lectures to food handlers throughout the country, and members of the Public Health Laboratory Service have taken an active part in trying to make them a success.

Neonatal Diarrhoea and Infantile Enteritis

Members of the service took part in the investigation of cases and outbreaks of neonatal diarrhoea at Plymouth, Reading, Oxford, Eastbourne, Cowley, Harrogate, Tunbridge Wells, Bradford, Walthamstow, Clatterbridge, Leicester, Hitchin, Cardiff, Scunthorpe, Preston and Salford. Bacteriological investigation has so far thrown little light on the causation of the disease. Clinical and epidemiological data suggest that there are probably at least two types of epidemic diarrhoea in infancy other than those caused by recognized pathogenic organisms of the *Salmonella* and *Shigella* groups. One, the typical neonatal

diarrhoea, is confined mainly or entirely to the infants themselves and is attended by a high case-fatality rate. The other affects mothers and nursing staff as well as the infants and has a very low case-fatality rate. Though there is a suspicion that one or other or both of these forms may be of virus origin, attempts by the Virus Reference Laboratory at Colindale to demonstrate the presence of a virus in stools and throat washings have so far been unsuccessful.

The Medical Research Council has set up a committee on Infection in Infancy, and teams of clinical, epidemiological, and bacteriological workers are being formed for regional investigation of outbreaks of infantile enteritis in different parts of the country. The investigations will be based on public health laboratories, working in close co-operation with the Salmonella, Virus, and Staphylococcal Reference laboratories at Colindale.

Pemphigus

Several laboratories in the Service have been very active in the investigation of pemphigus outbreaks in maternity homes. Most of the evidence seems to show that infection occurs primarily in the babies, and spreads among them under the grossly overcrowded conditions prevailing in many nurseries. Mothers are sometimes infected with staphylococci from their babies, but the reverse is very much less common. Infection is generally introduced into the nursery from a midwife or other member of the nursing staff. Detection of the carrier responsible is usually possible only by the help of serological or bacteriophage typing of the organisms isolated from the nose or hands. Dr. Allison and Dr. Betty Hobbs published an interesting paper (*Brit. Med. J.*, 1947, ii, 1) on the disease, discussing its mode of spread and the means necessary for its prevention and control.

Poliomyelitis

The large outbreak of poliomyelitis afforded excellent material for investigating the disease, but the cramped quarters of the Virus Reference Laboratory at Colindale, the acute shortage of monkeys, and the absence of suitable accommodation in which to house them rendered laboratory examinations practically impossible. All hope of mapping out the distribution of the virus in relation to the primary cases had to be abandoned, and the most that could be done was to collect a few strains for investigation when conditions should improve. On the epidemiological side special inquiries were set on foot, centred mainly on Oxford and Cambridge, to try and ascertain what features in common occurred in the history and environment of the individual cases. A long questionnaire was prepared, which medical officers of health and others were asked to fill in. The response was very good, and the information obtained is now being analysed in the Department of Social Medicine at Oxford.

Smallpox

The Virus Laboratory carried out a large number of diagnostic tests on material from suspected cases of smallpox, in the epidemic in the Midlands in 1947. The laboratory tests were of particular value in confirming the diagnosis in patients with minimal lesions and distinguishing between variola and generalized vaccinia in inoculated contacts.

Special Investigations

Vaccination against whooping cough

The trials with different types of pertussis vaccine mentioned in last year's report were continued at Oxford, Tottenham, Wembley, Edmonton and Manchester, and a new series was started at Leeds. Owing to the comparatively low incidence of whooping cough, results are slow to come in, but it is believed that by the end of 1949 sufficient information should have been collected to justify some pronouncement on the value of protective vaccination against this disease.

Penicillin treatment of diphtheria cases and carriers

After preliminary observations had shown that most strains of diphtheria bacilli are sensitive to penicillin, treatment with penicillin was tried on a series of cases and carriers of diphtheria. The results, on the whole, were promising. Of 57 acute cases, 43 responded satisfactorily, and of 28 chronic carriers, 12 ceased to harbour the organism within four days of the last dose.

Penicillin and sulphathiazole in the treatment of typhoid fever

It was reported last year that attempts to sterilize chronic typhoid carriers in mental institutions by combined treatment with heroic doses of penicillin and sulphathiazole had proved unsuccessful. Excretion had in many cases stopped for a time, but in every instance had recommenced within three months. Experience this year has been slightly more hopeful. Three carriers out of 17 treated have now remained free for periods of 20 to 31 weeks, and it is to be hoped that their cure will prove permanent.

Bacteriological examination of ice-cream

The Sub-Committee that was responsible last year for suggesting standard methods for the examination and grading of ice-cream continued their work with a view to estimating the value of the methylene blue test in determining bacterial quality. On the whole the test worked well, and the only substantial objections were raised by some of the larger firms whose products tended to be graded slightly lower than the hygienic conditions under which they were prepared seemed to warrant. The trouble appeared to be caused mainly by the presence of aerobic spore-bearing organisms, derived from dried milk, that resisted heat treatment and were subsequently able to reduce methylene blue. Further observations will be needed to find out whether difficulties caused by these organisms can be overcome. It will be remembered that, at one time, the presence of thermoduric and thermophilic organisms led to the occasional failure of holder-pasteurized milk samples to conform to the official tests, but that, when measures were taken to prevent the original contamination of the raw milk with thermoduric organisms and to avoid undue multiplication of thermophilic organisms in the processing plant itself, little further trouble was experienced.

Testing of new diphtheria prophylactics

Comparative tests were carried out on a new form of toxoid-antitoxin floccules (T.A.F.) prepared by the Wellcome Physiological Research Laboratories and on the Purified Toxoid, Aluminium Phosphate, Precipitated (P.T.A.P.) prophylactic introduced by Holt, of St. Mary's Hospital. Considerable difficulty was experienced in finding suitable groups of infants and young children on which to make the trials, and too few results had been obtained by the end of the year to enable any final conclusions to be drawn on the antigenic potency of the new products. Medical officers were, on the whole, reluctant to allow the normal routine of the immunization clinic to be disturbed for the purpose of the tests. Though this was quite understandable, it must be realized that, unless comparative tests can be made on previously unimmunized subjects, little progress can be expected in the development of new prophylactic agents against diphtheria.

Publications

An interesting study was published by J. C. Cruickshank (*Mon. Bull. Min. Hlth., Lond.*, 1947, **6**, 88) on the epidemiology of typhoid fever in Devon, showing the great value of Vi-phage typing; and Wallace and Mackenzie recorded (*Mon. Bull. Min. Hlth., Lond.*, 1947, **6**, 32) the milk-borne outbreak of paratyphoid fever in the Isle of Wight referred to in last year's report.

A group of workers at Oxford, Cambridge and Cardiff (*J. Hyg., Camb.*, 1947, **45**, 251) described the results of a joint inquiry into the incidence of cross-infections, complications, and return cases in scarlet fever. The deplorable state of restaurant hygiene was revealed in a paper by Irene Hutchinson (*Brit. Med. J.*, 1947, i, 134), which received a good deal of press publicity; and a bacteriological investigation into the washing and sterilization of food containers in school kitchens was published by Knox and Walker (*J. Hyg., Camb.*, 1947, **45**, 151). Reference has already been made to the Medical Research Council's report on spray-dried egg, to Allison and Hobbs' paper on pemphigus neonatorum, and to Craigie and Felix's paper on the Vi-phage typing of typhoid bacilli. Other epidemiological studies included one by Martin (*Mon. Bull. Min. Hlth., Lond.*, 1947, 6, 148) on a field investigation of the Beccles series of paratyphoid cases, one by Dathan, McCall, Orr-Ewing and Taylor (*Lancet*, 1947, i, 711) on *Salm. enteritidis* infection associated with the use of an anti-rodent "virus", and one by Cook and Marmion (*Brit. Med. J.*, 1947, ii, 446) on gastro-enteritis in a maternity unit. Numerous papers of interest were published by members of the Service in the Monthly Bulletin, dealing with such subjects as food poisoning, paratyphoid fever, pemphigus, diphtheria immunisation, and the laboratory diagnosis of cholera.

B. The Hospital Laboratory Service

The year 1947 was the last full year of preparation for the National Health Act. The hospital laboratory service for England and Wales was, and still is, incomplete. Much has been done, but the service is of a progressive kind and can never remain static or stereotyped.

Before the War

The university centre laboratories were mainly confined to the teaching hospitals; the local authorities had, with some notable exceptions, made little or no provision. In the home counties, London, Middlesex and Surrey had provided, or were providing, laboratory services. Essex and Kent had each concentrated on a single postal centre. Hertfordshire, Bedfordshire and Buckinghamshire had done little or nothing. In the provinces, the county and borough authorities had very incomplete services, even in the large cities, and some counties had not made themselves responsible for a single modern laboratory. The private enterprise of a few pathologists had established comprehensive departments of pathology, all of which were in urgent need of enlargement, but all were ready to extend their supervision to the new laboratories of the E.M.S. These main centres, the majority still under the direction of the originators, were and still are at Carlisle, Sunderland, Chester, Preston, Wolverhampton, Reading, Dorchester, Exeter, Salisbury, Plymouth, Truro and Swansea. There were other good laboratories in provincial voluntary hospitals, but these were largely confined to the hospitals they served and to the neighbouring practitioners.

War-time and Post-war Development

In setting up laboratories during the war, the decision lay between providing a few large and comprehensive laboratories or many small and scattered ones. It was realised that a limited number of central laboratories, with specialists in the main branches of pathology, would eventually be required, but the provision of local services was urgent, and in any event the impossibility of building large departments of pathology necessitated a peripheral system of many small ones, by the conversion of such accommodation as could be wheedled out of the congested local hospitals.

In the provinces alone, up to and including 1947, 155 towns and their hospital laboratory services have been inspected and 130 either new or greatly extended laboratories have been developed. This development was accompanied, as was only to be expected, by difficulties of building, staffing, equipping, and finance, but it was made possible by the urgent requirements of the E.M.S. in the earlier years, later by the growing recognition of owning authorities in the smaller towns of the need to co-operate, and more particularly in 1947 by a general loosening of the purse strings in anticipation of the new Act.

In the London area, hospital laboratory development has been simplified and made efficient by the untiring work of the original sector pathologists, all of whom were the heads of University teaching departments. The monthly meetings of the Sector Pathologists' Committee at the Ministry have kept the service alive and in touch with the university centres and the Ministry. It is to be hoped that this Committee, which is still in active commission, or its near equivalent, will remain in the new service. The number of laboratories set up or greatly extended in the home counties under the sector service is 74, and there is still need for further extension, particularly of staffing and equipment.

Development in 1947

While development has continued throughout 1947, the year has been largely one of stock-taking in preparation for the transfer of the service to the regional boards and management committees. In taking stock for the future, attention has been directed to the greater demands that will immediately be made upon the laboratory services outside the hospitals by the general practitioners, and in particular by those who have returned from the armed forces, by the coroners, who are now demanding specialist service, and to the growing demand everywhere for the final elimination of " postal pathology " and the provision of a local service, which will bring the pathologist in direct contact with patient and clinician.

The main problems of the year have, therefore, been the extension of premises, the provision of adequate staffs, both medical and technical, the manufacture of equipment, and the establishment of a local service.

Premises

New building on any large scale has been impossible, and even minor adaptations have had to be carefully considered. Some new departments of considerable size are in the final plan stage and likely to be started in the near future ; smaller laboratories have passed the planning and contracting stages, and are slowly nearing completion. Many adaptations to existing premises were completed during the year, and these laboratories are now in active working order. Good examples of recently completed local laboratories are to be found at Newbury, Dudley, Llandudno, Colwyn Bay and a number of other places, including the tiny, distant and isolated hospital at Holyhead.

In planning the layout of new laboratories, particular attention has been given to the provision of consulting rooms, waiting rooms, and examination rooms, in order to cope with the expected extension of out-patient services. An adequate staff room for the technicians is an essential adjunct to the laboratory, and this is being provided wherever possible.

The hospital mortuary and post-mortem department have often been more in need of reorganisation than any other service of the hospital. At one hospital of considerable size and repute, the mortuary was actually in the laboratory. At some other hospitals, the visitor to a dead relative was shown into a cold, bare room with half a dozen or more other corpses lying on trestles or shelves. Much has been done to provide the ordinary decencies of waiting rooms and

small viewing chapels, but there still remain hospitals in which arrangements for the temporary disposal of the dead are unsatisfactory. The provision of cold storage in all mortuaries is essential, both for scientific and medico-legal reasons, and much has been provided. More will be needed as the hospital centre becomes to an even greater degree the respository for coroners' cases, and if the pathologist is to be spared long journeys to make post-mortems in impossible surroundings.

Staffing

1. *Medical Staff.*—The number of recognised pathologists on the Medical Research Council register compiled in 1938–39 was 676. It has not been possible to keep this register strictly up to date, but the number on the register is now 1,167 and the actual number must be somewhat larger, so that in spite of the natural wastage during the war years, amounting, so far as the available records show, to 122, there has been a considerable increase in number. This is partly due to the establishment of trainee pathologists in the E.M.S. laboratories, and partly to the training of men in the Services. The present number is quite inadequate for the new developments, but the future prospects are reasonably good, thanks to the British Postgraduate Medical Federation scheme. An unexpectedly large number of demobilised officers have elected to take up hospital pathology as a career. Some have returned direct to their original medical schools ; others have been sent to the Ministry for consultation and advice in obtaining the necessary training ; 273 have been interviewed at the Ministry and of these 171 have been established in posts or training centres. Many are still in training and gradually becoming available for assistant posts. The total number of pathologists available for all branches of pathology within the next year or two can be approximately reckoned as at least double that of the pre-war period.

2. *Scientific Staff.*—University graduates, with scientific but not medical qualifications, are valuable in hospital laboratories, particularly in the departments of chemical pathology. The pre-war establishments have been considerably augmented, but more of these scientific workers will be required as the specialist departments of central laboratories develop. Future recruits might well come largely from the junior technical staffs, who are being encouraged to work for university degrees.

3. *Technical Staff.*—The laboratory technicians are the backbone of the service, and the present year has witnessed well-merited advances in their educational and financial status. Agreement has been reached with the Ministry of Labour by which the young trainee technician is recognised as an apprentice, and his military service is postponed until he has had reasonable opportunity of passing his first qualifying examination. Already 265 applications for "identification" have been received by the Ministry in the short time that the scheme has been in operation. This agreement is subject to the provision of the necessary educational facilities, and these are being provided in co-operation with the Ministry of Education. Set classes are held in the laboratories, and evening classes are provided by the local education authorities, payment being made to senior technicians giving approved courses of instruction. Fees, travelling expenses, and text books are provided by the Ministry of Health without cost to apprentices in E.M.S. laboratories.

Salaries and the conditions governing promotion have been greatly improved and it is expected that in 1948 the agreements reached by the Joint Committee formed in the present year will be generally accepted.

All these advances secure a considerable rise in the status of laboratory technicians, and are most valuable to the encouragement of this relatively young professional service. The rise in status is attracting more and better entrants.

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In 1939 the number of skilled technicians on the Medical Research Council register was 1,352. The members of the Institute of Medical Laboratory Technology have now reached 3,016 but this number includes a certain proportion who have not yet taken the first qualifying examination of the Institute. Further, a 20 per cent. addition of non-members can be added to this number, so that the number of technicians may be regarded as having been approximately trebled.

Equipment

The provision of adequate laboratory equipment has been one of the major difficulties of the year, and remains, perhaps, the most serious anxiety for the future. In spite of every effort by Supplies Division, there is a grave shortage of nearly all types of apparatus, and hardly a single hospital laboratory has any reserve of apparatus. Very many lack essential articles. If a centrifuge breaks down the laboratory may be almost out of commission for weeks, and technicians often have to wait their turn for the use of a microscope. Reliance has now to be placed upon British manufacturers for apparatus, much of which follows the pattern of 30 years ago, and some of which was never made in this country. This is a state of affairs which might well cause a breakdown in the laboratory services, and in an attempt to avoid this a sub-committee of the Ministry of Health Medical Supplies Working Party has made a catalogue of essential laboratory supplies and an estimate of the requirements for all types of laboratories during the next five years. Specifications for the designs, embracing modern improvements, have been drawn up.

Permission has been obtained to order prototypes of the new designs for major apparatus from the manufacturers. To ensure that these prototypes fulfil the requirements of the users, further meetings have been called of experts from different centres in Great Britain to advise on the most modern types and improvements of apparatus concerned in bacteriology, histology, chemical pathology and hæmatology. The prototypes, when manufactured, will be tried out and criticised in the various laboratories. In general the manufacturers are co-operating wholeheartedly in this modernisation of British laboratory equipment. There is here the possibility of new apparatus, derived from the best types in existence, and improved under the supervision of the leading laboratory experts. These new types should not only make imports unnecessary, but should lead to a considerable foreign trade. Production is bound to be slow, and it is still uncertain if essential home requirements can be filled in time to meet the demands of the near future.

The Provision of a Local Service

The hospital laboratory is a consultation centre, not a post office for specimens, and it is essential that every hospital, even including those with no more than 50 beds, should have local access to laboratory and pathologist.

It is obviously not possible, nor indeed is it desirable, to provide the small hospitals with full-time pathologists of long experience, but there must be easy reference to senior men.

The gradual increase in the number of pathologists, many of whom have not yet had sufficient experience to stand alone, has led to a considerable provincial extension during the current year of the original London sector scheme. The number of well-established central laboratories, directed by experienced pathologists, has been considerably augmented, and is now sufficient to form a network of irregular mesh covering England and Wales. The next steps have been to increase the staffs and, where possible, the accommodation at the centres and then to set up smaller laboratories within the meshes of this network. The smallest laboratories have only a full-time technician, or in some cases two adjacent hospitals may divide the time of one technician between

them. The hospital side room without at least a technician responsible for the upkeep is a waste of space and equipment. Hospitals of intermediate size have, in addition, a junior pathologist or, again, two such hospitals may share a pathologist. The medical and technical staffs of such laboratories are included within the staff of the central laboratory. Such an organisation provides that all staffs are freely interchangeable within the orbit of the central laboratory, that the director has frequent contact with the junior pathologists, and that regular visits at stated times, fixed upon after consultation with the clinical staffs, are paid by pathologists to every laboratory.

Regional Committees

In order to facilitate a smooth change-over on the appointed day and to keep the Regional Boards informed of matters concerning the hospital laboratories, pathologists in charge of laboratories have been encouraged to meet and select small panels of senior directors in each region. These panels, or one or more representatives from each, as the Board directs, will be available for consultation with the senior administrative medical officers. Meetings of these committees have already been held in most regions, and the committees are in close touch with the senior administrative medical officers to the Boards. A smooth change-over from central to regional control on the appointed day should present little difficulty.

The Relation between Hospital and Public Health Laboratories

Despite the differences in the purpose and organisation of the two services it is important that, in practice, they should be complementary to each other and function harmoniously together. The most effective way of achieving this end in the larger towns is to place the laboratories of the two services side by side whenever conditions permit. Together they can constitute a pathological centre for the area, to which specimens of any kind may be brought irrespective of which laboratory they are to be examined in, and to which medical officers and practitioners may resort for consultation with the most appropriate expert available. Economy can be effected by avoiding the duplication of common services, such as those for making media, cleaning and sterilising glassware, and preparing outfits. Technicians can gain experience in the various departments of the two laboratories and receive a better training than in either laboratory alone, and the scientific staff can benefit through the association of workers having the same general interest but differing in their knowledge, background and outlook. Difficulties attendant on the division of specimens can be minimised, and the examination of any specimen can be carried out by the person most fitted for it.

If such an arrangement is to work satisfactorily the separate identity of the two laboratories must be preserved. Any attempt to subordinate one laboratory to the other must be resisted. Each director must be administratively and technically responsible for his own laboratory. It may, of course, be convenient for the more senior of the two to be generally responsible for the co-ordination of the two services, if the laboratories are housed under the same roof, but this should not be interpreted as extending in any way to administrative charge of the pathological centre as a whole. The clinical pathologist should retain the responsibility of examining hospital bacteriological specimens, though he may, if he wishes and the public health bacteriologist is agreeable, hand it over to the public health laboratory.

In smaller towns where there is insufficient justification for establishing a separate public health laboratory, arrangements may be made for the public health work to be carried out in the local hospital laboratory, provided that the pathologist has adequate bacteriological experience and works in close co-operation with the nearest public health laboratory.

The public health laboratory service maintains a number of reference laboratories for undertaking the examination of specimens requiring special skill, experience, or reagents. These laboratories can be freely used by any hospital laboratory working under the National Health Service scheme. Indeed, since some of the reference laboratories act as epidemiological centres for collecting information on the particular serological or phage types of salmonella, typhoid or paratyphoid bacilli, the hospitals are encouraged to send strains of these organisms for identification and to make use of the other facilities accorded.

C. The National Blood Transfusion Service

During 1947 the work of the National Blood Transfusion Service continued to increase, and by the end of the year had reached a level beyond which further progress was not possible with safety in some of the premises available to the service.

Accommodation and Equipment.—The provision of adequate accommodation has been slow, particularly in Oxford, North and South London, Manchester and Birmingham. In Cardiff no progress at all has been made. In these places the proper development of the service is delayed. Only one Regional Transfusion Centre is housed in well-sited permanent buildings. All the others are in temporary premises of varying adequacy, most of them poorly sited in relation to the medical teaching centre ; it is likely that much of this temporary accommodation will have to be replaced within 4–6 years. It speaks well for the energy and enthusiasm of the Regional Blood Transfusion Officers that they have maintained and expanded the service under these conditions.

During the year the transport, refrigeration, and laboratory equipment have been greatly improved by the delivery of orders placed in 1946 and early 1947.

The British Standards Institution, in conjunction with the Ministry, is preparing specifications of certain basic items of transfusion equipment. Standardisation will tend to bring about economy in the use of transfusion equipment and will have certain other practical advantages. The overall measurements of the British transfusion bottle have already been adopted by the transfusion services of several countries.

Donor Panels.—The appointment of donor panel liaison officers, made in 1946, has been justified by the general improvement in the state of the donor panels, in spite of the decreases in rations and the general strain under which most of the population continues to live. On December 31st, 1946, the estimated effective donor panel was 61 per cent. of the optimum number ; on 31st December, 1947, it was 71 per cent. In this improvement the voluntary organisations, the hospitals, and many private indviduals have co-operated. The South West Region has introduced a " quota scheme ", operated by the British Red Cross Society, under the guidance of the Regional Transfusion Centre, which has proved most successful. Each county is given a donor target, estimated to yield the blood used annually in the county, the British Red Cross Society undertaking to provide sufficient donors during the year to reach the target. This system, which spreads the burden on the donors fairly over the region, relates it to the local use of blood in the hospitals and permits the co-ordinated development and methodical manipulation of the donor panel, is gradually being adopted in all regions. Such a scheme can be operated if necessary directly from the Regional Transfusion Centre. During the year there has been an increase in the percentage of donors summoned, who have actually attended the transfusion sessions and given blood. This is an encouraging indication of the increasing efficiency of the blood donor organisation being built up by the Transfusion Service. The Central Office of Information has provided new publicity material, including one film and three trailers.

Relationship with Hospitals.—The closest relationship between the hospital, particularly the hospital laboratory, and the transfusion service, is of the first importance. Blood and plasma are valuable, but also, unless properly stored, chosen and used, dangerous fluids. The Transfusion Service can give much practical help and can perform some of the tests and investigations required before and after transfusion, particularly in hospitals close at hand, and in those without laboratories, but it cannot, even if asked to, do all the work of this kind. The hospital laboratory should be responsible for the care of the blood and plasma supplied by the Transfusion Service, and should be prepared to :—

(*a*) undertake before every transfusion the necessary, and often complex, tests to ensure compatibility.

(*b*) perform Rh ante-natal tests. The more complex tests on such patients may be referred to the Transfusion Service.

(*c*) supervise the direct donor panels where these exist for the supply of fresh blood for special cases.

It can be of the greatest assistance in finding and reporting donors of sera suitable for Rh testing. Where the hospital laboratory is also the area laboratory it can usefully perform these functions for those hospitals without laboratories in its vicinity. In the larger hospitals the appointment of a resident clinical pathologist, to act as hospital transfusion officer or, in smaller hospitals, of a junior clinical pathologist, who works half time with the Transfusion Service, is an ideal way of providing the extra help required in the laboratory to do this work, and it is hoped that hospitals will make such appointments. These principles are being adopted gradually, and it is hoped that they will be put into practice more widely when the Regional Hospital Boards become responsible for the Transfusion Service.

Relationship with Medical Schools and Teaching Hospitals.—Four regional blood transfusion officers now hold honorary appointments on the teaching staffs of medical schools, and preliminary negotiations have been concluded for the close association of two other regional transfusion centres with medical schools when rebuilding becomes possible.

Because of the increasingly wide use of transfusion therapy there would seem to be a case for the inclusion of some co-ordinated formal instruction concerning its practice and hazards in the medical curriculum, so that the newly qualified practitioner has a knowledge of its uses and limitations. The help of regional transfusion officers in the formal instruction of medical students has been requested by several medical schools.

Supplies of Blood and Dried Plasma

The issues of blood and dried plasma have continued to increase :—

	1947	1946
Blood issued	235,492 bottles*	183,516 bottles*
Dried plasma issued ..	64,407 bottles†	54,387 bottles†

In certain areas, particularly in London, the limits of capacity of blood collection, imposed by the accommodation, have almost been reached. The amounts of blood and plasma issued to hospitals will probably diminish as

* Each contains about ¾ of a pint (420 ml.) and is the gift of one donor.

† Each contains the plasma from about 1½ pints of blood and is thus equivalent to the gifts of two donors.

the dangers and limitations of transfusion are more widely appreciated. Undoubtedly, some transfusions are given without there being any indication for the restoration of the blood volume or the replacement of one of the elements of the blood. The giving of blood or plasma in small amounts has become almost automatic in certain circumstances. Many of these transfusions may do no harm but until the dangers of transmitting homologous serum jaundice or of sensitizing the recipient to the Rh factor are more widely appreciated, some of them will expose patients to unnecessary risks, and may have tragic results.

Packed red cells are being used more often for the treatment of anæmias; in some areas the value of this way of giving blood was, until recently, little appreciated. In the last quarter of 1946, 1,469 bottles were issued; in 1947, 8,161 bottles were issued.

During the year the Transfusion Service has continued to encourage the use of homologous group blood. The consumption of group 0 blood shows a tendency to fall to a more reasonable level, and in the last half of the year group 0 blood issued in England and Wales was 56 per cent. of the total number of bottles of blood issued by regional transfusion centres. Considerable improvement can still be made, particularly in certain regions where group 0 blood may form as much as 76 per cent. of the total issued.

Much of the dried plasma used in 1947 was drawn from war-time stocks, which at the end of the year were sufficient to last about nine months.

Supplies to territories overseas.—Considerable amounts of dried plasma have been sent to Crown Colonies and Dependencies, which are unable to provide it themselves, and a survey of the needs of all the colonies, dependencies and protectorates has been made. Some 5,000 bottles of dried plasma, together with sterile distilled water for reconstitution, and "giving sets", were released to the British Red Cross Society for use in India and Pakistan.

Homologous Serum Jaundice

Dried plasma and serum have been known for some years to transmit a form of hepatitis characterised by a long incubation period (sometimes three or even four months) but otherwise indistinguishable from infective hepatitis, in some 10 per cent. of those transfused. In spite of this knowledge consumption of these products has shown a steady increase in 1946 and 1947, although every effort has been made to publicise this risk. Plasma and serum should be regarded as fluids for use in emergencies for which whole blood is for some reason not available, in burns and in other cases for which blood is not considered suitable, and in these instances they should be used only if the advantages gained by their transfusion outweigh the risk of transmitting jaundice. The administration of plasma and serum as routine pre- or post-operative fluids, without an urgent indication, should not be countenanced.

The problem of overcoming this most serious disadvantage of an otherwise valuable intravenous protein fluid is being attacked in this country by the production of small pool plasma, in which the plasma from not more than ten bottles of blood is pooled, four or five bottles of plasma being obtained from each pool. In this way, the effects of contamination of a pool by a bottle of blood carrying the infective agent are restricted, and each pool can be more easily traced than large pool plasma in which 400, 500 or even more bottles may come from one pool. All donors are carefully questioned and those with a recent history of jaundice are rejected. This method of control can do no more than limit the danger; it cannot eliminate it. Preliminary results of a survey of cases receiving small pool plasma show that the incidence of the

disease will probably be substantially reduced by this method of manufacture. The danger will not be eliminated until plasma can be treated by some process which will destroy the infective agent, or a laboratory method is developed which will detect the agent before the plasma is issued.

The remaining war-time stocks of plasma, which must continue to be issued to meet present heavy demands until the new drying plant is in full operation, are large pool plasma. Any attempts to limit the transmission of the disease, once a pool is shown to be infective by the occurrence of a case, depend entirely on the ability to withdraw any other bottles of the pool. This cannot be done unless the attention of regional blood transfusion officers is called to cases of homologous serum jaundice, and unless accurate records have been kept of the bottle numbers of plasma given to patients. Too often no such record has been made.

Rhesus Factor

The importance of the Rh factor is becoming more widely appreciated. The red blood corpuscles of some 85 per cent. of Europeans contain an antigen, similar to one first observed in the erythrocytes of Macacus rhesus, and therefore called the Rhesus or Rh factor, which is lacking from the red blood corpuscles of the other 15 per cent. Those whose red blood corpuscles contain this antigen are called Rh-positive ; those whose corpuscles lack it are known as Rh-negative. Natural antibodies to the Rh factor are not found. Its practical significance is that in certain circumstances antibodies are formed :

(*a*) by the subcutaneous or intramuscular injection of Rh-positive blood into an Rh-negative person ;

(*b*) by the transfusion of Rh-positive blood to an Rh-negative recipient. On the first occasion such a transfusion is usually uneventful, but the antibodies evoked by it will cause more or less rapid haemolysis of Rh-positive blood given on subsequent occasions, and such subsequent transfusions will be accompanied by reactions which may be fatal ;

(*c*) by an Rh-negative woman carrying an Rh-positive fœtus. In 10 per cent. of all pregnancies the fœtus is Rh-positive and its mother is Rh-negative. In about one in 20 cases in which the mother is exposed to this risk she will, sooner or later, respond to the presence of a fœtus by the production of antibodies which pass across the placenta and react with the Rh antigen in the infant's corpuscles and tissue cells. As a result of this reaction *in utero* the child is born with haemolytic disease of the newborn, which is responsible for more deaths in infancy than any other inherited condition.

The disease does not usually occur in the first-born children of Rh-positive—Rh-negative matings, but once the mother has been sensitised to the Rh factor, half the subsequent children may be healthy if the husband is heterozygous, or all of them may suffer from the disease if the husband is homozygous. A proportion of babies born alive with this disease may be saved by transfusion of Rh-negative blood.

It is known that the Rh factor comprises at least seven antigens, each with a corresponding antibody. Of these, one known as D is of much greater clinical importance than the others, and it is the presence or absence of this antigen in red blood corpuscles which is used to distinguish the broad classifications, Rh-positive and Rh-negative. From time to time, however, antibodies corresponding to the other antigens are responsible for haemolytic disease and transfusion reactions. These rare antibodies are of particular importance not only for research, but for the complete investigation and prognosis of families in which haemolytic disease, due to the common antigen, has occurred.

The production of antibodies is more readily stimulated by the transfusion of Rh-incompatible blood than by bearing a fœtus whose Rh group is incompatible with its mother's. It is thus essential that all females of child-bearing or pre-child-bearing age, and all women who have been pregnant, when being transfused should be given only Rh-compatible blood. Sensitisation of an Rh-negative female child to the Rh factor by the transfusion of incompatible blood may prevent her from bearing any healthy, or even living, children should she marry an Rh-positive man, perhaps 20 or more years later. Likewise, the transfusion of Rh-positive blood to an Rh-negative mother, who has previously borne healthy children, will, in a large proportion of cases, if her husband is Rh-positive, cause haemolytic disease to appear in subsequent pregnancies, which might otherwise have been healthy. Cases are now frequently encountered in which disregard of the Rh factor in transfusions has had serious, and sometimes tragic, results. In some the original transfusions, which sensitised the patient, were given before the significance of the Rh factor was understood, or before the Rh factor had been discovered.

Sensitisation of the Rh-negative male and nulliparous female who has passed the menopause, may perhaps be considered of less importance, but the Rh groups of donors and recipients must be compatible in the second and all subsequent transfusions.

Ideally no transfusion should be given, no matter what the age or sex of the recipient, unless an Rh-compatibility test is done.

In August, 1946, the National Blood Transfusion Service undertook the Rh-testing of mothers attending ante-natal clinics, with the purpose of lowering the morbidity and mortality rates of haemolytic disease of the new-born by earlier diagnosis and treatment, and of avoiding the danger of immunising mothers by the transfusion of Rh-incompatible blood in the emergencies of childbirth, thus endangering the health of future children. In the last quarter of 1946, 25,965 tests on ante-natal patients were carried out in the laboratories of the transfusion service ; in 1947, 133,575 tests were performed. The Rh-testing of many ante-natal patients has also been carried out in pathological laboratories, who may refer Rh-negative mothers to the blood transfusion service for further investigation.

A factor limiting the more rapid extension of this policy is the relative scarcity of Rh-typing sera. Doctors, especially obstetricians and pathologists, can help to overcome this scarcity either by themselves collecting sera from mothers who have given birth to infants with haemolytic disease, or by asking the blood transfusion service to collect the sera from such patients.

With growing awareness of the importance of the Rh factor, the use of Rh-negative blood has increased. In the last quarter of 1946, 2,122 bottles were issued ; in 1947, 15,754 bottles were issued. The amount of Rh-negative blood available is naturally limited, and the tendency to use Rh-negative blood without troubling to determine the Rh group of the recipient to find out if it is really necessary, at times endangers its supply to Rh-negative patients. Rh-negative blood should be reserved, except in emergencies when the Rh group cannot be determined, for Rh-negative recipients, and whenever possible blood of the homologous ABO and Rh group should be used.

Pyrogen Testing Laboratory

A central laboratory for the blood transfusion service is being equipped at the Regional Transfusion Centre, Leeds, to perform the routine testing of distilled water and other fluids for the presence of pyrogens.

Blood Group Reference Laboratory

During 1947, the Blood Group Reference Laboratory of the Ministry of Health at the Lister Institute (opened in 1946) made good progress and is now well established. During the year it issued approximately 75 litres of ABO grouping serum and began the issue of anti-Rh and other special testing sera.

Considerable help has been given to the laboratories in the United Kingdom in solving problems concerning the blood groups and in confirming the presence of the rare antibodies in sera. In addition, laboratories overseas have been assisted in starting Rh-grouping by sending initial supplies of sera, by genotyping panels of donors, and by training visiting workers.

The laboratory is co-operating with the United States Public Health Service, the International Standards Committee of the World Health Organisation and the Medical Research Council in preparing an international standard grouping serum. Half the serum required has been selected by the laboratory from blood specially collected by the National Blood Transfusion Service.

V

MATERNAL CARE

The year 1947 was one of preparation for the coming into effect of the National Health Service Act. The publication in July of Circular 118/47 gave local health authorities some guidance in the compilation of their schemes for submission under Sections 22–28 of the National Health Service Act. From the maternal and child welfare point of view one of the most important suggestions made in the Circular was that the medical staff of the ante-natal and child welfare clinics should be reorganised to encourage specialisation either in maternity or in child welfare. Local health authorities were asked to consider making arrangements whereby those medical officers who by experience or choice were best fitted to work in ante-natal and post-natal clinics, could gradually be assigned to that work and attached to the obstetric team. Thus they would spend part of their time in midwifery and acquire the additional experience necessary to enable them to enter full obstetrical practice, either as specialist or general practitioner obstetricians. Similarly, those of the local health authorities' medical officers who are more interested and experienced in child welfare work should conduct child welfare clinics and spent part of their time in the work of a pædiatric department or children's hospital.

In many areas this reorientation of staff to greater specialisation can only be made gradually. As this trend increases these officers will benefit by having wider fields of clinical work and a corresponding increase in variety, interest and experience than has been possible for full-time maternity and child welfare officers in the past.

Vital Statistics

In 1947 the *birth rate* reached a new level of 20·5 per 1,000 total population, which was the highest recorded since 1921. The rate achieved a peak of 22·6 in the March quarter after rising steadily since the end of the war. The *stillbirth rate* of 24 per 1,000 total live and stillbirths showed a steeper decline than in previous years and compared favourably with the figure of 27 for 1946. A further decrease occurred in the *infant mortality rate*, which fell to 41 per 1,000 related births, compared with 43 in the previous year.

The fall within recent years in the *neonatal mortality rate* continued and was again accelerated. The figure of 22·7 per 1,000 related live births was encouraging as it was well below the figure of 24·46 for 1946. The share in this decrease due to the increased interest in the care of premature infants is discussed under this heading in the next chapter (p. 107).

The breaking up of the infant mortality rate into separate rates for the first four weeks, the next two months and the three subsequent quarters of the first year showed that, as usual, the highest proportion of deaths occurred during the first four weeks of life. Every endeavour should be made to combat the risks to which the new-born baby is subjected during this critical period.

Infant mortality rate (deaths under 1 year per 1,000 related births)	41·37	Under 4 weeks ..	22·70
		4 weeks to 3 months ..	6·91
		3 to 6 months ..	6·03
		6 to 9 months ..	3·61
		9 to 12 months ..	2·12
		Total ..	41·37

The *maternal mortality rate* continues to decline slowly and was 1·17 per 1,000 total births as compared with 1·43 in 1946. The rate, excluding abortion, was 1·02 which was better than the figure of 1·24 for 1946. This downward trend was also seen in maternal deaths from infection during the puerperium, the figure being 0·16 per 1,000 live and stillbirths as compared with 0·18 in the previous year. The rate, including post-abortive infection, showed a slightly greater fall from 0·31 to 0·26. All these figures show the steady improvement that is being made in the maternity services.

Maternity Accommodation.—Pressure on maternity accommodation continued throughout the year. There was still difficulty in maintaining the full complement of midwifery staff in many maternity units, but, despite this, schemes for extending maternity accommodation were approved and provided for 602 additional maternity beds.

Emergency Maternity Homes.—During the year, as more maternity beds in London were provided and staffed, it was possible to reduce further the number of emergency maternity homes. At the beginning of 1947 there were 12 of these homes providing a total of 361 beds, but by the end of December only seven remained with a total of 248 beds. Throughout the year 4,640 mothers from the London area were confined in the emergency maternity homes. Vital statistics for these homes compared favourably with those for previous years, and with those for the country as a whole. The stillbirth rate was 15·8 per 1,000 total live births; the neonatal mortality rate was 10 per 1,000 births, while the maternal death rate (with five deaths) was 1 per thousand.

European Volunteer Workers

In August, 1947, the Ministry of Labour sought our advice on the care of pregnant women amongst European volunteer workers and their dependants.

Medical officers of the Department visited holding hostels at West Wratting, Cambridge, and Market Harborough. The accommodation in these hostels was found to be unsuitable for expectant mothers near term and for mothers with young babies.

Owing to pressure on maternity accommodation in the districts where European volunteer workers were situated, it was not possible for the local authorities concerned to deal with any but a few emergency maternity cases, so special provision for the care of pregnant E.V. workers had to be secured.

Ante-natal, maternity and post-natal accommodation for these women is now available in special units at Southport, Surrey, East Riding and Wrexham. In these areas the homes and hostels are run by the welfare authority and the cost reimbursed. Wiltshire County Council at our request have reserved maternity beds for E.V. workers in a county maternity home and nursing staff is provided by trained members of the workers themselves.

Up to 31st December, 1947, 29 patients had received ante-natal, lying-in and post-natal care and 27 patients had received post-natal care only.

The co-operation of medical officers of health was sought to make local maternity and child welfare clinical facilities available to camp residents and liaison between camp medical officers and local authority medical personnel was established.

Hostels at Cosham, Havant and Bedhampton, Hull, which the National Hostels Corporation proposed to adapt as E.V.W. Family Camps, were visited by medical officers and public health nursing officers, who advised on the accommodation and equipment required.

Gas and Air Analgesia

Progress continued in the training of midwives to administer gas and air analgesia and the supply of apparatus was much improved. The following table shows the increase in the number of midwives so qualified. The most striking feature is the number of patients to whom analgesia was given by midwives in domiciliary practice, which was more than double that of the previous year.

England and Wales	Administration of Analgesics					
	Midwives qualified to administer analgesics			No. of Local Sanitary Authorities providing facilities for instruction to midwives	No. of Local Sanitary Authorities providing apparatus	No. of patients to whom analgesia was administered by midwives in domiciliary practice
	Dom.	Inst.	Total			
1946 ..	2,581	2,004	4,585	157	127	20,507
1947 ..	4,134	2,879	7,013	169	144	43,683

Four types of gas and air apparatus are accepted by the Central Midwives Board for the administration by midwives of gas and air analgesia, viz., Minnitt's, Walton Minnitt's, Armwell and Jecta.

Rubella in Pregnancy

As was mentioned in the last Report, medical officers of health of certain of the larger welfare authorities agreed to co-operate in keeping under close observation all women attending ante-natal clinics in their areas and to follow up any women suspected of having had rubella in the early months of pregnancy. The children born of these women will also be observed for a minimum period of two years, to ascertain whether any develop congenital cataract, deaf mutism or other congenital defect.

The review of the first year's observations has been largely negative. Only one case has been reported, that of a child who, at the age of three weeks, was found to have congenital heart disease and bilateral congenital cataract. There was a confirmed history of rubella in the mother during the first months of pregnancy.

Welfare Foods Service

The Welfare Foods Service for expectant mothers and children under 5 years of age continued with its main features unaltered.

On the 1st July, 1947, a circular (No. 118/47) was issued to welfare authorities drawing attention to two modifications in the Welfare Foods Service administered by the Ministry of Food.

In order to bring day nurseries into line with nursery schools, two-thirds of a pint of liquid milk per child per day was made available for drinking purposes only (or National dried milk where necessary), free of charge from 1st July, 1947, to all day nurseries whether administered by welfare authorities or other bodies. Day nurseries which were not administered by welfare authorities had to be approved by the medical officer of health, who had also to approve the source and quality of the milk.

Cod liver oil compound was made available for these nurseries free of charge at the rate of one 6-oz. bottle per child per 12 weeks. Orange juice continued to be available at the rate of one bottle per child per four weeks at the cost of 5*d.* a bottle.

The other modification was that, from 1st August, 1947, every mother became entitled to Vitamin A and D tablets free of charge for 30 weeks after the birth of her child, at the rate of one packet each six weeks. This arrangement was meant especially for the benefit of mothers who were breast-feeding their babies, but all mothers with babies under 30 weeks old were eligible for the tablets. The tablets are provided in addition to the cod liver oil compound supplied for the baby.

The Minister of Food issued the Proprietary Infant Milk Foods Order, 1947, which came into force on the 8th October, 1947, making it an offence to buy or sell any brand of proprietary milk-based infant food (as set out in the schedule to the Order) except on the production of a child's green ration book, R.B.2, which shows that the child is not more than two years of age. The ration book had to be marked. This action was necessary to ensure that the limited supplies of these foods were used for the purpose for which they were intended, and was caused by the scarcity of liquid milk, owing to the bad weather in the early part of the year under review and to the later drought.

A further step became necessary in order to maintain supplies of milk-based powders and the non-priority allowances of liquid milk, and the following temporary reductions were made from 19th October, 1947, in the priority allowances of liquid milk :

Invalids	2/7ths of the allowance of two or one pints of milk per day according to whether the invalid was classified as being in Category 1 or 2.
Children between 1–5 years	1/7th of the allowance or six pints per week instead of seven.
Catering establishments ..	Reduction from 6 to 4½ pints per 100 hot beverages.

No reduction was made in the allowances to expectant mothers and to babies under 1 year of age nor in the smaller allowances to adolescents.

In spite of intense propaganda the uptake of welfare foods was still not nearly as good as it ought to have been. Although there was an improvement in the demand for cod liver oil and Vitamin A and D tablets, which are both free, the uptake of orange juice generally decreased, but this was probably due to the greater supplies of fresh fruit including oranges. It is nevertheless most desirable that full use should be made of these welfare foods which are a valuable addition to the normal diet.

Confidential Reports on Individual Maternal Deaths

During 1947 the Ministry received confidential reports on 696 maternal deaths in England and Wales. These reports ascribe 562 deaths to pregnancy or childbirth (of which 17 were due to ectopic gestation and 55 to abortion) and 134 to associated causes.

In the following table will be found the causes of death and the percentages of the total of the reports received :—

Causes of Death

			Per cent.
Sepsis			
Following normal labour	7		
Following abnormal labour	25		
Undelivered	1		
	—	33	4·7
Hæmorrhage			
Ante-partum hæmorrhage	24		
Post-partum hæmorrhage	82		
	—	106	15·2
Toxæmia			
Eclampsia	96		
Other toxæmias	70		
	—	166	23·8
Embolism (including 4 cases of air embolism)		72	10·4
Other causes directly due to Child Bearing			
Obstetric shock—			
Following Cæsarean section	13		
Following difficult labour	51		
Following uncomplicated labour	5		
Undelivered	4		
Following rupture of uterus	6		
Following inversion of uterus	6		
Following torsion of uterus	1		
Post-operative complications—			
Following Cæsarean section	15		
Following other operations	1		
Puerperal mania	3		
Anæsthesia	8		
	—	113	16·2
Ectopic Gestation		17	2·4
Abortions			
Septic	22		
Non-septic	8		
Criminal	23		
Mole	2		
	—	55	7·9
Associated Conditions			
Morbus cordis	53		
Renal disease	11		
Lung disease (non-tuberculous)	6		
Tuberculosis	9		
Appendicitis	6		
Other conditions	49		
	—	134	19·2
Total		696	99·8

Of the 696 cases, 15 women were under 20 years of age, 294 between 20 and 30 years, 319 between 31 and 40, 59 over 41 years, while in 9 cases no age is given. 303 were primiparæ and 376 multiparæ ; in the remaining 17 cases no information as to parity was available. 59 women had had six or more pregnancies and of these 7 women had had 10 or more pregnancies.

The following tables give the conditions of the child (or fœtus), legitimacy and the social circumstances of the family :—

Condition of child			*Legitimacy*	
Live births		324	Legitimate	567
Stillbirths		141	Illegitimate	55
Abortion		77	No statement	74
Ectopic		17		
Undelivered		90	Total	696
No statement		14		
Twins		32 sets	*Social Circumstances*	
Normal infants	45		Well-to-do	10
Stillborn infants	17		Comfortable	450
Undelivered	2		Poor	137
Quadruplets		1 set	Destitute	4
Normal infants	4		No statement	95
Total		696	Total	696

The cases of early abortion and of ectopic gestation are excluded from the figures given below :—

Booking		*Ante-Natal Care*	
Doctor	167	Given	537
Midwife	131	Not given	39
Nursing Home	15	No statement	48
Hospital	214		
Not booked	47	Total	624
No statement	50		
		Given by :	
Total	624	Hospital	160
		Ante-Natal Clinic	93
		Ante-Natal Clinic and Doctor	15
		Ante-Natal Clinic and Midwife	24
		Doctor	142
		Midwife	53
		Doctor and Midwife	50
		Total	537

Delivery took place in hospital in 331 cases, at home or in a private nursing home in 192 cases, 90 cases died undelivered and in 11 cases the place of delivery was not stated. The nature of the delivery is set out in the following table.

Nature of Delivery	
Natural	247
Forceps	127
Cæsarean section	77
Cæsarean section after death of mother	9
Craniotomy	7
Manual removal of placenta—	
(*a*) Following normal labour	33
(*b*) Following abnormal labour	19
Other operations	16
Spontaneous abortion	22
Undelivered	90
No statement	12
Total	659*

Place of Death	
In hospital	543
At home	108
In ambulance	6
In nursing home	30
In street	1
No statement	8
Total	696

The abortions included in the above table are those which occurred in patients dying from other causes. In these cases the abortion was incidental to the illness and not the cause of death.

Examination of the information and comments in the reports suggests that there was an avoidable factor in 266 cases.

No opinion could be expressed in 134 cases, and in 296 death appeared to be unavoidable.

The avoidable factors are set out as follow :—

Inadequacy or lack of ante-natal care	82 cases
Inadequacy or lack of obstetric care or facilities	105 cases
Lack of co-operation of patient or her friends	79 cases

In a small number of cases it would appear that the risk of pregnancy should not have been taken, but the assessment of this on the information available is uncertain.

Comments

Excluding deaths from associated causes, abortion and ectopic gestation, the causes of death fall into five main groups :—

(1) Hæmorrhage and shock	192
(2) Toxæmia	166
(3) Pulmonary embolism	72
(4) Sepsis	33
(5) Other causes	27

Hæmorrhage and shock.—Two-thirds of the cases in the first group were home confinements or hospital emergency admissions, one-third being hospital booked cases. The information in the reports suggests that in at least half of the home confinements and emergency admissions death might have been prevented if skilled transfusion treatment had been available to the patient in her home. The effect of transference to hospital by ambulance for a woman

* The deliveries include multiple pregnancies.

suffering from even a moderate degree of shock or hæmorrhage still seems to be insufficiently appreciated in many cases. In some instances an emergency obstetric or transfusion service was available but either this fact was not known, or the service was not used or was called upon obviously too late.

Toxæmia.—Inadequate ante-natal care appears as a frequent factor in cases of death from toxæmia but it is difficult to assess its full significance as a contributory cause of death. There appears little doubt that shortage of beds for ante-natal cases presented difficulty in the adequate observation and treatment of many cases.

Pulmonary Embolism and Sepsis.—Although the number of deaths from frank sepsis has dramatically declined with the advent of sulphonamides and penicillin, no such improvement is shown in the number of deaths from pulmonary embolism, but rather the reverse. The figures suggest the possibility that the suppression of frank sepsis may call for greater vigilance in the detection of the effects of mild degrees of infection possibly associated with deep thrombosis. Increasing knowledge and experience of anti-coagulant therapy may hold out hope of reducing deaths from pulmonary embolism.

VI

CHILD HEALTH

Vital statistics relating to neonatal and infant mortality will be found in the previous chapter (page 98), in Chapter I (page 19) and in Appendices A (pages 163–5) and C (page 174).

Evaluation of Child Health Services

The more critical attitude, which some welfare authorities are adopting towards their child welfare services, and their endeavours to find where these services may fall short of their objectives, are to be commended. An interesting study on these lines was undertaken in Barnsley in 1945.* The survey was based on the investigation and assessment of individual infant deaths to determine how often a deficiency in certain services or other specified factors had contributed to an infant death. An analysis of these factors may lead to an appreciation of a weakness in the chain of services provided, the strengthening of which may do much to improve the scheme as a whole.

One of the Department's medical officers was invited during the year to survey the maternity and child welfare services of a county borough (of approximately 50,000 inhabitants) where the infant mortality rate had remained well above that for the country as a whole. The county borough was in part industrial. Most of the deaths of infants under one year were due to prematurity, pneumonia and gastro-enteritis. The incidence of breast feeding was low, particularly in babies born in maternity institutions. The housing conditions were poor and overcrowded in many parts of the city and there was general agreement that improvement in them was imperatively needed as a long term policy.

Following a detailed study of the services and discussion with the various members of the maternity and child welfare team the recommendations made were much concerned with the staff and their approach to their daily problems. The health visitors and midwives were conscientious and hard working but tended to labour as individuals without much sense of teamwork. This particular study emphasised the importance of well-planned organisation of the work of health visitors and midwives, particularly in these days of shortage of staff. Much of their time can be released for professional duties, particularly home visiting, by appropriate allocation of work and planned methods of case-taking and record keeping. More clerical help should be given to relieve the professional staff of some of their paper work.

Suggestions were made that the interest of the staff in their work should be maintained by regular meetings at which cases of special interest could be followed up, and the aims, scope and progress of the services discussed. The value of the teaching of mothercraft should be brought into the forefront as one of the main objectives for health visitors and midwives alike. Although most of them were fully aware of their responsibility in this connection, some lacked the gift of passing on their knowledge to the mothers in an acceptable and inspiring form. Discussions of the accepted methods of "putting across" the information, especially in group teaching, might provide health visitors and midwives with fresh ideas and that incentive without which it is difficult to stimulate the mothers' interest.

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* Lewis, J. Tudor, and Blackwood, M. W., 1946, Mon. Bull. Min. of Health, 5, 190.

Premature Babies

Of 842,809 total live and still-births in England and Wales in 1946, there were 42,212 infants (5·14 per cent. of those born alive) who weighed 5½ lbs. or less at birth, and of that number 15,938, or 38 per cent., were born at home and 26,274, or 62 per cent., were born in hospital.

The following table shows that the mortality rates of these premature babies in domiciliary and hospital cases were practically the same during the year. This approximation of rates may be due to the increased provision of facilities for domiciliary cases made available by local authorities following the issue of Circular 20/44.

Premature babies: domiciliary and hospital mortality

	Percentage of premature babies born	Nursed entirely at home	Died during the first 24 hours	Survived at the end of one month
At home	38·0	88·4	10·6	77·2
In hospital	62·0	—	10·4	77·2

That increasing interest continues to be shown in the care of premature infants is evident not only in the special accommodation for them shown in plans submitted and the equipment made available for use in the homes, but also in the special investigations being carried out by some local authorities. Among these is Birmingham, where Dr. Crosse has followed up 812 premature babies out of a total of 1,222 born in 1945. In the following table the results of this enquiry are shown :—

Birmingham: Follow-up of 1,222 live premature babies born in 1945 shown under weights

Weight at Birth	2 lbs.	2–3 lbs.	3–4 lbs.	4–5 lbs.	5–5½ lbs.	Total
Live births	34	89	137	369	593	1,222
Neonatal deaths ..	34	71	62	51	38	258
Alive at 4 weeks ..	nil	18	75	318	555	964
Untraced at 1 year ..	nil	2	9	39	39	89
Total traced up to 1 year or to death if before 1 year	nil	16	66	279	516	877
Deaths from 4 weeks to 1 year	nil	6 (31·2%)	10 (15·6%)	28 (10%)	21 (4·1%)	65 (7·4%)
Alive at 1 year	nil	10	56	251	495	812
Abnormalities found ..	nil	nil	1 ? Mongol	1 Mongol 1 Mongol + heart 1 Congen. heart 1 ? Mentally subnormal	2 Mongols 1 Cataract 1 Cleft palate 1 ? Mentally subnormal	

At the end of the first year the *weight* of the premature infants, with the exception of two babies, came within normal limits, allowance being made for the degree of prematurity. Similarly, their *mental development* attained normal levels having due regard to the degree of prematurity, except in the case of three Mongols, one doubtful Mongol and two other babies.

In Newcastle-on-Tyne also an enquiry is being conducted. Forty per cent. of all the premature infants in Newcastle are born at home and a follow-up is made to find out whether it is better for these infants to be cared for at home or admitted immediately to hospital. It is hoped to publish a report on the results in due course. Newcastle provides, as part of its premature baby service, two whole-time and one part-time "premature" nurses who are trained midwives. One of these, when called in by the doctor or midwife attending the confinement, takes over the complete care of the mother and infant. Before the completion of her visits the health visitor takes over the case, so that there is continuity of care. The following tables show the incidence of prematurity in Newcastle and the results obtained.

TABLE I

Incidence of Prematurity

	Total Births	Total Premature Births	Live Births	Live Premature Births	Percentage incidence of Prematurity to Total Births	Percentage incidence of Prematurity to Live Births
1945-46	10,083	666	9,784	584	6·6	6·0
1947..	6,240	376	6,078	332	6·0	5·4

TABLE II—RESULTS

Care of Premature Children (all such children born in the City) (Home and Hospital) of Newcastle

	Born		Survived 1st month		Per cent. living at 28 days	
	1945–46	1947	1945–46	1947	1945–46	1947
Below 2½ lbs. ..	51	18	0	1	—	—
2 lbs. 9 ozs.–3½ lbs.	69	36	22	16	33%	44%
3 lbs. 9 ozs.–4½ lbs.	158	83	126	70	79%	84%
4 lbs. 9 ozs.–5½ lbs.	306.	195	289	184	91%	94%
All weights.. ..	584	332	437	271	75%	81·7%

Investigation into the progress of premature babies.—The Joint Committee of the Royal College of Obstetricians and Gynaecologists and Population Investigation Committee is undertaking a follow-up enquiry on the progress of the premature babies whose births occurred in the week 3rd–9th March, 1946. The Joint Committee's original survey covered about 15,000 babies born that week in the areas of 424 welfare authorities which co-operated in the inquiry. Of these babies about 900 were premature. It is now proposed by means of a

questionnaire to ascertain what progress these children have made up to two years of age and how they compare with a controlled group of mature babies in the same national sample—by means of a further questionnaire.

The investigation provides a valuable opportunity for gaining knowledge on the progress of premature infants, which is not likely to recur, and the results will be awaited with interest.

Day Nurseries

In January, 1947, there were 914 full-time day nurseries with places for 26,015 children from 2–5 years of age and 17,603 children from 0–2 years.

On 31st December, 1947, there were 902 full-time day nurseries with places for 16,445 children from 0–2 years of age and 25,920 children from 2–5 years.

On 31st December, 1947, there were 7,009 full-time and 239 part-time nursing staff employed in day and residential nurseries run by local authorities. In addition there were in these nurseries 3,361 students in training for the National Nursery Examination Board Certificate. During 1947 there were 680 candidates for the certificate Board and 520 girls were successful in passing the Board's examination. The recruitment of nursery wardens, the training of nursery students and the salaries of nursery staff are dealt with in Section II, page 205.

Residential Nurseries

The trend for evacuated children to return to their own homes was accelerated during the year.

On the 1st January, 1947, there were 521 children, of whom 245 were residual evacuees*, in 28 residential nurseries. On the 31st December, 1947, there were 317 children, including 76 residual evacuees in 17 nurseries.

By the appointed day, the nurseries will have been reduced to 12 and the residual evacuees in them to about 25.

Ever since the Evacuation Scheme came to an end in 1946, the nurseries have played a very useful part in promoting child welfare. The local authorities who have administered them have used the accommodation freely for other children for whom they had direct responsibility in their capacity as welfare or public assistance authorities. Even to-day, when those that remain contain only a few residual evacuees and a few illegitimate children of ex-Servicewomen, they are fairly well filled with other children, for it is difficult to secure premises for new nurseries and economic conditions impose severe restrictions on new building.

The voluntary bodies who played so great a part in providing and maintaining evacuation nurseries (one of them provided about one hundred) have disappeared altogether from this field to resume their peace-time roles. Their passing from it cannot be allowed to go unnoticed. It was they who, by themselves starting evacuation nurseries in the first instance, drew the attention of the Government to the probability that the " under five ", whose mother could not accompany it tc the reception area, was likely to become one of the greatest, albeit the most innocent, victim of " total " war. Without singling out any particular voluntary body for mention, the Ministry cannot do less than place on record its high appreciation of the signal service they all have rendered to the cause of child welfare and to express its warmest thanks to them and their willing bands of workers for all they did in the stress of the war years to shield the young child from the horrors of bombing and for their help in making evacuation the success it was.

* The term " residual evacuees " is used to describe children who were originally evacuated under the Government Evacuation Scheme and who have remained in the nurseries under the Interim Scheme which was started on 1st April, 1946. Under this Scheme the Government undertook to continue to pay the equivalent of a billeting allowance in respect of each child and the cost of medical attention. All other expenditure is borne by the local authority by whom the child was evacuated.

Fortunately the size of the problem of the unmarried mother and her child continued to decrease with the return from war to peace-time conditions.

The Registrar General gives for 1947 an illegitimate rate of 5·2 per cent. of all births which compared very favourably with that of 6·7 per cent. in 1946. The downward trend from 9·3 per cent. in 1945 is gratifying though there is still some way to go before the 1936 figure of 4·11 per cent. is reached.

The death rate amongst illegitimate infants remains higher than amongst legitimate. In 1918 the infant mortality rate was 97 per 1,000 live births, the figure for legitimate infants being 91 and that for illegitimate 186 per 1,000. In 1947 these figures had fallen to 41·37 as the total rate, 40·43 for legitimate and 58·04 for illegitimate babies, the fall in proportion being much more marked amongst illegitimate infants. But these figures give no indication that in some areas the death rate amongst illegitimate infants was still nearly twice that amongst legitimate children. Statistics generally, however, are not yet available as the Registrar General's tabulation of illegitimate infant mortality rates by areas was suspended in 1939 ; it is being resumed in the Statistical Review for 1947. In those areas, however, where the rate is known to be high, authorities should consider how it can be reduced and how to ensure that the best arrangement is made for each case.

In most instances the best solution for both mother and child is for them to remain together, and this is usually accomplished by absorption of the child into the mothers' family. Where, however, this is impossible and the mother is unable to look after and provide for her child, adoption may be the happiest solution. In other cases the finding of a suitable foster home is the best arrangement.

At a conference held during the year by the Church of England Moral Welfare Society it seemed to our representative that the issue of Circular 2866 had not resulted everywhere in that co-operation between welfare authorities and voluntary bodies, which it had been hoped it would stimulate, and which, from statistics, had appeared to be in action. The services of specially trained moral welfare workers were not always being used by welfare authorities who, in some instances, seemed to prefer to rely on the services of health visitors who may have had no particluar training or aptitude for this specialised work.

In many areas the number of specially trained workers is insufficient to cover the field, but, where there are moral welfare workers available, every effort should be made to take advantage of their knowledge and experience. As a rule the moral welfare worker learns of the pregnancy of an unmarried mother at an early stage, and she and the health visitor should work together, each making her own contribution to the welfare of the mother and her unborn child.

The number of mother and baby homes at present provided seems more or less equal to the demand for accommodation of this kind. The great need now is for the provision of hostels from which mothers can go out to work when the child is a few months old, and where the child can be cared for by nursery staff during the day and by the mother after her return in the evening. Some hostels of this kind have already been provided by progressive authorities and voluntary bodies. Such hostels might also with advantage provide accommodation for widows or married women who may require this kind of help. In this way discrimination between the married and unmarried mother might be avoided. The introduction of the new shortened birth certificate for which provision is made in the Birth Certificate (Shortened Form) Regulations, 1947, should enable many children to avoid the stigma of illegitimacy as the parentage is concealed. A wide use of this type of certificate by married parents also is necessary to achieve this end, and for this reason its use should be encouraged.

VII

NUTRITION

Standing Committee on Medical and Nutritional Problems.—The most important matter coming before this Committee in 1947 was potato rationing. It was considered by a special sub-committee, and recommendations were sent to the Ministry of Food. The rationing of both bread and potatoes, two of the main energy-giving foods, made it necessary to pay particular attention to sections of the population who have to live on their rations without canteen or restaurant meals. It became clear that University students, apprentices, nurses, and other adolescents living together in communities, would be unable to meet their calorie requirements without extras of some sort. Accordingly all these people were allowed as an addition the equivalent of five canteen meals weekly. It was also arranged that all blood donors who were unable to obtain canteen meals should receive at each donation a special ration of biscuits.

The feeding of aged persons.—The Ministry called in conference representatives of the principal women's voluntary organisations to plan for the feeding of old persons who had difficulty in fending for themselves. The organisations agreed to the suggestion of the Ministry to organise local meetings with a view, first, to locate and inquire into the circumstances of all old people in the areas, and then to assist them with their feeding problems. The intention is that the assistance should take the form of helping them to shop or to cook, or, in case of need, of supplying them with cooked meals.

Growth rate of children.—The data obtained in 1947 from 17 different areas throughout England and Wales show a slight but definite decline in weight compared with 1945. It would be premature to speculate as to the cause of the decline but it should be pointed out that the rations and allowances of the school child, including school meals, are still sufficient or more than sufficient for his needs and that they have not been changed substantially since 1945. In fact the numbers of children taking school meals and milk has increased.

In collaboration with the Ministry of Education and school medical officers, Dr. Bransby has undertaken a long-term investigation of the growth rate of children in schools belonging to different social classes. In addition to height and weight and certain other measurements the children are being medically examined periodically by the Ministry's clinicians.

Clinical Nutrition Surveys

For the reasons set out in last year's Report, particular attention was paid to the nutritional state of adolescents and mothers of adolescents. These reasons were strengthened by the rationing of potatoes. Clinical examinations of about 600 adolescents were carried out in Ilford, Scarborough, Luton, Liverpool and Salford. "Performance" tests—maximum pull on the dynamometer and endurance by the hanging bar test—were done on most of the adolescents. The average findings, according to age and sex, seem to compare well with such pre-war averages as are available for comparison. More data and statistical analyses will be necessary, however, before a definite statement on this matter can be made. Of those examined, approximately 96 per cent. were found to be of good nutritional condition. In addition, 1,300 school children aged 5–16 years, and therefore including adolescents, were examined and 93 per cent. were found to be of good nutritional state. In neither group was any frank deficiency disease observed.

Preliminary surveys of mothers of adolescents were conducted in Salford, Stepney and Shoreditch. In the samples examined the proportion of women of "fair" or "poor" nutritional state was found to be about 11 per cent., which is appreciably higher than the percentage found in other sections of the population or than has previously been found in expectant and nursing mothers. It was clear, however, that the sample was far from representative and that many women attended because they were, in fact, feeling below normal. To overcome the sampling difficulties the Social Survey was asked to co-operate. The Survey investigators set out to obtain samples of mothers whose children were all above or almost above school age, in Lambeth and Southwark. The percentage of women found to be of "fair" or "poor" nutritional state was again on the high side; but the sample could not be regarded as representative because only about 40 per cent. of those interviewed presented themselves for examination and these seemed to include an unduly high proportion of ailing women. Further surveys are planned for 1948 and an effort is being made to improve the technique with a view to securing more representative samples of women. Although the results obtained in these surveys apply only to the rather unrepresentative women who were examined, the proportions of low nutritional grade were so high as to make it important to persevere with them.

Haemoglobin Determinations

Expectant mothers.—With the assistance of Professor E. J. King, the Ministry's clinicians began field surveys of haemoglobin levels, using a laboratory model photometer kindly supplied by him, and the alkaline-haematin procedure developed by him and his colleagues. They also employed for checking purposes a photo-electric colorimeter, also designed by Professor King. By this method, the bloods of 368 expectant mothers in the Manchester area were examined. The levels worked out on the average at 92 per cent. for the first three months; 87 per cent. for the second; and 83 per cent. for the third. Roughly one-third of the women had been prescribed iron 3–12 weeks before blood sampling. This made no difference to the levels in the second and third three months, but in the first three-monthly period the level was significantly higher in the women prescribed iron—95 per cent. compared with 91 per cent. These levels are quite satisfactory. Determinations on 173 pregnant women in London gave similar results. Of the 90 women in the first three months, 5 (5·5 per cent.) had values below 80 per cent.; of the 251 in the second three months, 34 (13·5 per cent.) had values below 80 per cent.; and of the 200 women in the third three months, 9 (4·5 per cent.) had values below 70 per cent. These values are consistently higher than those obtained in the M.R.C. Survey (1945).

Active versus sedentary occupations. In the Milroy lectures for 1946 Dr. Magee suggested that the low level of haemoglobin in farm workers compared with, for example, civil servants, might have a physiological explanation. He postulated that the sedentary worker, because of his relatively slow circulation and shallow respirations would require more haemoglobin than an active person. An inquiry was accordingly undertaken with a view to finding whether active persons in general have lower haemoglobin levels than sedentary workers. It was important that all the people examined should have a clean bill of health. Arrangements were accordingly made to determine the haemoglobin in groups of soldiers, taken from infantry battalions, the Army School of Physical Training, and other active groups on the one hand, and from sedentary groups such as the R.A.M.C., the R.A.P.C., clerks and telephone operators on the other. Samples from several police forces were also examined. They were taken from office workers on the one hand and men on outside police duties on the other. The findings showed that on the average the men engaged in active occupations had significantly lower haemoglobin levels than those engaged in sedentary occupations. For instance, the levels found for 60 guardsmen were 99·9 per cent. Haldane, and for 60 R.A.M.C. orderlies 103 per cent. Haldane. The difference, 3·1 per cent., was found to be statistically significant. These findings raised questions as to changes in blood volume or in the nature of the haemoglobin in the two groups of persons, and to throw more light on these problems arrangements were made to carry out investigations on farm animals in collaboration with the University of Cambridge.

Liquid Paraffin and Mineral Oil

During the war the use of liquid paraffin B.P. and then of mineral oil became increasingly popular as fat substitutes for baking and other culinary uses. The practice could not be looked upon favourably, but it was difficult to condemn it because there was no definite evidence that a risk to health was involved. Towards the end of the war it became known that the practice had grown considerably and that certain voluntary organisations were, in fact, giving cookery demonstrations in the use of these oils in place of fat. Prosecutions under the Food and Drugs Act had taken place but these had naturally no effect on the domestic use of the oils. At the suggestion of the Ministry, Professor Frazer in Birmingham carried out investigations to test the nutritional effects of regular consumption of liquid paraffin incorporated in foods.

The Royal Aircraft Establishment at Farnborough had been interested in liquid paraffin for other reasons and had observed that substances chemically resembling cancer-producing substances made their appearance in the oil after heating. Following arrangements made by Professor Frazer, tests to ascertain whether heated liquid paraffin had any cancer-producing properties were carried out at the University of Oxford. Both sets of investigations lasted altogether over two years until about the end of 1947. They showed that the daily consumption of the oil by experimental animals had no cancer-producing effects but that it seriously interfered with the absorption of carotene. No other nutritional disadvantages of the oil were detected. Towards the end of 1947 an American review of the subject appeared (Jl. Am. Med. Assn. 1947, **135**, 512) which quoted experimental evidence showing that continued ingestion of liquid paraffin for medicinal purposes resulted in deposits of the oil in the intestinal wall, lymph glands and the liver. Obviously the presence of accumulations of foreign substances like liquid paraffin in the body could not be regarded with complacency. In consultation with the Ministry of Food, it was decided to take steps to discourage the public from using liquid paraffin or any mineral oil as a substitute for fat.

Dietary Surveys

There has been, since dietary surveys were started, a difference of opinion as to the accuracy of the various methods and also as to the most suitable tables of food composition for use in particular types of survey. Dr. Bransby during the year carried out a number of comparisons of the various methods and the data are at present being analysed.

The work of the dietitians is given in Chapter VIII, p. 121.

Visitors from Abroad

Since the end of the war many medical and scientific men and women interested in nutrition have come to the Ministry seeking information, mainly about our methods of conducting nutritional surveys. The methods have been explained and wherever possible demonstrations arranged. The work of the Division was also explained and the visitors were advised as to the most profitable places to visit. They have come for the most part from government departments, but local health departments, universities and research institutes have also been well represented. Most have come from Western Europe, from Scandinavia, from Malta and the Colonies, from Egypt, the Dominions and U.S.A. During 1947 Czechoslovakia was very well represented, and, towards the end of the year, nutrition officers from most of the Provincial Governments in India and Pakistan, as well as from the Central Governments, came to visit us. Many of these Indian and Pakistan officials have remained in this country for courses of study and research.

VIII

HOSPITALS

A. Hospital Function, Planning and Construction

Hospital Function.—Hospitals, like other institutions, must adapt themselves to the social stringencies of the times. The demand for hospital treatment has been steadily increasing and the public are now given a free service. Diagnostic and therapeutic techniques become ever more complicated and the specialists are insistent in their demands for more space and apparatus. But at the same time there is a shortage of good buildings. Building is slow, with restrictions of which no end can be foreseen. More important still is a shortage of personnel, especially of nurses, and buildings are useless without staffs. Other countries with extensive hospital services are in like case, and there is a steady increase in the proportion of elderly persons and a decrease in the proportion of persons in the young and middle-aged groups, from whom the staffs of hospitals must be drawn. The problem is, therefore, to get the greatest use out of existing hospital buildings and those that can be built, even if this involves some departures from traditional practice. Dr. Maitland examined this question in a Chadwick Trust lecture on hospitals and health services,* particularly in relation to the fuller use of out-patient departments and of hostels, to save staffing and hospital beds.

The traditional view of a hospital is that it should be essentially a residential institution and provide board and lodging as well as medical treatment. Hospitals in this country, both voluntary and public, were charitable foundations, and when the beginnings of diseases were neglected the patients generally applied for treatment only when incapacitated and often only when acutely ill, so that admission was essential. The voluntary hospitals were largely preoccupied with major and emergency surgery, for which beds are required. Formerly the diagnosis, prognosis and treatment of medical conditions turned largely on the clinical judgment of the physician through observation of the course of the illness at the bedside, often over a period of time, and this, too, required admission to hospital for the ordinary patient. But, increasingly, the great advances in biology, physics and chemistry have given the physician and surgeon many additional instrumental and " test-tube " methods of rapidly confirming his clinical judgment and of shortening both diagnosis and treatment. More is known of the beginnings of disease, and the average patient seeks treatment at an earlier stage of illness. Fuller understanding of the causes of disease have brought out, notably in psychosomatic medicine, the great importance of those social factors, which need an understanding of the patient's mental reactions in his home and occupation as well as a study of his physical condition.

Thus more and more medical diagnosis, prognosis and treatment are being carried out for ambulatory patients at *out-patient departments.* Under stress of the shortage of beds (or beds that are staffed with nurses) and the increasing demands for medical investigation and treatment, some general hospitals have come to undertake such a large proportion of their medical work for patients without admission that they may almost be regarded as medical consultative centres supported by beds, rather than as hostels or hotels providing treatment.

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* *Lancet*, 15th Nov. 1947, p. 726 : 13th Dec. 1947, p. 891.

This saving in the use of beds by extending the range of out-patient work is all to the good, subject to these departments having sufficient general physicians and surgeons aided by competent specialists and adequate facilities for investigation and therapy. It promises economy in both nursing staff and buildings, whilst at the same time quickening the tempo of treatment and avoiding the disadvantages of hospitalisation to the patient.

Another promising line of development to save hospital beds is the use of simpler accommodation less heavily staffed than the standard ward unit.

Voluntary general hospitals in this country have, broadly speaking, had to discharge their patients as soon as they could get them on to their feet after operation, or when they were well over the acute phase of a medical illness. The beds were required for other acutely ill patients, and those discharged had to go to a convalescent home or, more likely, to their own homes, helped by such after-care as might be given at the hospital. Thus, the beds in these hospitals were almost all provided in so-called acute ward units.

The pre-war shortage of beds in the general hospitals in towns led to some of them taking over buildings on the periphery of the town or in the country nearby to use as convalescent sections or *recovery hospitals*. The war encouraged such moves on grounds of safety. It is doubtful, however, whether this decanting of patients from the parent hospital to outlying annexes can be regarded as sound in principle, except for selected groups of long-stay patients and when continuity of treatment can be assured. It may be here and there a useful temporary expedient to tide over a shortage of beds until better permanent arrangements can be made for the locality.

Of greater worth would seem to be *hostels* near to and connected with general hospitals. These can be buildings of simple construction and without the special installations required in general hospital ward units, and more lightly staffed, particularly in trained nurses. They have been shown to meet the needs of ambulatory patients attending radio-therapeutic departments for deep X-ray and radium therapy. Hostels should be of service for many short-stay patients attending a diagnostic and treatment centre who do not need to be admitted to beds in general medical or surgical wards.

Another rather different use that suggests itself for simple hospital accommodation is the group treatment of patients, who need to be under expert medical supervision not only for the appraisal of their condition, but also for education in a medical regimen. Thus, physicians with special knowledge of diabetes state that diabetics rarely need admission to a general medical ward, but that many would greatly benefit by a stay of three weeks or so in an institution. Here they require only simple accommodation and means of exercise, whilst they are learning to weigh their food and are educated in a regimen appropriate to their need. At Pinderfields Hospital, near Wakefield, a small unit of this sort has been established by the Medical Superintendent under the clinical direction of the Professor of Medicine at Leeds University. The patients admitted to it would otherwise either be " blocking beds " in the medical wards of a general hospital with less advantage to themselves, or else would get no residential treatment. The results encourage the trial of such units elsewhere. Experiments of a similar sort using simple accommodation might well be made with other groups of patients, such as those with gastric disorders.

Study of hospital function and planning

The study of these subjects by architects and medical officers of the Department continues through the impact of hospital building proposals, through visits to hospitals, and through other modes of research. Special thought has been given to the role of out-patient departments, to the use of hostels in support

of hospitals, and to other growing points of hospital function. Officers of the Department are in touch with those engaged in preparing schemes for the rebuilding of several large teaching hospitals which are large essays in contemporary hospital design.

Dr. Maitland visited a number of hospitals in Switzerland to study the principles of planning and construction which are exemplified in buildings existing or now projected at several of the notable hospitals in the Confederation —at Zurich, Winterthur, Basle, Berne and Geneva. He has recorded some impressions in the *Lancet*.*

The Department continues to assist persons from abroad, and persons from this country going abroad, in matters connected with hospital organisation, planning and construction, both in exchange of ideas and in arranging for visits. They include representatives from the Ministries of Health of other countries, commissions from faculties of medicine, individual medical men, architects and others. Several with fellowships from the World Health Organisation have been helped with their programmes of studies. During the year our visitors have included those from South Africa, Sweden, Finland, India, China, Czechoslovakia, Greece and Bulgaria.

Standards in Hospital Planning.—Requests are often received for a statement giving the Department's views on *standards* and *methods* to be adopted in hospital planning. The latest official pronouncement on the subject is contained in the two reports (now out of print) of the Departmental Committee on the Cost of Hospitals and other Public Buildings, published in December, 1936, and February, 1938.

Owing to the continuous development of medical science and practice, changes in economic and social conditions, and movements of both expert and public opinion, reports of this kind begin to be out of date soon after publication and become more so with each year that passes. Moreover, it has to be remembered that the Departmental Committee was set up for a special purpose, namely to see whether the cost of hospitals and other public buildings could be reduced. Their terms of reference were as follows :—

> To consider and report on the questions of the capital cost of construction and the annual cost of maintenance of the following classes of public buildings provided by local authorities, viz. : hospitals (including mental hospitals), public assistance institutions, mental deficiency institutions, maternity homes (including maternity departments newly constructed or added to hospitals), and baths and wash-houses, special regard being paid to (*a*) the establishment and periodic revision of standards ; (*b*) modern methods of construction ; and (*c*) the possibility of securing a reduction in present costs without impairing the efficiency of the buildings for the purposes for which they are designed.

The Committee's treatment of their subject was necessarily conditioned by their terms of reference, which were designed to focus their attention on the reduction of cost. The need for economy is certainly not less pressing now than then and must be constantly kept in mind, but the subject has to be considered from a broader viewpoint than that of the Departmental Committee.

To see how far the Departmental Committee's report might serve as a basis for a new statement of the requirements of different parts of the hospital, the section of the report dealing with the ward unit was discussed by an informal office committee. This committee came to the conclusion that, while much of what the Departmental Committee wrote about the ward unit was still valid, account must be taken of the decided movement of opinion towards smaller wards and a higher proportion of single rooms, and of the increased amount of space for ancillary purposes demanded by the growing complexity of diagnosis and treatment.

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* Hospitals in Switzerland, *Lancet*, 28th Feb., 1948, p. 338.

At present there is need for especial caution in offering official guidance on hospital planning. Standards (and still more model plans) are apt to discourage experiment and ossify design. It seems that the traditional British plan which held the field for so long and was often so unimaginatively copied is now obsolescent, and that hospital design in this country is reaching out towards something new which as yet has not taken definite shape. At the moment there is perhaps some danger of uncritical copying of Continental and American forms of planning, but the best brains engaged on the task of designing hospitals are undoubtedly trying to work out something new to meet the particular needs of this country. It is most desirable that this individual striving towards the evolution of improved forms should continue unhampered. Variety rather than standardisation is the need of the moment, and experiment within reason is to be encouraged. The cost and length of life of buildings are so great that the scope for experiment is limited, but some should be undertaken.

Another special difficulty of the present time lies in the impossibility of foreseeing the conditions that will prevail when building can again be freely undertaken. Even when building on a substantial scale can begin, some restrictions as to materials, methods of construction and the use of man power may still be necessary and may have an important bearing on planning, which may also be affected by economic and social conditions. For example, shortage of nursing staff might make it necessary to avoid a form of planning which seemed desirable in itself, but which demanded staffing on a generous scale. An interesting example of the effect of shortage of nurses was seen in one modern hospital in which a number of single rooms had been provided in association with the main wards. One of the purposes of these was for the accommodation of patients who were gravely ill and in need of quiet, but it was found necessary to put such patients in the main ward more directly under the eyes of the nursing staff, and to use the single rooms for convalescent patients needing less supervision.

The question whether the Departmental Committee's report could with advantage be reprinted is under consideration. It contains useful statements of fact and opinion and will repay study, so long as it is not expected to furnish up-to-date answers to all the questions discussed in it. Meantime a word should perhaps be said about one group of standards adopted in it, namely those relating to bed space. The Departmental Committee was alive to the dangers of standardisation and displayed commendable caution about laying down standards, but gave definite guidance in the matter of bed space. It adopted eight feet between centres of adjacent beds as a definite standard. It laid down no standard of floor area per bed, but by combining the standard of eight feet between bed centres with the Committee's remarks on the necessary width of wards, one arrives at a standard area of about 100 square feet. Both these standards (eight feet between bed centres and 100 square feet per bed) had received fairly general acceptance for years before the Departmental Committee was appointed ; they have stood the test of time and can be reaffirmed with confidence. The eight feet standard in particular is one which should not be disregarded. There is, of course, no magical significance in the precise distance of eight feet but the danger of infection from placing patients too near each other is well known ; a distance of eight feet has been found to give reasonable safety, and at the same time to allow comfortable elbow-room for doctors and nurses in attendance on patients. The standard of 100 square feet per bed need not perhaps be so strictly applied ; the amount of space per bed may vary with the shape and size of the ward, but it is found that convenient working conditions require about that amount of space. Single rooms require a slightly larger area for convenient working. The Departmental Committee regarded 110 square feet as sufficient, but the view that this is rather small, and that 120 square feet should be allowed, is fairly general and is probably justified.

When large dwellings are adapted to serve as hospitals, the number of beds which they can accommodate tends to be much over-estimated. The eight feet and 100 square feet standards will be found useful as a guide, although it is a matter of seeing how the beds will fit in, having regard to size and shape of rooms or position of doors, windows and fireplaces, rather than applying a rigid standard. In such cases the amount of space allowed per bed ought to be rather more liberal than in hospital wards, since the ventilation and lighting are usually inferior.

The Departmental Committee emphasised the effect of height of wards on the cost of hospital buildings and stated :—

> " We regard a height of 11 feet as sufficient for wards containing not more than 16 beds, but for longer wards, if not divided by transverse partitions, a height of 12 feet is desirable. The height of the small wards and ancillary rooms will usually be determined by the height of the main ward, but where this does not obtain we regard 10 feet as sufficient for small wards up to six beds and 9 feet for single-bed wards."

From the medical point of view, it is doubtful whether there is anything to be gained by making wards more than 10 feet high, and, as the large undivided ward seems to be regarded as a thing of the past, probably that figure need never be exceeded.

Hospital Construction

The hospital surveys, summarised in the report for 1945, all showed that many hospital buildings are out of date and fall far short of modern requirements in planning and in facilities for efficient and convenient working. It was, therefore, disappointing to have to record in the 1946 report that restrictions on building allowed progress in only a very few of the schemes submitted to the Ministry. Unhappily, during 1947 there was again little new hospital construction. The Department had to continue to sift all hospital building proposals to determine those of greatest urgency. Plans had then to be examined to ensure that the buildings, many of them of an emergency sort, would not needlessly interfere with the proper permanent development of the hospital, and specifications scrutinised to confirm that available materials were being put to the best use.

The exigencies of the times have often led hospital managers to seek to gain their immediate requirements by putting up temporary buildings on the assumption that buildings of temporary construction are cheaper and more quickly brought into use than those that are called permanent. It is true that prefabricated materials once they are collected on the site may be more quickly assembled as the shell of a building than simple construction in brick. But the installations—water, drainage, gas, electricity—and the internal construction and finishings are much the same in both, so that any gain in time or saving in cost is, in practice, small. It is also sometimes supposed that because buildings are temporary they may be sited without full regard to the permanent development of the hospital. But the life of many buildings described as temporary may well be as much as 25 or 30 years. There is likely to be reluctance on the part of hospital managements to pull down such well-made buildings so long as they are reasonably suitable. The argument that such buildings will not interfere with permanent development because they were called temporary when constructed and are, therefore, ripe for replacement at any time, is specious.

B. Emergency Medical Services

The Emergency Hospital Scheme continued throughout 1947 with relatively little change. This was due mainly to the retention of a number of the Special Treatment Centres established by the Emergency Medical Services in all parts

of the country during the war. The value of these centres has been demonstrated by the continuing demand for admission to them on behalf of civilian as well as of service cases.

Hospitals have been withdrawn from the Scheme and beds released wherever possible. The number of service cases in Scheme hospitals fell from 5,423 on January 1st, 1947, to 2,188 on December 31st, 1947, but the continuing use of E.M.S. beds and hospitals for civilian cases that could not otherwise be adequately treated prevented any striking reduction in the total number of beds reserved. In all 4,574 beds were released during the year compared with about 16,000 during 1946, and 28 hospitals were withdrawn or suspended compared with 149 during the previous year.

By the end of 1947 there were 329 hospitals remaining in the Scheme (excluding suspended units) and the total number of staffed beds reserved in these hospitals for E.M.S. cases was about 18,000. Reserved beds were available for civilian patients if not required for E.M.S. cases.

These reductions were reflected in the arrangements required for the transport of patients. During the year 30,273 patients were transported in the London area but it was possible to reduce the number of bus ambulances from 18 at the beginning of the year to 4 by December 31st, 1947.

The continuing lack of a sufficient number of beds for chronic sick has prevented the return even yet of all cases of this type evacuated from the London area during the war, and although 560 were returned during 1947 there were still 400 remaining in other parts of the country at the end of the year.

Special Treatment Centres.—There was little change in the number of Special Centres, other than orthopaedic, during the year though their location was changed in a number of instances. Orthopaedic departments of general hospitals in the large centres of population have been re-opened and special orthopaedic hospitals in several instances reverted from their war time use for casualties and civilian sick to full orthopaedic work. The need for the special orthopaedic centres established by the E.M.S. therefore diminished and by the end of 1947 six only of these units remained. It was hoped to close two more in the early months of 1948. The numbers of Special Centres, other than orthopaedic, in active use during 1947 were : Neurosurgery, 5 ; Plastic Surgery, 10 ; Thoracic Surgery, 9 ; Spinal Injuries, 4 ; and Neurosis, 4.

Medical Officers.—The withdrawal or suspension of hospitals and the release of beds enabled a reduction to be made in the number of medical officers enrolled in the E.M.S. The numbers of whole-time medical officers dropped from 343 on January 1st to 286 on December 31st, 1947, and of part-time medical officers from 130 to 92. Of the total enrolled at the end of the year, 43 per cent. were engaged in the hospital laboratory or blood transfusion services. Most of the others were employed in Special Treatment Centres or in an advisory capacity. The Special Treatment Centres have afforded valuable opportunities for the training of specialists.

Central Sector Office (London).—The Offices of the London Sectors were closed during 1946 and their duties and responsibilities concentrated in one Central Sector Office in London, which then dealt with all matters concerning the 153 hospitals remaining under the Scheme in London and the Home Counties. During 1947 the Central Sector Office dealt with the arrangements necessary for the treatment or transfer of more than 25,000 cases, but there was a gradual diminution during the year in the volume of work.

C. Rehabilitation

Rehabilitation having become an essential part of the medical and surgical treatment of all disabling disorders, increasing attention is being directed towards what may be described as the preventive aspect of the problem.

The fact that the Disabled Persons (Employment) Act of 1944 was primarily an industrial measure, and that the organisation which has been set up throughout the country in implementation of that Act has been concentrated upon the training and employment of the disabled man or woman, has tended to obscure the even more important matter of prevention. To provide means whereby those who are already afflicted with permanent disabilities will no longer prove a handicap, is indeed valuable, but it is even a greater service to the community if the numbers of those permanently disabled can be reduced, year by year, and the gravity of their residual disablement lightened, by effective measures of medical rehabilitation carried out during the hospital stage. It is this preventive aspect of rehabilitation—the attempt to restore physical and nervous function, jeopardised by debilitating illness or grave injury—which forms the main task of the hospital rehabilitation department, and for which trained teams of rehabilitation medical officers, physiotherapists, occupational therapists, remedial gymnasts and almoners are essential. Where such teams operate and a combined rehabilitation technique has been developed—and there are more than 300 hospitals in England and Wales where this is the case—residual disability is reduced or actually eliminated, absenteeism from employment on physical grounds is much lessened, and the period of bed-occupancy or of attendance at a hospital out-patient department correspondingly shortened.

Progress in setting up new departments has been hampered by lack of accommodation and shortage of trained staff. The difficulty in securing adequate accommodation will persist for years. Existing hospital premises, unless recently erected, have rarely allowed sufficient space for an active physiotherapy department, an adequate remedial gymnasium or for occupational therapy rooms, and any space not already occupied is generally earmarked for much-needed ward expansion, new nurses' homes, or extension of laboratories and X-ray departments. Some hospitals have met this difficulty by acquiring premises close to the hospital grounds and converting them into complete rehabilitation units. This solution is not ideal, as it tends to divorce rehabilitation from the ordinary therapeutic use of physiotherapy in the general work of the hospital and thus may cause some duplication of staff and apparatus, but it is infinitely better than being without a hospital rehabilitation department.

Shortage of trained staff is also a serious handicap which it will take some years to overcome. There is increasing demand for physiotherapists, remedial gymnasts, occupational therapists and almoners, and this demand will grow, in view of the new opportunities for comprehensive hospital treatment under the National Health Services Act.

The action taken by the Ministry of Health, in association with the Ministry of Labour and the Ling Physical Educational Association, in providing an intensive course in remedial gymnastics for ex-service P.T. instructors who have already worked in hospital rehabilitation departments, has proved most fruitful. Of the 113 men so trained, 76 are now doing excellent work in hospitals and rehabilitation units in England and Wales, 15 are similarly employed in hospitals under the Department of Health for Scotland, 13 are engaged in Miners' Rehabilitation Centres, whilst the remaining 9 are employed by the Ministry of Education or are filling important posts elsewhere. A further course was held for 46 students, who, on qualification, were attached to

hospitals and rehabilitation centres, and no fewer than 15 of them were appointed to hospitals already employing remedial gymnasts similarly trained, the success of whose work has led to increasing demands for such service.

D. Work of the Dietitians

One additional dietitian was appointed in October, 1947, and during the year the four dietitians visited 401 institutions, including voluntary, municipal, mental, children's and infectious disease hospitals, sanatoria, public assistance institutions, childrens' homes and day nurseries.

Generally there was found to be much improvement in the dietary standard, particularly noticeable in public assistance institutions. There is still a great shortage of qualified staff in senior posts in the catering departments and kitchens. The lack of modern equipment in kitchens and of adequate ward kitchen facilities is still an outstanding defect. Except where there is a special diet department, arrangements for the provision of light diets are far from satisfactory. The poorest dietaries were found in the children's homes (now taken over by the Home Office). The dietaries in day nurseries were generally of a better standard.

The old time buildings and obsolete worn-out equipment constitute a serious handicap in all too many cases. This is, however, becoming generally recognised and many schemes for improved buildings and for the provision of modern equipment were submitted by the responsible authorities during the year under review. In certain cases work was retarded due to building restrictions and difficulty in obtaining new equipment.

One hundred and fifteen re-visits were paid to institutions of all types. In most an improvement was noted, though in 13 instances there was no evidence of any attempt to raise the standard.

The functions of the Dietetic Advisory Service are now well-known and the continued requests for visits and lectures and the many letters of appreciation that have been received confirm its usefulness.

E. Post-graduate Education of Medical Officers on Release from the Forces

By the end of 1947, the Ministry's scheme for re-establishing medical officers in civilian practice and for continuing their post-graduate education which had been interrupted by war service, had been in operation for two and a half years. During the period from the beginning of the scheme on 1st July, 1945, to 31st December, 1947, a total of 5,746 officers had received the benefits of one or other of the forms of post-graduate education and training provided on behalf of the Ministry by the Universities of England and Wales.

The scheme provided junior hospital appointments (Class I) for six months for practitioners who joined the Forces shortly after qualification, short refresher courses for officers recruited from general practice (Class II) and hospital appointments of the registrar type (Class III) for officers accepted for specialist training, the latter being for six months in the first instance but renewable for further periods of six months until completion of training. If recommended for training as a specialist on the termination of a Class I appointment, an officer could proceed to an appointment in Class III of the scheme.

The numbers that received training in the three classes are :—

1. Class I	3,566	
2. Class III (on demobilisation)	1,528	
3. Total receiving hospital appointments ..		5,094
4. Class II		652
5. Total		5,746

Of the 3,566 who held Class I appointments, 1,418 were promoted to Class III, making the total that received Class III appointments 2,946. The London area accounted for more than half the figures in each category.

The following table shows the numbers in the different specialities in each University area on 30th September, 1947.

	Birmingham	Bristol	Cambridge	Durham	Leeds	Liverpool	London	Manchester	Oxford	Sheffield	Wales	Total
General Medicine	21	18	11	14	20	27	264	52	15	11	8	461
General Surgery	21	18	8	18	9	25	210	50	12	9	10	390
Obstetrics and Gynaecology ..	9	6	2	4	9	10	86	29	6	6	2	169
Paediatrics	5	3	—	3	1	7	50	11	1	2	2	85
Pathology	4	6	2	—	4	7	80	8	1	—	5	117
Mental Illness and Mental Deficiency	—	2	—	1	—	2	28	—	2	—	—	35
Anaesthetics	8	7	2	5	—	5	75	15	16	4	5	142
Cardiology	—	—	—	—	—	—	7	—	—	—	—	7
Dermatology	3	1	1	1	2	2	28	6	1	2	1	48
Diseases of the Chest	—	—	—	—	—	—	24	6	1	—	1	32
E.N.T.	3	6	1	—	3	2	27	9	3	—	1	55
Infectious Diseases	—	—	—	—	—	—	—	—	1	—	—	1
Neurology	—	—	—	—	—	—	32	—	1	1	—	34
Neurosurgery	—	—	—	—	—	—	4	—	3	—	—	7
Ophthalmology	4	3	—	3	4	2	40	10	5	2	2	75
Physical Medicine	—	1	—	—	—	—	11	1	—	—	—	13
Plastic Surgery	—	1	—	—	—	1	—	—	—	1	—	3
Radiodiagnosis	7	5	—	—	—	—	19	13	—	8	—	52
Radiotherapy	1	1	—	1	—	—	12	17	1	—	—	33
Radiology	—	—	—	1	—	10	22	—	—	—	—	33
Thoracic Surgery	—	1	—	—	—	2	9	—	—	1	—	13
Traumatic and Orthopaedic Surgery	4	3	1	2	2	14	19	2	1	2	2	52
V.D.	—	—	—	—	2	—	7	—	—	—	1	10
												1,867

In addition to the 652 general practitioners who attended formal refresher courses, others made their own arrangements at the medical schools where they qualified. An intensive two weeks general course was the formal type most frequently provided but in some areas an extended course involving attendance on one or two half days a week for 11 weeks was found to be more suitable. A week's intensive course in a limited field, such as general medicine or obstetrics and paediatrics, has been a successful type in the London area.

Judged by the demand from demobilised medical officers, the types of training provided for general practitioners were less satisfactory than those for the other classes, but experience has been obtained that should be valuable in the future. Many of the courses arranged by the Universities had to be cancelled because of insufficient applications, but 92 were held and the following table gives their types and numbers :—

2 weeks general	48
1 week general	6
1 week medicine	4
1 week obstetrics and paediatrics	9
1 week pulmonary tuberculosis	1
3 weeks paediatrics	2
2 weeks industrial health	1
Extended general (11 weeks)	21
	92

IX

THE INSURANCE MEDICAL SERVICE

The number of persons entitled in the year 1947 to the benefits of the insurance medical service in England and Wales was 20,693,774.

The table below shows the number of insured persons who elected to obtain treatment from insurance practitioners or from medical aid institutions approved by the Minister or who, with the consent of the respective Insurance Committees, made their own arrangements for treatment.

There were 1,192,599 who had so far not selected the method of receiving treatment.

Area	Number of Insured Persons		
	On lists of Insurance Practitioners	On lists of Approved Institutions	Making their own arrangements
England	18,383,935	108,916	11,503
Wales	958,305	38,107	409
Total in England and Wales	19,342,240	147,023	11,912

The total cost of medical benefit exclusive of the cost of administration was £21,719,990, of which £15,414,921 represents the remuneration of practitioners and £6,305,069 the cost of supplying medicines and appliances. £162,759 was paid in respect of insured persons treated by approved medical aid institutions or making their own arrangements.

The capitation fee paid to insurance practitioners for each person on their lists remained at 15*s.* 6*d.* throughout the year.

Cost of insurance prescribing

In England, there was an increase in the number of prescriptions issued during the year.

The average number of persons on prescribing lists in 1947 was 16,767,333 as compared with 15,702,051 in 1946 and the total number of prescriptions issued in 1947 was 67,886,799 as compared with 67,324,528 in 1946.

The average number of prescriptions issued per person on prescribing lists was 4·048 in 1947 and 4·287 in 1946.

The average cost of the ingredients of each prescription rose to 13·219*d.* compared with 8·261*d.* in 1946. The 1947 figure, however, includes a 30 per cent. addition awarded from 1st January, 1947, on ingredient costs. The total cost of supplies of medicines and appliances to insured persons in England and Wales was £6,305,069, of which £5,838,577 was paid on the chemists' accounts and £466,492 on insurance practitioners' accounts.

Only an occasional visit to practitioners to discuss points arising from their prescribing was paid by the regional medical staff.

Maintenance of the efficiency of the service

The high level and efficiency of the service was again demonstrated by the very small number of complaints made against medical practitioners.

There were only six cases of withholding money from practitioners for breaches of the terms of service and the total sum so withheld was £130.

No representations were made under Part VI of the regulations that the continuance of a practitioner on the medical list would be prejudicial to the efficiency of the medical service to the insured population.

Throughout the year refresher courses for general practitioners have been arranged in all parts of the country. The attendance at these courses was not as large as had been anticipated.

Regional Medical Service

In their capacity as medical referees on the question of incapacity for work of insured persons claiming sickness benefit the regional medical staff dealt with 122,007 references in England and Wales. The nature and source of which are shown in the following table :—

Source of reference	Number of cases referred for examination to the regional medical staff during the year 1947
Approved Societies	121,533
Insurance practitioners ..	474
Total	122,007

The total number of references received was still only about 25 per cent. of the 1938 figure and obviously full use was not being made of this service.

In connection with the Disabled Persons (Employment) Act, 1944, 52,422 persons were referred by the Ministry of Labour for examination.

The Trend of Short-term Sickness

(from the Government Actuary's Department)

The table published under this heading in the Report for 1946 has been extended by the addition of figures for the last quarter of 1947 and the first quarter of 1948. It is not possible to give figures for any later period ; during the second quarter of 1948 the administration of sickness benefit was transferred from the approved societies on whose records the table is based to the local offices of the Ministry of National Insurance.

As explained in the previous Report, the ratios in the table are derived from returns of the quarterly expenditure on sickness benefit by certain large approved societies, comprising well over half the insured population of England. The expenditure in each quarter has been expressed as a percentage ratio of the average expenditure for the corresponding quarters in the three years 1936–38, taken as a fair pre-war average level, with adjustment for changes in the numbers entitled to sickness benefit. Being based on the cost of sickness benefit, which under the conditions of the National Health Insurance scheme was payable

only for the first six months of incapacity, these ratios may be regarded as giving a reasonable indication of the trend of short-term sickness. Broadly, therefore, they reflect the level of incapacitating sickness among the working population, omitting incapacity at the longer durations which would for the most part be payable to persons who were no longer on the books of employers.

Percentage ratios of average number drawing sickness benefit in each quarter of 1939–47, *and in the first quarter of* 1948, *per* 1,000 *insured persons, to the corresponding quarterly average for the three-year period* 1936–1938

Quarter	Men				Spinsters and Widows				Married Women			
	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th
1936–38	100	100	100	100	100	100	100	100	100	100	100	100
1939	101	102	97	91	107	100	97	92	101	98	96	97
1940	148	103	97	102	127	104	94	95	120	103	99	95
1941	109	110	113	124	97	91	102	108	91	85	89	90
1942	129	139	146	148	100	114	132	142	96	109	120	123
1943	144	159	161	205	134	149	161	203	114	124	124	147
1944	153	166	174	179	153	156	171	176	122	120	121	121
1945	166	159	167	153	158	151	157	155	116	109	107	108
1946	149	130	121	120	146	125	121	120	107	101	95	95
1947	123	114	104	104	113	109	106	103	86	84	90	85
1948	89				87				80			

Note.—These figures can only be compared vertically ; owing to the method of construction they are not comparable horizontally.

It should be noted that, being related to the same base line of 100 for each quarter in 1936–38, these figures give no indication of the pronounced seasonal fluctuations in sickness, the level of which varies from a maximum value in the first quarter of the year to a minimum in the third quarter ; the marked peaks in the course of the ratios which appear in the first quarter of 1940 and again in the last quarter of 1943 reflect heavy claims during the only influenza epidemics which have occurred since the outbreak of war in 1939.

In considering war-time movements in these ratios it is necessary to bear in mind the transfer into the Forces of a substantial proportion of younger and healthier persons, and in the case of women the high marriage rates of the period and the entry into war-time industry of a number of persons not previously insured under the National Health Insurance scheme. As regards the disturbing factor introduced by the mobilisation and demobilisation of the Forces, the fact that the course of the ratios since 1939 has been closely similar as between men and unmarried women suggests that this factor has not been a primary influence affecting the trend. Particular caution is required, however, in interpreting the ratios for married women by reason of the great changes in the composition and characteristics of the insured population of married women during the period under review—in particular, at the end of the second quarter of 1947, when it is estimated that nearly a quarter of the total insured married women ceased to be insured. Such changes—rather than significant changes in the underlying sickness trends—may well account for some of the features exhibited in the above statement ; in general, the series of index ratios for married women cannot be interpreted with much confidence.

It will be seen that the sharp rise in the level of short-term sickness during the war became general in 1942 and was maintained until the middle of 1945. Since the end of the war, however, there has been a gradual downward trend, a fairly stable level being reached by the second half of 1947. As regards the first quarter of 1948, the data in the Registrar General's quarterly return of deaths and notifications of certain diseases suggest that the incidence of sickness in that quarter may have been abnormally favourable.

After making every allowance for the margin of variation in the ratios due to the lack of up-to-date statistics for many items involved in the computation, it is thought that the figures for men and unmarried women fairly represent the extent of the fall in short-term incapacitating sickness since the end of the war, and suggest broadly that in the aggregate the pre-war level of short term incapacity had been regained prior to the introduction of the new comprehensive scheme of National Insurance in July, 1948.

X

THE DENTAL SERVICES

National Health Insurance

The Dental Benefit Scheme has now been in operation for more than 25 years and throughout has been the most popular of all the additional benefits. Under this scheme those approved societies administering the benefit were responsible for the payment of some part—ordinarily, not less than 50 per cent., but in some cases 75 or even 100 per cent.—of the cost of dental treatment of those members who were eligible and who applied for this benefit. A proportion of the insured population has, however, been excluded from benefit because the societies of which they were members have not had surplus funds available to provide it. In order to use the available funds to the best advantage, one of the essential conditions of receiving benefit has been that the whole of the treatment necessary for dental fitness should be accepted. This principle had much to recommend it under the limited dental benefit arrangements, but it is one which would be impracticable under the new dental service to be provided under the National Health Service Act.

In 1927, the services of regional dental officers of the Ministry were made available to advise both approved societies and dentists on dental treatment matters arising in connection with dental treatment proposed and completed for insured persons. In the early days of the service it was found that in only 16·8 per cent. of cases referred in England and 10·5 per cent. of those in Wales was the dental treatment which had been completed for an insured person entirely satisfactory ; within five years the percentages of satisfactory cases had risen to 43·9 in England and 23·8 in Wales. These proportions have risen progressively still further in more recent years whilst the cases found to be entirely unsatisfactory have been correspondingly reduced.

Precise figures of the numbers of insured persons receiving dental treatment under the dental benefit arrangements are not available, but, from information regarding the amounts expended by societies and the average cost of treatment of each patient, it has been estimated that during the pre-war years the number of insured persons receiving treatment annually was between 700,000 and 800,000. During the whole period, including the war years, the number of cases towards which grants were made has been not less than 17 or 18 millions.

The passing of the Dental Benefit Scheme coincides with the institution of a comprehensive dental service under the National Service Act in July, 1948.

Dental Benefit References

Owing to the scale of fees dispute in 1946 many dentists refused to accept dental letters and, in consequence, the number of cases referred by approved societies for the advice of the regional dental officers fell in the early part of the year. The total number of cases referred in 1947 was 8,070 compared with 9,257 during 1946.

The following references were dealt with :—

Referred by approved societies :—

Estimate references—England	5,165	5,381
Estimate references—Wales	216	
Treatment references—England	2,482	2,633
Treatment references—Wales	151	

Referred by dentists :		
England	54	56
Wales	2	
Total references received :		
England	7,701	8,070
Wales	369	
Number of insured persons examined :		
England	6,411	6,721
Wales	310	

Emergency Medical Service

Plastic and Jaw Centres

In 1939, in connection with the arrangements for the Emergency Medical Service, there were set up nine plastic and jaw centres for service and civilian casualties suffering from facial and maxillary injuries, three in the London area, staffed by specialists of the principal London hospitals, and six in the Provinces associated with the medical and dental schools of the respective universities.

Patients were admitted to these hospitals suffering from severe facial injuries caused by accidents, gunshot wounds and burns, many of them resulting in serious loss of function and disfigurement with consequent distress of mind. The surgical and dental teams worked in the closest co-operation in dealing with injuries to the face which were frequently accompanied by complicated fractures of one or both jaws. In addition, these hospitals served as special centres for oral surgery and the cases dealt with included many tumours and infections of the jaws.

Treatment

Great advances were made. The fullest advantage was taken of the early years of the war, when battle casualties were few, to perfect the arrangements for dealing with cases and to devise improvements in the technique of the treatment of the special cases for which the centres were established.

The treatment of crash fractures of the face and upper jaw was in its infancy in 1919 and the high speeds obtained in the recent war greatly increased the incidence and severity of these injuries. The early disimpaction of maxillary fractures is an important and essential part of treatment and methods were devised for supporting the disimpacted maxilla from a plaster headcap. This treatment has greatly improved the functional and cosmetic results.

The early developments of pin fixation of bone fragments was shared between Hill End and Park Prewett Hospitals and much of the experimental apparatus was made in the dental workshops of these hospitals. This method of treatment facilitates immobilisation of edentulous fragments as well as the treatment of bone loss by means of bone chips.

The loss of lining membrane of the mouth is of particular significance in dental surgery, but it has often been accepted as a deformity not readily corrected. The many cases in which epithelial inlays have been employed prove the efficacy of this method in overcoming the residual deformities after gunshot wounds and bone grafts. These cases also require great skill in dental prosthetics and much ingenuity has been expended in adapting acrylic materials to this work. The high level of attainment of plastic surgery has led to few demands for large external prostheses but an interesting application of prostheses was in the production of acrylic plates for the permanent repair of cranial defects for which a special technique was devised.

Hill End Hospital was one of the first in which penicillin was made available and much pioneer work was done in its application to dental conditions, particularly in the form of pastilles and lozenges.

Post-graduate Courses

Before the war knowledge of treatment of maxillo-facial injuries was confined to a few. It was soon recognised that troops who sustained facial injuries on the battlefield, particularly in distant theatres of war, must pass through many hands before finally reaching the jaw units in this country. It was, therefore, desirable that every dental officer concerned with patients en route should be familiar with the whole plan of treatment and its continuity.

Special courses of instruction in the treatment of jaw injuries were organised and continued throughout the war for dental officers of the Royal Navy, Army, R.A.F., and Allied Armed Forces, many of whom were drafted to special maxillo-facial units overseas. This far-sighted policy fully justified expectations, the condition of the jaw injury cases when they arrived in this country from Italy and Normandy was a credit to the officers who carried out the primary treatment and an ample reward for the teaching staff of the plastic and jaw units. The vision of Mr. Kelsey Fry, C.B.E., M.C., and Sir Archibald McIndoe, combined with the generous gifts of our Dominion and American friends, created and equipped a hospital and surgical unit at East Grinstead which is the most modern in the country. Facilities were provided for post-graduate teaching and study and some 1,500 dental officers from the British and Allied Forces and the E.M.S. attended courses of instruction. The demand for post-graduate instruction is great and the facilities of these hospitals are being utilised to the full.

Courses are held in maxillo-facial work, hospital dentistry and oral surgery and are attended by Service Dental Officers and graduates from this country, the Dominions and abroad.

Prosthetic Treatment

Prosthetic appliances were constructed for fractured jaws and for epithelial inlays, etc. Casualties with extensive gunshot wounds required temporary protheses in order to restore some degree of normality to oral and nasal passages which added considerably to the comfort and morale of the patient. At a later stage of treatment more complicated obturators were necessary for this type of injury.

Various types of implants in acrylic and tantalum were designed for cranial defects and for the restoration of nasal and facial contour, those made of tantalum proved to be the better tolerated.

Hand, finger, ear and nose protheses were carried out in appropriate cases, and much experimental work was done in producing artificial eyes. Large numbers of dentures were also supplied.

Mention must be made of the high degree of skill and patience of dental technicians, without whose ready co-operation little of this advanced work could have been done.

Repatriated Prisoners of War

At the conclusion of hostilities in 1945, arrangements were made for the rehabilitation of prisoners of war and civilian internees on their repatriation to this country. The service departments were responsible for their own personnel, but the Ministry of Health undertook the care of the many civilians who had been interned, and made arrangements for dental treatment to be given at the expense of the Ministry and under the supervision of the Ministry's dental staff.

Between October 1945 and December 31st, 1947, 1,925 applications for dental treatment were received, and 1,573 of these applicants did in fact avail themselves of the very complete facilities which were available ; 1,503 persons received treatment from private dental practitioners in the neighbourhood of their temporary domiciles, while 70 were treated in the dental units of the emergency medical service.

It is of especial interest that the internees had been almost entirely deprived of facilities for dental treatment for some years, but despite the hardships they had undergone, their dental condition was very much better than might have been anticipated, and in the large majority of cases—and especially in those who had been in the habit of undergoing regular dental care in pre-war days—dental fitness could be secured mainly or entirely by conservative means. Of the adults 6·2 per cent required complete extractions and fewer than 20 per cent of the men and 11 per cent of the women were in need of full upper and lower dentures.

	Men	*Women*	*Children and Adolescents*
Number of patients..	841	573	159
Number not requiring treatment ..	8	9	19
Treatment completed per 100 *cases*			
Scaling	61	67	35
Fillings	264	336	345
Extractions	236	213	98
Patients requiring dentures ..	71	57	2·5
Number of dentures supplied ..	117	89	2·5

In addition to the above, 25 crowns, 7 bridges and 3 orthodontic appliances were completed. Of 156 extractions completed for children and adolescents, 94 were of deciduous teeth.

National Health Service Act

" One of the most important facts with which those concerned with the health of the people are faced is the unsatisfactory dental condition of a large proportion of the population. In spite of school and other dental services, disease of the teeth and oral tissues is widely prevalent, even amongst those adolescents who have been under dental supervision during school life, and there can be little doubt that this is an important factor in the causation of other diseases. The problem is not only one of finance. The large bulk of the population, particularly amongst the industrial classes, is so accustomed to conditions of dental disease in themselves and their neighbours, and so little convinced that these conditions bear any relation to general health that, even if adequate dental services for all classes could be provided immediately, it is unlikely that more than a small percentage of those in need of it would avail themselves of the opportunity of obtaining dental treatment."

This statement, which is taken from the Chief Medical Officer's report on the " State of the Public Health during 1933 " is still true to-day, although there are encouraging signs that the value of dental treatment is becoming more widely recognised.

In 1935 an analysis of the dental treatment required by 10,000 insured persons showed an average 1·3 fillings and 7·9 extractions were required for each patient : 62 per cent of the patients required artificial dentures and 35 per cent

full upper and lower dentures. From information made available in more recent years it was found that the proportion of teeth filled to dentures supplied was approximately the same as in 1935. A survey of the dental condition of factory workers also showed that only 1 per cent were dentally fit in respect of their natural teeth.

It is, therefore, opportune that the National Health Service Act of 1946 gives special prominence to the care of the teeth by setting-up a comprehensive dental service free of charge for the entire population. With the hope of building-up an efficient service and of eventually reducing the incidence of dental disease, priority services are to be provided by local authorities for the treatment of expectant and nursing mothers, children under 5 years of age and school-children. Adolescents and the adult population may obtain treatment under the general dental service. Facilities for specialist treatment will be provided in hospitals.

Throughout the year discussions concerning the regulations to be made under the Act have been proceeding with representatives of the three dental organisations—The British Dental Association, the Incorporated Dental Society and the Public Dental Service Association. Under the new Act it is desired to give dentists as much freedom as possible and with this in view it has been provided that all normal conservative treatment, radiological examination and emergency treatment may be completed without prior approval. Where, however, the provision of dentures, and the removal of teeth making necessary the provision of dentures (except where this is necessary for the relief of urgent symptoms) together with certain other forms of treatment, or the provision of appliances involving special fees, are necessary the prior approval of a body known as the Dental Estimates Board is required.

All members of the community are eligible for treatment under the Scheme and dentists taking part in the general dental service are free to accept or refuse patients as they choose. Remuneration in the general dental service will be on the basis of a scale of fees per item of treatment completed.

Negotiations for the scale which is to apply will be entered into with representatives of the profession when the Committee, under the chairmanship of Sir Will Spens, which is considering the proper remuneration of dentists in any publicly organized service of general dental practice, has reported.

Hospital Services

For many years it has been increasingly the practice to refer hospital patients suffering from any but the more simple and obvious conditions, for the advice of specialists in various branches of medicine and surgery.

The co-operation of the dental surgeon has not, however, been sought as a routine procedure to anything like the same extent, in fact reference to him has often been confined to those cases in which oral sepsis was present to a marked degree. The fact that, in all but a few of the larger general hospitals, the dental staff has been restricted to a local practitioner visiting on one or two days each week, and the treatment confined to the extraction of teeth, whilst special accommodation and equipment have been entirely lacking or of a somewhat primitive nature. Attention has been focussed on the importance of dental care for hospital patients to a much greater extent during the war in the Emergency Hospital arrangements, and well-equipped dental units, staffed in many cases by whole-time dental surgeons, have been a feature of several of the larger hospitals.

Shortage of dentists as well as of dental equipment has been a limiting factor, but it is now recognised that the hospitals of the future will not be complete without suitable provision not only of accommodation and equipment but also of staff for dental treatment of a high standard, and adequate to secure complete dental fitness.

Maternity and Child Welfare

Local Authority Dental Services

In the report of 1945 reference was made to the small percentage of expectant and nursing mothers and children under 5 years attending welfare centres who received dental treatment. In addition to these, a proportion of mothers and young children obtained treatment from their family dentists but from such information as is available there can be little doubt that the large majority of these patients received no dental treatment during this most vital period of their lives. In order that steps may be taken to remedy this state of affairs Section 22 of the National Health Service Act charges local authorities with the duty of providing in particular for the dental care of expectant and nursing mothers and children under 5 years not attending nursery schools or nursery classes in primary schools.

As it appears likely that the demand for dental treatment under the new service will be greater than can be met by the general dental practitioners available, Circular 118/47, issued in July, 1947, urges local authorities to expand their existing maternity and child welfare dental services so that treatment may be ensured for mothers and young children. The importance of conservative treatment is emphasised and local authorities are asked to arrange for every expectant mother to be examined by a dentist following her first visit to the ante-natal centre. It is also advised that school dental officers should devote some part of their time to treatment of maternity and child welfare patients.

In a few of the local authority welfare services treatment of a high standard has been provided and the number of teeth conserved has actually exceeded the number extracted. The majority of authorities, however, have been unable to reach such a standard and much remains to be done in improving these services to ensure that every expectant mother shall have her mouth, preferably with her own teeth, in good order before her confinement and that every child shall enter school dentally fit. This is naturally a long-term policy but the aim should be to attain it as quickly as possible. Conservative treatment involves the expenditure of a considerable amount of time by the dentist, and in a service which is under-staffed the tendency must be to treat more patients by the extraction of teeth and the fitting of dentures. In order to afford comprehensive dental treatment, the number of full- and part-time dental officers employed by local authorities must be much increased.

Oral Hygienists

Oral hygienists are described in another paragraph and consideration might be given to the contribution they can make to the maternity and child welfare dental service. Many women suffer from inflammatory gum conditions during pregnancy, for which instruction in oral hygiene is required. Removal of tartar from teeth is a lengthy operation to which a busy dental officer cannot give the necessary time without reducing the number of patients treated. Scaling and cleaning is the function of the hygienist who, at the same time, prepares the field of operation for further treatment by the dentist.

Every child should be encouraged to attend the dental clinic for periodical oral hygiene. In addition to the advantage of having teeth cleaned and polished, it has been found that young children, who have come to regard oral hygiene as a routine procedure, readily accept more complicated dental operations without protest.

Wartime Nurseries

A survey of the dental condition of children aged 3 to 5 years in residential and day nurseries has been completed and published.* It was found that residential nursery children had better teeth than had day nursery children, although both nursery groups had the same basic diet with the addition of vitamins. In residential institutions the diet was controlled but among day nursery children who lived at home it could not be controlled. There was an indication that a high standard of routine oral hygiene reduced the incidence of caries.

The most interesting feature of the survey was that the caries incidence of residential nursery children decreased in proportion to the length of stay and that caries was lowest among children with more than two years' residence, but among day nursery children prolonged stay did not appear to reduce caries incidence except where oral hygiene was particularly good.

Details were available concerning the method of infant feeding of 351 day nursery children aged between 3 and 4 years. They were divided into the following three groups :—

A. Breast-fed over six months.

B. Breast-fed over three but under six months.

C. Artificially-fed—this group also included children who were breast-fed under three months.

There was no significant difference between the three groups of children until they reached the age of four years, when the artificially-fed group had the least caries and children who were breast-fed for more than six months had the most caries. These results were somewhat unexpected and further investigation in this field is clearly necessary.

Channel Islands Survey

A dental survey of children in the Channel Islands was carried out soon after the liberation in 1945 to ascertain whether enemy occupation had affected the condition of the teeth.† It was found that the children who had remained on the islands during the occupation had remarkably good teeth, while many children who had been evacuated to this country had extensive caries.

Since the liberation the diet of the Channel Islanders has been similar to that of the people in the British Isles, and in September, 1947, Miss Knowles re-visited the islands to undertake a further survey in order to determine whether the less restricted diet of the last two years had resulted in a deterioration of the dental condition of children in the islands. The recent survey presented many interesting features and a detailed report is being prepared for publication, but the general impression was that the condition of the children's teeth was less satisfactory in 1947 than it was in 1945 after five years of German occupation.

* E.M. Knowles.—A survey of the dental condition of children in Day and Residential Wartime Nurseries. B.D.J., March, 1948.

† E. M. Knowles.—The effects of enemy occupation on the dental condition of children in the Channel Islands. Monthly Bull. Ministry of Health, August, 1946.

Manpower

After the cessation of hostilities the work of the Dental War Committee very rapidly diminished and eventually that body was dissolved, such functions as remained—chiefly the recruitment of dental officers to the Forces—being taken over by the Ministry of Health. Only those newly-qualified dentists who are medically fit and under the age of 26 are now liable for service, and the supply is barely sufficient to meet the minimal needs of the Services. It has, therefore, been necessary to continue to limit the supply of newly-qualified dentists available for house appointments to the teaching hospitals and the period of appointment to four or six months. Even with these limitations the numbers available have been inadequate to replace those dental officers who have completed their full term of service and whose release is overdue.

In the past, there has been a strong family tradition in dentistry and the sons of dentists frequently entered the profession. Owing, however, to the wider scope and opportunities offered by other professions, notably medicine and the sciences, dentistry appears to have lost some of its appeal, and the number of dentists whose sons are following their profession is much reduced.

Investigations undertaken by the Government Actuary showed that in 1942 62 per cent. of the dental profession were over 45 years of age, and since 1944 the number of dentists on the register has actually shown a slight annual decrease.

Following the end of the war, the position has improved to some extent ; practically all the dental teaching schools are now full and several have had to refuse prospective students owing to lack of accommodation and the shortage of experienced teaching staff. This increased entry is largely accounted for by the release of prospective students from the Services and, if the profession is to be adequate to meet the public need, steps must be taken to maintain and increase the flow of students, while additional hospital accommodation and more adequate teaching facilities are very urgently needed.

Ancillary Services

Dental Hygienists

The problem of providing dental treatment for Service personnel and for a large and rapidly increasing number of recruits with a limited number of dental officers led the Dental Branch of the R.A.F. to give careful consideration to ways in which dental staff could be used to the best advantage.

It is of particular importance when treatment is provided for a member of one of the Fighting Services that artificial dentures should be avoided whenever possible, which means that special attention is to be paid to the restoration of dental fitness by conservative methods. The unhealthy conditions which call for treatment fall into two main categories—those in which tooth substance has been destroyed by caries and must be replaced by mechanical procedures, and those in which the soft tissues adjacent to the teeth are inflamed and in which the bony structure supporting the teeth is likely to be destroyed if the inflammatory condition is left untreated. In many of these cases the primary cause of the inflammation of the gum—gingivitis—is the irritation by deposits of calculus or tartar around the necks of the teeth.

The adequate treatment of these latter cases by the removal of the tartar and the polishing of the tooth surfaces in order to lessen the tendency for further deposits to form calls for the expenditure of a considerable amount of time, and it was decided that in respect of this that much of the time of dental officers might be saved and made available for the restoration of tooth structure.

Arrangements were, therefore, made to give to a number of young women selected from the ranks of dental attendants, who had been trained to assist dental officers at the chairside, an intensive course of training in scaling and polishing of the teeth and in instructing patients in the maintenance of oral hygiene. The course of training was carefully organised and on its completion the " dental hygienists ", as they were called, were employed under the direction and supervision of dental officers to do the work of scaling and polishing. Not only do these hygienists effect a direct saving of time by relieving dental officers of the work of scaling and polishing teeth, but it was quickly found that there was a further saving of the time of dental officers in that they were able to work more rapidly and efficiently in mouths which had previously been cleaned and for patients who had received instruction in the care of the teeth from the hygienists.

This R.A.F experiment proved to be a great success although it had been adopted as a war-time expedient, the high degree of proficiency and operative skill reached by the hygienists has led to their being regarded as indispensable members of the dental team.

The introduction of a comprehensive dental service will make increasingly heavy demands on the dental profession. The Inter-Departmental Committee on Dentistry, under the Chairmanship of Lord Teviot, in considering how an adequate and satisfactory dental service for the population might be provided, recommended, *inter alia*, that—

(1) A scheme for the training of dental hygienists should be initiated forthwith on such a scale as would provide an adequate test of their value ;
(2) the function of a dental hygienist should be limited to the scaling, cleaning and polishing of teeth and the instruction of patients in the technique of oral hygiene ;
(3) her work should be conducted throughout under the responsible direction of a dentist, i.e. :—
(*a*) he should examine the patient before the work is carried out by the hygienist ;
(*b*) he should give directions as to the treatment to be carried out ;
(*c*) he should see the patient after this has been completed ; and
(*d*) he should be readily available throughout.

It is intended that the experiment recommended by the Teviot Committee shall be carried out and until the results of this experiment are known, no decision as to the future use of hygienists will be taken.

A beginning has already been made on a small scale and four of the dental hygienists who were trained in the R.A.F. and who, after passing an oral and practical examination, have been awarded a Certificate of Proficiency by the Ministry of Health are now working in hospitals.

Dental Attendants

There is no reliable information as to the number of dental attendants in this country, but the employment by dentists of women to assist them at the chairside and in the running of practices is becoming general. The duties of these assistants may be limited to the chairside while the dentist is operating, or they may include the reception of patients, arrangement of appointments, book-keeping and secretarial work. These women are indispensable in a busy, well-run dental practice. If familiar with operative procedures, they can be of the greatest value at the chairside, in such matters as anticipating the needs of the dentist during operations by handing him the proper instruments and by preparing filling and impression materials. The efficient chairside assistant may become the dentist's " third hand " and so enable him to increase considerably his output of work without additional strain.

Three dental teaching schools, two in London and one in the provinces, have instituted courses of training for dental attendants, but only a small proportion of women engaged in this work have, as yet, undergone such training. As a

general rule, dental attendants employed in dental practice have been trained by the dentists who employ them, and, although this arrangement has been reasonably satisfactory, there can be little doubt that an increased efficiency will be secured by the employment of assistants who have received an organised course of training. The institution of a recognised course of training would be welcomed by the women themselves. Many of them are members of organisations which they have formed and study circles and courses of lectures have been arranged in order to improve their knowledge and proficiency.

A Committee of Enquiry, under the Chairmanship of Mr. L. C. Attkins, F.D.S., has been set up to consider and report on the functions, duties, training, conditions of service, wages and title of dental attendants. The three dental organisations are represented on the Committee which also includes observers appointed by the Ministries of Health and Education and the Department of Health for Scotland.

Royal College of Surgeons and Faculty of Dental Surgery

A noteworthy step and one that should have an important influence on the advancement of dentistry in this country was the creation by Royal Charter of a Faculty of Dental Surgery in the Royal College of Surgeons and the institution of a Fellowship in Dental Surgery.

The 18 Fellows who were elected in connection with the constitution of the Board of the Faculty—which consists, together with the President and the Vice-Presidents of the College, of 18 Fellows and 3 Licentiates—included Mr. H. A. Mahony, principal dental officer of the Ministry, and Mr. W. G. Senior, senior dental officer.

Miss E. M. Knowles was amongst the Fellows subsequently elected to the Fellowship on the recommendation of the Board.

Professor R. V. Bradlaw was elected by the Board as the first Dean of the Faculty, with Professor F. C. Wilkinson as Sub-Dean.

Dental Staff

A dental division of the Ministry was formed in April with Mr. H. A. Mahony, C.B.E., Ph.D., F.D.S.R.C.S., as principal dental officer. During recent years the work undertaken by the dental staff of the Ministry has expanded considerably and further developments will take place when the new health service comes into operation. The number of established posts was increased to 22, and new appointments included Mr. W. G. Senior, O.B.E., Ph.D., F.D.S.R.C.S., as senior dental officer, and Lt.-Col. F. S. Whiter, O.B.E., L.D.S., as deputy senior dental officer.

Mr. H. G. H. Cowell, who was one of the original regional dental officers to be appointed to the staff in 1927, retires at the end of the year ; other retirements included Mr. H. W. P. Bennette, Mr. B. H. Jones, and Mr. H. Greaves.

A full list of the staff will be found in Appendix D.

XI

DIVISION OF NURSING AND MIDWIVES

Shortage of Staff

Shortage of staff in all branches of nursing continued during 1947, and, although the increase of student nurses was marked, and the output of State-registered nurses rose, wastage in training years and after training was high. Hospitals, especially sanatoria, suffered most, beds had to be closed, and the ratio of nurses to occupied beds dropped. It must be recorded that the work of the nursing and other staff maintained a high standard.

Maternity hospitals also felt the lack of staff, both State-certified midwives and pupil midwives, but to some extent the shortage was offset by employment of assistant nurses, and when the maternity hospital was within the same curtilage as a general hospital training school, student nurses in training, by consent of the General Nursing Council, were allowed to work in the maternity wards for a specified period.

Intensive Courses of Nurse Training

Close contact has been maintained by the nursing officers with the intensive courses for ex-Service students, male and female.

The hospital nursing officers continued to be actively concerned with the detailed arrangements for these, and, in addition, informal talks have been held with the students on the occasion of visits by Headquarter Staff to the Regions.

This has been appreciated by the students as giving them an opportunity of discussing plans for future work or training.

Male Nurses

Training of male nurses has developed during the year. The General Nursing Council approved a large number of hospitals as training schools for male nurses.

The intake of male student nurses and the output of registered male nurses has steadily increased.

An interesting development in this connection has been the opening of the field of district nursing to male nurses. Their chief use in district work has been in the nursing of male patients and children ; they give also insulin injections. The considerable interest aroused among male nurses in this type of work may shortly result in a greater demand for training than can be satisfied, owing to the limitations on their use in domiciliary work, although this may to some extent be counteracted in due course by increased scope for their services in home nursing schemes in the National Health Service.

Accommodation for Nurses and Midwives

Although new building was restricted, much improvement was effected. Nurses' homes damaged during the war were rebuilt and restored, with improvement on the old building, in some cases. Large houses and hotels were acquired by hospitals and suitably converted, making adequate and comfortable residences for both nursing and midwifery staff, and for domestic staff.

Preliminary training schools were also set up, in houses, and by hutments, and in new and converted Army huts.

More furnishings were allowed during 1947, and although much is still to be done to reach the standard of accommodation laid down by the Ministry of Health and Department of Health for Scotland in "Staffing the Hospitals," great strides were made, which added to the amenities for nurses and midwives.

Nursing Officers

The work of the *hospital nursing officers*, formerly regional nursing officers, covered much the same ground as in former years, except that the work connected with the Civil Nursing Reserve decreased considerably. Campaigns to recruit whole-time staff, part-time staff and married staff were carried out in conjunction with the Ministry of Labour and National Service and the Central Office of Information. (*See also* pages 201–4.)

Visits were paid to all types of hospitals to advise and consult with hospital authorities on staffing, accommodation, and furnishing of nurses' and maids' homes.

During the year the designation "woman inspector" was changed to "*public health nursing officer*" because it was felt that inspection was outmoded and that the officers concerned had guidance and help to offer which was not implied in their title. The change has been generally welcomed.

The work undertaken by the public health nursing officers has covered a wide field, a large number of visits have been paid to public assistance institutions to assist in improving the amenities for the old people and to determine the standard of nursing care given to those in the sick wards. In the reports on these visits there is repeated reference to the progress that has been made in bringing colour, comfort and more freedom into the lives of the old people.

In conjunction with officers of the Ministry of Education the public health nursing officers have spent a considerable amount of time visiting day and residential nurseries, nursery schools and nursery classes in connection with the training of nursery nurses for the certificate of the National Nursery Examination Board. In general it is found that there is a growing appreciation of the needs of healthy children, but there is a marked shortage of wardens for the work with the 2–5 years old, and often a lack of suitable toys and play equipment.

The Ministry of Health has co-operated closely with the Ministry of Labour in the recruitment campaigns for student nursery nurses for training under the Further Education and Training Scheme for ex-Service personnel and in the many inter-departmental regional conferences.

In the industrial areas public health nursing officers have given advice and assistance in regard to the establishment and administration of factory nurseries with, in many cases, an appreciable raising of the standards of care given to the children.

Polish Dependants' Camps and Hostels

The number of these administered by the Assistance Board or the National Hostels Corporation has increased steadily, and this has brought with it problems concerned with the provision and staffing of sick bays, maternity units, and nurseries. The public health nursing officers have advised on the suitability and equipping of premises and on other public health matters in the camps.

The aim has been to apply our standards and methods suitably adapted to the circumstances, and, in this, officers of the Assistance Board, National Hostels Corporation, and local authorities have been most helpful and co-operative.

The staffing problem, both nursing and domestic, presents many difficulties and much time has to be given to approving individual applications for appointment, and advising on appropriate rates of pay and conditions of service.

General overall supervision is also exercised over staffing and other matters such as welfare and conditions of service of staff in institutions caring for Polish sick.

Headquarters Staff

The Chief Nursing Officer and her deputies received many visitors from the United States of America, the Dominions, Colonies and European and other countries. These nursing colleagues were given information on our nursing and midwifery services and programmes of visits were arranged to meet the wishes of the visitors, the Chief Nursing Officer and Deputy Chief Nursing Officers often themselves escorting the visitors. Doctors also were received, and programmes arranged covering visits to hospitals, nurseries, maternity and child welfare clinics.

The visitors expressed much interest in the Health Service and Working Party Report and in the training of nurses and midwives in Britain.

Many requests were made for help to find nursing staff, matrons, sister tutors and ward sisters for hospitals in foreign countries.

The Chief Nursing Officer and Deputy Chief Nursing Officers spoke on nursing policy in the National Health Service at many meetings in different parts of the country.

The Chief Nursing Officer attended the International Congress of Nurses, the first since 1937, in Atlantic City, U.S.A., in May, 1947, and had the opportunity of visiting hospitals in America and Canada. By invitation of the Canadian Public Health Association she read an address on the Public Health Nursing Service in England at the Annual Meeting of the Association in Quebec City, which was published in several Canadian and American journals.

XII

MONTHLY SURVEY OF SICKNESS

During 1947 the Social Survey continued the interviewing at their homes of adults, randomly selected to provide representative samples of the population throughout England and Wales. A different sample was taken at the beginning of each month, and at the interviews, in which participation was entirely voluntary, records were made of all illnesses, ailments and injuries said to have been experienced in each of the past three months.

Since October, 1946, details of sex, ages and occupations of the people interviewed, and of their illnesses, injuries, days of incapacity and medical consultations during calendar months, have been tabulated in the Registrar General's Quarterly Returns. Most of these tables are based on experiences during only the *two* months preceding interview. It seems certain that the precise date when an illness began is more often forgotten than the fact that the illness occurred, and consequently the error caused by failure of memory is considerably less when both " new " and continued illnesses are taken into account. The combined experiences during a calendar month, ascertained from two successive samples, together comprising about 6,000 persons, also give more reliable rates of sickness than would be obtained from recorded experiences of the month just preceding interview alone.

The table below shows the monthly proportions of people who were affected by a new illness (including recurrence of an old complaint) starting in the month, and the proportions who were affected by a continued illness which began in some previous month but not by any new illness. These two rates exclude people who suffered from an injury alone, and when added together they give the total sickness rate (i.e. percentage of people who were sick at any time during the month). The average days of incapacity and average numbers of medical consultations in the month per 100 persons include those due to injury as well as sickness.

Month of experience in 1947	Rates per 100 Persons of Ages Specified									
	Affected by a new illness (or by a recurrence)		Affected by a continued illness but no new one		Monthly total sickness rate		Days of incapacity in month		Number of medical consultations in month	
	16–64	65–	16–64	65–	16–64	65–	16–64	65–	16–64	65–
January	44·4	38·6	25·4	44·7	70	83	158	255	47	73
February	41·9	37·6	25·0	45·3	67	83	145	321	41	79
March	35·3	32·6	28·9	48·6	64	81	123	242	41	71
April	31·0	31·3	30·5	51·7	62	83	88	144	38	68
May	32·9	30·6	28·7	50·3	62	81	83	151	36	61
June	30·2	33·4	28·7	47·1	59	81	60	103	32	47
July	29·1	30·3	28·5	48·6	58	79	56	91	34	54
August	28·3	29·8	29·0	49·0	57	79	59	106	33	49
September	34·5	33·7	28·4	45·9	63	80	65	98	33	45
October	41·7	44·4	24·9	39·6	67	84	80	131	35	49
November	45·1	46·0	22·2	37·3	67	83	95	130	43	58
December	44·0	44·0	23·2	39·5	67	84	95	182	38	60

The monthly total sickness rate amongst people of the working ages was 70 per cent. in January, and fell continuously to 57 per cent. in August. It then rose quickly to 67 per cent. in the last three months of the year. This seasonal trend was due to new and recurrent illness, 44 per cent. of people

reporting onset of one or more illnesses during the months of January and December, compared with only 28 and 29 in August and July respectively. A rapid fall occurred in this rate from February to April, and a rapid rise from August to November. Much of the seasonal excess being due to colds and respiratory ailments, which would also affect people suffering from some other continued illness, the percentages reporting a continued illness but no new one in the winter and autumn might be expected to fall below the summer level by 3 or 4 if there were no seasonal variation for continued illnesses. Actually the percentages averaged 24 and 29 in the two periods so there was no appreciable seasonal trend for all continued illness at ages 16–64.

Amongst older people the monthly total sickness rate was 83–84 in winter and autumn, and 79–80 in the summer. The autumn months had high rates for new illness and corresponding low rates for continued illness.

The winter of 1947 was unusually severe, but its chief effect on morbidity was not seen in any abnormal rise in the numbers of sick people, but in large increases in the average days of incapacity experienced by those who were ill. This is easily seen by comparing the columns of total sickness rates and average days of incapacity, that is the numbers out of 100 who were sick, with the days of incapacity they experienced during the month. At ages 16–64 these figures were almost equal during June–August, showing that the average incapacity per sick person was one day in a month. In January and February, however, it was over 2 days, and in March nearly 2 days, whilst in November and December it was only 1·4 days. At ages 65 and over the average incapacity per sick person was about 4 days in February and 3 in January and March, falling to about 1¼ days in summer months and increasing to 2·2 days in December.

Medical consultations, which exclude those whilst an in-patient of a hospital, averaged 4·5 per person at ages 16–64 during the whole year, and 7·1 per person aged 65 and over. The monthly average visits amongst the younger people fell from 47 per 100 in January to about 33 in the summer, and rose to about 40 again at the end of the year ; and amongst older people there was a similar seasonal change.

Comparison of the year 1947 with previous years shows that the average proportion of people aged 16–64 who said they had been free from any illness or injury during three months preceding the interview was 25 per cent. in 1945, 23 in 1946, and 26 in 1947. The average percentages of people who had a new illness (or a recurrent attack of an old one) starting during a month, with distinction of those who suffered from a minor or ill-defined ailment but nothing worse, are shown below for each quarter of 1946 and 1947.

Months of experience	Serious, moderate or mild illness				Minor or symptomatic ailment only			
	Ages 16–64		65 and over		Ages 16–64		65 and over	
	M.	F.	M.	F.	M.	F.	M.	F.
1946								
January–March	6·3	6·6	6·0	7·1	25·6	32·3	19·0	23·0
April–June	3·3	4·1	3·5	5·8	25·7	33·9	21·9	28·2
July–September	3·9	3·7	3·2	5·3	24·4	32·9	25·7	30·8
October–December	4·8	5·4	5·6	7·2	33·0	39·3	29·7	30·9
1947								
January–March	6·4	6·4	6·5	10·7	30·9	36·6	26·5	27·8
April–June	3·2	3·8	4·1	6·7	23·7	31·3	23·2	28·4
July–September	3·1	3·5	2·3	4·4	23·5	30·5	25·7	28·9
October–December	4·2	5·0	4·9	9·7	34·9	42·4	34·8	39·1

At the working ages, apart from higher rates for minor ailments in the cold winter of 1947, there was little difference between the two years. Amongst older people, rather larger proportions of men suffered from a minor illness, and considerably larger proportions of women suffered from each grade of new illness, in the first and last quarters of 1947 compared with the preceding year.

The frequencies of colds, influenza and respiratory disease in the March quarters were not appreciably greater in 1947 than in 1946, except amongst men over 65, as shown by the following average numbers of new illnesses in a month per 100 people.

Months of experience	Colds and influenza				Other respiratory disease			
	Ages 16–64		65 and over		Ages 16–64		65 and over	
	M.	F.	M.	F.	M.	F.	M.	F.
1946								
January–March ..	18·6	18·4	9·8	12·6	2·3	2·1	2·6	3·1
1947								
January–March ..	17·1	17·6	13·4	10·8	3·5	3·4	2·9	4·9
April–June	6·9	7·5	5·5	4·8	2·3	2·5	1·3	2·6
July–September ..	6·6	6·7	6·0	5·6	2·3	1·9	4·6	2·3
October–December ..	18·7	19·7	14·0	16·4	3·3	3·3	3·6	4·7

The total prevalence of these complaints was rather greater in the last quarter than in the first. At ages 16–64 the average number of new attacks of colds, influenza and respiratory illness during the whole year 1947 was 1·83 per man and 1·88 per woman ; and at ages 65 and over the average frequencies were 1·54 per man and 1·56 per woman.

The average days of incapacity caused in the whole year by several broad groups of disease, including continued as well as new illnesses, were as follows :—

	Ages 16–64		Ages 65 and over	
	M.	F.	M.	F.
Colds and influenza.	1·75	1·93	1·84	2·24
Other respiratory disease.	1·04	·80	3·31	2·59
Rheumatism, all forms.	·70	·35	1·23	2·15
Affections of heart and arteries.	·38	·42	1·50	1·62

Analysis has been made of the monthly sickness rates during the period from May, 1946, to April, 1947, from a large number of separate diseases, and the results have been compared with information obtained through other sources such as notification and certification for special food and milk rations. A full account of this analysis will be found in a General Register Office publication (1949), " Studies on Medical and Population Subjects, No. 2, Sickness in the Population of England and Wales, 1944–47," by Percy Stocks.

XIII

THE WORK OF THE INTERIM COMMISSION OF THE WORLD HEALTH ORGANIZATION

The Interim Commission of the World Health Organization was established under the Arrangement signed at the New York Conference of June–July, 1946, by the Governments signatories of the Constitution of World Health Organization.* The 18 governments entitled to appoint a representative to the Interim Commission were Australia, Brazil, Canada, China, Egypt, France, India, Liberia, Mexico, Netherlands, Norway, Peru, Ukrainian Soviet Socialist Republic, Union of Soviet Socialist Republics, the United Kingdom, the United States of America, Venezuela and Yugoslavia.

The Interim Commission at its first Session in New York elected Dr. Stampar (Yugoslavia) Chairman and Dr. Brock Chisholm (Canada) Executive Secretary.

The Chief Medical Officer and Dr. Melville Mackenzie served as United Kingdom Representatives on the Interim Commission.

The Headquarters Office of the Interim Commission of the World Health Organization is in New York City, and a technical office in Geneva and the Epidemiological Intelligence Station in Singapore replace, respectively, the Central Office and Eastern Bureau of the League of Nations Health Organization. Liaison with the United Nations and other specialised agencies is maintained through the Headquarters Office.

The Interim Commission appointed three internal committees : (1) Committee on Administration and Finance with Sub-Committees on the Field Services Budget (UNRRA Funds) and on Special Administrative Problems ; (2) Committee on Relations with Sub-Committees on negotiations with intergovernmental health agencies, with the United Nations and its specialised agencies and on relations with non-governmental organizations ; and (3) the Committee on Headquarters.

Transfer of Functions from Existing Health Organizations

Under Section 2 (*d*), (*e*) and (*f*) of the Arrangement, the Interim Commission was authorised to arrange for the transfer to the World Health Organization of the functions and assets of the League of Nations Health Organization and the Office International d'Hygiene publique and the functions entrusted to UNRRA under the International Sanitary Conventions of 1944. In addition, under the terms of Section 2 (*m*), the Interim Commission took over from UNRRA the advisory health services to governments formerly assisted by that Administration. The work of these three agencies has now been transferred to the Commission.

The effective transfer of the work of the League of Nations Health Organization to the United Nations took place on 31st August, 1946. The principle of the Arrangement establishing the Interim Commission of the World Health Organization was approved by the Economic and Social Council on the 17th September, 1946.

Accordingly, the activities of the League's Health Section were transferred to the Interim Commission of the World Health Organization, which retained a nucleus of officials constituting the staff of that Section. An agreement

* See Chapter XIV, page 114–123 of the Report of the Chief Medical Officer for 1946.

covering the transfer to the World Health Organization of the assets of the League's Health Section was approved by the Interim Commission on the 11th April, 1947, and by the General Assembly of the United Nations on the 17th November of that year.

At its second Session, the Interim Commission granted to the Executive Secretary authority to open offices wherever necessary. Exercising this authority, the Executive Secretary assumed responsibility, as from the 1st April, 1947, for the functioning of the Epidemiological Intelligence Station in Singapore, established by the League Health Organization as its Eastern Epidemiological Bureau.

The functions assigned to UNRRA under the International Sanitary Conventions of 1944 and its health advisory services to governments were transferred to the Interim Commission of the World Health Organization under an agreement signed on the 9th December, 1946. The Interim Commission took over on the 1st December, 1946, the duties relating to the administration of the Sanitary Conventions. The UNRRA advisory services to governments were transferred in Europe and Africa on the 1st January, 1947, and in the Far East on the 1st April, 1947. The 16 governments entitled to assistance under this agreement are :—

Albania	Ethiopia	Korea (Northern)
Austria	Finland	Philippine Republic
Byelorussian Soviet Socialist Republic	Greece	Poland
	Hungary	Ukrainian Soviet Socialist Republic.
China	Italy	
Czechoslovakia	Korea (Southern)	Yugoslavia

A Protocol concerning the Office International d'Hygiene publique, signed at the New York Conference, provides that the duties and functions of the Office shall be transferred to the World Health Organization. Under a temporary arrangement with the Permanent Committee of the Office, the Interim Commission of the World Health Organization took over on the 1st January, 1947, the notification services of that agency. The provisions of the Protocol authorising the World Health Organization to perform the remaining duties and functions of the Office were brought into effect on the 20th October, 1947, when the Protocol was accepted by the 20th State party to the Rome Agreement of 1907 (Ireland). Transfer of these functions was carried out under the terms of an arrangement signed on the 27th January, 1948.

The Interim Commission is directed by Section 2 (*g*) of the Arrangement to enter into negotiations with the Pan-American Sanitary Organization and other existing inter-governmental regional health organizations with a view to their integration into the World Health Organization. Consequently, the Interim Commission, at its first Session (July, 1946), authorised a sub-committee on negotiations with the Pan-American Sanitary Organization. Under the draft agreement prepared by the Sub-Committee, the Pan-American Sanitary Bureau would ultimately become the regional office of the World Health Organization for the Western Hemisphere. The principle of the draft agreement was approved, with modifications, by the 12th Pan-American Sanitary Conference (Caracas, January, 1947), and by the Directing Council of the Pan-American Sanitary Bureau in September, 1947. Negotiations concerning the details of the agreement are still in progress.

The Interim Commission of the World Health Organization at its fourth Session (September, 1947) authorised the creation of a sub-committee to consider the status of the Regional Health Bureau at Alexandria.

Working Agreements with United Nations Specialised Agencies and Non-Governmental Organizations

In Section 2 (*c*) of the Arrangement, the Interim Commission was directed to prepare an agreement with the United Nations providing for effective co-operation and co-ordination of policies with the United Nations and its specialised agencies. To this end the Interim Commission appointed a Committee on Relations at its first Session (July, 1946); sub-committees on negotiations with the specialised agencies were appointed at the second Session (November, 1946) and subsequently.

The Interim Commission considered the draft agreement between the United Nations and the World Health Organization, and adopted for recommendation to the World Health Assembly the general principles governing the relations of the World Health Organization with other specialised agencies, including the Food and Agriculture Organization, the International Labour Organization, the United Nations Educational, Scientific and Cultural Organization, the International Civil Aviation Organization and the International Refugee Organization.

Moreover, close working relations with the United Nations Secretariat were established by the Interim Commission of the World Health Organization at the outset, and have increased in importance. The staff of the Interim Commission has taken part in the deliberations of the various co-ordination committees functioning at Lake Success. Co-operative arrangements have been developed in a number of administrative services, both in New York and in Geneva, and in all phases of public information.

The Interim Commission of the World Health Organization has been represented by observers at practically all the meetings of the Economic and Social Council and its Commissions where matters pertaining to health were under consideration. Through information presented at these meetings, the groundwork has been laid for effective collaboration between the United Nations and the World Health Organization when the latter is established.

Practical co-operation with the United Nations was inaugurated during 1947 in several fields. A consultant psychiatrist was appointed in November to assist the Social Commission in the work on the prevention of crime and the treatment of offenders. At the request of the International Children's Emergency Fund the Interim Commission agreed in April to recommend governments to set aside 10 per cent. of the World Health Organization fellowships for specialists in child health. In October it appointed an expert in public health to serve as liaison officer with the International Children's Emergency Fund. In addition, the Interim Commission seconded a pediatrician to the International Children's Emergency Fund.

Consultation between the Interim Commission of the World Health Organization and other United Nations specialised agencies has been carried on consistently at the Secretariat level and through representation by observers at numerous meetings.

An Ad Hoc Joint Committee on Child Nutrition set up by the Interim Commission of the World Health Organization and the Food and Agriculture Organization to advise the International Children's Emergency Fund, met in Washington from the 23rd to the 26th July, 1947. The report of this Committee provided the technical basis for the child feeding programmes of the fund. At the request of the International Refugee Organization, the Interim Commission of the World Health Organization sent to member governments of that Organization a note asking for information on the possibilities for resettlement of displaced medical personnel.

In addition to collaborating with the specialised agencies, the Interim Commission is co-operating with the United Nations International Children's Emergency Fund in the B.C.G. campaign, to be undertaken jointly by the Fund and the Danish Red Cross with its Scandinavian associates. This programme calls for the testing of some 50,000,000 children and adolescents in nine European countries and the immunization of an estimated 15,000,000 with B.C.G. vaccine. The Expert Committee on Tuberculosis of the World Health Organization will advise on the medical aspects of this work, it being clearly understood that the responsibility of the Interim Commission is limited to making recommendations on the medical aspects of the work, without responsibility for the field work. The Interim Commission has also accepted, subject to financial arrangements to be made later, responsibility for the statistical analysis of the results obtained through the B.C.G. programme. Arrangements have been made for periodic consultation between the Interim Commission and the specialists of the International Children's Emergency Fund on the progress of the work.

Establishment of Expert Committees

The Interim Commission established eleven expert committees.

(1) *Expert Committee on International Epidemic Control.*—The function of this Committee is to study the circumstances underlying the spread of the major epidemic diseases with a view to the revision of the existing International Sanitary Conventions.

(2) *Expert Sub-Committee for the Revision of the Pilgrimage Clauses of the International Sanitary Conventions.*—The function of this Committee is to make recommendations for the sanitary control of the Mecca Pilgrimage. At its first session, held in Alexandria, Egypt, from the 16th to the 26th April, 1947, the Committee considered proposals for the revision of Part III of the 1926 Sanitary Convention, relating to the Mecca Pilgrimage, and drew up a proposed revision which has been codified and circulated to Governments for their comments. The Committee also made an inspection trip to the Hedjaz and to the Suez area to observe sanitary facilities for pilgrims and the operation of quarantine services.

(3) *Expert Committee on Quarantine.*—This Committee carries on work relating to the International Sanitary Conventions which was taken over by the Interim Commission from the Office International d'Hygiene publique, the Health Organization of the League of Nations, and the Health Division of UNRRA. Its functions are to supervise the application of the sanitary conventions now in force. The first session of this Committee was held in Geneva from the 13th to the 16th October, 1947. The Committee heard a report on the cholera epidemic in Egypt and considered the quarantine measures taken by various countries, some of which exceeded the provisions of the international sanitary conventions. The problem of vaccine potency was referred to the Expert Committee on Biological Standardization, and recommendations were made regarding the establishment of standard methods for disinsectization of aircraft. The Committee adopted recommendations of the Yellow Fever Panel on the inoculation of young children, the approval of yellow fever vaccines and the laboratory testing of such vaccines. It further recommended a revision of the formulae used in international vaccination certificates with respect to the reaction of immunity after smallpox vaccination.

(4) *Expert Committee on Habit-Forming Drugs.*—The responsibility of the Health Organization of the League of Nations under the Conventions on Narcotic Drugs of 1925 and 1931 now devolves upon the World Health

Organization. To meet this responsibility, a Committee of five experts technically qualified in the pharmacological and clinical aspects of drug addiction has been appointed. The function of this Committee is to advise the Narcotics Commission of the Economic and Social Council of the United Nations on any technical questions concerning habit-forming drugs which may be referred to it.

(5) *Expert Panel on Yellow Fever.*—Through this panel of experts, the World Health Organization carries on the special functions with regard to yellow fever which were assigned to UNRRA by the International Sanitary Conventions of 1944. Its function is to advise the Expert Committee on Quarantine on the delineation of yellow fever endemic areas and on the preparation and control of yellow fever vaccines. The Yellow Fever Panel submitted to the Expert Committee on Quarantine the data on the basis of which the latter Committee agreed that infants and young children can safely be vaccinated against yellow fever, provided that 17-D vaccine is used, and approved the recognition by the Interim Commission of a number of laboratories already approved by UNRRA for testing the activity of the yellow fever vaccine and for its preparation.

(6) *Expert Committee for the Preparation of the Sixth Decennial Revision of the International Lists of Diseases and Causes of Death.*—Under paragraph 2 (*k*) of the Arrangement the Interim Commission is directed "to review existing machinery and undertake such preparatory work as may be necessary in connection with the next decennial revision of the International Lists of Causes of Death and the establishment of International Lists of Causes of Morbidity". This Committee took over by arrangement the work of a group appointed as a result of resolutions adopted by the Fifth International Conference for the Revision of the International List of Causes of Death in 1938. The group, which worked in Washington, included representatives of the United States, British and Canadian Governments and the Health Section of the League of Nations and had formulated a single classification for diseases, injuries, and causes of death. At its two sessions, held in Ottawa from the 10th to the 21st March and in Geneva from the 21st to the 29th October, 1947, the Expert Committee, of which Dr. Percy Stocks was Chairman, revised that classification, took account of comments received from Governments, and approved an International Statistical Classification of Diseases, Injuries and Causes of Death for submission to the International Conference for the Sixth Revision of the List of Causes of Death, which was held in Paris in April, 1948. In addition to a detailed list of some 800 categories, the Sixth Revision contains tabular listings of the included diseases, with optional sub-categories in many instances, together with explanatory notes. Appendices set forth abbreviated lists for special tabulations of mortality and morbidity data, and rules for selecting the principal and contributing causes of death where more than one cause is listed. The preparation of an Alphabetical Index of diseases was entrusted to a sub-committee.

Action recommended by the Expert Committee at its second session and endorsed by the Paris Conference included the drafting of international regulations under which the World Health Organization may put into practice the recommendations of the Expert Committee and the International Revision Conference, and the establishment under the World Health Organization of a permanent Committee on Health Statistics.

(7) *Expert Committee on Biological Standardization.*—This Expert Committee continues the work of a Permanent Commission established by the League of Nations Health Organization. Its function is to determine international standards for substances the titration of which can be effected only by biological methods. At its first session, held in Geneva from the 9th to the 13th June,

1947, the Committee adopted international standards for vitamin E, heparin and penicillin—drugs for which provisional standards had been set up to meet the urgent need for standardization. The Committee began pioneer work, made possible by recent technical developments, in the standardization of certain antigenic substances : diphtheria and tetanus toxoids, tuberculin and B.C.G. vaccine. It also outlined investigations on blood types and Rh factors, and approved the replacement of existing standards for vitamins A and D and for several other substances. The Committee outlined at its second meeting, held in Geneva from the 18th to the 23rd March, a broad plan of experimental research aimed at setting international standards for important antigenic substances, the various blood groups and the Rh factor, in addition to determining the new standards for digitalis and vitamins A and D. Work on the standardization of cholera vaccine was undertaken at the request of the Egyptian Government ; other antigens to be studied are whooping cough vaccine, scarlet fever antitoxin, the diphtheria and tetanus toxoids, purified tuberculin and B.C.G.

(8) *Expert Committee on the Unification of Pharmacopœias.*—This Committee is the direct successor of a technical commission of the League of Nations Health Organization. In addition to drawing up a uniform nomenclature and standards of strength and purity for important drugs, the Committee is concerned with the determination of usual and maximal doses and the preparation of monographs on important drugs. At its first session, held in Geneva from the 13th to the 17th October, 1947, the Committee considered for inclusion in the international pharmacopœia 543 drugs, of which 248 were deemed of primary importance and 90 of secondary importance, while 205 were excluded. The 73 monographs on important drugs already adopted by the League Technical Commission were reviewed and adopted by the Expert Committee, 30 draft monographs were discussed and accepted, and the preparation of 173 additional monographs was assigned to various members of the Committee. Other members agreed to prepare reports or undertake experimental investigations on some 20 technical subjects. The Committee discussed its relationship to the Provisional International Secretariat of Pharmacopœias, established in 1925 in Brussels, and recommended that the Executive Secretary enter into negotations with the Belgian Government for the establishment of a single international secretariat for pharmacopœias under the auspices of the World Health Organization.

(9) *Expert Committee on Malaria.*—This Committee is similarly the direct successor of the Malaria Commission of the League of Nations Health Organization. At the first meeting of the Committee, held in Geneva from the 22nd to the 25th April, 1947, the experts examined in detail the preliminary statement prepared by the Chairman of the Committee. They amplified this statement into a report which included, in addition to a plan of action for the World Health Organization, a summary of the present state of knowledge regarding malaria control. Since the war prevented the dissemination of much of the technical information now available on this subject, it was decided that the sections of the report dealing with anti-malarial drugs and insecticides should be published in the Bulletin of the World Health Organization.

(10) *Expert Committee on Tuberculosis.*—At its first meeting, held in Paris from the 30th July to the 2nd August, 1947, the Committee recommended a programme including the provision of fellowships and visiting lectureships, field demonstrations, and research to develop uniform procedures. Among the research projects, it recommended early investigation of B.C.G. and of the use and value of the new drug, streptomycin. The Committee held its second session in Geneva from the 17th to the 20th February, 1948, to expand its

proposals for the World Health Organization anti-tuberculosis programme and to work out details of collaboration in the B.C.G. campaign to be carried out by the United Nations International Children's Emergency Fund, the Danish Red Cross and its Associates. In addition to confirming the proposals outlined at its first meeting, the Committee recommended that B.C.G. vaccination be intensified in the countries where tuberculosis has become epidemic. It recognized that tuberculosis among migrants is a major problem. It also recommended active steps to eradicate tuberculosis in cattle, which still pass on the disease to humans.

(11) *Expert Committee on Venereal Diseases.*—At its first meeting in Geneva from the 12th to the 16th of January, 1948, the Committee recommended that special attention be given to the detection and treatment of early syphilis, and that the World Health Organization should encourage the production of penicillin and its equitable distribution. It outlined specific proposals for fellowships, visiting lectureships and research to standardize sera and laboratory procedures. The Committee examined the plan of the Polish Government for a nation-wide anti-syphilis campaign, commenting that this plan might be of interest to other countries. The experts recommended that the Brussels Agreement respecting the treatment of seamen for venereal diseases be replaced by international health regulations applicable to all travellers.

The expert committees on Habit Forming Drugs, Biological Standardization, Unification of Pharmacopœias, Malaria, Tuberculosis and Venereal Diseases continued the technical work in these fields of the Health Organization of the League of Nations.

Other Technical Problems

Post Vaccinal Encephalitis.—Information on post-vaccinal encephalitis originally prepared for the Office International d'Hygiene publique and amplified by Interim Commission experts, was circulated to governments. Data now available suggest that the danger of post-vaccinal encephalitis increases in primary vaccination with the age of the children vaccinated, and that primary vaccination should therefore be done in the early months of life.

Influenza.—The Interim Commission has established in England, in co-operation with the Medical Research Council, an International Influenza Centre whose functions include the collection and distribution of information on any influenza epidemics and on the serological types. The Centre will also collect and distribute pathological material and help to train staff for serological work from countries at present lacking such workers.

Plague.—The Interim Commission decided to place the problem of plague before the First World Health Assembly, and, in order to acquire adequate documentation, to approach the organizers of the Fourth International Congress on Tropical Medicine with a view to bringing together a group of experts to draw up a report on international action against plague.

Psittacosis.—To help to provide the means of combating a possible epidemic of psittacosis similar to that of 1929–30, the Secretariat has prepared a summary of information on the control of this disease, and has circulated it to national health authorities with a request for data on the present situation regarding psittacosis and on the protection measures applicable.

Schistosomiasis.—The Interim Commission agreed to place on the agenda of the First World Health Assembly the problem of schistosomiasis and to recommend the creation of an Expert Committee to determine the necessary international action.

Technical Assistance to Governments

During the cholera outbreak in Egypt, the Interim Commission assisted the Egyptian Government by procuring vaccine. The Headquarters Office in New York, acting as co-ordinating agent, surveyed the vaccine production facilities in Europe and in the United States, consolidated all requests in order to avoid competitive bidding, and made arrangements for the special production of vaccine in quantities sufficient to meet the emergency and at a cost of only two cents per unit. From this production, approximately 2,000,000 cubic centimetres of vaccine were sent to Egypt and 1,500,000 units to Syria. Large gifts of vaccine, ambulances, drugs, etc., were also made by a number of countries, including the United Kingdom.

Epidemiological Intelligence Services.—The Interim Commission has continued since the 1st January, 1947, the epidemiological intelligence services of the League of Nations Health Organization, the Office International d'Hygiene publique and UNRRA. On the 1st April, 1947, it assumed responsibility for the Singapore Epidemiological Intelligence Station established by the League. A Weekly Epidemiological Record and a monthly Epidemiological and Vital Statistics Report are published. The Singapore Station gathers epidemiological reports from an area extending from Vladivostock to Capetown and from Dunedin, New Zealand, to Alexandria, Egypt ; these reports are disseminated by cable and printed Bulletins, and broadcast on a regular schedule from 11 radio stations.

Publications and Public Information.—Technical articles on subjects connected with public health and the reports of the Interim Commission's Technical Committees are published in the Bulletin of the World Health Organization, which in part replaces similar Bulletins issued by the Office International d'Hygiene publique and by the Health Organization of the League of Nations. The Interim Commission continues through the publication of the Digest of Health Legislation one of the important functions of the Office. In addition, summaries of the Interim Commission's main technical publications appear in the monthly Chronicle of the World Health Organization.

Field Services Programme

The field services programme of the Interim Commission was taken over from UNRRA with funds to cover the cost.

Missions and Visiting Lecturers.—During 1947 seven countries requested and received missions of experts. Some 45 specialists took part in the work of the World Health Organization missions. The fellowship programme, which received the largest single appropriation from the field services budget, was set up and administered from the Geneva and New York offices. Several of the countries assisted under this branch of the Interim Commission programme requested visiting lecturers, and all but three requested supplies of medical literature and periodicals.

In Austria and Hungary the Interim Commission was represented by Liaison Medical Officers whose work was mainly concerned with the selection of fellows, the organization of lectures by visiting experts and the provision of medical literature.

At the beginning of June, 1947, a small medical mission was established in Poland to carry on work similar to that of the Interim Commission officers in Austria and Hungary.

The principal tasks of the Interim Commission Mission to Greece were the control of malaria and tuberculosis. The Mission staff of seven technical experts included a tuberculosis specialist, an X-ray technical adviser, a nursing adviser, two sanitary engineers and an aircraft mechanic in charge of the 17 biplanes used for DDT spraying. Every accessible malarious village—a total of 5,266 communities—was treated with DDT by residual spraying during 1947. The anti-tuberculosis programme included two three-months' training courses in tuberculosis nursing, attended by more than 250 nurses, and the erection or repair of imported X-ray apparatus. In addition, Interim Commission experts conducted DDT training courses for sanitary engineers, assisted the Health Ministry in planning the malaria control programme and sanitation projects and gave assistance to several voluntary agencies on occupational therapy, the welfare of the blind and orthopaedic bursaries.

Under an agreement signed on the 12th July, 1947, between the Italian Government and the Interim Commission, two medical officers were assigned to assist the Italian Health Authorities in planning and carrying out large health projects financed from the proceeds of the sale of UNRRA supplies. The principal activities in 1947 were the malaria control programmes in Sardinia, Sicily and two mainland provinces and an anti-tuberculosis campaign, using mass radiography. Projects are under way for the installation of a penicillin plant, a campaign against trachoma, the establishment of port and frontier quarantine stations, the creation of a national nutrition and orthogenetic centre, and visiting lecturers.

The Interim Commission Mission to Ethiopia in 1947 had a staff of five persons, including four experts in public health administration, sanitary engineering, and nursing education. Its most important function was to assist the Government in establishing basic training courses for medical personnel; at the same time it helped to meet sanitary engineering and epidemiological problems. Elementary courses for " dressers " were completed in four central hospitals and help was given in setting up elementary courses for dressers at hospitals in outlying provinces. Interim Commission experts assisted the Ministry of Health in establishing standards for medical education, carried out spraying and disinfection projects, investigated epidemics and also gave advice on measures to prevent the importation of cholera from Egypt.

Thirty-two Interim Commission experts served in the China Mission during 1947, 18 of them in teaching positions. The Mission continued, at the request of the Chinese National Government, with two main UNRRA technical activities considered to be most important: emergency public health measures and the training of medical and technical personnel. The epidemic control work included a programme for the control of plague, experimental work and research on cholera vaccine, and an extensive programme for the control of kala-azar. Under the anti-tuberculosis programme, personnel were trained in mass radiography, and three fellowships were granted to Chinese specialists to study the production and control of BCG vaccine. Assistance was given to the National Institute for the production of biologicals and pharmaceuticals, and Interim Commission experts helped to organize X-ray service and repair centres and the warehousing and distribution of medical supplies. To improve port quarantine services, surveys were made of nine major ports, and fellowships were granted to six Chinese quarantine officers to study quarantine methods in Manila and the United States. Advice and technical assistance was given to the Chinese Health Authorities in neuro-psychiatry, maternity and child welfare and in problems of public health administration. An Interim Commission teaching group has also been at work and at the end of the year eight specialists in the major fields of clinical medicine were giving courses and demonstrations

in Nanking, the main teaching centre. A second centre was operating in Canton. A special series of lectures and clinical demonstrations on trachoma and other eye diseases was given in six of the principal Chinese cities. The Interim Commission nursing advisers conducted refresher courses and served as consultants at three training centres for nurses—in Mukden, Formosa and Lanchow. In addition to medical personnel and hospital and public health nurses, sanitary engineers and X-ray and laboratory technicians were trained by the Interim Commission staff.

At the request of the governments concerned, the Interim Commission is maintaining in 1948 its medical missions and medical liaison officers in the following countries : Austria, China, Ethiopia, Greece, Italy and Poland. There has been no substantial change in the medical projects and advisory services described in detail under the 1947 programme. The outstanding activities are the malaria control projects in Greece and Italy, the campaigns against tuberculosis in China and Greece, the training of medical personnel in China and Ethiopia, and the special projects for the control of certain epidemic diseases in China.

The Fellowship Programme.—The Interim Commission made 203 awards in 1947 to health specialists nominated by their Governments for study outside their own countries. Interim Commission staff assisted Governments in the selection of fellowship candidates and in arranging study schedules for them. Although the universities and medical schools in nearly all the countries receiving Interim Commission fellows were already overcrowded, such institutions, as well as hospitals, laboratories, and governmental health administrations co-operated consistently in the task of placing the fellows.

The majority of the fellows were experienced specialists engaged in teaching at universities or hospitals ; their fields of study included practically all the specialised medical techniques. The awards to this group provided for three to six months of study and observation, often at a number of different institutions, and in certain cases for attendance at international conferences. A second group was composed of specialists in the technical and administrative public health services ; most of these fellows were on leave from responsible posts in the health administrations of their own countries. Their studies, covering periods of three to six months, included advanced work in universities, observation in the public health agencies, and visits to study field projects. A limited number of fellowships for a full year of study were awarded to young men and women who were preparing for careers in various branches of public health and nursing.

Of the fellowships granted in 1947, 106 were for study in the United States and Canada and 97 for study in European countries, Great Britain, and the Union of Soviet Socialist Republics. The distribution of the 1947 Interim Commission fellowships was as follows : Austria, 10 ; China, 41 ; Czechoslovakia, 32 ; Finland, 9 ; Greece, 3 ; Italy, 5 ; Korea, 4 ; the Philippine Republic, 3 ; Poland, 58 ; and Yugoslavia, 38.

During 1947, 19 foreign and Dominion doctors came to the United Kingdom to study special subjects with financial grants made by the Interim Commission. They came from the following countries : China, 1 ; Finland, 2 ; Italy, 1 ; Greece, 1 ; India, 1 ; Poland, 3 ; Yugoslavia, 7 ; Czechoslovakia, 2 ; and Austria, 1. The subjects studied covered a wide field and included : Industrial health, 1 ; public health, 4 ; cytology, 1 ; neuro-psychiatry, 1 ; biochemistry, 1 ; physiology, 1 ; endocrinology, 1 ; sanitary engineering, 1 ; surgery, 1 ; thoracic surgery, 1 ; paediatrics, 1 ; cardiology, 1 ; medicine, 1 ; hospital accountancy, 1 ; and malariology, 1. The courses of study were arranged between this Ministry, the British Council and the Post-graduate

Federation and much credit is due to the latter organizations' staff for the smooth running of the programmes, particularly in these days when accommodation is so difficult to obtain. In spite of the demands on the time of specialists and teaching staff in hospitals and laboratories, room has been found for all fellows in the fields of work they wished to study. The number of fellows wishing to come to this country is increasing and there seems to be every prospect of establishing a steady flow of post-graduate students and doctors of consultant rank.

Medical Literature.—Assistance in the selection and procurement of medical books and periodicals was given in 1947 to eight countries which requested such aid.

Programme for 1948

At its fifth session in Geneva (January to February, 1948), the Interim Commission, on being informed that formal acceptance of the Constitution by 26 United Nations members was reasonably assurred before the date of the Commission's next session, decided that the first session of the World Health Assembly should be held in Geneva beginning on the 24th June, 1948, and lasting through July. The first Health Assembly will establish the permanent World Health Organization, elect its officers, consider the report and the programme and budget submitted to it by the Interim Commission, and ultimately dissolve the Commission.

Proposals for Future Work

The agenda and recommendations drawn up by the Interim Commission at its fifth session for submission to the first Health Assembly constitute the suggested outline for the World Health Organisation's programme for 1949—the first full year of its activity.

The Interim Commission has recommended that priority be given to four programmes : Malaria control ; tuberculosis control ; control of venereal diseases and maternal and child health.

The recommended programme also includes the statutory duties of the World Health Organization under the International Sanitary Conventions, the technical activities now carried on by the Expert Committees and the Secretariat, and an expanded programme of publications. In addition, the Interim Commission proposed the formation of World Health Organization or joint expert advisory committees in industrial hygiene, nursing, rural hygiene, drug addiction, nutrition, schistosomiasis, hygiene of seafarers and alcoholism.

Provision is proposed for fellowships, medical literature, teaching equipment and emergency medical services and supplies. These facilities, as well as the missions, lectureships and other services now given under the field services programme, would be made available to all countries requesting such aid.

MEMBERS OF INTERIM COMMISSION EXPERT COMMITTEES

Expert Committee on International Epidemic Control

Dr. M. T. Morgan (Office International d'Hygiene publique—ex officio)—chairman

Dr. Bjornsson (Norway)
Dr. A. Cavaillon (France)
Dr. Melville Mackenzie (United Kingdom)
Lt.-Col. C. Mani (India)
Dr. G. M. Redshaw (Australia)
Dr. G. H. de Paula Souza (Brazil)
Dr. Omer Wasfy (Egypt)
U.S.S.R. (expert not yet nominated)
Dr. F. Soper (Pan American Sanitary Bureau —ex officio)

Expert Sub-Committee for the Revision of the Pilgrimage Clauses of the International Sanitary Conventions

Dr. M. T. Morgan (United Kingdom)—Chairman

Dr. P. M. L. Gaud (France)
Professor J. J. van Loghem (Netherlands)
Lt.-Col. C. Mani (India)
Dr. Mehia Nasri (Saudi Arabia)
Dr. Omer Wasfy (Egypt)

Expert Committee on Quarantine

Dr. P. G. Stock (United Kingdom)—Chairman
Dr. G. L. Dunnahoo (United States)
Dr. G. D. Hemmes (Netherlands)
Lt.-Col. C. Mani (India)
H. E. Dr. Mohammed Nazif Bey (Egypt)
Dr. Dujarric de la Riviere (France)
Dr. W. W. Yung (China)
Brazil } These countries have been asked
U.S.S.R. } to nominate a member to the Committee.

Expert Panel on Yellow Fever

Dr. Waldemar S. Sá Antunes (Brazil)
Dr. G. L. Dunnahoo (United States)
Médécin Général Durieux (France)
Dr. A. F. Mahaffy (United Kingdom)
Médécin Général M. Peltier (France)
Dr. R. M. Taylor (United States)
Dr. M. V. Veldee (United States)

Expert Committee on Habit-Forming Drugs

Dr. J. Bouquet (France)
Dr. H. P. Chu (China)
Dr. Nathan Eddy (United States)
Dr. J. R. Nichols (United Kingdom)
Dr. P. O. Wolff (Argentine)

Expert Committee for the Preparation of the Sixth Decennial Revision of the International Lists of Diseases and Causes of Death

Dr. Percy Stocks (United Kingdom)—Chairman

Dr. Julie Backer (Norway)
Professor S. T. Bok (Netherlands)
Dr. Dario Curiel (Venezuela)
Dr. Denoix (France)
Dr. W. Thurber Fales (United States)
Professor Martin Kacprzak (Poland)
Professor G. Wyllie (Canada)
U.S.S.R. (expert not yet appointed)

Expert Committee on Biological Standardization

Dr. W. Timmerman (Netherlands)—Chairman

Professor E. Grasset (Switzerland)
Dr. A. A. Miles (United Kingdom)
Dr. J. Orskov (Denmark)
Lt.-Col. Sir Sahib Singh Sokhey (India)
Dr. J. Trefouel (France)
Dr. M. V. Veldee (United States)
U.S.S.R. (expert not yet appointed)

Expert Committee on the Unification of Pharmacopœias

Dr. C. H. Hampshire (United Kingdom)—Chairman
Dr. E. Fullerton Cook (United States)
Professor I. R. Fahmy (Egypt)
Dr. H. Fluck (Switzerland)
Professor R. Hazard (France)
Dr. D. von Os (Netherlands)
Professor H. Baggesgaard-Rasmussen (Denmark)
One from Latin America

Expert Committee on Malaria

Dr. Arnoldo Gabaldón (Venezuela)—Chairman
Professor Dr. Mihai Ciuca (Rumania)
Sir Gordon Covell (United Kingdom)
Dr. Paul F. Russell (United States)
Médécin Général M. A. Vaucel (France)
Dr. Vishwanathan (India)
U.S.S.R. (expert not yet appointed)

Expert Committee on Tuberculosis

Dr. Johannes Holm (Denmark)—Chairman
Dr. P. D'Arcy Hart (United Kingdom)
Dr. Herman E. Hilleboe (United States)
U.S.S.R. (expert not yet appointed)

Expert Committee on Venereal Diseases

Dr. John F. Mahoney (United States)—Chairman
Dr. Waldemar Coutts (Chile)
Dr. G. L. M. McElligott (United Kingdom)
Dr. Marian Grzybowski (Poland)

Interim Commission Members of the United Nations Drug Supervisory Body

Professor Dr. Hans Fischer, Pharmakologisches Institut der Universitat, Zurich
Professor V. Zakusov, Leningrad (not yet accepted)

XIV

MISCELLANEOUS

Medical Intelligence

A great variety of tasks fall to Medical Intelligence. Among these are the collection and distribution of health statistics and the circulation and indexing of selected medical journals and other literature, newspaper clippings and the like. Other services include the provision of bibliographies, translations, reviews and annotations and liaison with special libraries. An attempt is made to follow the activities of as many as possible of the bodies concerned with health in its wider aspects, though in many cases this can only extend to the collection of annual reports. A central collection of information about the aims, constitution, officers, publications of such societies, institutes and associations can be of great value. The principal aim of the service is to provide the most recent information, and to provide it quickly, and for this purpose it is necessary to keep in close touch with the work of the officers who use the service so that their requirements may be anticipated. The Section continued its work of answering a wide variety of special queries from officers of the Ministry, and also from a large number of other Government Departments. In so far as it was possible enquiries from semi-official and other bodies, and from doctors and lay members of the public were also answered. As was mentioned in the Report for 1945, the shortage of staff and other limitations in the main prevented the extension of the service outside Government departments. While it would certainly be useful to make such facilities more generally available, under present conditions it is not possible. But as a long term policy aim it is hoped that the Section will eventually have a much wider field of usefulness.

The medical officer in charge of the section is also a pharmacologist and this is helpful as many queries deal with new drugs, treatments and so on. For a like reason the Section is in close liaison with the Board of Trade and the Customs and Excise Department, both of which are advised on the medical aspects of their cases and their problems. The Section again provides the technical liaison with the Central Council of Health Education, a body which was described in detail in the Annual Report for 1938.

The officers of the Section are concerned with editorial work on medical publications of the Ministry. During the year a Ministry of Health Bulletin continued to appear quarterly in the Pharmaceutical Journal. This Bulletin, which should not be confused with the Monthly Bulletin of the Ministry of Health and the Public Health Laboratory Service, consists of a series of specially written articles on recent developments in medicine which are designed to give pharmacists a background of up-to-date technical information. This helps them to give the best possible service to the public. The Bulletin was started at the request of the Pharmaceutical Society who suggested this method as one way in which the Society could co-operate with the Ministry's plans for forwarding health education. During the year articles appeared by the experts on the Ministry's staff and by outside authorities, on such subjects as food poisoning, the early diagnosis of cancer, the treatment of varicose veins, and the common cold.

Port Health Administration

Seaports.—At most of our seaports the return to more normal conditions continued during the year and nearly 30,000 vessels arrived at the 24 larger ports from " foreign " ports as compared with 27,000 during 1946 ; an increase of about 11 per cent.

There was no corresponding increase in the amount of infectious disease on such vessels ; none of the major epidemic diseases such as plague, cholera and yellow fever were encountered and only four vessels arrived which had had smallpox on board. Rat plague was not again brought to our shores, though an outbreak in the Port of Haifa during the early summer caused some uneasiness. The fact that only some 666 deratisation certificates had to be issued to foreign-going vessels, as compared with 860 during the previous year, is an indication of the success of the measures which are now taken for keeping down the rat population on ships. The approximate number of international certificates of deratisation and exemption from deratisation at the 24 ports approved for the issue of such certificates to vessels is shown in the following table, the figures for 1946 being included for comparison. In addition 10 international certificates of deratisation were issued at the three approved naval ports.

Approximate Number of International Deratisation and Deratisation Exemption Certificates issued at the 24 Approved Ports

Year	Deratisation Certificates					Exemption Certificates	Total Certificates
	After fumigation with			After trapping and poisoning	Total		
	HCN	Sulphur	HCN and Sulphur				
1946 ..	800	31	13	16	860	2,508	3,368
1947 ..	603	21	1	41	666	3,013	3,679

As stated in my last report, cyanide continues to be the method of choice when fumigation is necessary, but, effective though the method is, it entails delay and expense. At first sight, therefore, it seems surprising that greater progress has not been made in building ships rat-proof—a practice which has been advocated so strongly by the Public Health Service of the United States. Writing in his Annual Report for 1927, Sir George Newman stated :

> " Though rat-proofing on shore is now a recognised practice the same cannot be said in regard to the application of the principles of rat-proofing in ships. Yet this is a matter which merits the serious consideration of naval architects, ship-builders and ship-owners. There can be little doubt that when the new International Sanitary Convention comes into operation the rat-proof ships will be at a great advantage over others when the question of the issue of a deratisation exemption certificate has to be decided. It is frequently difficult and expensive, and it may be impossible, to make existing buildings or ships fully rat-proof, though many improvements can be effected in this direction by practical attention to minor details. In new construction, however, whether of buildings or ships the application of the principles of rat-proofing should be neither difficult nor expensive and will fully repay any additional cost incurred ".

That statement is equally true to-day and the advantages to the ship-owner seem obvious.

Ship-borne Diseases

Excluding venereal disease, infectious disease was only reported to be present or to have occurred during the voyage on some 579 vessels which arrived during the year at the 24 larger ports, as compared with 611 during the previous

year. The diseases most commonly reported were, amongst passengers, tuberculosis, measles or german measles, malaria, mumps and chicken-pox in the order named; and amongst crews, tuberculosis, malaria, pneumonia and dysentery.

Cholera.—After freedom from the disease for 45 years a severe outbreak of cholera occurred in Egypt during the last quarter of the year, as described in my last report. (C.M.Os. Annual Report, 1946—Appendix.) On receipt of the first intimation that the disease had broken out, all port medical officers were at once informed by telephone or telegram and circulars were issued setting out the special precautions to be observed. Later articles were published in the Ministry's Monthly Bulletin on the prophylaxis, symptomatology, nursing and treatment of cholera; on the bacteriological examinations of stools for the *Vibrio cholerae;* and the efficacy of anti-cholera inoculations. No vessel, however, arrived with cholera on board, but much extra work was imposed on the staff of many Port Health Authorities whilst the threat of cholera lasted.

Typhus fever.—No case of epidemic louse-borne typhus fever was reported on any arriving vessel but one case of murine typhus was notified in the person of an egg-tester at the London docks. This form of the disease is normally spread by rat fleas, but there was no evidence of rat infestation in the dock area concerned. There was the possibility of the infection having been carried in the ship which brough the eggs from Poland, but all attempts to trace the origin and the actual vectors concerned were unsuccessful.

Smallpox.—Four vessels arrived which had had smallpox on board during the voyage but no cases were landed in this country. On two occasions, however, a suspected case was landed from ships arriving at Southampton. The usual precautions were taken but in neither case was the diagnosis confirmed.

Small outbreaks of smallpox in Calais and Paris during the early part of the year necessitated special vigilance at the cross-channel ports and as a temporary measure " warning " cards were issued to passengers arriving from these areas.

Chickenpox.—At the 24 larger ports 63 vessels arrived either with cases of chickenpox on board or on which the disease had occurred during the voyage. The disease in itself is not of international importance but is often a source of anxiety to port health officers, as on occasion smallpox may be mistaken for chickenpox and vice versa. Much importance, therefore, attaches to a correct diagnosis and that mistakes are rarely made, even under the difficult conditions so often attending the boarding of ships, is a high tribute to the vigilance of port medical officers.

Malaria.—Reports from the 24 larger ports show that during the year 83 vessels arrived on which there were either cases of malaria on board or on which cases had occurred during the voyage. The corresponding figure for the previous year was 155. Out of the 227 cases reported, 194 occurred amongst members of the crew—a welcome reduction on the figures reported during the war years.

Enteric fever.—Sixteen cases of enteric fever were reported to have occurred on 13 vessels prior to reaching this country and 21 cases occurred on 15 vessels which had to be dealt with on arrival. The figures are slightly less than those for the previous year.

Use of Wireless

Some account was given in a previous report (1937, p. 191) of the system in force at our larger ports for health declarations, from incoming vessels, being sent by wireless, the word " Portelth " being used as a telegraphic address. The system has proved extremely useful and in the not too distant future wireless telephony may replace the written wireless message and so facilitate the work of port health authorities.

In the meantime it is of interest to note that early in the year the Port Health Authority of Liverpool installed a wireless telephone apparatus in their boarding launch. By this the officer on the launch when she is under way can speak direct to the dock board, the light ships and the various dock entrances. Dr. W. H Frazer reports that this installation is proving of great value.

Health of the Merchant Navy

During the year the Ministry of Health have, on the request of the Ministry of Transport, afforded any help in their power on questions concerning the health of the Merchant Navy, but no meetings of the Joint Advisory Committee were held.

The revision of the "Ship Captains' Medical Guide" is nearing completion. In the meantime some revisions have been made in the scales of medical equipment carried by merchant vessels and the training of sick bay attendants has been under consideration.

Airports

In 1947, despite the temporary setbacks caused by currency and travel restrictions for assisting the economic recovery of the country, the tide of civil air traffic continued to rise. Considering the numerous difficulties, it is a clear indication of what the public demand will be when conditions once more allow the free development of air travel. The following statistics of the traffic dealt with at the two principal airports in London during 1947 give a general idea of the present demand :—

Approximate Average Weekly Arrivals

London Airport (Heathrow) ..	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Aircraft ..	85	90	100	110	150	210	200	200	250	225	230	210
Passengers—												
British ..	450	450	650	950	1,100	1,550	1,600	1,750	2,200	1,950	1,550	1,400
Alien ..	350	300	450	600	800	1,550	1,575	1,150	1,500	1,250	1,100	1,050

Northolt Airport	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Aircraft ..	90	75	80	120	150	170	175	185	200	155	160	120
Passengers—												
British ..	600	425	400	975	1,275	1,775	1,825	2,150	2,450	1,625	975	925
Alien ..	400	250	325	525	1,050	1,025	1,150	1,250	1,400	1,100	850	675

These two airports receive most of the scheduled services serving countries abroad, but there is a substantial additional amount of traffic by the many private charter and freight companies operating from other airfields : for example, at Poole Marine Airport—which was the terminal for the flying boat services in the year under review—401 aircraft arrived during 1947, mainly from Australia, the Middle East and the Far East, carrying 5,882 British and 598 alien passengers.

When Public Health (Aircraft) Regulations first came into force in 1938, civil air traffic was in its infancy. During the war—with the great strides made in aircraft design—long distance flights previously regarded as exceptional became every-day occurrences, and this development brought with it the increased danger of introducing major epidemic diseases into this country.

In 1943 this danger was exercising the minds of many medical officers of health who had to administer the Aircraft Regulations and in April, 1944, the now familiar " warning card " system was instituted as a first step to combat it.

In 1946 the Civil Aviation Act, which aimed at securing the development of air transport services by public corporations, authorized the nationalization of airfields, and by 1947 the larger airfields had been taken over. This, together with the experience gained by the various medical officers operating health control at airports, provided an opportunity to revise the 1938 Aircraft Regulations and to implement the provisions of the International Sanitary Convention for Aerial Navigation of 1944.

This was undertaken during 1947, and at the same time the explanatory memorandum on the practical details of " Health Control at Airports " was revised. The new regulations—the Public Health (Aircraft) Regulations, 1948—came into operation on the 1st April, 1948, and the revised memorandum was issued with them.

It may be of interest to describe briefly the present form of Health Control at Airports, bearing in mind that, while the risk of introducing a major infectious disease is as real as it is apparent, the control must not cause unnecessary delay if the keynote of air transport—speed—is to be maintained.

The system—based on the practical experience of the medical officers operating the controls—consists of a rapid scrutiny of all incoming passengers with a more detailed medical examination for special cases, the issue of the " warning card ", and the obtaining from each passenger an address at or through which he may be traced subsequently if necessary. This procedure may seem to reduce the essential requirements more than is consistent with safety, but even the most searching medical examination would reveal little more if the person were in the incubation period of an infectious disease and increasing experience justifies growing confidence in the scheme. In only two instances—one a case of smallpox, the other a suspected case of cholera—were major epidemic diseases brought into this country by aircraft during the year. In each case, as soon as the diagnosis had been made, every person who had travelled on the aircraft was readily traced and placed under surveillance.

The case of smallpox was particularly interesting. It occurred in an army sergeant flown home on compassionate leave from India. Eleven days after arrival in this country he developed a sparse rash associated with mild symptoms. Neither a general practitioner nor the medical officer of health, having seen the " warning card " issued to the sergeant at the airport, excluded the possibility of smallpox but, unfortunately, a confident diagnosis of chicken-pox was made by the expert consulted. This case gave rise to 30 cases of variola major with six deaths.

The suspected case of cholera occurred towards the end of the Egyptian cholera outbreak. The final diagnosis was bacillary dysentery but, nevertheless, as soon as the possibility of cholera was suspected, every person who had travelled on the aircraft was traced.

While the Egyptian cholera epidemic potentially threatened all countries which had air links with the Middle East, no undue apprehension was felt in this country, fortified as we were by the knowledge that the most effective measures possible under the prevailing circumstances were in force at our airports. The measures were those authorised by the International Sanitary Conventions, viz. surveillance for five days for arrivals from Egypt, the prohibition of the importation of fresh fruit and vegetables from Egypt, and the disinfection and emptying of water tanks in aircraft which had taken on water in Egypt.

It would be false to give the impression that the outbreak of cholera in Egypt caused no other inconvenience than that implied by these measures. On the contrary, the many and varied restrictions and conditions imposed by several countries not only on travellers from Egypt but on all persons arriving by air, disorganised air services and inconvenienced passengers. The position regarding the acceptance of certificates of inoculation, not only against cholera but against other diseases, was particularly chaotic as many countries varied their conditions from day to day. A traveller was often held up en route ; although he had left England with (according to published requirements) a valid certificate he might find on arriving at an airfield on his route that his certificate was not then accepted as valid and that he was threatened with detention.

The problem of drinking water on aircraft, which had been closely investigated by the operating companies, was considered about the time of the cholera outbreak in Egypt. There are many inherent difficulties in modifying for civil traffic aircraft designed primarily for the fighting services, but the chief one from the public health viewpoint is that of providing a clean supply of drinking water. The construction of the tanks prevents easy cleaning and sterilizing, and clean water put into them seldom remains wholly satisfactory for drinking. Until aircraft are built specially for civil traffic the use of special containers holding sterilized water or the sterilizing of water as it is taken from the tanks for use must continue.

These problems, and the general supervision of health control at the airfields, have necessitated many visits by medical officers of the Ministry during the year. Some satisfaction can be derived from the views expressed by visitors of international repute on the organization and efficiency of health control which is apparent to the traveller on his arrival at the larger airports in this country.

APPENDIX A

Tables of Vital Statistics : England and Wales

I

Population of England and Wales, 1801—1947

Year	Population†			Decennial Increase	
	Males	Females	Persons	Persons	Per cent.*
1801	4,254,735	4,637,801	8,892,536	—	—
1811	4,873,605	5,290,651	10,164,256	1,271,720	14·00
1821	5,850,319	6,149,917	12,000,236	1,835,980	18·06
1831	6,771,196	7,125,601	13,896,797	1,896,561	15·80
1841	7,777,586	8,136,562	15,914,148	2,017,351	14·27
1851	8,781,225	9,146,384	17,927,609	2,013,461	12·65
1861	9,776,259	10,289,965	20,066,224	2,138,615	11·90
1871	11,058,934	11,653,332	22,712,266	2,646,042	13·21
1881	12,639,902	13,334,537	25,974,439	3,262,173	14·36
1891	14,060,401	14,942,124	29,002,525	3,028,086	11·65
1901	15,728,613	16,799,230	32,527,843	3,525,318	12·17
1911	17,445,608	18,624,884	36,070,492	3,542,649	10·89
1921	18,075,239	19,811,460	37,886,699	1,816,207	4·93
1931	19,133,010	20,819,367	39,952,377	2,065,678	5·53
1932	19,280,000	20,921,000	40,201,000	—	—
1933	19,357,000	20,993,000	40,350,000	—	—
1934	19,412,000	21,055,000	40,467,000	—	—
1935	19,500,000	21,145,000	40,645,000	—	—
1936	19,591,000	21,248,000	40,839,000	—	—
1937	19,705,000	21,326,000	41,031,000	—	—
1938	19,792,000	21,423,000	41,215,000	—	—
1939	19,687,500	21,558,500	41,246,000	—	—
1940	18,243,000	21,646,000	39,889,000	—	—
1941	17,228,000	21,515,000	38,743,000	1,795,623*	4·40
1942	16,802,000	21,441,000	38,243,000	—	—
1943	16,334,000	21,484,000	37,818,000	—	—
1944	16,188,000	21,597,000	37,785,000	—	—
1945	16,412,000	21,745,000	38,157,000	—	—
1946	18,616,000	21,979,000	40,595,000	—	—
1947	19,612,000	22,174,000	41,786,000	—	—

* The varying lengths of intercensal periods have been taken into account in computing these rates. For 1941 the total population including men in the Services at home and abroad has been used.

† Census populations up to 1931. Mid-year estimates 1932 to 1938. Mean populations as used for civilian death rates from 1939 onward (i.e., derived from quarterly estimates of the population, excluding non-civilian males from September 3rd, 1939 and non-civilian females from mid-1941).

II

England and Wales : Deaths from all causes by Sex and Age (distinguishing civilians and non-civilians, 1947)

Age periods	Males			Females		
	Civilians	Non-civilians	Total	Civilians	Non-civilians	Total
0–	21,225	—	21,225	15,624	—	15,624
1–	3,240	—	3,240	2,525	—	2,525
5–	1,501	—	1,501	1,048	—	1,048
10–	1,094	—	1,094	827	—	827
15–	1,779	255	2,034	1,725	7	1,732
20–	2,207	561	2,768	2,787	14	2,801
25–	6,458	529	6,987	6,417	20	6,437
35–	11,199	343	11,542	9,346	4	9,350
45–	23,177	206	23,383	17,016	4	17,020
55–	45,722	66	45,788	31,976	—	31,976
65–	71,398	12	71,410	61,805	—	61,805
75–	61,547	3	61,550	71,282	—	71,282
85 and over	15,192	—	15,192	27,474	—	27,474
All ages	265,739	1,975	267,714	249,852	49	249,901

III

England and Wales : Age distribution of Infant Mortality, 1881–1947

Period	0–1 day	1–7 days	1–4 weeks	Under 4 weeks	4 weeks–3 months	3–6 months	6–9 months	9–12 months	Total under 1 year
	Deaths per 1,000 Live Births registered in same year(s)								
1881–1885	—	—	—	67		28	44		139
1886–1890	—	—	—	69		30	46		145
1891–1895	—	—	—	74		31	46		151
1896–1900	—	—	—	74		34	48		156
1901–1905	—	—	—	70		28	40		138
1906–1910	11·5	13·0	15·7	40·2	22·8	22·0	17·3	14·8	117·1
1911–1915	11·4	12·7	14·9	39·0	20·2	19·6	15·9	14·1	108·7
1916–1920	11·0	12·4	13·7	37·0	16·5	14·6	12·0	10·8	90·9
1921–1925	10·4	11·3	11·7	33·4	12·8	11·3	9·2	8·3	74·9
1911 ..	11·6	12·7	16·5	40·6	24·7	25·9	20·6	17·4	129·2
1912 ..	11·3	12·9	14·3	38·4	17·7	14·9	12·5	11·4	94·7
1913 ..	11·8	12·7	15·1	39·5	20·3	19·8	15·7	13·6	108·9
1914 ..	11·4	12·7	14·4	38·5	19·3	18·7	15·0	13·0	104·4
1915 ..	10·9	12·5	14·4	37·7	18·6	18·2	16·0	15·2	105·8
1916 ..	10·9	12·3	13·9	36·9	16·9	15·2	11·7	10·3	91·1
1917 ..	11·0	12·4	13·8	37·1	16·9	15·0	11·6	10·6	91·1
1918 ..	11·1	12·1	13·5	36·6	17·1	16·1	14·4	13·7	97·9
1919 ..	12·2	13·7	14·6	40·4	16·4	14·4	11·8	10·3	93·2
1920 ..	10·4	11·5	13·2	35·0	15·5	13·0	11·0	10·0	84·5
1921 ..	10·8	11·6	12·9	35·2	14·7	13·7	9·7	7·8	81·2
1922 ..	10·4	11·6	12·1	33·9	12·4	10·6	9·2	8·6	74·7
1923 ..	10·2	10·9	10·8	31·9	11·4	10·0	8·3	7·6	69·2
1924 ..	10·6	11·2	11·2	33·0	12·4	10·8	9·3	8·8	74·2
1925 ..	10·1	11·1	11·1	32·3	12·5	11·2	9·4	9·0	74·5
	Deaths per 1,000 Related Live Births*								
1926–1930	10·3	11·5	9·9	31·8	10·8	9·5	8·0	7·4	67·6
1931–1935	10·7	11·7	9·0	31·4	9·9	8·5	6·5	5·6	61·9
1936–1940	10·4	11·2	7·7	29·2	8·8	7·8	5·4	4·0	55·3
1926 ..	10·0	11·3	10·6	31·8	11·6	10·3	8·5	7·5	69·8
1927 ..	10·5	11·6	10·1	32·2	10·6	9·5	8·3	7·8	68·5
1928 ..	10·4	11·2	9·5	31·1	10·7	9·3	7·4	6·8	65·3
1929 ..	10·4	11·9	10·6	32·8	11·5	10·6	9·8	9·2	73·9
1930 ..	10·4	11·6	8·9	30·9	9·7	7·9	6·1	5·6	60·2
1931 ..	10·4	11·7	9·5	31·5	10·8	9·2	7·6	6·6	65·7
1932 ..	10·6	11·8	9·1	31·5	10·8	9·0	7·1	6·1	64·5
1933 ..	11·0	11·8	9·3	32·1	9·8	8·6	6·5	5·7	62·7
1934 ..	10·9	11·8	8·7	31·4	8·9	7·7	6·0	5·3	59·3
1935 ..	10·7	11·3	8·4	30·4	9·1	7·7	5·5	4·3	57·0
1936 ..	10·7	11·3	8·3	30·2	9·3	8·3	6·0	4·9	58·7
1937 ..	10·8	11·2	7·7	29·7	9·4	8·3	5·9	4·4	57·7
1938 ..	10·3	10·8	7·2	28·3	8·2	7·3	5·0	4·0	52·8
1939 ..	10·3	10·9	7·0	28·3	7·9	7·0	4·4	2·9	50·6
1940 ..	9·8	11·5	8·3	29·6	9·3	8·2	5·7	4·0	56·8
1941 ..	10·1	10·6	8·3	29·0	11·3	9·7	5·8	4·3	60·0
1942 ..	9·6	10·0	7·7	27·2	8·7	7·5	4·4	2·8	50·6
1943 ..	9·1	9·2	6·9	25·2	8·8	7·8	4·5	2·8	49·1
1944 ..	8·8	8·8	6·9	24·4	8·0	7·0	3·8	2·3	45·4
1945 ..	9·0	9·0	6·7	24·8	8·2	7·0	3·8	2·3	46·0
1946 ..	8·7	9·1	6·7	24·5	7·1	6·1	3·3	1·9	42·9
1947 ..	7·8	8·7	6·2	22·7	6·9	6·0	3·6	2·1	41·4

* Corrected to allow for the disturbing effects of varying time-lag in registration of births and of upward or downward trends in births during the 12 months preceding the death.

IV

England and Wales: Infant Mortality by Age and Legitimacy, and by Cause, 1942 to 1947

	Deaths per 1,000 related live births					
	1942	1943	1944	1945	1946	1947
All Causes						
All Male infants						
Under 4 weeks	30·3	27·9	27·0	27·7	27·8	25·4
4 weeks—3 months	10·1	10·0	9·3	9·4	8·2	8·0
3—6 months	8·4	8·9	7·7	7·7	6·7	6·6
6—12 months	7·8	7·9	6·4	6·6	5·6	6·2
Total under 1 year	56·5	54·7	50·4	51·4	48·3	46·3
All female infants						
Under 4 weeks	23·9	22·4	21·5	21·7	21·0	19·8
4 weeks—3 months	7·2	7·5	6·7	6·9	6·0	5·8
3—6 months	6·7	6·6	6·2	6·2	5·4	5·4
6—12 months	6·5	6·7	5·7	5·5	4·8	5·2..
Total under 1 year	44·3	43·2	40·1	40·3	37·1	36·2
Illegitimate infants						
under 4 weeks	40·7	36·3	35·5	34·3	33·2	33·4
4 weeks—3 months	14·6	15·6	15·5	13·7	12·5	10·9
3—6 months	11·7	11·9	10·5	10·1	8·5	8·1
6—12 months	7·9	7·6	7·0	6·7	5·8	5·7
Total under 1 year ..	75·0	71·4	68·5	64·8	60·1	58·0
All infants under 1 year						
Whooping cough	0·8	0·9	1·0	0·6	0·7	0·6
Tuberculous diseases	0·5	0·5	0·4	0·4	0·4	0·4
Measles	0·2	0·4	0·1	0·3	0·1	0·3
Convulsions	1·0	0·8	0·6	0·6	0·4	0·3
Bronchitis and pneumonia ..	9·2	10·2	8·5	9·3	8·0	7·8
Enteritis and diarrhoea ..	5·2	4·9	4·8	5·1	4·4	5·1
Congenital malformations ..	6·5	5·9	5·5	5·6	5·4	4·9
Premature birth	13·7	12·8	11·8	11·0	10·9	9·5
Injury at birth	2·6	2·4	2·4	2·7	2·7	2·7
Asphyxia, atelectasis	2·0	1·8	2·0	2·8	2·9	2·9
Congenital debility	1·6	1·3	1·1	0·9	0·8	0·7
Haemolytic disease	0·6	0·6	0·6	0·7	0·7	0·8
Other causes	6·7	6·6	6·6	6·0	5·5	5·4..
All causes	50·6	49·1	45·4	46·0	42·9	41·4

V

England and Wales: Infant Mortality by Cause and Legitimacy for each Sex, 1947

Cause of death	Rates per 1,000 related live births					
	Legitimate		Illegitimate		All infants	
	Male	Female	Male	Female	Male	Female
Whooping cough	0·56	0·72	0·58	0·62	0·55	0·70
Tuberculous diseases	0·44	0·32	0·31	0·32	0·44	0·32
Measles	0·32	0·25	0·19	0·24	0·31	0·25
Convulsions	0·41	0·26	0·52	0·43	0·40	0·27
Bronchitis and pneumonia ..	8·54	6·78	10·55	8·36	8·65	6·87
Enteritis and diarrhoea	5·69	4·12	9·46	8·01	5·88	4·33
Congenital malformations ..	5·25	4·51	4·73	5·05	5·22	4·54
Premature birth	10·30	8·14	14·57	13·55	10·53	8·42
Injury at birth	3·27	2·12	3·61	2·62	3·28	2·15
Asphyxia, atelectasis	3·20	2·51	4·86	2·36	3·29	2·50
Congenital debility	0·80	0·53	1·56	0·90	0·85	0·55
Haemolytic disease	0·93	0·55	0·87	0·83	0·92	0·57
Other causes	5·67	4·36	10·52	10·25	5·95	4·69
All causes	45·38	35·17	62·32	53·54	46·27	36·16

VI

Neonatal mortality according to certified cause, 1911–1947

	Deaths at ages under 4 weeks per 1,000 live births‡								
	Infective diseases*	Bronchitis	Pneumonia	Enteritis and diarrhoea	Congenital malformations	Premature birth	Other developmental etc.†	Other causes	All causes
1911	0·61	0·89	0·48	1·83	2·32	18·21	9·34	6·97	40·65
1912	0·64	0·97	0·53	0·73	2·33	17·93	8·32	6·99	38·44
1913	0·67	0·95	0·59	1·12	2·45	18·09	8·64	6·93	39·44
1914	0·72	0·82	0·50	1·10	2·47	17·88	8·19	6·78	38·46
1915	0·68	0·91	0·52	1·16	2·43	17·86	8·54	6·89	38·99
1916	0·70	0·84	0·44	0·86	2·68	16·94	7·79	6·65	36·90
1917	0·82	0·90	0·57	0·79	2·71	17·28	7·78	6·62	37·47
1918	0·78	0·88	0·47	0·78	2·27	17·99	7·29	6·04	36·50
1919	0·69	0·91	0·51	0·86	2·63	19·93	7·82	6·44	39·79
1920	0·66	1·06	0·72	0·87	2·62	16·36	6·76	6·13	35·18
1921	0·71	0·66	0·57	1·19	2·58	17·43	5·53	6·58	35·25
1922	0·62	0·79	0·72	0·75	2·75	16·95	5·25	6·25	34·08
1923	0·53	0·61	0·60	0·74	2·59	16·05	4·71	6·05	31·88
1924	0·51	0·74	0·80	0·65	2·62	17·01	4·61	6·13	33·07
1925	0·55	0·70	0·76	0·70	2·73	15·99	4·70	6·20	32·33
1926	0·60	0·57	0·70	0·72	2·80	15·92	4·45	6·08	31·84
1927	0·62	0·52	0·67	0·71	3·03	16·76	3·91	6·01	32·23
1928	0·54	0·52	0·75	0·57	3·10	16·05	3·73	5·83	31·09
1929	0·56	0·52	0·89	0·67	3·28	16·92	3·77	6·19	32·80
1930	0·42	0·43	0·65	0·62	3·36	16·00	3·50	5·97	30·95
1931	0·40	0·71	0·86	0·56	3·44	15·94	3·58	6·04	31·53
1932	0·39	0·56	0·87	0·62	3·68	15·81	3·33	6·26	31·52
1933	0·39	0·47	0·78	0·52	3·71	16·39	3·66	6·19	32·11
1934	0·29	0·37	0·68	0·55	4·03	15·60	3·48	6·41	31·41
1935	0·28	0·38	0·86	0·57	3·72	15·20	3·40	5·96	30·37
1936	0·24	0·34	0·82	0·58	3·88	14·74	3·49	6·09	30·18
1937	0·20	0·35	0·85	0·46	3·80	14·98	3·38	5·73	29·75
1938	0·15	0·27	0·80	0·41	3·86	13·84	3·03	5·94	28·30
1939	0·19	0·24	0·92	0·40	3·87	13·65	3·11	5·90	28·28
1940	0·23	0·33	1·18	0·58	4·21	13·66	3·32	6·10	29·61
1941	0·27	0·40	1·28	0·47	4·07	13·65	3·12	5·74	29·00
1942	0·16	0·19	1·14	0·61	4·11	12·80	2·76	5·46	27·23
1943	0·21	0·21	1·12	0·53	3·67	12·03	2·34	5·11	25·22
1944	0·14	0·20	1·12	0·56	3·45	11·18	2·54	5·16	24·35
1945	0·13	0·16	1·23	0·74	3·47	10·42	3·24	5·37	24·76
1946	0·14	0·12	1·27	0·77	3·39	10·44	3·33	5·00	24·46
1947	0·12	0·11	1·27	0·75	2·99	9·11	3·25	5·10	22·70

* International List Nos. 1–44, which include tuberculosis.

† Congenital debility, asphyxia, atelectasis (Nos. 158, 161a of 1940 List).

‡ The rates for 1931–39 are corrected to 1940 classification : rates for years before 1931 are not corrected (for conversion rates *see* the Registrar General's Statistical Review for 1940, Appendix B.1). In 1911–25, the rates are per 1,000 live births registered ; in 1926–47, they are per 1,000 related live births.

VII

Deaths, and rates per 1,000 *Live and Stillbirths, ascribed to—*
(a) Pregnancy and childbearing, excluding abortion.
(b) Abortion (including criminal), 1931 *to* 1947.

Year	Live and Still births registered*	Pregnancy and Childbearing (Nos. 142–150 of International List, 1938)				Abortion (Nos. 140–141 of International List, 1938)			
		No. of deaths	Rate per 1,000 births†			No. of deaths	Rate per 1,000 births	Rate per million women aged 15–44	
			Infections	Other	Total			Septic	Other
1931	659,014	2,258	1·41	2·02	3·43	448	0·68	29	17
1932	640,443	2,213	1·33	2·12	3·46	470	0·73	31	17
1933	605,497	2,251	1·49	2·23	3·72	486	0·80	32	18
1934	622,851	2,367	1·59	2·21	3·80	513	0·82	37	16
1935	624,191	2,126	1·34	2·06	3·41	464	0·74	33	14
1936	630,337	2,011	1·18	2·01	3·19	420	0·67	29	13
1937	635,363	1,773	0·79	2·01	2·79	369	0·58	23	14
1938	645,933	1,742	0·70	1·99	2·70	354	0·55	23	13
1939	638,799	1,643	0·63	1·94	2·57	354	0·55	25	11
1940	612,899	1,372	0·55	1·69	2·24	268	0·44	16	11
1941	599,967	1,353	0·48	1·78	2·26	325	0·54	21	12
1942	673,886	1,360	0·42	1·60	2·02	313	0·46	24	7
1943	705,596	1,296	0·39	1·45	1·84	322	0·46	24	8
1944	772,784	1,175	0·28	1·24	1·52	315	0·41	24	7
1945	699,270	1,028	0·24	1·23	1·47	234	0·33	18	6
1946	843,634	1,048	0·18	1·06	1·24	157	0·19	11	5
1947	902,821	918	0·16	0·86	1·02	140	0·16	9	5

* Numbers registered in years prior to 1939 and numbers of occurrences from 1939 inclusive
† Slight corrections have been made in the rates of several years before 1942.

VIII

Causes of death ascribed to pregnancy and childbearing excluding abortion.
(*For ages at death,* see *the Registrar General's Statistical Review, Tables* 21 *and* 21a.)

International No.	Cause of death	1941	1942	1943	1944	1945	1946	1947
142	Ectopic gestation	63	84	53	44	38	57	40
143	Haemorrhage of pregnancy ..	36	20	22	18	18	25	15
144	Toxaemias of pregnancy							
	(*a, b*) Eclampsia, albuminuria	81	79	73	59	63	72	62
	(*c*) Acute yellow atrophy ..	9	9	11	8	7	13	7
	(*d*) Others in 144	41	29	18	10	14	12	12
145	Other diseases and accidents of pregnancy	18	15	26	31	34	16	24
146	Haemorrhage of childbirth and puerperium	235	209	190	204	176	194	164
147	Infection during childbirth and puerperium	288	283	276	217	167	154	144
148	Puerperal toxaemias							
	(*a, b*) Eclampsia, albuminuria	180	220	203	205	171	197	177
	(*c*) Acute yellow atrophy ..	21	33	43	26	50	41	38
	(*d*) Others in 148	49	40	28	20	17	24	16
149	Other accidents of childbirth	306	317	335	308	254	233	206
150	Other conditions of childbirth and puerperium ..							
	(*a*) Mastitis	6	8	4	6	5	3	3
	(*b*) Puerperal psychosis ..	6	5	4	4	4	1	2
	(*c*) Others in 150	14	9	10	15	10	6	8
142–150	Total	1,353	1,360	1,296	1,175	1,028	1,048	918

IX

*Deaths and Death-rates from Principal Infective Diseases**

Name of disease	1871–1880	1881–1890	1891–1900	1901–1910	1911–1920	1921–1930	1931–1940	1941	1942	1943		1944		1945		1946		1947	
	Mean annual death-rate per 1,000 population at all ages†							Death-rate	Death-rate	No. of deaths	Death-rate	No. of deaths	Death-rate	No. of deaths	Death-rate	No. of deaths	Death-rate	No. of deaths	Death-rate
Cerebrospinal Fever	‡	0·00	0·00	0·00	0·024	0·011	0·024	0·053	0·030	746	0·020	570	0·015	527	0·014	489	0·012	523	0·013
Diphtheria	0·12	0·16	0·26	0·18	0·136	0·084	0·070	0·068	0·047	1,348	0·036	908	0·024	694	0·018	455	0·011	242	0·006
Enteritis and Diarrhoea	‡	‡	‡	‡	0·496	0·211	0·126	0·120	0·128	4,907	0·130	4,998	0·132	5,314	0·139	4,919	0·121	5,858	0·140
Influenza	0·01	0·02	0·36	0·21	0·584	0·369	0·259	0·177	0·088	12,576	0·333	3,876	0·103	2,669	0·070	5,272	0·130	3,303	0·079
Measles	0·38	0·44	0·41	0·31	0·266	0·109	0·047	0·029	0·012	769	0·020	243	0·006	728	0·019	203	0·005	644	0·015
Poliomyelitis, Polioencephalitis (acute)	‡	‡	‡	‡	‡	0·004	0·004	0·004	0·003	88	0·002	97	0·003	126	0·003	116	0·003	688	0·016
Puerperal and post-abortive sepsis	0·07	0·08	0·07	0·05	0·032	0·028	0·024	0·013	0·014	517	0·014	459	0·012	340	0·009	264	0·006	233	0·006
Scarlet Fever	0·72	0·34	0·16	0·11	0·046	0·023	0·011	0·003	0·003	129	0·003	105	0·003	82	0·002	41	0·001	42	0·001
Smallpox	0·24	0·05	0·01	0·01	0·000	0·001	0·000	—	—	—	—	3	0·000	—	—	11	0·000	15	0·000
Tuberculosis (respiratory)	2·13	1·73	1·39	1·16	1·049	0·813	0·601	0·602	0·542	21,082	0·557	19,815	0·524	19,668	0·515	19,008	0·468	19,753	0·473
Tuberculosis (other forms)	0·75	0·70	0·63	0·50	0·340	0·199	0·121	0·128	0·115	4,179	0·111	3,896	0·103	3,796	0·099	3,380	0·083	3,322	0·080
Typhoid and Paratyphoid Fevers	0·32	0·20	0·17	0·09	0·034	0·011	0·005	0·004	0·002	67	0·002	51	0·001	44	0·001	51	0·001	29	0·001
Typhus, Rickettsioses	0·06	0·01	0·00	0·00	0·000	0·000	—	0·000	0·000	1	0·000	—	—	—	—	—	—	1	0·000
Whooping Cough	0·51	0·45	0·38	0·28	0·176	0·114	0·042	0·062	0·021	1,114	0·029	1,054	0·028	689	0·018	808	0·020	905	0·022

* Excluding non-civilian males after September, 1939, and non-civilian females after mid-1941.

† Rates for 1931–40 are corrected to 1940 classification : rates for decennial periods before 1931 are not corrected (for conversion ratios see Statistical Review for 1940, Appendix B.1). In the case of some of these diseases comparability with earlier decades is affected by changes in nomenclature and improved diagnosis.

‡ Rates for these periods cannot be ascertained.

X

Annual Mortality from Cancer, 1881–1947

Year or period	Males		Females		Persons	
	Death rates per million living, according to classification in use before 1940					
	Crude rate ‡	Standardised (1901 basis)	Crude rate‡	Standardised (1901 basis)	Crude rate‡	Standardised (1901 basis)
1881–1890 ..	430	465	739	739	589	610
1891–1900 ..	600	639	906	882	758	767
1901–1910 ..	773	784	1,027	942	904	867
1911–1920 ..	986	897	1,167	959	1,080	928
1921–1930 ..	1,287	1,000	1,390	980	1,340	985
	Crude death rates per million and comparative mortality index (1938 unit basis)§, according to classification in use from 1940 onwards.†					
	Crude rate	C.M.I.	Crude rate	C.M.I.	Crude rate	C.M.I.
1931 ..	1,412	0·975	1,465	1·018	1,440	0·998
1932 ..	1,458	0·992	1,473	1·007	1,466	1·001
1933 ..	1,450	0·971	1,508	1·015	1,480	0·995
1934 ..	1,494	0·983	1,538	1·015	1,517	1·001
1935 ..	1,537	0·994	1,543	1·000	1,540	0·998
1936 ..	1,569	1·001	1,580	1·009	1,575	1·006
1937 ..	1,589	1·002	1,577	0·991	1,583	0·997
1938 ..	1,612	1·000	1,619	1·000	1,616	1·000
1939* ..	1,629	0·983	1,626	0·984	1,628	0·985
1940* ..	1,816	1·010	1,645	0·985	1,723	1·002
1941* ..	1,944	1·013	1,649	0·969	1,780	0·994
1942* ..	2,024	1·012	1,685	0·964	1,834	0·992
1943* ..	2,140	1·022	1,716	0·961	1,899	0·994
1944* ..	2,155	1·006	1,704	0·941	1,897	0·975
1945* ..	2,209	1·024	1,724	0·937	1,933	0·982
1946* ..	1,994	1·018	1,742	0·949	1,858	0·986
1947* ..	1,976	1·047	1,754	0·949	1,858	0·998

* Non-civilian males are excluded from the deaths and population after 3rd September, 1939, and non-civilian females after mid-1941.

† Rates for 1931–1939 have been corrected to the 1940 classification.

‡ Conversion ratios by which these crude rates may be brought into approximate conformity with those for 1931–1947 are :—Males 0·975 ; Females 0·967 ; Persons 0·971. (*See* the Registrar General's Statistical Review for 1940, Part I, Appendix B.I.)

§ *See* page 23.

APPENDIX B

Tables relating to Tuberculosis : England and Wales

XI

England and Wales : Deaths from Tuberculosis per annum, including those of non-civilians

	Estimated mean or mid-year population	Respiratory			Other forms		
		Males	Females	Persons	Males	Females	Persons
No. of deaths according to classification in use before 1940†							
1851–60 ..	18,996,916	23,931	26,962	50,893	8,311	6,683	14,994
1861–70 ..	21,389,245	25,696	27,247	52,943	9,078	7,323	16,401
1871–80 ..	24,225,271	26,177	25,333	51,510	10,082	8,165	18,247
1881–90 ..	27,384,934	24,646	22,751	47,397	10,380	8,820	19,200
1891–1900 ..	30,643,316	23,434	19,188	42,622	10,181	8,860	19,041
1901–1910 ..	34,180,052	22,595	17,093	39,688	8,838	7,990	16,828
1911–1920 ..	37,071,300	21,555	17,220	38,775	6,614	6,007	12,621
1921–1930 ..	38,960,000	17,513	14,127	31,640	4,057	3,682	7,739
No. of deaths according to classification in use from 1940 onwards‡							
1931.. ..	39,988,000	16,136	12,604	28,740	3,285	2,934	6,219
1932.. ..	40,201,000	15,015	11,758	26,773	3,229	2,808	6,037
1933.. ..	40,350,000	15,323	11,668	26,991	2,912	2,532	5,444
1934.. ..	40,467,000	14,233	10,652	24,885	2,754	2,485	5,239
1935.. ..	40,645,000	13,602	10,238	23,840	2,516	2,133	4,649
1936.. ..	40,839,000	13,270	9,745	23,015	2,404	2,048	4,452
1937.. ..	41,031,000	13,375	9,840	23,215	2,417	2,122	4,539
1938.. ..	41,215,000	12,445	8,837	21,282	2,261	1,996	4,257
1939* ..	41,460,000	12,702	8,840	21,542	2,229	1,852	4,081
1940* ..	41,862,000	13,920	9,740	23,660	2,381	2,103	4,484
1941* ..	41,748,000	13,985	9,648	23,633	2,652	2,385	5,037
1942* ..	41,897,000	12,511	8,478	20,989	2,426	2,134	4,560
1943* ..	42,143,000	13,064	8,278	21,342	2,216	2,091	4,307
1944* ..	42,449,000	12,226	7,878	20,104	2,110	1,949	4,059
1945* ..	42,636,000	12,077	7,936	20,013	2,072	1,870	3,942
1946* ..	42,737,000	11,753	7,612	19,365	1,827	1,655	3,482
1947* ..	43,050,000	12,058	8,098	20,156	1,781	1,613	3,394

* The populations here shown include Armed Forces and Merchant Seamen at home and abroad. The deaths are those registered in England and Wales, inclusive of non-civilians.

† Conversion ratios, by which the deaths and rates before 1931 may be made approximately comparable with those for 1931–47 are :—

Respiratory : M. 0·966, F. 0·973, P. 0·969. Other forms : M. 1·006, F. 0·990, P. 0·999. All forms : M. 0·971, F. 0·976, P. 0·974. *See* the Registrar General's Statistical Review for 1940. Part I, Appendix B.I.

‡ Figures for 1931–1939 have been corrected to the 1940 classification.

XII

England and Wales—Tuberculosis : Standardised Death-rates 1851–1930 *and Comparative Mortality Indexes* 1931–1947

	Respiratory			Other forms			All forms		
	Males	Females	Persons	Males	Females	Persons	Males	Females	Persons
Standardised death-rates per million (1901 population basis) ; according to classification in use before 1940.§									
1851–1860 ..	2,694	2,854	2,772	783	629	706	3,477	3,483	3,478
1861–1870 ..	2,612	2,578	2,590	745	599	673	3,357	3,177	3,263
1871–1880 ..	2,359	2,119	2,231	721	582	651	3,080	2,701	2,882
1881–1890 ..	1,966	1,672	1,810	690	579	634	2,656	2,251	2,444
1891–1900 ..	1,633	1,226	1,418	652	554	603	2,285	1,780	2,021
1901–1910 ..	1,358	951	1,143	533	473	503	1,891	1,424	1,646
1911–1920 ..	1,158	873	1,007	392	345	368	1,550	1,218	1,375
1921–1930 ..	868	677	767	242	211	225	1,110	888	992
Comparative Mortality Index (1938 mortality as unit basis)‡ ; according to classification in use from 1940† onwards.									
1931	1·384	1·469	1·421	1·421	1·448	1·433	1·393	1·469	1·427
1932	1·274	1·364	1·313	1·405	1·407	1·405	1·298	1·377	1·332
1933	1·291	1·353	1·317	1·266	1·263	1·264	1·292	1·342	1·314
1934	1·191	1·235	1·210	1·203	1·247	1·225	1·199	1·244	1·219
1935	1·125	1·175	1·146	1·094	1·075	1·085	1·125	1·163	1·141
1936	1·089	1·112	1·099	1·065	1·045	1·055	1·088	1·104	1·095
1937	1·083	1·120	1·098	1·071	1·084	1·077	1·083	1·116	1·097
1938	1·000	1·000	1·000	1·000	1·000	1·000	1·000	1·000	1·000
1939*.. ..	1·024	0·996	1·005	0·966	0·950	0·958	1·013	0·985	1·001
1940*.. ..	1·223	1·093	1·162	1·102	1·047	1·071	1·181	1·084	1·140
1941*.. ..	1·362	1·092	1·202	1·296	1·201	1·238	1·280	1·114	1·201
1942*.. ..	1·267	0·971	1·091	1·105	1·072	1·126	1·188	0·991	1·090
1943*.. ..	1·328	0·955	1·130	1·138	1·047	1·076	1·263	0·975	1·115
1944*.. ..	1·269	0·908	1·071	1·061	0·965	0·996	1·205	0·922	1·055
1945*.. ..	1·234	0·913	1·056	1·026	0·920	0·956	1·166	0·918	1·033
1946*.. ..	0·971	0·860	0·925	0·804	0·806	0·803	0·936	0·855	0·904
1947*.. ..	0·931	0·916	0·929	0·743	0·770	0·757	0·903	0·893	0·903

* Non-civilian males are excluded from the deaths and population after September 3rd 1939, and non-civilian females after mid-1941 in the calculation of these rates.

† Figures for 1931–1939 have been corrected to the 1940 classification.

‡ See note below table on page 23.

§ For conversion ratios by which the deaths and rates before 1931 may be made approximately comparable with those for 1931–46, see note below table XI.

XIII

Tuberculosis deaths by Sex and Age distinguishing those of non-civilian males, 1947

		Respiratory tuberculosis	Tuberculosis of meninges and nervous system	Other tuberculosis
Males :—				
0–	Civilian	200	583	249
15–	Civilian	994	89	120
	Non-civilian	144	28	20
25–	Civilian	4,119	75	258
	Non-civilian	214	5	14
45 and over	Civilian	6,365	37	300
	Non-civilian	22	—	3
All	Total	12,058	817	964
Females :—				
0–	Total	239	497	187
15–	Total	2,125	155	170
25–	Total	3,823	74	247
45 and over ..	Total	1,911	23	260
All	Total	8,098	749	864
All Persons ..	Total	20,156	1,566	1,828

XIV

England and Wales: Formal Notifications of Tuberculosis and Deaths from tuberculosis of persons not notified before death.

Year	Formal notifications			Deaths of tuberculous persons not notified before death
	Males	Females	Persons	Persons
1913	62,130	55,009	117,139	—
1914	53,826	45,671	99,497	—
1915	47,880	42,712	90,592	—
1916	48,493	42,415	90,908	—
1917	49,344	40,341	89,685	—
1918	49,922	40,651	90,573	—
1919	41,571	35,945	77,516	—
1920	39,055	34,277	73,332	—
1921	38,269	33,433	71,702	—
1922	37,087	32,172	69,259	—
1923	37,177	33,827	71,004	—
1924	38,408	34,316	72,724	—
1925	40,024	35,204	75,228	—
1926	38,946	34,672	73,618	—
1927	37,724	33,200	70,924	—
1928	37,044	33,164	70,208	—
1929	36,610	31,731	68,341	5,180
1930	35,174	30,297	65,471	4,639
1931	35,252	30,216	65,468	4,778
1932	33,026	29,052	62,078	4,418
1933	31,633	26,944	58,577	4,337
1934	30,747	25,981	56,728	3,868
1935	28,117	23,953	52,070	3,572
1936	28,077	23,527	51,604	3,672
1937	28,475	23,816	52,291	3,530
1938	27,813	22,876	50,689	3,090
1939	25,355	20,851	46,206	2,901
1940	26,260	20,312	46,572	3,395
1941	28,966	21,998	50,964	4,383
1942	29,560	23,059	52,619	3,971
1943	30,121	24,221	54,342	3,780
1944	30,044	24,269	54,313	3,468
1945	29,124	22,986	52,110	3,603
1946	29,003	22,286	51,289	3,580
1947	28,879	22,846	51,725	3,682

This table has been compiled from Annual Returns submitted by Tuberculosis Authorities in accordance with the Public Health (Tuberculosis) Regulations, 1912–30.

Comparable figures of deaths of tuberculous persons not notified before death are not available prior to 1929.

The figures differ from those given in previous Reports in that they comprise only the formal notifications of new cases and deaths of persons who had escaped notification. They exclude transfers between areas, in so far as they could be ascertained, duplicate notifications, and a few cases brought to the notice of Medical Officers of Health otherwise than by formal notification under the regulations. For details of the latter *see* page 172 of this report, and Table IV of Appendix F in reports prior to 1939.

Tuberculosis Notifications by Sex and Age, deaths of persons not notified and transfers between areas. 1938 *to* 1947.

Sex.	Year.	Numbers of formal notifications, according to age.†					Deaths of tuberculous persons not notified before death.	Transfers between areas other than formal notifications.*
		0—	15—	25—	45 and over.	All ages.	All ages.	All ages.
Respiratory tuberculosis.								
Males	1938	1,557	4,637	8,443	6,665	21,302		
	1939	1,189	4,477	7,868	6,161	19,695		
	1940	1,100	4,856	8,923	6,109	20,988		
	1941	1,234	5,074	9,821	7,018	23,147		
	1942	1,395	5,355	9,775	7,098	23,623		
	1943	1,546	5,438	9,758	7,629	24,371		
	1944	1,639	5,872	9,762	7,697	24,970	males and females.	males and females.
	1945	1,643	5,557	9,680	7,453	24,333		
	1946	1,826	5,581	9,837	7,285	24,529		
	1947	2,217	5,864	9,193	7,399	24,673		
Females ..	1938	1,494	5,733	6,806	2,544	16,577	1,867	3,459
	1939	1,188	5,490	6,281	2,276	15,235	1,805	3,815
	1940	1,110	5,506	6,381	2,166	15,163	2,250	4,146
	1941	1,178	6,026	6,613	2,535	16,352	2,872	3,885
	1942	1,229	6,626	6,783	2,368	17,006	2,604	3,501
	1943	1,494	6,851	7,165	2,529	18,039	2,535	3,458
	1944	1,504	7,489	7,417	2,414	18,824	2,335	4,196
	1945	1,519	7,087	6,976	2,251	17,833	2,411	4,714
	1946	1,769	6,648	6,921	2,306	17,644	2,436	5,873
	1947	1,978	7,043	7,119	2,346	18,486	2,615	6,028
Non-respiratory tuberculosis.								
Males	1938	3,749	1,282	1,007	473	6,511		
	1939	3,182	1,092	955	431	5,660		
	1940	2,927	1,046	918	381	5,272		
	1941	3,198	1,143	1,069	409	5,819		
	1942	3,248	1,176	1,058	455	5,937		
	1943	3,238	1,093	1,013	406	5,750		
	1944	2,817	988	889	380	5,074	males and females.	males and females.
	1945	2,769	871	813	338	4,791		
	1946	2,543	778	815	338	4,474		
	1947	2,407	691	754	354	4,206		
Females ..	1938	3,104	1,408	1,311	476	6,299	1,223	855
	1939	2,695	1,354	1,119	448	5,616	1,096	913
	1940	2,491	1,230	1,035	393	5,149	1,145	816
	1941	2,726	1,317	1,120	483	5,646	1,511	744
	1942	2,830	1,455	1,277	491	6,053	1,367	641
	1943	2,852	1,466	1,333	531	6,182	1,245	655
	1944	2,574	1,245	1,169	457	5,445	1,133	638
	1945	2,417	1,226	1,072	438	5,153	1,192	749
	1946	2,229	1,038	1,006	369	4,642	1,144	795
	1947	2,031	951	969	409	4,360	1,067	777

* Includes also a few cases brought to notice from miscellaneous sources otherwise than in preceding columns. The numbers in this column should be disregarded when a measure of new cases diagnosed during the year is required. Some transfers of cases formally notified in the same year, whose total cannot be accurately ascertained, are included with the formal notifications.

† Included in the Annual Returns furnished by Local Authorities.

APPENDIX C

Tables relating to Venereal Disease : England and Wales

TABLE A.

*Number of cases (in all stages) dealt with for the first time at any centre.**

	Year.	Syphilis.	Soft Chancre.	Gonorrhoea.	Total V.D.	Other than V.D.	Total Attendances.
MALES.	1925	11,782	1,048	24,398	37,228	13,384	1,248,157
	1926	12,118	1,070	25,535	38,723	14,269	1,500,074
	1927	12,393	986	28,195	41,574	16,192	1,621,409
	1928	12,051	1,053	30,425	43,529	17,959	1,794,205
	1929	11,538	1,202	31,810	44,550	17,970	1,958,095
	1930	11,967	1,244	32,217	45,428	19,724	2,119,257
	1931	11,285	1,042	29,310	41,637	19,838	2,251,710
	1932	11,032	845	28,179	40,056	20,745	2,322,982
	1933	10,738	826	29,169	40,733	20,918	2,396,696
	1934	9,615	876	28,787	39,278	23,639	2,488,538
	1935	8,596	1,011	27,506	37,113	23,605	2,474,531
	1936	8,224	880	28,137	37,241	23,393	2,457,595
	1937	8,069	824	29,250	38,143	24,263	2,446,730
	1938	7,832	889	27,947	36,668	26,081	2,218,584
	1939	7,273	827	24,811	32,911	24,324	1,587,111
	1940	7,093	887	21,057	29,037	20,005	1,170,412
	1941	7,790	1,017	20,572	29,379	20,476	1,065,114
	1942	8,529	969	17,956	27,454	22,302	1,071,664
	1943	8,790	773	18,215	27,778	36,868	1,082,427
	1944	7,667	628	16,629	24,924	34,123	973,810
	1945	8,134	589	21,280	30,003	42,110	912,571
	1946	13,803	994	36,912	51,709	70,239	1,279,743
	1947	11,699	776	29,647	42,122	53,766	1,101,970
FEMALES.	1925	7,385	27	6,120	13,532	7,287	470,991
	1926	7,133	21	6,416	13,570	8,082	507,989
	1927	7,553	20	6,809	14,382	8,705	558,298
	1928	7,090	28	7,810	14,928	9,492	628,544
	1929	6,586	22	7,798	14,406	9,595	646,122
	1930	6,916	17	7,939	14,872	10,960	697,938
	1931	6,827	20	7,697	14,544	11,402	741,051
	1932	6,461	29	7,677	14,167	11,586	786,192
	1933	6,029	22	8,583	14,634	11,223	855,627
	1934	5,838	10	8,199	14,047	12,672	918,462
	1935	5,565	16	7,732	13,313	12,625	924,147
	1936	5,128	29	7,715	12,872	13,231	902,733
	1937	5,165	15	7,787	12,967	14,002	895,841
	1938	4,986	15	7,746	12,747	15,182	900,747
	1939	4,605	11	6,489	11,105	14,684	723,455
	1940	4,226	21	5,882	10,129	12,881	597,321
	1941	4,972	20	7,314	12,306	15,068	593,223
	1942	6,542	27	8,413	14,982	20,190	704,076
	1943	7,960	32	10,043	18,035	34,681	868,097
	1944	8,251	28	10,646	18,925	38,566	916,116
	1945	8,508	29	11,603	20,140	41,524	911,974
	1946	10,075	34	10,431	20,540	35,475	864,682
	1947	8,438	27	7,019	15,484	29,314	721,017

* Excludes cases transferred from centre to centre and those that returned with the same infection after being struck off the books in previous years.

TABLE B

Cases of Acquired Syphilis in Table A, with infections of less than one year

Year	Number		Per cent. of Table A cases	
	M.	F.	M.	F.
1931	6,421	2,683	56·9	39·3
1932	6,196	2,532	56·2	39·2
1933	5,949	2,141	55·4	35·5
1934	4,888	2,030	50·8	34·8
1935	4,226	1,745	49·2	31·4
1936	4,033	1,642	49·0	32·0
1937	3,986	1,647	49·4	31·9
1938	3,744	1,494	47·8	30·0
1939	3,574	1,412	49·1	30·7
1940	4,029	1,582	56·8	37·4
1941	5,023	2,309	64·5	46·4
1942	5,470	3,576	64·1	54·7
1943	5,159	4,483	58·7	56·3
1944	4,384	4,934	57·2	59·8
1945	5,214	5,527	64·1	64·9
1946	10,705	6,970	77·6	69·2
1947	8,750	5,416	74·8	64·2

TABLE C

Cases of Congenital Syphilis dealt with for the first time at the Treatment Centres

Year	Under 1 year	1 and under 5 years	5 and under 15 years	15 years and over	Totals
1931	339	204	974	922	2,439
1932	302	180	857	805	2,144
1933	305	157	774	780	2,016
1934	296	165	708	839	2,008
1935	251	165	671	944	2,031
1936	241	132	600	935	1,908
1937	211	144	534	940	1,829
1938	216	123	448	951	1,738
1939	217	125	406	866	1,614
1940	191	101	357	709	1,358
1941	223	90	321	746	1,380
1942	245	122	309	788	1,464
1943	310	129	348	940	1,727
1944	346	113	271	822	1,552
1945	326	83	210	736	1,355
1946	363	103	215	701	1,382
1947	343	120	214	676	1,353

TABLE D

Death rates per 1,000 *live births, of infants under* 1 *year certified as due to congenital syphilis*

Year	Rate	Year	Rate	Year	Rate	Year	Rate
1911 ..	1·29	1921 ..	1·43	1931 ..	0·45	1941 ..	0·21
1912 ..	1·34	1922 ..	1·12	1932 ..	0·42	1942 ..	0·19
1913 ..	1·46	1923 ..	1·05	1933 ..	0·35	1943 ..	0·23
1914 ..	1·55	1924 ..	0·91	1934 ..	0·30	1944 ..	0·16
1915 ..	1·44	1925 ..	0·82	1935 ..	0·26	1945 ..	0·15
1916 ..	1·57	1926 ..	0·84	1936 ..	0·24	1946 ..	0·15
1917 ..	2·03	1927 ..	0·77	1937 ..	0·19	1947 ..	0·09
1918 ..	1·90	1928 ..	0·71	1938 ..	0·18		
1919 ..	1·76	1929 ..	0·64	1939 ..	0·17		
1920 ..	1·51	1930 ..	0·55	1940 ..	0·16		

Rates for years 1931–1947 are according to the 1940 classification.

For 1911–1930 the rates need to be multiplied by the conversion ratio 0·857 for approximate comparability.

TABLE E

Deaths from General Paralysis of the Insane, Tabes dorsalis and Aneurysm of the Aorta (including non-civilians)

	G.P.I.		Tabes dorsalis		Aneurysm of Aorta	
	Males	Females	Males	Females	Males	Females
1911–1920* ..	1,697	383	592	106	838	208
1921–1930* ..	1,204	277	631	127	860	249
1931–1935† ..	734	217	442	99	715	240
1936†	595	204	388	78	786	303
1937†	535	233	360	90	757	333
1938†	546	202	362	93	757	351
1939†	564	183	361	76	689	311
1940	558	195	334	88	687	279
1941	581	184	303	97	658	286
1942	508	166	241	58	643	277
1943	426	159	253	60	603	298
1944	371	134	221	53	583	339
1945	326	133	221	53	592	261
1946	322	127	178	54	668	292
1947	284	116	164	44	679	333

* Annual averages according to classification in use before 1940. Conversion ratios by which the numbers may be made approximately comparable with those for 1931–1947 are :— G.P.I., M. 0·897 ; F. 0·905. Tabes Dorsalis, M. 0·781 ; F. 0·793. Aneurysm of Aorta, M. 0·735 ; F. 0·611. (See Statistical Review for 1940, Part I, Appendix B.1.)

† Annual averages for 1931–35. Deaths in 1931–1939 have been corrected to the classification in use from 1940 onwards.

TABLE F

Examination of specimens in (a) Approved laboratories, (b) Treatment centres

	1940	1941	1942	1943	1944	1945	1946	1947
Microscopical :—								
For *S. pallida* :								
(*a*)	2,070	2,979	2,866	2,822	3,065	3,191	6,828	7,244
(*b*)	7,122	6,916	8,087	8,573	6,564	8,873	16,447	15,381
Totals ..	9,192	8,995	10,953	11,395	9,629	12,064	23,275	22,625
For gonococci :								
(*a*)	127,664	138,884	164,303	198,000	204,891	240,834	266,700	186,155
(*b*)	83,778	86,375	86,869	112,019	116,798	154,988	166,351	138,008
Totals ..	211,442	225,259	251,172	310,019	321,689	395,822	433,051	324,163
Serum Tests (*a*) :								
For syphilis :								
Wassermann	247,708	264,057	270,882	399,111	441,036	498,841	664,960	671,058
Others* ..	81,503	122,514	149,827	206,429	242,379	270,122	355,666	361,633
For gonorrhoea	47,258	44,718	58,601	83,411	87,701	88,164	118,035	101,331
Tests for cerebro-spinal fluid (*a*) :								
Wassermann	9,961	9,474	12,079	13,089	12,227	14,341	18,773	25,888
Others† ..	8,686	8,204	9,747	11,329	12,749	17,708	25,741	30,632
Cultures (*a*) ..	40,767	42,474	50,423	60,116	64,747	79,183	96,828	79,925
Others not classified above (*a*) ..	4,412	3,625	4,718	5,351	8,634	8,888	11,435	12,858
Totals ..	660,929	730,220	818,402	1,100,250	1,200,791	1,385,133	1,747,764	1,630,113

* Kahn, Meinicke, etc. always in addition to Wassermann.

† Cell count, globulin, etc. applied in addition to Wassermann.

APPENDIX D

Immunisation against Diphtheria : Estimate of the position at the end of 1945 and 1947

From the General Register Office

In 1940 the Ministry of Health offered free prophylactic inoculation against diphtheria, and most Local Authorities initiated plans for the systematic immunisation of children on a voluntary basis in their areas. Returns of the numbers of children under 15 immunised under these schemes were made to the Ministry each half year, but not until 1945 did those returns provide details of age. Consequently it was not possible to ascertain how many children had reached the age of 15 since immunisation, or had died of causes other than diphtheria, or removed to other areas. Rough estimates could be made of the total number of children under 15 living in England and Wales at different dates who had been immunised, and of those who had not been immunised, but only in a few separate areas, where detailed records of ages at immunisation were published, could the position be ascertained with accuracy. The annual returns showed also the numbers of immunised children who developed diphtheria and the numbers who died from it. From this information it was possible to estimate the differential incidence and mortality amongst immunised children compared with non-immunised children at all ages under 15 in the country as a whole, but those estimates were subject to many uncertainties and possible fallacies. Something better was needed and the annual returns for 1945 were designed to obtain fuller information.

For the year 1945 the return asked for stated the numbers of children aged 0, 1, 2, 3, 4, 5–10 and 10–15 at the end of the year who were known to have been immunised during the period 1940–45 and who were thought to be still resident in the area. By means of the local Food Registers estimates were made in the General Register Office of the resident populations of children at each age, and by deducting the numbers said to be immunised from these populations the estimated numbers in each area who had not been immunised were obtained.

During 1945 quarterly statistics were being obtained by the General Register Office of all children aged 0, 1–3, 3–5, 5–10 and 10–15, in each area who were notified for diphtheria and for whom the diagnosis had not been amended subsequently. The annual returns to the Ministry of Health gave similar figures for those children who were known to have been immunised, and by deducting these from the totals at each age the incidence of diphtheria in the non-immunised part of the child population of each area was calculated. Deaths from diphtheria were dealt with in a similar manner. The total populations, notifications and deaths at each age which were used throughout were those obtained independently by the General Register Office, the Local Authorities' estimates of these totals on the annual immunisation returns being used only for purposes of checking and verification.

Under ideal conditions this information would have been sufficient to provide what was necessary for a complete analysis of the position at the end of 1945 in England and Wales as a whole and in every part of it. But unfortunately there were serious difficulties. Many of the returns failed to provide the details of age whilst others gave figures which were clearly impossible. Normal removals of immunised children to another area would tend to be balanced by incoming children who had been immunised elsewhere. In areas where there had been many evacuated children during the war, however, the immunisation registers presumably often contained names of children who were no longer resident in the area because they had returned to their home towns. Usually these immunised children would not appear in the registers of their home towns and the national totals of immunised children would not be appreciably affected ; but for certain reception areas the immunised population was clearly over-estimated whilst for Greater London areas it was under-estimated.

Every effort has been made to overcome these difficulties by excluding from the detailed calculations those returns which were incomplete or clearly incorrect, and tabulating them separately in such a way as to allow either their inclusion in or exclusion from national totals. For this reason the national rates have to be calculated on two assumptions regarding the unsatisfactory returns, giving limits between which the real rates lie. Full tabulation of the 1945 statistics and explanations will be found in the Registrar General's Statistical Review, Text for 1940–45, and only the principal conclusions are mentioned here. The following table shows the estimated percentages of children immunised at each age in the populations of the different classes of area at the end of 1945 on two alternative assumptions. These assumptions are that in the areas which rendered incomplete or defective returns (*a*) there were no more immunised children than were actually recorded in the returns, and (*b*) the percentages immunised at each age were in reality the same as in the other areas of the same type.

Class of Area	Assumption	Estimated percentages of population of children at end of 1945 who had been immunised.							
		0–	1–	2–	3–	4–	5–10	10–15	Under 15
England—									
London	a	2·8	43·1	45·1	52·7	51·9	53·2	44·8	44·9
	b	2·3	44·5	50·0	60·1	59·5	59·5	50·4	49·7
County boroughs ..	a	7·8	49·5	54·2	57·8	65·1	70·2	71·5	61·9
	b	7·7	48·9	54·4	57·8	65·8	71·6	73·2	62·9
Other urban districts ..	a	3·8	51·7	56·8	60·2	67·4	66·9	67·0	59·8
	b	3·5	51·8	58·6	62·5	69·5	70·5	70·7	62·6
Rural districts	a	3·7	47·0	55·8	58·7	66·2	66·0	68·9	59·7
	b	3·6	47·0	57·7	61·3	68·9	73·3	77·1	65·1
All areas	a	5·0	49·4	54·5	58·1	64·6	66·5	66·6	59·0
	b	4·9	49·4	55·9	60·1	66·7	70·3	70·7	61·8
Wales—									
All areas	a	5·8	51·9	64·6	67·2	80·7	74·7	83·3	70·0
	b	5·5	52·4	65·2	67·3	80·7	76·3	84·2	70·8
England and Wales ..	a	5·1	49·5	55·1	58·7	65·5	67·0	67·6	59·6
	b	4·9	49·6	56·5	60·5	67·5	70·7	71·5	62·3

At all ages under 15 the proportion of children who had been immunised in the population at the end of 1945 was between 60 and 62 per cent. At ages under one year 5 per cent. had been immunised, the proportion in the county boroughs being rather greater. At 1–2 years half had been immunised, at 2–3 years about 55 per cent., at 3–4 years about 60 per cent., and at 4–5 years approximately two thirds. The proportions at ages 5–10 and 10–15 lay between 67 and 71 per cent., according to what is assumed about the missing and unsatisfactory returns. The London figures must be regarded as below the true proportions and the rural and Welsh figures as slightly overstated. Allowing for this the different types of area show no important divergences.

Until the returns for 1946 and 1947 have been fully analysed, it is only possible to estimate roughly how the position had changed by the end of 1947. At ages under 5 there were about 1·3 million children who had been immunised, and at 5–15 about 3·4 millions. It is known that during the two years 1946–47 about 969 thousand children under 5 were immunised, and it is estimated that 882 thousand immunised children must have passed their fifth birthday or died, so that by the end of 1947 the immunised children in the population of those ages had increased by about 87 thousand. In those years, however, the total population aged 0–5 increased by about 435 thousand on account of the high birth rate. It follows that the proportion of all children under 5 who had been immunised must have been rather lower at the end of 1947 than it was at the end of 1945, this being partly due to a larger proportion of very young infants in the population under 5 years of age.

During 1946–47 at least 272 thousand children aged 5–15 were immunised, and it is estimated that 875 thousand immunised children reached their fifth birthday, whilst about 720 thousand passed out of the group by reaching age 15 or dying. Consequently the number of immunised children in the population aged 5–15 increased by more than 400 thousand whilst the total population increased by about 50 thousand, so the proportion of all children of these ages who had ever been immunised improved considerably, and may have almost reached 75 per cent.

It is evident that the need is now to raise the proportions of children immunised in the second, third, fourth and fifth years of age to about 70 per cent. At the end of 1945 the proportion at all ages 1–5 had reached about 58 per cent., but during the next two years this percentage must have fallen back a little.

In 1945 complete returns both of the immunised children and of notifications and deaths amongst the immunised and non-immunised, at each age group, were received from areas having 7·3 million children under 15, whilst incomplete returns were rendered by the remaining

areas, having 1·5 million children. The corrected notification rate at all ages 0–15 was 151 per 100,000 in the first group of areas and 110 in the second, and the death rates from diphtheria were 69 and 52 per million respectively. Since there were few large towns in the group of areas giving incomplete returns the rates would naturally be lower ; and there was no reason to suppose that the areas giving complete returns could not be used as a reliable basis for comparing rates amongst immunised and non-immunised children at different ages.

In the first year of life immunisation was so frequently performed, when done at all, just before the first birthday, or because the infant was known to have been exposed to diphtheria, that it would have been surprising to find any evidence of advantage to the immunised at this age. There were 12 notifications amongst 27,228 infants who had received immunisation, giving a rate rather above that for the non-immunised infants. At ages 1–3, 3–5, 5–10 and 10–15 the notification rates amongst non-immunised children expressed in terms of the rates amongst immunised children of the same age and in the same areas were as follows :—

	1–3	3–5	5–10	10–15
England and Wales (all areas)	6·2	6·1	4·0	3·5
County boroughs (England)	5·6	5·5	4·6	4·2
Rural districts (England)	5·6	5·7	3·6	3·6

The weighted ratio for children of all ages under 15, obtained by applying the rates amongst immunised and amongst non-immunised children at five age-groups in five classes of area to the whole population of England and Wales, was 4·3. The risk to a non-immunised child of having diphtheria in 1945 was consequently four times the risk to an immunised child. The ratio was about six at ages 1–5 and between three and four at ages 5–15. This was to be expected if the effect of immunisation wanes with the passage of time, since the average time which had elapsed since immunisation was performed must have been about 1½ years longer for the children aged 5–15 than for those aged 1–5. It may be significant also that the falling off in the ratio at 5–15 was more pronounced in the rural districts than in the county boroughs, since it is believed that frequent exposure to sources of natural infection may maintain the immunity longer.

The ratios between the death rates amongst non-immunised and immunised children were 32 at ages 1–5 and 24 at 5–15 in the country as a whole, being as high as 42 and 62 at those ages respectively in the county boroughs compared with 9 and 21 in the rural districts. The protection against dying from diphtheria was therefore considerably greater than the protection against contracting the disease, and in the large towns this contrast was very pronounced.

APPENDIX E

Medical Department of the Ministry of Health
(June, 1949)

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Deputy Chief Medical Officers
Sir Weldon Dalrymple-Champneys, Bt., D.M., F.R.C.P.
J. A. Charles, M.D., F.R.C.P.

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Adviser on Statistics and Classification of Diseases—Percy Stocks, C.M.G., M.D., F.R.C.P., Chief Statistican (Medical) at the General Register Office.

Chief Pharmacist—H. Davis, B.Sc., Ph.D., F.R.I.C.

Social Economist—E. R. Bransby, M.Sc., Ph.D.

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Deputy Senior Medical Officer—Georgie I. Brodie, M.B.

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Adviser on Teaching of Parentcraft—L. G. Housden, O.B.E., M.D., F.R.C.P.*

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On special duties:—

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Tuberculosis—F. R. G. Heaf, M.D., F.R.C.P.*

Mass Radiography—P. Kerley, M.D., F.R.C.P.,* J. Maxwell, M.D., F.R.C.P.,* A. J. Eley, M.B.

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Milk Inspectors—T. A. Hole, M.B.E., W. Rushton, M.B.E.

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* Part-time appointment.
† Temporary appointment.

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Blood Transfusion Service, Technical Adviser—W. d'A. Maycock, M.B.E., M.D.*

Rehabilitation—H. Balme, O.B.E., M.D., F.R.C.S.*

Physical Medicine—F. S. Cooksey, O.B.E., M.D.*

Physical Training—Brigadier T. H. Wand-Tetley, C.B.E.†

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2. *Leeds*
   G. Lilico, M.B. (P.M.O.), J. J. Jervis, M.D., D. M. Lyon, O.B.E., M.B., Katherine Hirst, M.B.
3. *Sheffield*
   G. Lilico, M.B. (P.M.O.), D. M. Lyon, O.B.E., M.B., Colonel A. N. Fraser, D.S.O., M.B.,† Major-General R. W. D. Leslie, C.B., C.B.E., L.R.C.P.I.,† Katherine Hirst, M.B.

4, 5 and 6. *East Anglian (Cambridge), North-West Metropolitan and North-East Metropolitan*
A. L. Banks, M.D., F.R.C.P. (P.M.O.), D. S. Todd-White, M.R.C.S., R. M. Shaw, M.B., Carol Sims-Roberts, M.B.

7, 8 and 9. *South-East Metropolitan, South-West Metropolitan and Oxford*
G. E. Godber, D.M., F.R.C.P. (P.M.O.), A. E. Martin, M.D., Albertine L. Winner, O.B.E., M.D., M.R.C.P., Margaret Manson, M.B.

10. *South Western (Bristol)*
    J. Ferguson, C.B.E., M.B.,† C. G. M. Nicol, M.B., F. W. Poole, M.B., Rachel, Elliott, M.D.
11. *Wales*
    A. R. Culley, M.D. (P.M.O.), Anne E. M. Herbert, M.R.C.S., R. J. Matthews, V.D., M.D., G. J. Roberts, M.D.
12. *Birmingham*
    G. A. Clark, V.D., M.D. (P.M.O.), C. Seeley, M.B., Mary Gorrie, M.D.
13. *Manchester* } Sir Alexander Hood, G.B.E., K.C.B., M.D., F.R.C.P., F.R.C.S.,
14. *Liverpool* } K. H. P.† (P.M.O.), J. M. Ross, M.B., Mary Gorrie, M.D.

6. INSURANCE REGIONAL MEDICAL SERVICE

Principal Medical Officers—R. E. Ford, M.D., M.R.C.P., R. J. Thornhill, M.B.

Senior Medical Officer—L. M. Ladell, M.B.

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* Part-time appointment.
† Temporary appointment.
‡ Temporary appointment, whole-time.

North Eastern Division
(Divisional Office : Britannia House, Wellington Street, Leeds, 1.)

Senior Medical Officer—S. Worthington, M.D.

Medical Officers—J. Barr, M.B., A. Brebner, M.B., J. Cohen, M.R.C.S., A. C. Cowie, M.B., G. V. Davies, F.R.C.S., A. A. Forty, M.R.C.S.,† L. Hislop, M.D.,† W. Meikle, M.B., I. E. Phelps, M.R.C.S., G. Phipps, M.B., A. Stewart, M.B., A. W. T. Whitworth, M.B.†

North Western Division
(Divisional Office : 30, Dickinson Street, Manchester, 1.)

Senior Medical Officer—L. M. Ladell, M.B.

Medical Officers—J. H. Albinson, M.B., A. T. Ashcroft, M.B., K. A. Boughton-Thomas, M.B., J. D. Black, M.B., A. T. L. Kingdon, M.D., M.R.C.P., A. W. Lilley, M.R.C.S., A. Maclaine, M.B., J. T. Moffat, M.B., G. F. Oldershaw, M.D., W. H. C. Patrick, M.D.,† J. D. Robertson, M.D.

South Eastern Division
(Divisional Office : Queen Anne's Chambers, 28, Broadway, Westminster, S.W.1.)

Senior Medical Officer—A. R. Doyle, M.R.C.S.

Medical Officers—C. G. Brentnall, M.C., M.B., A. W. Davidson, M.D., E. E. Glenton, M.B., A. E. Hallinan, M.C., M.B., B. E. Jerwood, M.D., C. Mearns, M.B., A. V. Poyser, M.D., Gladys Ward, M.D., M.R.C.P., J. A. Whyte, M.B.

South Western Division
(Divisional Office : Queen Anne's Chambers, 28, Broadway, Westminster, S.W.1.)

Senior Medical Officer—R. O. C. Thomson, M.B.

Medical Officers—G. G. Bartholomew, M.C., M.B.,† P. F. Bishop, M.B., G. Bridge, M.D., H. Carson, M.B., F. Collar, M.R.C.S., A. L. Dykes, M.D., C. E. Gallagher, M.R.C.S., J. J. Gibb, M.B., D. Mackenna, M.B., W. G. McKenzie, M.C., M.R.C.S., E. Mence, M.B., G. F. Randall, M.R.C.S.

DENTAL HEALTH SERVICE
(attached to Headquarters)

Principal Dental Officer—W. G. Senior, O.B.E., Ph.D., F.D.S.

Senior Dental Officer (acting)—Lieut.-Colonel F. S. Whiter, O.B.E., F.D.S.

Deputy Senior Dental Officers—Eleanor M. Knowles, F.D.S., H.D.D., F. E. Marston, M.C., L.D.S. (acting).

Dental Officers—R. D. Bell, L.D.S., D.P.D., H. A. Dixey, L.D.S., Jean R. Forrest, L.D.S., L. G. Hitching, L.D.S.

REGIONAL DENTAL OFFICERS

London Regional Headquarters Pool—C. H. Rubra, L.D.S., F. A. Scott, C. Stacey, L.D.S.

Regions—1. A. W. Holman, L.D.S., 2. A. T. Barrett, L.D.S. and A. G. Smith, L.D.S., 3. G. A. Rowse, L.D.S., 4. R. D. Buchan, L.D.S., 9. P. A. Crow, L.D.S., 10 H. H. Watkins, L.D.S. and J. H. Whittle, L.D.S., 12. W. E. Starkey, L.D.S., 13, H. Broughton, L.D.S., 14. F. K. Johnson, L.D.S.

NURSING AND MIDWIFERY SERVICES

Chief Nursing Adviser—Dame Katherine Watt, D.B.E., R.R.C.

Chief Nursing Officer—Miss E. Cockayne.

Deputy Chief Nursing Officers—Miss E. le L. Alden, Miss M. G. Lawson.

Board of Control

Senior Commissioners—Hon. W. S. Maclay, O.B.E., M.D., M.R.C.P., D.P.M., W. Rees Thomas. M.D., F.R.C.P., D.P.M.

Commissioners—R. G. Anderson, M.D., D.P.M., E. N. Butler, M.R.C.S., L.R.C.P., D.P.M., T. R. Forsythe, M.D., D.P.M., G. A. Lilly, M.C., M.D., D.P.M.,† Isabel G. H. Wilson, M.D., F.R.C.P., D.P.M.

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* Part-time appointment.
† Temporary appointment.

Welsh Board of Health

Principal Medical Officer—A. R. Culley, M.D.

Medical Officers—Anne E. M. Herbert, M.R.C.S., R. J. Matthews, V.D., M.D., G. J. Roberts, M.D.

Medical Officers (Insurance Medical Service)—H. R. G. Davies, M.B., E. Lloyd Jones, M.B., E. Parry Evans, M.D., W. G. Richards, M.D.

Dental Officer—G. E. Morgan, L.D.S.

CHANGES

Seconded to World Health Organisation—Dr. N. M. Goodman.

Seconded to Ministry of Food—Dr. W. A. Lethem, M.C.

Resigned or retired—Dr. V. D. Allison, Dr. J. Bowen-Jones, Dr. W. D. T. Brunyate, Dr. R. G. Chase, Mr. H. G. H. Cowell, L.D.S., Mr. J. W. Cooper, L.D.S., Dr. J. F. Edmiston, Sir Francis Fraser, Dr. F. J. Harvey, Dr. T. Holme, Dr. A. E. Huxtable, M.C., Mr. T. Leaver, Dr. J. Macfarlane, Dr. I. M. Macgregor, Mr. D. Mackay, L.D.S., Mr. W. McKay, L.D.S., Colonel E. C. G. Maddock, C.I.E., Dr. H. A. Mahoney, C.B.E., F.D.S., Dr. H. B. May, Dr. S. D. Metcalfe, Dr. H. W. Ogle-Skan, Mr. R. B. Pickles, L.D.S., Dr. H. A. Raeburn, Mr. T. I. Richards, L.D.S., Mr. B. B. Samuel, L.D.S., Dr. W. O. Sankey, Dr. M. W. Stewart-Smith, Dr. T. W. Wade, Dr. A. R. Wellington, C.M.G.

SECTION II. GENERAL

I

INTELLIGENCE AND PUBLIC RELATIONS

Health Publicity

The Intelligence and Public Relations Division of the Ministry, which was established in its present form in 1935, assists the Department to fulfil the function which is set out in the Ministry of Health Act, 1919—" the collection, preparation, publication and dissemination of information and statistics relating to measures conducive to the health of the people, including measures for the prevention and cure of diseases, the avoidance of fraud in connection with alleged remedies therefor, the treatment of physical and mental defects, the treatment and care of the blind, the initiation and direction of research." No detailed account has been given of this work since the Annual Report for 1938–39*, although a chapter on " Health Publicity " was included in the Chief Medical Officer's Report " On the State of the Public Health during Six Years of War."†

In support of the personal advice and instruction which is given by the doctors, midwives, health visitors and welfare centres, the Division continued during the year under review to undertake health educational publicity by—

(1) Supplying regular reports and statistics on the health situation to the newspapers, magazines and journals, both at home and overseas, and to the B.B.C. ; answering several thousand Press inquiries on health subjects ; and arranging visits, on request, to hospitals, welfare centres, etc.

(2) Maintaining four specific campaigns—on diphtheria immunisation, the venereal diseases, blood transfusion and droplet infection—making use of posters, press advertisements, film " trailers," leaflets, and display material.

(3) Continuing educational work addressed to expectant mothers, nursing mothers and the mothers of young children, with the co-operation of the Medical Officers of Health and their staffs, the women's organisations, the B.B.C., the women's magazines and the Films Division of the Central Office of Information.

In addition, preparations were in progress for the informational campaign on the inauguration of the National Health Service on 5th July, and for the Health of the People Exhibition which was held in May–June, 1948, to mark the Centenary of the first Public Health Act.

Information for the Press

On all subjects covered by the Department, including housing and local government, 169 notices were issued to the general and technical Press during the year. In addition, 51 notices giving details of National Blood Transfusion Service sessions in Greater London and the Home Counties were issued to the B.B.C. and broadcast in the weekly announcements period.

The number of telephone inquiries from journalists—many of them requiring detailed information—answered by the Press Office averaged more than thirty a day, or about 10,000 during the year. In addition, there were several hundred personal callers and a considerable number of inquiries by letter, especially from newspapers' inquiry bureaux.

* Cmd. 6089, pages 1–3.
† H.M.S.O. 1946 (price 5*s.* net, post free 5*s.* 4*d.*), pages 248–251.

Close contact was maintained with the newspapers and magazines, and the B.B.C. on the special women's interests within the field of the Ministry, and substantial support was given by them to the Department in its task of explaining the health and welfare services available to women and children and in carrying out general education on health subjects. Once again special tribute is due to the women's magazines for their educational work on maternity and child welfare and the rules of healthy living. Articles during the year continuously gave advice to the expectant and young mother; guidance on breast feeding, on children's sleep, on immunisation and the care of children's diet, eyes and teeth; the importance of avoiding droplet infection through coughs and sneezes; and the protection of food, particularly against flies.

Accidents to Young Children in the Home

With the decline in the death rates from diphtheria and pneumonia, the toll of accidents in the early years of life has emerged as a problem calling more insistently for attention. The women's magazines co-operated with the Ministry in emphasising the fact that every year hundreds of children die as a result of burning and scalding accidents in the home, and thousands more need treatment in hospital, and in describing how these accidents happen, and how they can be avoided.

To supplement this publicity, the Department produced with the aid of the Central Office of Information a "trailer" film which was shown in the cinemas in April, 1947, and again in October, and a ten-minute film called "Playing With Fire." This is a powerful film, made with the co-operation of Dr. and Mrs. Leonard Colebrook and the Birmingham Accident Hospital, reconstructing some common accidents with pans of boiling water, cups of scalding tea and unguarded fires and showing a few of the thousands of boys and girls who are victims of these accidents. The film was made available in August, 1947, to Medical Officers of Health, Safety Committees, parents' associations and women's organisations, and wide use was quickly made of it. By the end of March, 1948, "Playing With Fire" had had 442 showings.

Child Care Exhibit

In this Centenary year of Public Health, the Ministry co-operated with the Ministries of Food, Education, and Labour and National Service in planning a stand, "The Nation and the Child," produced by the Central Office of Information at the Ideal Home Exhibition at Olympia. This showed, in pictures, models and text, some of the outstanding developments in child care. Exhibits marking milestones in the children's health services included the beginnings of the health visiting and infant welfare services, through the work of the Ladies Sanitary Reform Society of Manchester and Salford District in the nineteenth century; the founding of the Midwives' Institute in 1881 to improve the efficiency of midwives and to raise their status; and the opening by the Medical Officer of Health for St. Helens in 1899 of the first depot for distributing milk to babies, which led to the development of the present maternity and child welfare centres. Current nutritional provisions and advisory services were also illustrated, culminating in the passing of the National Health Service Act.

Health Education Campaigns

The Department continued to co-operate with the Central Council for Health Education, and the campaigns against specific diseases were maintained with the help of the Central Office of Information.

The resources available—particularly of Press advertisement space—were more limited than in previous years. It was possible to continue the series of informational advertisements on the venereal diseases, first started in 1943, for only six months and on a small scale. In addition, posters were supplied to local authorities, and Medical Officers of Health continued to organise showings of the film "Subject Discussed".

In the diphtheria immunisation campaign, national press advertising was used, and film "trailers" were shown in the cinemas in May and November. Local authorities were again given financial and technical assistance so that they could insert advertisements in their local newspapers in support of their own campaigns. A new edition of the brochure on National and Local Publicity was circulated in July*, with a newly designed leaflet and a special "health visitor's card"; the latter continuing to be regarded as an important aid to the organised personal persuasion which is the keystone of the whole campaign. The display of a large poster in all parts of the country was weighted in favour of those areas which still reported that fewer than 50 per cent. of the young children had been immunised.

In this drive against diphtheria, the Department aims at maintaining a proper balance between central and local campaigns, and between personal advice by the doctor and health visitor and publicity addressed to parents in the mass. The continuing good results of this policy are reported on page 3.

For the winter reminders that "Coughs and Sneezes Spread Diseases: Trap the Germs in your Handkerchief", two posters were produced with illustrations by the cartoonist Giles; one was displayed in buses and underground trains, and the other in factories when requested by the management. Trailer films also in lighter vein were shown in December and March: and Messrs. Bryant and May printed the slogan on one million books of matches sold during the winter months. The Department attaches importance to this small seasonal campaign because it uses a point of universal application to emphasise not only that germs are spread by unguarded coughing and sneezing, but also that in health matters the individual has a duty to the community as well as to himself and his own family.

Blood Transfusion Publicity

Publicity on a national scale was not used in the Blood Transfusion campaign, which continued to appeal for donors on a local basis—*i.e.*, that blood was needed to save the lives of local people in local hospitals. Publicity material was supplied for Regional use by the Donor Panel Liaison Officers who were appointed in 1946; and posters and press advertisements were employed in support of local compaigns to recruit donors. Good use was made of a set of photographs taken by the Central Office of Information showing the work of a Regional Transfusion Centre from the start of an appeal for blood to the actual collection of blood from donors, finally ending with the drying process at the Lister Institute. A pictorial poster was also circulated to factories, public libraries, institutes, etc.

A new film called "Life Blood" was completed in September, 1947.

For help in all these four campaigns, the Ministry of Health is indebted to the British Red Cross Society, the St. John Ambulance Brigade, the Women's Voluntary Services, the National Pharmaceutical Union and the Cinematograph Exhibitors Association, as well as to the local authorities.

* Accompanied by Circular 128/47.

Films on the Care of Children

In collaboration with the Central Office of Information and the Central Council for Health Education, the Department added two films to its series on child care—" Your Children's Meals " and " Your Children's Sleep ". The first aims at helping parents whose children are difficult over what they eat, or how they eat it, to establish a regular meal-time routine ; the second (made with the help of Dr. D. W. Winnicott, Physician to Paddington Green Children's Hospital and Director of the Child Department of the Institute of Psycho-Analysis) shows the importance of sound healthy sleep, and how some of the psychological problems encountered by parents can be handled.

Interest in the previous films in the " Your Children's Health " series is proved by the fact that in the period under review " Your Children and You " was shown 1,400 times, and " Your Children's Eyes " and " Your Children's Teeth " 1,120 and 995 times respectively.

The Department's films are principally made for non-theatrical showing to special audiences by the mobile film units of the Central Office of Information, or by borrowers from the Central Film Library, and are seen by audiences in factories, welfare centres, women's institutes, etc.* Many earlier films continue to be shown in this way, and the public's interest in health education is confirmed by the fact that the three films which were shown most frequently by the mobile units were " Modern Guide to Health " (2,787 shows), " Old Wives' Tales " (1,642) and the " The Common Cold " (1,569). Older films such as " The Nose Has It ", " Defeat Diphtheria " and " Defeat Tuberculosis " were also widely shown during the year.

The Department acted as adviser on the film " One Man's Story " (produced by the Central Office of Information for the Foreign Office) which tells the story of the late Dr. G. C. N. M'Gonigle, Medical Officer of Health for Stockton-on-Tees.†

The cartoon film " Modern Guide to Health " was chosen for showing at the Brussels International Film Festival in June, 1947, and at the Edinburgh Festival in September.

Four films, " Modern Guide to Health ", " Your Children's Eyes ", " Your Children's Teeth " and " Your Children and You ", were sold for theatrical showing in Holland (the last film in France also). The Department's films continued to be popular for non-theatrical showings in countries overseas. Copies and negatives of health education, medical and housing films were despatched to the Dominions, Colonies, Central Europe, Scandinavia and the Far East ; some of them " dubbed " in the language of the country concerned. Fiji took a copy of " Blood Transfusion, 1947 " ; 41 copies of " Your Children and You " went to 17 countries.

Films for General Practitioners

New ground was broken by the production for the Ministry during the poliomyelitis epidemic of a 15-minute film recording actual cases in London hospitals and describing early signs of the disease. This film, entitled " Early Diagnosis of Acute Anterior Poliomyelitis ", was made in the record time of 14 days from first idea to finished copies ; and the Central Office of Information's

* Two films were produced in support of the Department's general publicity scheme to explain the provisions of the National Health Service—" Your Very Good Health " was released to the cinemas in mid-April, and together with a longer film " Here's Health " was later available to borrowers from the Central Film Library.

† Completed in August, 1948, and available through the Central Film Library.

Regional Film Officers, with the full co-operation of the British Medical Association branches and the Department's Regional Medical Officers, then started an intensive effort to screen it to the maximum number of general practitioners in the shortest possible time. To meet the needs of busy doctors who could not attend special showings in the evening, cinemas and halls were taken on Sundays and the local doctors were invited to call at any time. The film was run and re-run throughout the day, whenever there was an audience present, even if it consisted of only one doctor. In one case at least, the film was shown to a particularly busy doctor in his own surgery, specially blacked-out for the occasion by the mobile film unit.

The remarkable result of these enthusiastic efforts, and of the keenness of general practitioners, was that within six weeks the film was seen by 17,500 doctors and 16,000 nurses. Thus this first attempt to use a "newsreel" technique for public health purposes proved successful, and the lesson was noted. The Department was particularly indebted to Dr. W. H. Kelleher of the London County Council's Western Hospital, and Dr. Brian Stanford, director of the film unit, for their help.

While the film was still being shown, recording of poliomyelitis cases was continued by the Crown Film Unit on behalf of the Department, with the object of making a longer, more detailed and less hurried film for issue in the following year.* Meanwhile, requests for copies of the short film had been received from seventeen countries.

A more specialised film completed during the year was "Patent Ductus Arteriosus," a record made by the Crown Film Unit of an operation at Hillingdon Hospital, with diagrams showing the action of the heart during the operation. This has been widely shown to general practitioners and nurses. Ten countries have asked for copies and 21 countries have taken copies of "Penicillin in Medicine and Surgery," completed in 1946.

Housing Publicity

Each month, the totals of houses completed and under construction were made available to the Press through the Housing Return submitted to Parliament: and copies of Appendix B of the Return, giving detailed figures for each local authority area, were sent to about 750 local newspapers in England and Wales.

Two films on housing were completed during the year. "Country Homes" demonstrating the manufacture of sets of components for the Airey Rural House, and the method of erection on the site, was shown in many parts of the country at meetings arranged by the Department's Principal Housing Officers. The audiences consisted of members and officers of rural district councils, builders, farmers and representatives of agricultural workers and women's organisations. The second film, "Dover – Spring 1947", telling the story of the local authority's progress in rehousing, was shown in all cinemas in August, and also had 1,200 special showings during the year. It was one of five British documentary films chosen for showing at the Edinburgh Festival.

The Ministry also took part in a number of exhibitions relating to housing. The largest of these was the *Daily Mail* Ideal Home Exhibition in March, 1948 at Olympia, where seven full-size houses were erected to demonstrate both urban and rural, traditional and non-traditional design and construction; the types chosen being a brick terrace house designed for the Borough of Worthing, an

* This film entitled "Polio – Diagnosis and Management" and lasting sixty minutes, was issued in June, 1948, and is available through the Central Film Library.

Airey Rural House, a Cornish Unit House, and a prototype of a two-storey aluminium house produced by Messrs. Hawksley. The Council of Industrial Design furnished two of the houses. A small display of housing progress illustrated by models and photographs was staged in one of the houses ; and 10,000 copies were sold of an illustrated brochure describing the exhibit.

The Ministry co-operated with the Ministry of Works and the Department of Scientific and Industrial Research in the Building Trades Exhibition at Olympia (November–December, 1947). This joint exhibit, under the title of "The Builder and the State" and produced by the Central Office of Information, showed how scientific contributions made to building through the Departments concerned had resulted in improved technical and architectural standards in post-war housing. New-type plans and models of 3-storey houses and 4-storey maisonettes were shown publicly for the first time.

The "Design of Houses" touring display—based on the Housing Manual—which was first made available to local authorities in June, 1946, was withdrawn in March, 1948, having been loaned to 164 authorities.

The Ministry arranged during the year for photographs to be taken of some of the best local authority houses completed since the war; and these photographs will be used to provide a stimulus towards better design throughout the country.

Films on Local Government

Preparations were in hand during the year for the production of two films as part of a programme generally approved by the Consultative Committee on Publicity for Local Government, which consists of representatives of the Ministry of Health, the local authorities' associations and the London County Council.* Arrangements were made for "A City Speaks", produced by Rotha Films for the Manchester Corporation, to be available to all local authorities, and all interested in local government, through the Central Film Library.

Intelligence and Library

Foreign Visitors

Visits and interviews, both within the Ministry and outside it, were arranged during the year for visitors from Australia, Belgium, Canada, China, Colombia, Czechoslovakia, Denmark, Finland, Germany, Greece, Hungary, India, Korea, Netherlands, Norway, Poland, Siam, Spain, U.S.A., Uruguay and Yugoslavia. Most of these visitors came for information about the National Health Service ; others were interested in housing, and arrangements were made for them to tour housing estates by co-operation with the London County Council. Information was also sought on rehabilitation, maternity and child welfare, venereal diseases legislation, local government and local government law, blood transfusion, hospitals and hospital administration, water and sewerage, and health education publicity.

The Public Relations Division co-operated with Medical Officers in making arrangements for World Health Organisation Fellowship visitors to this country.

Publications

Shortly before the start of the year covered by this Report the Department published through the Stationery Office an illustrated booklet "The Road Back

* See page 254.

to Health," being the story of medical rehabilitation. This was intended mainly for hospital authorities, family doctors, employers, welfare workers, trade union officials and voluntary bodies. Apart from a distribution by the Department and the Ministry of Labour and National Service to local authorities, voluntary hospitals and Disablement Resettlement Officers, the sale of this booklet totalled more than 11,000 copies up to the end of the year under review.

The booklet "You and Your Children" giving simple hints by a woman medical psychologist on the handling of normal children was again reprinted during the year, bringing the total sale to more than 60,000.

General Library

The work of the General Library continued on much the same lines as in recent years, though it was gratifying to note an increased use of library services by officers of the Department. This was no doubt due to wide distribution to headquarters and regional staffs of a Monthly Bulletin, giving details of recent additions and other matters of interest, and to the short talk given in the Library as part of each training course for new entrants to the Department. Frequent use of the General Library was made by other Government Departments, and the Ministry in its turn was able to borrow urgently-needed books from other Government Libraries. Further development of the Library awaited the appointment of a professional librarian.*

* Made in June, 1948.

II

NATIONAL HEALTH SERVICE

The period covered by this Report was occupied in preparations for the inauguration of the National Health Service on the " appointed day " 5th July, 1948, which was named by an Order in Council issued on 26th January, 1948. Negotiations between the Department and representatives of the professions and others concerned, on remuneration and other detailed arrangements, had not been concluded at the end of March ; and a full account cannot be given in the present Report of these discussions and the decisions arising from them.

Hospital and Specialist Services

Regional Hospital Boards

By the National Health Service (Determination of Regional Hospital Areas) Order, 1946, made on 18th December, 1946, the Minister laid down the areas to be covered by the Regional Hospital Boards. There were 13 in England and one in Wales, with headquarters in Newcastle, Leeds, Sheffield, Cambridge, London (four Regions) Oxford, Bristol, Birmingham, Manchester, Liverpool and Cardiff ; each area being determined so that the provision of hospital services could conveniently be associated with a University having a school of medicine.

The Boards were constituted by the Minister on 24th June, 1947, by the National Health Service (Constitution of Regional Hospital Boards) Order, 1947, after consultations carried out in accordance with Part I of the Third Schedule to the Act. The Boards varied in size from 22 to 32 members, depending on the peculiar circumstances and needs of the areas they served. Provision was made in the National Health Service (Regional Hospital Boards, etc.) Regulations, 1947, for the original members to be appointed for varying periods and for membership in future to be for a period of three years.

The first task of Regional Hospital Boards was to review the hospitals in their area and to submit to the Minister, under Section 11 of the Act, schemes for the appointment by them of Hospital Management Committees. These schemes provided for the appointment of 370 Committees and at the end of the year under review the Regional Boards were engaged in appointing these Committees.

The functions of Regional Hospital Boards, Boards of Governors of Teaching Hospitals and Hospital Management Committees were defined in the National Health Service (Functions of Regional Hospital Boards, etc.) Regulations, 1948. The Regulations gave to Hospital Management Committees the local day-to-day administration of hospitals and reserved to the Regional Boards the power to decide questions of wider policy, the control of building operations and the appointment of senior medical and dental staff.

Designation of Teaching Hospitals

Section 11(8) of the National Health Service Act empowered the Minister, after consulting the Universities concerned, to designate as " teaching hospitals " hospitals or groups of hospitals providing facilities for undergraduate or post-graduate clinical teaching in medicine or dentistry. Designation has the effect of amalgamating into one entity any group of hospitals so designated ; and it confers on the " teaching hospital " a special status with special responsibilities

for providing teaching facilities, and a separate governing body ("Board of Governors") including nominees of the University, the teaching staff of the hospitals in the group, and the Regional Hospital Board.

Consultation with the Universities took place with the aim of grouping suitable hospitals with a "parent" hospital as a teaching hospital at the University centre in every provincial hospital region, and appropriate grouping of hospitals in the London area to form suitable teaching hospitals to work in association with the University medical schools and postgraduate institutes.

A Statutory Instrument designating the provincial teaching hospitals, viz., the National Health Service (Designation of Teaching Hospitals (No. 1)) Order, 1948, was made by the Minister on 24th March, 1948. By the end of the year considerable progress had also been made, in consultation with the University, in the selection of hospitals for designation in London.*

The provincial hospitals designated comprise some 60 hospitals with their various convalescent homes and recovery branches, grouped into 10 teaching hospitals—one at every University medical teaching centre outside London.

Transfer of Hospitals

Section 6 of the National Health Service Act provided that all voluntary hospitals and hospitals vested in local authorities should be transferred to the Minister of Health on the appointed day, together with all rights and liabilities held by the governing bodies solely for hospital purposes. Regulations made under Section 6(5) and 7(9) of the Act provided for property held partly for hospital purposes and partly for other purposes to be apportioned between the Minister and the other persons interested.

Provision was made in the Sixth Schedule of the National Assistance Act to deal with workhouses which were used partly to accommodate the sick and partly the non-sick. If the use by sick patients predominated, the workhouse vested in the Minister, and he made facilities available to the local authority to continue to look after the non-sick inmates. If the workhouse was used predominantly for the non-sick, it was to remain with the local authority who would make similar facilities available to the Regional Hospital Board for the treatment of the sick patients.

In all, 3,118 hospitals and clinics were transferred to the Minister under these provisions, and these contained approximately 388,000 staffed beds and 57,000 unstaffed beds.

Under Section 6(3) of the Act, the Minister was given power to disclaim any hospital whose transfer appeared to him not to be required for the purpose of providing hospital and specialist services. He disclaimed 272 hospitals and clinics. These included a number of institutions administered and staffed by members of religious communities, and also many old hospital buildings which have been out of use for a considerable time.

Cancer Services

No new major schemes for the treatment of Cancer were approved during the year, as the effect of the National Health Service Act is to remove from local authorities their duties under the Cancer Act, 1939. Certain existing arrangements were extended. Much useful work was done as a result of arrangements previously made and these will afford a useful basis for the Regional Hospital Boards' planning of the cancer services in the future. (*See* also page 66.)

* The National Health Service (Designation of Teaching Hospitals (No. 2.) Order, 1948, was made in May, 1948.

Family Practitioner Services

Executive Councils

Executive Councils established under National Health Service Regulations began to function at varying dates between May and November, 1947. These are the bodies responsible locally (subject to regulations made by the Minister) for the arrangements for family practitioner Services. They succeed the Insurance Committees which for 36 years administered medical benefit under the National Health Insurance Scheme but have much wider functions. There is one for each County and County Borough in England and Wales, except that in eight cases, with local agreement, orders were made by the Minister combining two areas under single Executive Councils.

Each Executive Council consists of a Chairman and four members appointed by the Minister, eight members appointed by the local health authority, and seven, three, and two members appointed respectively by the Local Medical, Dental and Pharmaceutical Committees. Before they could be established it was necessary for the Minister to recognise the local professional committees. Existing Local Medical Committees and Pharmaceutical Committees for the purpose of the National Health Insurance Scheme were provisionally recognised. Local Dental Committees were set up by the profession with the help of a model scheme prepared by the Ministry and these too were recognised.

The National Health Service (Executive Councils) Regulations, made in May, 1947, provided in detail for the appointment and term of office of members of Executive Councils and for the procedure of the Councils. Separate Regulations were made later for the Executive Council for Isles of Scilly.*

Under the National Health Service (Travelling Allowances, etc.) Regulations, made in June, 1947, Executive Councils and other bodies constituted under the National Health Service Act were permitted to pay members for loss of remunerative time and to pay travelling and subsistence expenses in areas where the Minister considers this justified. The Regulations laid down the rates at which these payments are to be made. The Minister's general policy has been to sanction payment of travelling and subsistence expenses in county but not county borough areas.†

Transfer of Offices

In March, 1947, Insurance Committees had been asked to act on behalf of Executive Councils until these were set up, and to take the necessary steps to ensure that at the appointed day, Executive Councils would have sufficient office accommodation. About 40 per cent. of Insurance Committee offices, which were due to be transferred to Executive Councils, were found to be inadequate for Executive Councils, and works of adaptation had to be carried out, or alternative and larger accommodation had to be sought.‡

Salaries and Conditions of Service

New scales of salaries and conditions of service were approved in December, 1947, and applied from 1st January, 1948, to all staffs of Insurance Committees and Executive Councils except Clerks (for whom new salaries came into effect

* Minor amendments to the principal Regulations were made in June, 1948, by the National Health Service (Executive Councils) Amendment Regulations.

† The financial procedure to be followed by the Executive Councils and the Dental Estimates Board in the exercise of their functions was laid down by the National Health Service (Executive Councils and Dental Estimates Board) Financial Regulations, made on 10th June, 1948.

‡ By 5th July, 1948, a solution had with the help of the Ministry of Works, been found in almost all instances, and the National Health Service (Transfer of Property and Liabilities of Insurance Committees, etc.) Regulations, 1948, made on the 10th June, 1948, provided for the transfer to Executive Councils from 5th July, of all offices and other property, etc. held by Insurance Committees.

on 5th July). These were, except in the case of Clerks, based on the recommendations of the National Joint Council for Local Authorities' Administrative, Professional, Technical and Clerical Staffs. It was decided to pay honoraria to Clerks of Insurance Committees who acted as Clerks of Executive Councils before the appointed day.

In January, 1948, the Staff salaries were consolidated and a number of changes and improvements made.

Co-operation of Insurance Committees

In accordance with an assurance given to the Minister by the National Association of Insurance Committees, Insurance Committees everywhere helped Executive Councils by placing their offices and staff at the Councils' disposal, while at the same time carrying on their normal functions. The bulk of the preparatory work for the new Service was, in fact, carried out by Insurance Committee staff.

Association of Executive Councils

A conference of representatives of Executive Councils in England held in October, 1947, resolved that an Association of Executive Councils (financed by subscriptions from Executive Councils) should be formed, and set up a provisional Committee. Standing orders were approved and adopted at a first meeting of the Association on 19th March, 1948. A similar association was set up for Wales.

Publicity about the new Health Service

A letter to Executive Councils issued in March, 1948, made suggestions about publicity arrangements and general arrangements for dealing with inquiries from members of the public. Executive Councils were asked to get into touch with the Local Health Authorities and the offices of the Ministry of National Insurance and of the various voluntary organisations to make the necessary arrangements for dissemination of information. To help them in keeping the public informed, they were sent supplies of a special leaflet on the National Health Service,* of special leaflets on the dental and supplementary ophthalmic services, and of other documents.

Terms and Conditions of Service for General Practitioners

Regulations† setting out the arrangements for general medical care and containing the terms and conditions of service for general practitioners taking part in the Service and Regulations‡ setting out the procedure for dealing with complaints or disputes, were made on 12th March, 1948. In many respects, the Regulations drew on the experience of the Medical Benefit Regulations, 1936, made under the National Health Insurance Acts. They provided, in accordance with the Act, for free choice of doctor by patient, subject to the doctor's consent and subject also to a limit (not rigidly applied at first) of 4,000 patients on a single-handed doctor's list.

The arrangements for maternity medical services (which were based on the advice of a professional Committee composed of persons representing consultant

* Delivered to every household in England and Wales in April/May, 1948.

† National Health Service (General Medical and Pharmaceutical Services) Regulations, 1948. Statutory Instrument No. 506. National Health Service (General Medical and Pharmaceutical Services) Amendment Regulations, S.I. No. 1,448.

‡ The National Health Service (Service Committees and Tribunal) Regulations, 1948. Statutory Instrument No. 507.

obstetricians, general practitioners, medical officers of health and midwives, under the Chairmanship of the Department's Chief Medical Officer) provided for the setting up of local (wholly professional) obstetric committees to approve the obstetric experience of doctors. A doctor with approved experience who applies to provide maternity medical services undertakes to give all proper and necessary medical care during the pre-natal and post-natal periods, attends at any emergency in connection with the pregnancy if he is summoned on the patient's behalf, and attends at the confinement if he thinks that necessary or is called in by the midwife. For this comprehensive service, he receives a fee of seven guineas from the Executive Council.*

The arrangements for remuneration payable to general practitioners—worked out in the light of the Report of the Spens Committee on the Remuneration of General Medical Practitioners—were modified after further discussion with representatives of the profession, and a full account will be given in next year's Report.

In March, 1948, a comprehensive circular was issued to Executive Councils setting out the arrangements to be made and the action to be taken to bring the general medical services into operation. Among other things, Councils were advised of the procedure for dealing with applications by doctors for admission to medical lists ; and of the steps to be taken for the publication of medical lists.

Committee on Medical Certificates

During the year an Inter-Departmental Committee, under the Chairmanship of Mr. Archibald Stafford, M.C., K.C., was set up with the following terms of reference :—

> " To consider the medical certificates required under present enactments or regulations, or for other administrative purposes and to advise, without excluding the possibility of amending legislation, how far it would be practicable to reduce the number of certificates to be signed by medical practitioners and to improve and simplify the forms of certificate and the rules governing their issue."

Pharmaceutical Services

In July, 1947, the professional organisations in England and Wales and Scotland accepted the suggestion of the Ministry of Health and the Department of Health for Scotland that a small Working Party should investigate the differences in dispensing practice between England and Scotland. It was hoped that the findings of the Working Party would help in determining the basis for remuneration in the two countries under the National Health Service.

The Working Party, consisting of four pharmacists, two from England and Wales and two from Scotland, with Mr. W. Penman, M.B.E., a past President of the Institute of Actuaries as Chairman, started its investigations in November, 1947.†

Regulations‡ affecting the provision of pharmaceutical services (incorporated with those for general medical services) were made by the Minister after detailed consultation with representatives of pharmacists, on 12th March, 1948. They

* In agreement with the profession, provision was made in amending Regulations for a doctor who does not undertake midwifery work generally to look after an expectant mother who is on his own list of patients. The fee payable by the Executive Council for a similar range of maternity medical services provided by such a doctor to a woman on his list is five guineas.

† Its report was presented in April, 1948, and published on 24th June, 1948, Price 1*s*.

‡ National Health Service (General Medical and Pharmaceutical Services) Regulations, 1948. S.I. No. 506.

drew very largely on the experience of the National Health Insurance Act, 1936. One important change was the provision made for the supply without charge of medicine bottles and other containers which under the National Health Insurance Scheme had to be supplied, or paid for, by the patient. The Regulations also provided (in accordance with the Act) for defining the terms and conditions of service of chemists. The National Health Service (Service Committees and Tribunal) Regulations, 1948, made at the same time, set out the procedure for dealing with complaints and disputes.*

General Dental Services

Discussions with representatives of the dental profession were begun during the period under review on the regulations to be made, and on the remuneration to be paid to dentists providing general dental services. In February, 1948, a memorandum setting out the proposed arrangements for the general dental services worked out in the light of these discussions (but not the proposed remuneration, which had not yet been negotiated) was sent by the Minister for information to every dentist on the Dentists Register.

The National Health Service (General Dental Services) Regulations, 1948, made on 12th March, 1948, prescribed the general arrangements in detail. They contained also the terms of service for dentists practising in private surgeries and at health centres. The National Health Service (Service Committees and Tribunal) Regulations, made at the same time, laid down the procedure for dealing with complaints and disputes.

There was no arrangement in the Regulations for dentists to have lists of patients. They provided instead for a patient to have free choice of dentist for any course of treatment, subject to the dentist's consent. The dentist was permitted to undertake all normal conservative work and emergency treatment without prior approval ; but must seek the consent of the Dental Estimates Board—a predominantly professional body—before undertaking certain other kinds of treatment.

Though it was recognised that any considerable provision of health centres was bound to take a long time, plans were made to take over from 5th July as health centres certain premises at which dental treatment was already being given. Since dentists engaged at health centres were to be provided from public funds with premises, equipment, etc., and paid a salary or sessional fee, some of the ordinary conditions of service applicable to dentists working at their own surgeries were not applicable to them. Special provisions for dentists practising in health centres were, therefore, contained in the Regulations.

Supplementary Ophthalmic Services

Section 41 of the National Health Service Act puts upon Executive Councils the duty of making arrangements in their area for the provision of supplementary ophthalmic services consisting of the testing of sight and the supply of glasses, until the Minister is satisfied that adequate ophthalmic services are available in the area through the hospital and specialist services.

* National Health Service (General Medical and Pharmaceutical Services) Amendment Regulations, 1948. S.I. No. 1448, made on the 28th June, 1948, added to the terms of service of chemists a provision requiring the payment of wages and observance of conditions of service for appropriate staffs not less favourable than those approved by the National Joint Industrial Council for Retail Pharmacy.

Tentative arrangements for the provision of the services were discussed during 1947 with the Eye Services Committee, a body comprising ophthalmologists and opticians appointed by the Ophthalmic Sub-Committee of the Negotiating Committee of the Medical Profession and the Joint Emergency Committee of the Optical Profession. Details of the administrative arrangements were discussed later with representatives of the doctors and opticians separately.

There was some difference of opinion between ophthalmologists and opticians as to the method of approach to the supplementary eye services. The doctors contended that in the interests of a patient's general health a medical examination by a person's general practitioner should precede sight-testing on every occasion the service was used. The opticians, on the other hand, maintained that this was unnecessary and unacceptable to public opinion.

The Minister decided after considering the views expressed, that it would be in the patient's interest to visit his general practitioner before using the supplementary eye services for the first time and, therefore, provision was made in the regulations for an initial medical recommendation on the first occasion only that a person used the new service.

Preparation of lists by Central Professional Committees

The Act provides that the arrangements which an Executive Council makes for the provision of supplementary ophthalmic services shall be with ophthalmic medical practitioners, and ophthalmic and dispensing opticians who in all cases have prescribed qualifications. The Minister was advised as to these qualifications by the Eye Services Committee and the qualifications were prescribed in the National Health Service (Executive Councils) Regulations, 1947, and the National Health Service (Executive Councils) Amendment Regulations, 1948.

These regulations also provide for committees to be recognised by the Minister for the purpose of advising him of persons having the prescribed qualifications. The Minister recognised two committees for this purpose—one for ophthalmic medical practitioners and one for ophthalmic and dispensing opticians. These two committees prepared lists of persons with the prescribed qualifications, which were circulated to Executive Councils.

Setting up of Ophthalmic Services Committees

The Act provides that the functions of an Executive Council in relation to the supplementary ophthalmic services shall be exercised on behalf of the Council by an Ophthalmic Services Committee constituted for the area of the Council. After receiving the advice of the Eye Services Committee, the Minister prescribed the constitution of these Committees in the National Health Service (Executive Councils) Regulations, 1947. Most Executive Councils appointed committees of 16 members as provided by those Regulations. In about one-fifth of the cases, however, this proved impossible, and the Minister consented under powers conferred on him by the regulations, to a reduced membership with about the same balance between members.

The administrative arrangements for sight-testing and the supply and repair of glasses (including the forms to be used) were discussed in detail with representatives of both doctors and opticians. Apart from the question of the initial medical examination, there were no major differences of opinion. There is free choice of ophthalmic medical practitioner or ophthalmic optician for a sight-test and of ophthalmic or dispensing optician for the supply of glasses.*

* The arrangements, together with the terms and conditions of service to be observed by those participating in the service were embodied in the National Health Service (Supplementary Ophthalmic Services) Regulations, 1948. Made in June, 1948.

Local Health Services

Under Part III of the National Health Service Act, the Local Health Authorities are the County Councils and County Borough Councils, numbering 145* in England and Wales, and their powers and duties are :—

(*a*) The provision of health centres (Section 21).

(*b*) The care of expectant and nursing mothers and young children. (Section 22.)

(*c*) The provision of midwifery, health visiting, and home nursing services (Sections 23, 24 and 25.)

(*d*) Arrangements for vaccination and immunisation (Section 26).

(*e*) The provision of ambulance services (Section 27).

(*f*) Arrangements for the prevention of illness and the care and after-care of persons suffering from illness or mental defectiveness (Section 28).

(*g*) The provision of domestic help services (Section 29).

The National Health Service Act repealed, as from the appointed day, the permissive provisions of the Public Health Acts 1936, under which some 404 Welfare Authorities in England and Wales had previously provided maternity and child welfare services. Those Welfare Authorities who were not Local Health Authorities therefore ceased to have any powers in relation to maternity and child welfare. For the purposes of the Midwives Acts 1902–36, the Local Health Authority became the local supervising authority. All local health authorities were required by Section 20 of the National Health Service Act to submit to the Minister, within a period specified by him, proposals for carrying out their duties under the Act. In Circular 22/47, dated 19th February, 1947, a timetable was laid down for the submission of the proposals (revised in later Circulars) and detailed guidance was given in Circulars 66/47 (of 3rd April, 1947) and 118/47 (of 10th July, 1947) for the preparation of those relating to Sections 22–29 of the Act. In particular, in Circular 118/47, the Minister directed that arrangements be made under Section 28 by every Local Health Authority for the purpose of preventing tuberculosis and for the care and after-care of persons suffering from tuberculosis, although it was made clear that the authorities would also be expected to develop arrangements for the care and after-care of sick persons generally in need of such a service.

He also urged authorities to use their powers under Section 29 for the organisation of domestic help services since, in the Minister's view, the discharge of their duties under other Sections of Part III, particularly those relating to the care of mothers and young children, domiciliary midwifery, home nursing, and "care and after-care", would be seriously hampered without an efficient domestic help service.†

Also in Circular 118/47, the Minister announced his intention not to make regulations under Section 22(4) of the Act for the provision of schemes of divisional administration. It had originally been intended that these Regulations should provide, in relation to counties where schemes of divisional administration of the School Health Services were in force, for the making of corresponding schemes of divisional administration of the services for the care of children mentioned in sub-sections (1) and (3) of Section 22. After carefully considering this question, however, the Minister had decided that the machinery provided by Section 22(4) was not the best that could be devised, since (*a*) the

* In addition, by virtue of the Isles of Scilly (National Health Service) Order, 1948 (Statutory Instrument 1948, No. 167) made on 30th January, 1948, the Council of the Isles of Scilly became the Local Health Authority for the Isles and was deemed to be a Local Authority for the purpose of the Act.

† All authorities submitted proposals under Section 29 before the appointed day.

areas of the Divisional Educational Executives had been determined by purely educational considerations which did not necessarily match health considerations, (*b*) the health services for children were not limited to those provided under Section 22 but were clearly inter-related with those provided under Sections 23, 24, 26, 28 and 29, and (*c*) the continuity of the children's health services was not the only ground for decentralised administration—there was also the desirability of bringing local interest into the day-to-day management of the Part III services.

Instead of making Regulations, the Minster suggested—after consultation with associations of local authorities—that County Health Committees should, in appropriate cases, use their powers under Part II of the Fourth Schedule to the Act to appoint sub-committees for the day-to-day management of the Part III services in such sub-divisions of the county as might be fitted to local health requirements. He recognised that in certain counties decentralised administration for the whole or part of the county would be inappropriate. Thirty-five County Councils in England and Wales adopted schemes of decentralised administration to take effect on the appointed day.

By the end of March, 1948, almost all Local Health Authorities had submitted proposals for providing services under Sections 22 to 29, and a number of approvals had already been issued. Each set of proposals was carefully examined, and modifications made where necessary. The primary aim in making these modifications was to give added flexibility and greater latitude to the proposals to enable authorities to rearrange or expand their services subsequently without having to submit fresh proposals.*

Circular on Health Centres

Under section 21 of the National Health Service Act the duty is placed upon local health authorities to provide, equip, maintain and staff health centres where accommodation may be provided for a group of family doctors and dentists, pharmaceutical services, a maternity and child welfare centre and other services provided by the local health authority, and specialist and other out-patient services or for some only of these purposes. In Circular 3/48 of 14th January, 1948, the Minister advised Local Health Authorities that any general programme for the provision of health centres could not be undertaken for some time owing to the unfavourable building situation and the need for investigation as to the best kinds and purposes of health centres at which development should aim. Proposals for the immediate provision of such centres should therefore be submitted only in cases of particular urgency.

In the meantime, a special committee or working party was to be set up, in association with the main central advisory machinery of the new Act, to gather information and formulate expert guidance on health centre development.

The Circular added, however, that the Minister would be prepared to consider proposals for the acquisition and adaptation of dispensaries etc., at which health centre facilities—*e.g.* general medical, dental and pharmaceutical services—were already being provided. This point was amplified later in two Circular Letters addressed to all Local Health Authorities and Executive Councils. In one of them, the Minister expressed his anxiety that in particular there should be no break in the continuity of existing arrangements for dispensing medicines at the appointed day. It was suggested therefore that

* By the middle of June, only nine authorities were still awaiting approval of their proposals. All were settled before the appointed day, except one under Section 29 where new proposals were asked for.

authorities should arrange to take over, as from that date, all premises where medicines were being dispensed by a pharmacist employed by a Medical Aid Society or similar organisation which did not itself intend to continue the service. The arrangement was to be subject to review after six months, by which time it was hoped that Local Health Authorities and Executive Councils would be better able to determine with the Minister which, if any, of the services could be closed down without detriment to the public.*

The London County Council also submitted proposals for building a comprehensive health centre on a new housing estate at Stoke Newington providing six doctors' suites and two dentists' suites for the general medical and dental services, ante-natal, post-natal and child welfare clinics, a school treatment centre, accommodation for health education, and facilities for these services together with ancillary offices and staff room.

National Health Service Superannuation Scheme

The setting up of the National Health Service raised the problem of providing a Superannuation Scheme for the employees in the Service. It was decided that there should be one scheme to be administered centrally, so as to provide full interchangeability in the Service. A draft of the Scheme was issued in December, 1946, and the proposals were discussed in detail with 65 bodies representing all the interests concerned. The Minister greatly appreciates the assistance they gave in the preparation of the Scheme, to which statutory effect was given in the National Health Service (Superannuation) Regulations 1947, which, following approval by Parliament, came into operation on the 12th August, 1947.

The Scheme covers officers and servants of Regional Hospital Boards and Boards of Governors of Teaching Hospitals, the staffs of Executive Councils, and doctors and dentists who enter the practitioner service. It is a contributory scheme, and it is estimated that it will apply to some 300,000 persons. It will be administered by a separate Division in the Ministry, the Health Services Superannuation Division.

At the end of the period covered by this Report, preliminary steps had been taken to obtain from the local authorities and governing bodies employing the staff to be transferred to the new service particulars of the service of every person to be transferred and details of the superannuation schemes or " expectations " which applied to them.

An explanatory booklet† has been issued to every person concerned and explanatory leaflets on particular points have also been made available.

The transfer of the staffs of the municipal hospitals involves the transfer of substantial sums from the local authorities' rate and superannuation funds, estimated to amount to some £50 million. The Regulations also affect the local government superannuation scheme under the Local Government Superannuation Act, 1937, in its application to the medical, nursing and allied staffs of the

* As a result of these Circulars, 11 authorities in England and Wales submitted proposals under Section 21 for continuing services previously provided by Medical Aid Societies and similar bodies. Two of these were for the provision of pharmaceutical services only, one for dental services, two for general medical and pharmaceutical services, one for general medical and dental services, four for general medical, dental and pharmaceutical services, and one (in Wales) for general medical dental, pharmaceutical and ophthalmic services. All were approved before, or shortly after, the appointed day.

† Superannuation Scheme for those engaged in the National Health Service—an explanation, H.M.S.O., price 3*d.*

local health authorities and in the school health service. The effect is to apply the benefits of the new health service scheme to these staffs to ensure that there shall be the maximum of interchangeability between the central and local health services, otherwise these staffs remain subject to the local government superannuation scheme and contribute to the superannuation fund of their employing authorities. The Regulations also provide superannuation rights for the medical inspectors of aliens employed by port health authorities for whom there has so far been no provision because the remuneration they receive does not fall within the scope of the Local Government Superannuation Act, 1937.

III

NURSES AND MIDWIVES

Report of the Working Party on the Recruitment and Training of Nurses

Last year's Report gave a summary of the principal recommendations of the Working Party on the Recruitment and Training of Nurses whose Report was presented to the Minister on 11th July, 1947, and published in the following September. In keeping with the Minister's undertaking to consult the nursing profession and other interests concerned before taking decisions on the recommendations of the Working Party, 53 organisations were consulted and their observations, together with a number of spontaneous expressions of opinion from other responsible bodies, were carefully examined.

Pending final decisions on major questions of policy, a number of matters dealt with in the Report were made the subject of further detailed investigation. These were concerned mainly with student nurse selection procedure, and post-graduate training for senior hospital nursing posts. Since the end of the year under review a Minority Report submitted by Dr. J. Cohen has been published.*

Working Party on Midwives

During the year the members of the Working Party on Midwives† had discussions with many organisations and persons interested in midwifery problems. They also paid visits to institutions, interviewed midwives, and sent out two questionnaires to over 20,000 midwives in England, Wales and Scotland. The first questionnaire went to all midwives who had notified their intention to practise in 1944, of whom there were 17,427 ; the second to all midwives who had recently qualified, of whom there were 2,758. The proportion of completed replies was exceedingly good ; over 76 per cent. to the first questionnaire and over 84 per cent. to the second.

The number of places available to pupil midwives taking their Part II training for State certification was increased by 137 and 14 additional Training Schools were approved by the Central Midwives Board, bringing the total to 108.

Housing Authorities were again asked to assist in finding suitable accommodation for domiciliary midwives, and arrangements were made with the Board of Trade for midwives to be given priority in obtaining necessary furniture and bedding.

Exchequer Grants for Training

During the year 43 State Registered Nurses (32 women and 11 men) with the requisite qualifications were selected to take a course of training as nurse tutors with Government assistance. The course lasts an academic year and the assistance given covers training and examination fees with an allowance of £150 towards the cost of maintenance and incidental expenses.

Under a similar scheme, 80 grants of £100 each were made to nurses wishing to train as health visitors.

* The Minority Report of the Working Party on the Recruitment and Training of Nurses, by Dr. J. Cohen, M.A., Ph.D., F.B.Ps.S., published by H.M. Stationery Office, York House, Kingsway, London, W.C.2, price 1*s.* 6*d.*

† Report of the Working Party on Midwives, H.M. Stationery Office, price 2*s.* 6*d.*, post free 2*s.* 9*d.*, published 28th January, 1949.

Arrangements were made by the Royal College of Midwives for a full-time course of training for the Midwife-Teacher's Diploma. Previous courses had been on a part-time basis, entailing a great strain on the midwives taking part in them. The first full-time course, of four months duration, started in February, 1948, and Government scholarships of £65 were awarded to 15 State Certified Midwives taking the course.

Exchequer grants were made in the year under review to 24 midwives taking refresher courses before returning to midwifery practice. These grants are at the rate of £15 a month with a maximum of £45, and are administered by the Royal College of Midwives on behalf of the Department. The number of such grants made since 1945 is 71.

Intensive Course of Training for Nursing Orderlies from the Services

The special intensive courses to prepare ex-service nursing orderlies for State Registration, established in 1946, were continued successfully and five new centres were opened. Up to the end of March, 1948, 1,520 applications (1,042 from men and 478 from women) had been received and 36 courses had been undertaken. Of these, 19 terminated during the year and 17 courses at eleven Centres—Birmingham, Bradford, Cardiff, Hitchin, Isleworth, Liverpool, London, Manchester, Nottingham, South Shields, and West Ham—were still running at the end of the year.

During the year 572 students sat, and 551 passed, the Preliminary State examination. Of 482 students completing their training, 428 (297 men and 131 women) passed the final State examination and were placed on the General part of the State Register. Successful students had no difficulty in obtaining hospital posts. Many proceeded to further training for registration as mental and fever nurses ; others took up training in district nursing, midwifery, tuberculosis and orthopædic nursing.

Statistics

In June, 1947, new quarterly statistical returns were introduced showing the numbers of nurses, midwives and domestic workers employed and required in all civilian hospitals and similar institutions, the domiciliary midwifery service and the Public Health Nursing Services. These returns showed that the shortage of staff continued to be serious. At 31st March, 1948, the total nursing and midwifery staff was 139,000 full-time and 16,700 part-time and the additional numbers required 47,000. The total domestic staff was 100,000 full-time and 20,000 part-time and the shortage 11,000. Nevertheless a comparison of the figures for 30th June, 1947, and 31st March, 1948, revealed some encouraging features. The total nursing and midwifery staff had increased by 6,700 ; male nurses increased by 1,800 and part-time nurses and midwives by 4,000 ; domestic workers, male and female, increased by over 5,000.*

Civil Nursing Reserve

Towards the end of 1947, a survey was carried out by the Department's Hospital Nursing Officers during which several hundred members of the Civil Nursing Reserve were interviewed. With very few exceptions the members indicated that they would continue in nursing if the Reserve came to an end. It was felt to be undesirable that there should continue to be in peace-time a separate corps of civilian nurses with their own special conditions of service,

* A summary of the returns for 31st March, 1948, is given in Appendix D, pages 94–95.

and on the advice of the Civil Nursing Reserve Advisory Council it was decided that the Reserve should cease to exist as from 5th July, 1948.* From that date all members of the Reserve were to be absorbed in the general establishment of nurses in the National Health Service, retaining their previous salaries on a mark-time basis until overtaken by increments on the scales of the ordinary nursing staff.

Part-time Nursing and Midwifery

Recruiting campaigns for part-time nursing and midwifery staffs were continued and intensified. Many hospitals re-arranged their work-schedules to facilitate the employment of part-time staff on a shift system, and in particular to suit the convenience of married part-time workers. Special transport was provided to take part-time staff to and from hospitals in isolated positions. As a result of these efforts, many hospitals were able to bring their staff up to full strength, closed wards were re-opened, and over-worked full-time staff were given substantial relief.

In Greater London, where the shortage of nursing staff is most acute, there was an increase of 7 per cent. in the numbers of part-time staff during the first three months of 1948. Very successful recruiting campaigns were carried out in the North-West, the South-West and East Anglia.

Work of the Nurses and Midwives Salaries Committees

During the year these Committees were mainly concerned with the revision of the salary scales of certain grades of institutional nurses and midwives which had become out of scale with the rates of pay of female hospital domestics. Recommendations were made for increases in the scales of female Enrolled Assistant Nurses, Staff Nurses and Sisters, Staff Midwives and Midwifery Sisters, and Mental Nurses. All the revisions were recommended by the Minister to employing authorities for adoption as from 1st October, 1947. The general effect was to increase the scale of Enrolled Assistant Nurses by £10 and of Staff Nurses and Sisters by £20.†

Mental Nurses

In December, 1947, a rule was made by the General Nursing Council and approved by the Minister enabling persons holding the certificate of the Royal Medico-Psychological Association to apply for admission to the part of the Register for Mental Nurses and/or for nurses for Mental Defectives.

Assistant Nurses

The total number of State Enrolled Assistant Nurses as at the end of March, 1948, was 38,410 and the number of pupil assistant nurses in training at that date was 867. Thirty-nine new training schools for Assistant Nurses were approved by the General Nursing Council during the year, bringing the total of approved training schools up to 121 (85 complete, 36 component).

In June, 1947, the General Nursing Council agreed that a reduction of six months during the first year of training for admission to the Register should be granted to all Enrolled Assistant Nurses, provided that the students pass the

* Circular 73/48, published by H.M. Stationery Office, York House, Kingsway, W.C.2.

† On July 4th, 1948, the Committees concluded their business and ceased to exist, giving place to a Whitley system for the negotiation of salaries and conditions of service in the National Health Service.

first preliminary examination to take place following the termination of the first six months' training. The Rules were amended accordingly and approved by the Minister.

A total of 8,502 persons was admitted to the Roll of Assistant Nurses during the year by virtue of having completed not less than two years experience in the nursing of the sick in hospital under the supervision of trained nurses.

Foreign-Trained Nurses

The total number of trained nurses admitted to the Minister's List of foreign-trained nurses up to the end of March, 1948, was 649.

Hospital Domestic Workers

The easing of the shortage of domestic workers in hospitals continued. The number of outstanding vacancies, excluding those for laundry workers, notified to the Ministry of Labour and National Service fell from 7,275 at the beginning of the year to 6,116 at the end. The total additional domestic staff required was then approximately 11,000. The improvement in the domestic staffing situation helped to relieve nurses of many domestic duties.

Although the number of European volunteer workers brought to this country tended to decrease, nearly 900 (mostly women) were allocated to domestic work in hospitals and sanatoria. Towards the end of the year the extension of the E.V.W. recruitment scheme to cover *Volksdeutsche* and Austrian and German women was being considered.*

The shortage of trained cooks continued to be acute. Special efforts were made during the year to allocate trainees to the intensive course of training organised in London by the Ministry of Labour and to the L.C.C.'s six-weeks, cookery course at their Archway hospital.

In July, 1947, an exhibition of domestic aids for hospitals was organised on behalf of the Ministry by the British Electrical Development Association and the British Gas Council. More than 1,000 representatives of hospital authorities visited the exhibition which included a display of labour-saving equipment for use in wards and kitchens, improved domestic appliances for the residential quarters of nurses and domestic staff, and a demonstration of the transformation which can be effected with a minimum of new furnishings.

Regional conferences on the management of domestic staff in hospitals were arranged by the Ministry of Labour and National Service in association with the Ministry of Health. These conferences, which were usually residential and lasted one week, were attended by matrons, administrative sisters or domestic staff supervisors directly responsible for the control of the domestic staff of hospitals.

* Consultative Committee on Recruitment of Domestic Workers in Hospitals decided on 28th April, 1948, to extend the scheme to *Volksdeutsche* and German and Austrian women.

IV

DAY NURSERIES

(Statistics of the Day and Residential Nurseries and Staffs and the numbers of Children have been given in Part I, p. 109.)

Recruitment of Wardens for Nurseries

On 6th March, 1947, a joint circular* was issued by the Ministers of Health and Education drawing attention to the importance of filling vacancies in the post of warden in nurseries. Wardens take charge of the educational training of the children between the ages of two and five years. Welfare Authorities were requested to review the needs of their nurseries and to ask the Local Education Authority to provide the necessary courses so that all the vacancies might be filled within the next six months. Public Assistance Authorities were also asked to take similar action as regards the nurseries under their control.

This circular also referred to the need for co-operation between the Welfare Authority and the Local Education Authority in arranging the further education in vocational subjects (health section) for students taking the examination for the certificates of the National Nursery Examination Board. It emphasised that the advice of the Welfare Authority should always be sought by the Local Education Authority in planning the whole of the health course for this examination.

Training of Nursery Students in Nurseries, Nursery Schools and Nursery Classes

On 29th September, 1947, another joint circular† was issued drawing attention to the revised Regulations made by the National Nursery Examination Board. Under Regulation 1 every candidate for the examination for the certificate of the Board must produce evidence that she has completed an approved course of training. The Ministers had approved only those courses of training which enabled students to obtain not less than nine months' experience with children under two years and not less than nine months with children from two to five years of age. In a few areas it had not proved possible to arrange this for all the students because of the limited provision for one or other of these age groups. As it was considered undesirable to reduce the period of training in either age-range, this difficulty was referred to the National Nursery Examination Board, who decided to award three types of certificates :—

(i) one to candidates who have been trained with children in the full age-range 0 to 5, and have passed an examination based on that age-range ;

(ii) one to those who have been trained only with children in the age-range 0 to 2, and have passed an examination based on that age-range (Part A).

(iii) one to those who have been trained only with children in the age-range 2 to 5, and have passed an examination based on that age-range (Part B).

The period of training continues to be two years in each case, and in the vocational part of their further education all candidates, whether their training has been with the full age-range 0 to 5 or not, must cover the full syllabus.

It was made clear in the circular that the object of the present system of training, viz. to obtain the maximum number of girls trained in the care of children

* Circular 30/47 (Ministry of Health), Circular 135 (Ministry of Education).
† No. 149/47 (Ministry of Health) and No. 153 (Ministry of Education).

in the full age-range 0 to 5, was unchanged, and that the Ministers would only approve courses of training limited to Part A or Part B where they were satisfied that it was not practicable to arrange to provide training over the full age-range. Holders of Certificates in either Part A or Part B would be qualified to care only for children in the age group covered by the certificate. As stated in Regulation 1, further education in general subjects would not be compulsory for students over 18 years of age, but they should be encouraged to attend the lectures in general subjects.

Salaries of Nursery Staffs

On the 5th December, 1947, a further joint circular* was issued relating to the salaries of non-domestic staff of day, twenty-four hour and residential nurseries, nursery schools and nursery classes. The Nurses Salaries Committee of the Rushcliffe Committee had made recommendations in respect of the salaries of State Registered Nurses (S.R.N., R.S.C.N. and S.R.F.N.) employed in the nursery service, and these were recommended to employing authorities for adoption with effect from 1st October, 1947. At the same time, at the request of the Ministers, the Nurses Salaries Committee had tendered advice as to the appropriate rates of pay for non-domestic nursery staff, who were not State Registered Nurses, and, after consideration of this advice, the Ministers indicated in the appendix to this circular the rates of pay they were prepared to recognise for grant purposes as from the 1st October, 1947. Important changes were made to improve the conditions of service and to make the calling a more attractive career for girls.

* No. 168/47 (Ministry of Health) No. 157 (Ministry of Education).

V

DOCTORS, DENTISTS AND PHARMACISTS

Recruitment into the Services

Towards the end of 1947, on the recommendation of the Medical Priority Committee, the Minister, with the concurrence of the Secretary of State for Scotland, instructed the Central Medical War Committee that the upper age limit for the call-up of doctors should be reduced to 26 for general duty officers, with the proviso that a practitioner who satisfied the Committee that he was undergoing or about to undergo training for the purpose of acquiring further qualifications or special experience, remained liable for recruitment until he reached the age of 30. The change came into operation on 1st January, 1948.

The upper age limit for the recruitment of specialists remained at 35.

Similar age limits were adopted for the call-up of dentists as from 1st January, 1948.

The Central Medical War Committee continued to deal with the nomination of doctors for commissioned service and the Medical Priority Committee made recommendations to the Minister on the number of doctors to be provided and on certain general questions affecting medical recruitment.

The approved quotas for general duty officers for the year 1947 and the first half of 1948 were :—

	1947	*First half of* 1948
Navy	120	30
Army	581	140
R.A.F.	60	83

Though there was a small deficiency at the end of 1947, this was almost overtaken during the first half of 1948.

Requirements for Specialists

Notwithstanding the arrangements made by the War Office for giving training in certain specialties to men recruited as general duty officers it became clear towards the end of 1947 that there was no likelihood of meeting the Service requirements for specialists and this remained the position in the early part of 1948. The requirements of the Services in 1947 were : Army 185, R.A.F. 46, Navy nil.

There was a deficiency of 37 in the number supplied during 1947. The Central Medical War Committee, however, found themselves able to nominate a number of physicians and surgeons for recruitment in excess of the numbers asked for in these categories ; this was done in order to accelerate the release of physicians and surgeons already serving.

The number of specialists required for the first half of 1948 was : Army 37 and R.A.F. 60, but only 20 and 27 respectively were available.

The Central Medical War Committee undertook a review of practitioners of possible specialist and graded specialist status who had previously been found medically unfit for service by the War Office, and a small number of these were found by the War Office, on reconsideration, to be acceptable and were recruited. It was evident, however, that the procedure hitherto in use would not produce the numbers required and other measures were under consideration.

Recruitment of Dentists

The recruitment of dentists is now limited to newly qualified practitioners and the needs of the Services were such as to absorb all those becoming available. The numbers called up during the year were : Navy 16, Army 72, R.A.F. 51, total 139.

Foreign Doctors and Pharmacists

In August, 1947, the Medical Practitioners and Pharmacists Bill was introduced in Parliament. It dealt with the registration by the General Medical Council, of practitioners possessing only qualifications obtained outside the United Kingdom or Eire, and with registration by the Pharmaceutical Society of pharmacists qualified abroad. The Bill received the Royal Assent on 18th December, 1947. Its main purpose in relation to doctors was to authorise, subject to certain conditions, the registration on the General Register of practitioners who were temporarily registered under war-time arrangements either by virtue of the Temporary Registration Orders made under the Defence Regulations or of the Polish Resettlement Act, 1947. In the absence of this measure the registration of such practitioners would have expired on 31st December, 1947.

Practitioners in certain other categories who for various reasons had not secured temporary registration were also provided for, namely

(1) Practitioners with service overseas in H.M. Forces (including H.M. Dominion Forces, Indian Forces and Burma Forces) ; in any voluntary organisation operating in connection with H.M. Forces ; or in a civilian medical capacity in territories within the Empire during the carrying on of war operations or enemy occupation or the continuance of circumstances arising therefrom.

(2) Doctors who were permitted to enter or remain in the United Kingdom, before 4th August, 1947, owing to war circumstances.

(3) Doctors who had come (or might subsequently come) to this country under the Polish Resettlement Scheme and failed to secure registration under the Polish Resettlement Act by 31st December, 1947, though otherwise eligible for registration under the Act.

(4) Graduates of the Polish School of Medicine, Edinburgh.

Registration in the case of the three last-mentioned classes is provisional in the first instance, but the practitioner may apply for confirmation of his registration at any time after he has been provisionally registered for six months (but not more than 18 months). Confirmation depends upon his satisfying the General Medical Council that he has rendered satisfactory service in a medical capacity.

The Act also includes provision for the temporary registration of certain practitioners from abroad coming to this country temporarily for employment in a hospital or other institution approved by the General Medical Council—distinguished doctors coming here to demonstrate their methods in particular branches of medicine or surgery, or postgraduate students.

The Act introduced the description " Commonwealth " Practitioner in place of " Colonial " Practitioner, the term in use since its introduction under the Medical Act, 1886, but now generally recognised as inappropriate in the case of the many practitioners from the Dominions registered by virtue of their overseas qualifications.

The number of practitioners temporarily registered under the Defence Regulations was between 3,500 and 4,000, but this included many who have returned to their own countries, and as permanent residence in the United Kingdom is a condition of registration, a relatively small proportion of the total come within the scope of the Act. The Act also benefited several hundred Polish doctors registered under the Polish Resettlement Act, 1947. It is estimated that a total of about 1,500 doctors in all categories will be granted registration under the Act.

A permanent change in the law effected by the Act enabled the Pharmaceutical Society to register pharmacists qualified abroad either without examination and compliance with normal requirements as to training and study, or subject to such modified examination and other conditions as they think proper. This replaced an existing provision limited to holders of " Colonial " Diplomas whom the Society were empowered to register without examination. Pharmacists qualified abroad who were temporarily registered under the Defence Regulations are eligible for consideration.

VI

MEDICAL AND HOSPITAL SUPPLIES

Production and Supply

On 1st December, 1947, the work and staff of the Directorate of Medical Supplies, Ministry of Supply, and its related Contract Branch were transferred to the Ministry of Health and the Supplies Division was re-organised under a Controller of Supplies. The Division was originally established to arrange supply of equipment for the Emergency Hospital Service, the Blood Transfusion Service and the Pathological Laboratory Service, but during the period covered by this report it was largely engaged on preparatory work in connection with the National Health Service.

The Medical Supplies Working Party mentioned in the last Report continued its work on the assessment of hospital requirements of medical and surgical equipment for the different types of hospitals and special departments in the National Hospital Service. It is not proposed to enforce the recommended scales of provision but rather to use them as general guides in the standards to be applied and in planning production for the whole country. Twenty-one Working Party Groups were operating at the end of the period under review. Each Group had the assistance of specialists, eminent in their respective fields, who willingly placed their time and experience at the disposal of the Ministry in order to help in this important work. Reports were received from the Groups considering X-ray and Physiotherapy Departments, Pathological Laboratories, Ambulances and Anæsthetics. In pursuance of the recommendations of the X-ray Group, arrangements were made for the central supply to all hospitals of X-ray diagnostic equipment and for development of prototype equipment for test.

In addition to the work of the Working Party Groups, important discussions took place during the year with the British Standards Institution which should lead to the preparation of standards for many hospital supplies. Several committees were established for this purpose.

In preparation for the National Health Service, a considerable variety of medical and surgical equipment to the value of £500,000 was obtained from Ministry of Supply surpluses. Sales of surplus war equipment of other kinds were continued during the year and realised £1,120,000.

The work taken over from the Ministry of Supply comprised :

(*a*) Contract purchases of medical supplies for the Fighting Services and other Government Departments, including those for the National Health Service.

(*b*) Responsibility for maintenance of an adequate level of production of essential medical supplies for all purposes.

(*c*) Assistance to manufacturers to increase the level of exports, and advice to the Board of Trade on export and import licence applications.

(*d*) Distribution of controlled raw materials.

(*e*) Sponsorship of medical supplies industries, and of labour, plant and material requirements for the manufacture of medical supplies.

(*f*) Generally, the functions of Production Authority for medical supplies.

Reports on the X-ray, Surgical Instrument and Dental Instrument Industries were presented during the year to the Inter-Departmental Committee on the Scientific Instrument Industry and were accepted. The recommendations in these reports are being carried out. During the year 287 industrial building schemes were considered ; those approved were designed to secure greatly increased production of surgeons' gloves, catgut, X-ray equipment, spectacles, penicillin, streptomycin, drugs and other important items. Arrangements were made for the production and distribution to manufacturers of the special materials required for the manufacture of 538,000 surgical belts and corsets, 191,500 surgical supports and 383,500 trusses ; 8,695 tons of cotton yarn were allocated for production of surgical dressings and 2,805 tons for hospital textile goods. The number of spectacles produced during the year was 4,250,000. The average delay in supply to the public was reduced from a month to a normal period of seven days.

The fuel crisis of 1947 resulted in some loss of production of many items, and shortages of raw materials involved some temporary rationing. The position improved slowly and by the end of the year production of many items had reached new high levels.

The Ministry as a purchasing Department now places contracts for medical supplies required by other Departments and for its own needs. Non-medical stores such as furniture and textiles continue to be obtained through other Departments. During the year 365 fixed quantity contracts and 290 running contracts to the total value of £1,181,000 were placed. The level of demand was, however, abnormally low owing to the use of surplus stocks by the Departments concerned.

Inspection of these contract purchases is an important function designed to maintain a high standard of quality. During the year 169,220 articles submitted by contractors were rejected as unsuitable for the public service, mainly because of careless workmanship. The percentage of rejections of drugs prepared for injection and materials and instruments used by surgeons was disturbingly high and suggests that quality is too often sacrificed to output.

Therapeutic Substances Act, 1925

The routine work of inspection and testing under the Therapeutic Substances Act, 1925, was continued by the Inspector with the co-operation of the Medical Research Council. In addition, a committee of experts under the chairmanship of the Deputy Chief Medical Officer discussed the revision of, and addition to the Regulations. A Provisional Statutory Rule and Order (No. 1821) was signed. It clarified and amplified provisions on penicillin.

The provisions of the Act made it necessary to license retail pharmacists who wished to dispense sterile injections of penicillin. The Pharmaceutical Department of the Ministry co-operated in drawing up a general specification on premises and equipment for the guidance of pharmacists and this proved most helpful. During the year the number of pharmacists who applied for licences was smaller than might have been expected. The chief reason for this was probably expense. The capital expenditure involved in alterations and equipment of the pharmacies so that they would be acceptable to the licensing authority varied widely, but was in no case small, while the possibility of meeting it from the return on the installation was at least problematic. Secondly, in many places doctors preferred to buy penicillin and ampoules of distilled water and make up the solution at the bedside. In the third place, many pharmacists were deterred by uncertainty as to how they would be affected by the provisions of the National Service Act.

Cost of Pharmaceutical Prescriptions

The statement given elsewhere (p. 124) of the number of National Health Insurance prescriptions revealed a sharp rise in the average cost per prescription. The chief contributory factors were :—(1) the award to the chemists from 1st January, 1947, of a 30 per cent. addition on the cost of ingredients, (2) the increased use of penicillin, (3) the introduction of the new edition of the National War Formulary from which some of the more stringent war-time economies were deleted, and (4) the introduction of new and expensive synthetic drugs during the year.

Representatives of the Ministry attended the British Pharmaceutical Conference at Torquay in September, 1947.

Two international conferences of pharmaceutical importance were also held during the year. The International Pharmaceutical Federation met at Zürich during August. In October, the Expert Committee on the Unification of Pharmacopœias of the World Health Organisation met at Geneva, and recommended the production of an international pharmacopœia, limited at first to drugs considered to be essential in medical practice. The possibility of establishing an international procedure for naming new drugs at an early stage of their introduction was also discussed and reserved for future consideration.

The pharmaceutical services for the National Health Service received much attention during the year. A questionnaire was issued by the Joint Committee on a National Pharmaceutical Service with the object of determining the costs of providing a dispensing service in independently owned businesses. The British Medical Association and the Pharmaceutical Society set up a committee to prepare a prescriber's formulary for use under the new service. This committee consisted of medical practitioners and pharmacists from all branches of medicine and pharmacy, including representatives of the Services and the Ministry of Health*.

Penicillin Act, 1947

The Penicillin Act, which received the Royal assent on 18th July, 1947, controls the sale and supply of penicillin and such other anti-microbial organic substances produced by living organisms as may be prescribed, by Regulations made by the Minister of Health, the Secretary of State for Scotland and the Minister of Health and Local Government for Northern Ireland, jointly and after consultation with the Medical Research Council.

The effect of the Act is that penicillin and preparations containing penicillin may be supplied to the public only by or in accordance with the direction of doctors, dentists or veterinary surgeons, or by registered pharmacists or authorised sellers of poisons on the prescriptions of doctors, dentists or veterinary surgeons. The object is to prevent self-medication with penicillin preparations which, if improperly administered, might result in producing strains of bacteria resistant to penicillin, or in masking, without curing, serious disease.

Purchase Tax Exemption

The Purchase Tax (No. 1) Order, 1948 (Statutory Instrument No. 608) which was published by the Treasury in March, 1948, and became effective on 1st April, 1948, exempted from Purchase Tax a considerable number of essential drugs and medicines. The Order was prepared in collaboration with the Ministry of Health, and the Department of the Government Chemist, and manufacturers' organisations were consulted during its production.

* This Formulary was published on 1st May, 1949.

VII

FOOD AND DRUGS

Relationship with the Ministry of Food

Transfer of Certain Functions

The Food and Drugs Act, 1938, consolidated several codes of legislation, mostly going back to 1875 or earlier, and for which the Ministry of Health or its predecessors have had the central responsibility. From the early stages of the war, modifications in this respect had to be made in order to meet the special conditions arising out of the war and the functions of the Ministry of Food. Following upon further consideration of the position, formal effect has now been given to the altered relationship between the two Departments in the Transfer of Functions (Food and Drugs) Order, 1948 (S.R. & O., 1948, No. 107) made under the Ministers of the Crown (Transfer of Functions) Act, 1946.

The effect of the Order, and of the administrative arrangements made in connection with it, is set out in Circular 23/48 dated 20th February, 1948. The basis of the new arrangement is that both the Minister of Food and the Minister of Health have a responsibility in relation to matters of composition, purity and hygiene of food dealt with under the Act. With this object, regulations under the Act are in future for the most part to be made jointly by both Ministers, but the administrative and related interests of the central department in the Act and regulations pass to the Ministry of Food with certain exceptions.

Under this arrangement the Ministry of Health retains the central department's administrative and related interests in the following subjects :—the composition and description of drugs ; matters arising out of Sections 17 and 18 of the 1938 Act relating to food poisoning ; the Public Health (Shell-fish) Regulations, 1934, special codes of Shell-fish Regulations relating to particular Fisheries, and Section 39 of the Act ; the Ice-Cream (Heat Treatment, etc.) Regulations, 1947, and Section 37 of the Act ; the Milk and Dairies Regulations so far as relating to the control of milk infected with disease ; and the Public Health (Imported Milk) Regulations, 1926. Temporarily, also, the Ministry of Health, until the Food and Drugs (Milk and Dairies) Act, 1944, comes into force, remains the central department concerned with the Milk and Dairies Regulations and with the Milk (Special Designations) Regulations so far as they relate to producers, including the granting of any producers' licences to local authorities and the determination of any appeals against the decisions of local authorities in respect of producers' licences.*

The Minister of Health retains his functions under the provisos to Section 64 of the 1938 Act, under which he may, in certain cases, give a direction as to the Authority who is to be the Food and Drugs Authority of a district. No change is made by the present arrangements in Sections 44/56 of the Act relating to markets, and for the time being the Ministry of Health also remains the central department concerned with Sections 57/63 of the Act relating to slaughterhouses, cold air stores and knackers' yards.

* Some consequential alterations in existing regulations have been made necessary by the new arrangements. Amendment regulations for this purpose came into force on 1st June, 1948 ; they are explained in an accompanying Circular 81/48, dated 31st May, 1948.

The number of licences of the various categories under the Milk (Special Designations) Regulations, 1936–1946, which were in force on 31st March, 1947, and 31st March, 1948, respectively, are shown below :—

Producers' Licences,

	1947	1948
Tuberculin Tested Milk—		
(*a*) Licences authorising bottling of the milk on the farm	1,268	1,543
(*b*) Non-bottling licences	8,240	10,470
Total ..	9,508	12,013
Accredited Milk—		
(*a*) Licences authorising bottling of the milk on the farm	1,065	908
(*b*) Non-bottling licences	18,739	17,744
Total ..	19,804	18,652

Distributors' Licences,

Tuberculin Tested Milk—		
Bottling licences (for premises other than place of production)	664	854
Accredited Milk—		
Bottling licences (for premises other than place of production)	125	98
Pasteurised Milk—		
Licences for pasteurising establishments—		
(*a*) Holder process	441	448
(*b*) H.T.S.T. process	220	255
Total ..	661	703

During the year under review, 34 appeals against decisions of licensing authorities refusing, suspending, or revoking licences under the Milk (Special Designations) Regulations, were determined by the Minister. In addition, eight appeals were withdrawn. Of the total of 42 appeals, 17 related to Tuberculin Tested Milk licences, and 25 to Accredited licences. Of the appeals determined, 31 were dismissed and three allowed.

The Tuberculin Test

The direction given by the Minister in paragraph 33 of Circular 1533 of 24th April, 1936, relating to the manner of carrying out the tuberculin test of animals in licensed Tuberculin Tested Herds was modified by a direction contained in a circular letter issued to licensing authorities on 28th October, 1947. As an alternative to the double intradermal test as described in the memorandum by the Tuberculin Commission of the Medical Research Council entitled " The Method of Carrying out the Double Intradermal Test of Cattle," the single intradermal comparative test adopted by the Ministry of Agriculture and

Fisheries for all official tests of Attested Herds may be used. At the same time a direction was issued as to the form of certificate of tuberculin test to be used where the single intradermal comparative test is applied.

Ice Cream Regulations

The Ice Cream (Heat Treatment, etc.) Regulations, 1947, came into operation on 1st May, 1947, except for certain requirements relating to thermometers. In view of the continuing difficulties in obtaining equipment, it was decided to extend until 1st May, 1949, the time limit for the special defence available under the Regulations in respect of failure to instal cooling apparatus.*

Public Health (Shellfish) Regulations, 1934

To secure extended power to control the collection and distribution of shellfish considered dangerous for human consumption, the River Blyth Port Health Authority made an Order, which came into operation on 11th September, 1947. An Order made by the Authority in 1929 under the Public Health (Shellfish) Regulations, 1915, was revoked.

Food and Agriculture Organisation

The Third Annual Conference of the Food and Agriculture Organisation of the United Nations took place at Geneva in August–September, 1947, and the Department was again represented in the United Kingdom delegation. Considerable changes were made in the organisation of the Conference, which set up three Commissions but did not on this occasion appoint any technical committees of the Conference itself. The First Commission more particularly reviewed the world food and agricultural situation, and its recommendations included steps for the optimum utilisation of food supplies for human consumption. The Second Commission reviewed the work of the Nutrition and other Technical Divisions of F.A.O. The Third Commission was concerned with constitutional, administrative and financial questions, including the setting up of a Council of F.A.O., to serve as the executive body of the organisation, and take the place of the Executive Committee. The functions of the Council include *inter alia* the examination of current developments, particularly those affecting adequacy of food supply, utilisation of food reserves and special food programmes for under-nourished groups.

Many matters affecting nutrition were discussed by the Second Commission, including the development of regional organisations for study of the regions' nutritional problems. Stress was laid on the importance of school feeding and support urged for the activities of the International Children's Emergency Fund. A matter of special technical interest was a Report, put before the Commission, upon "Energy-yielding Components of Food and Computation of Caloric Values." This had been drawn up by an *ad hoc* technical committee set up by the Nutrition Division of F.A.O. The Commission recommended that the Report should be referred to F.A.O's Standing Advisory Committee on Nutrition and that member governments should obtain the views of experts in their countries on the practicability of using the procedure recommended for evaluating food consumption data for international purposes. They also recommended F.A.O. to carry out further work on lines proposed in the Report.

* The Ice Cream (Heat Treatment, etc.) Amendment Regulations, 1948, came into operation on 1st May, 1948.

Co-operation with the World Health Organisation

The Second Commission also emphasised the importance of co-operation with the World Health Organisation, and a Joint Negotiating Committee of F.A.O. and the Interim Commission of the World Health Organisation drafted a joint agreement. The Conference subsequently gave provisional approval to this.*

Co-ordination of Nutritional Work

It has always been a matter of special concern to F.A.O. that member Governments should in some form have a national nutrition organisation. F.A.O's Standing Advisory Committee on Nutrition had recommended the preparation of a report on the present situation in this matter and, towards the end of 1947, a request was received for information as regards this country. A full statement was sent, in which it was pointed out that the subject of nutrition is one which had already received increasing attention in this country between the wars. The Medical Research Council has played a leading part in the promotion of research, and also, together with the Health Departments, in spreading knowledge on the subject, and as early as 1931 an Advisory Committee on Nutrition had been appointed by the Minister of Health.

Briefly, the present position in England and Wales and in Scotland is that there are several departments and organisations which by their interaction serve the purposes which F.A.O. have in view as the objects of a National Nutrition Organisation. During and since the war, these activities have been greatly developed by the several departments concerned, and close touch is also maintained with non-official workers. The Ministry of Food, for example, have a system for the assessment of the nutritional value of the country's diet, and undertake a widespread system of family surveys. They also undertake a great deal of publicity with regard to matters of nutrition for the information of the general public. The Health Departments, among many other activities, are specially concerned with the assessment of nutritional status, undertake popular education particularly in the field of maternity and child welfare, and carry out systematic clinical surveys of samples of the population. The Ministries of Education, of Labour, and of Fuel and Power all carry on nutritional work in their respective spheres. The Medical Research Council actively supports and encourages research on various aspects of nutrition, and as part of its own organisation has several establishments devoted to this purpose. A long series of reports has been published embodying the results of this research.

Co-ordination between Departments is secured by the Standing Committee on Medical and Nutritional Problems, under the chairmanship of the Chief Medical Officer of the Ministry of Health, on which all interested Departments are represented. Effective liaison with F.A.O. is maintained through the National (Official) Committee, and a further link is provided by means of the National (Consultative) Committee, which, in addition to departmental representatives, contains many eminent scientific medical men, including non-official nutritional specialists.

* The Fourth Annual Conference of F.A.O. (Washington, November–December, 1948) authorised the Director-General to sign the draft agreement, thereby bringing it into effect as soon as the Economic and Social Council of U.N.O. has been informed of its aims.

VIII

MENTAL HEALTH SERVICE

INTRODUCTORY

Shortage of Accommodation

This chapter covers the calendar year 1947, during which the Mental Health Service made some further progress in the gradual recovery from the abnormal conditions caused by the war. At 31st December, 1947, there were 145,772 persons under care. Of this number, 128,817 were in public mental hospitals, which involved an overcrowding of 14,668 on the basis of the recognised standards. At the end of 1946 the overcrowding amounted to 16,662. There was, therefore, some improvement, but overcrowding remained one of the main difficulties. The shortage of accommodation was due to several factors—

(*a*) Since 1939 there has been practically no additional building ; and, although there is no increase in the incidence of mental illness, it is necessary to provide additional accommodation every year to keep pace with the additional numbers of mental cases arising in an increasing population.

(*b*) At the end of 1947 there were 5,509 mental hospital beds still diverted to wartime purposes. During the year 4,908 beds, previously diverted, were returned to the Mental Health Service, but, at the end of the year, 3,965 had not been brought into use because they were still awaiting restoration or re-equipment.

(*c*) Owing to the shortage of nursing staff, 1,981 beds were not in use.

The importance of reconditioning as quickly as possible accommodation returned to the Mental Health Service and of proceeding with further extensions to mental institutions is recognised, but progress is limited by supplies of labour and material.

One aspect of the shortage of accommodation is especially disturbing: the overcrowding is serious enough in itself, but it has been kept within these limits partly because many mental hospitals have decided to limit admissions to certified cases, and have declined to receive voluntary patients. This is detrimental to the whole system of voluntary treatment, and involves grave hardship to persons voluntarily seeking treatment, often in the early stages of their illness, when there is the best prospect that early treatment might ensure recovery. However, taking the country as a whole, voluntary admissions to mental hospitals continued to increase during 1947 in relation to certified admissions ; no fewer than 21,357 were voluntary admissions out of a total of 39,223, *i.e.* 54·5%.

Shortage of Nurses

The shortage of nurses, both male and female, continued throughout the year. According to the returns dated 31st December, 1947, from mental hospitals the nursing of 138,430 patients is undertaken by 10,045 male and 7,778 female full-time nursing staff of various grades. This shows a shortage of 39%. An additional 1,552 men and 5,080 women are needed. The situation is slightly improved by the engagement of part-time staff employed on nursing duties but, owing to the remoteness of many mental hospitals the recruitment of sufficient part-time nurses is not possible. At the end of 1947 there were seven men and 3,250 women employed part-time.

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While it is not so difficult to recruit male nurses, the number and quality of the candidates are, as a rule, below pre-war standard. Great efforts have been made by local authorities and by central departments to deal with the situation and, while the number of nurses employed is steadily increasing, the complexity of nursing leads to a growing demand which makes it difficult for recruitment to catch up with requirements.

In general, shortage of accommodation and staff has not, it is believed, adversely affected the welfare of the patients to any serious extent. The reports of Commissioners of the Board of Control, who have carried out the usual statutory inspections, repeatedly refer to the special efforts made by medical and nursing staff to mitigate the discomforts and disadvantages inevitably resulting from overcrowding and shortage of staff ; and high praise is due to the medical, nursing, and administrative staffs of mental hospitals for their devotion to this service.

Occupational Therapy and Cultural Activities

It is becoming an accepted principle in the care of mental patients that occupational and cultural activities must be developed to the fullest possible extent. The view that occupational therapy plays an important part in treatment in every kind of hospital is slowly gaining wider acceptance, though the means available to apply it are still limited. In mental hospitals, occupation for chronic patients has been provided for a number of years, and in mental deficiency institutions it is a firmly established form of treatment for patients of all grades. Recent trends have tended to increase the scope and to extend the use of occupational therapy in mental hospitals to acute and newly admitted patients ; but there are still only a few hospitals where full opportunities are offered to patients, as individuals or as members of groups, for indoor and outdoor activities which may alleviate illness and point the way to health.

Cultural activities and entertainments, as well as occupational training, are still hampered by shortage of staff. Side by side with the development inside the hospitals themselves of libraries, of literary, musical, dramatic and art groups, of social clubs and other activities which do much to occupy the few and entertain the majority of the patients, valuable help has been given from outside sources. The British Red Cross Society and Order of St. John have continued to supply books and book-binding material, and to undertake the training of hospital librarians. In 1946 the Board of Control drew the attention of mental hospitals to the British Red Cross Picture Library Scheme in which 20 hospitals are now taking part. Representatives of the British Red Cross collect and exchange pictures periodically, and, if required, arrange art classes and illustrated talks on all aspects of art.

The Women's Voluntary Services, in extension of the valuable help given voluntarily to assist the nursing staff, began at the end of 1947 to help in organising social activities in hospitals and institutions.

Council for Music in Hospitals

During 1947 a movement was started, initiated by Sir Steuart Wilson, then Musical Director of the Arts Council of Great Britain, to help to provide good music in mental hospitals. A " Council for Music in Hospitals " was formed on which medical superintendents were represented. The Council aimed at organising concerts of high quality and furthering musical activities in mental hospitals. Already, at the end of the year, concerts were being organised in 10 mental hospitals.

Out-Patient Clinics and Rehabilitation Centres

There were at the end of the year over 250 psychiatric out-patient clinics, and about 120 child guidance clinics. This increase was still not enough to meet the needs of the country, especially in view of the wide geographical distribution of the clinics. Many of the defects mentioned in the 1945 Report of the Board of Control persisted : *e.g.*, inadequate staffs, inadequate accommodation, and inadequate treatment facilities. It is hoped that organisation on a regional basis will lead to more rapid improvement.

Discussions between the Ministry of Health and the Ministry of Labour and National Service continued with the object of improving the facilities for helping persons with psychiatric disabilities who apply at the employment exchanges for work. Efforts were made throughout the country to improve co-operation between employment exchanges and psychiatric out-patient clinics. Here again the progress was hindered by lack of staff, especially of trained psychiatric social workers.

In-patient accommodation for diagnosis and rehabilitation of patients with both neurosis and employment difficulties is available for a limited number at the Industrial Unit which is part of Sutton Neurosis Hospital. The staff comprises psychiatrists, social workers, a full-time Disablement Resettlement Officer, a vocational psychologist, and instructors in various trades. In addition to the workshops in the hospital, use is made of local employers and over 30 have co-operated. Patients stay for two to three months, and the aim is to arrange suitable employment before discharge, by a carefully devised procedure. This work requires great patience and enthusiasm but is important both as a research and as a clinical project. In spite of the unpromising material, two-thirds of the 180 patients discharged after the first year had suitable work arranged for them. A follow-up carried out after six months showed that 31 out of 50 unselected patients were still working.

If further special units for industrial cases are set up, it is thought that it would be wiser to establish them as part of the general neurosis centres, rather than try to create independent units.

After-Care of Ex-Service Patients

A brief account of the after-care and re-settlement scheme for ex-members of H.M. Forces and the Mercantile Marine was given in the Annual Report of the Board of Control for 1945. Since 1943, when the National Association for Mental Welfare (then the Provisional National Council for Mental Health) undertook with the Mental After-Care Association the whole of the field-work involved, the number of patients helped has steadily increased. In March, 1947, the number of active cases was 4,361 ; of these about 40 per cent. were civilians who, although not coming within the original scheme, required help which was not otherwise forthcoming.

As had been expected the number of patients discharged from service hospitals has declined, and the general trend of the figures and evidence supplied by the National Association points to the approach of the time when the help needed by ex-servicemen and others should be given through the mental health services normally provided locally by Regional Hospital Boards and Local Health Authorities. Consideration was being given at the end of the period under review to the way in which this valuable after-care work, undertaken by the National Association as an emergency measure, could best be co-ordinated with the new mental health services.

Psychiatric Social Workers and Mental Deficiency Workers

The need for trained social workers to meet the demands of expanding mental health services led, in the latter part of the year, to a proposal to set up a committee under the chairmanship of Professor James Macintosh to consider and make recommendations on the training and qualifications, and on the supply and demand, of mental health workers. At present, persons wishing to qualify for psychiatric social work can take a year's course at the London School of Economics, Manchester University, and Edinburgh University. Candidates are not accepted for these courses unless they have a social science certificate or degree or some equivalent qualification. The maximum numbers qualifying in the three Universities in 1947/48 is likely to be 68 (London 46, Manchester 8, and Edinburgh 14). Since the mental health course at the London School of Economics was started in 1929, about 350 students have been granted the mental health certificate, of whom 255 are now engaged in work directly concerned with mental health. This is not nearly enough to meet the growing demand for psychiatric social workers in mental hospitals, out-patient clinics, child guidance clinics, and in community care.

There is also a pressing demand by local authorities for trained mental deficiency workers. At present, no training is available which carries with it a recognised qualification for workers wishing to undertake mental deficiency rather than psychiatric social work.

A need also exists for assistants with experience of social work but without full psychiatric training who, under experienced supervision, could undertake work in the mental health field. For this latter group the National Association for Mental Welfare gives valuable help in organising two-months' courses of training.

Registered Hospitals and Licensed Houses

The 13 hospitals with charitable foundations registered by the Board of Control for the reception of mental patients were conducted during the year in a generally satisfactory manner. The Management Committees had, of course, to deal with many handicaps and difficulties resulting from war conditions, and were trying to remedy them as quickly and as effectively as present restricted conditions allowed. The same general considerations applied to the licensed houses. At the end of 1947 there were 16 Metropolitan houses licensed by the Board of Control and 21 provincial houses licensed by Justices for the reception of patients under the Lunacy and Mental Treatment Acts. Included in these numbers are three Metropolitan houses the licences of which have been suspended under Article 32AA of the Defence (General) Regulations, 1939.

During 1947, Commissioners of the Board of Control visited the Royal Naval Hospital, Great Yarmouth ; " D " Block of the Royal Victoria Hospital, Netley ; and Broadmoor Criminal Lunatic Asylum. Satisfactory results were received in each case.

During 1947 there were no prosecutions under the Lunacy Act, 1890.

MENTAL DISORDERS

Numbers under Care

At the end of 1947 the number of persons suffering from mental disorder notified as under care in England and Wales was 145,772. This was a decrease

during the year of 672 (males 317, females 355) compared with an increase of 417 during 1946. The average annual increase for the pre-war quinquennium (1934–1938) was 1,691.

The distribution of the sexes—males 42·8, females 57·2 per cent.—was the same as in 1946. The average for the preceding decade was : males 43·4, females 56·6 per cent.

Class, Status and Distribution

Private patients at the end of 1947 numbered 13,206 (males 7,295, females 5,911). Included in this total were 4,267 Service and ex-Service patients, 195 more than a year ago. Voluntary patients increased by 56 and temporary by 10, while the certified decreased by 391, making a net decrease of 325 in this class.

Patients in the Naval and Military Hospitals (R.N. Hospital, Great Yarmouth, 169; Royal Victoria Hospital ("D" Block), Netley, 37) are included among the private patients as are the 13 persons found of unsound mind by inquisition who were resident in institutions. There were, in addition, 26 persons (male 9, female 17) so found by inquisition who, not being resident in institutions, are not notified to the Board of Control and so do not fall within the scope of these statistics. The total number of these inquisition cases, which 30 years ago was over 350, continues to show a steady decrease.

Of the private patients 52·2 per cent. were males, 44·8 per cent. females ; but if the Service and ex-Service patients are excluded, as is advisable if it is desired to draw conclusions from such proportions, these percentages become : males 34·4 per cent., females 65·6 per cent.

Rate-aided patients on the same date numbered 131,652 (males 54,420, females 77,232) or 90·3 per cent. of all notified patients. Voluntary cases increased by 1,321, while temporary declined by 31 and certified by 1,657, resulting in a net decrease of 367 in this class.

Of the rate-aided patients 41·3 per cent. were males and 58·7 per cent. females ; or, if the Service and ex-Service patients are included, 43·1 per cent. males, 56·9 per cent. females.

Criminal patients numbered 914 (males 716, females 198), an increase of 20 during 1947.

Transfers from Class to Class

During the year 1,433 rate-aided patients (males 1,015, females 418) were transferred to the private class, 467 private patients (males 204, females 263) were transferred to the rate-aided class, and 44 criminal patients were retained and classed as rate-aided patients on expiry of their sentences or on their discharge from the criminal class by warrant of the Secretary of State.

TABLE I.—STATUS (VOLUNTARY, TEMPORARY, CERTIFIED)

At the end of 1947 the following patients of each status were under care :—

Status	Males	Females	Total
Voluntary	8,054	10,531	18,585 (12·7%)
Temporary	110	326	436 (0·3%)
Certified	54,267	72,484	126,751 (87·0%)

TABLE II.—REGRADINGS TO ANOTHER STATUS

During the year there were 2,361 changes of status within the institutions, as follows :—

From	To Voluntary	To Temporary	To Certified
Voluntary	—	24	401
Temporary	607	—	167
Certified	1,087	75	—

The distribution of all patients at the end of 1947 may be seen by reference to Tables III and IV in Appendix E, but it should be pointed out that 88 per cent. were resident in county and county borough mental hospitals.

Movement of Patients

Admissions, Discharges, Transfers to other Care and Deaths in 1947.—Owing to the absence of detailed information of the movement of persons suffering from mental disorder in public assistance institutions and public health general hospitals and of those in receipt of outdoor relief, particulars of the persons under these forms of care are not included ; the total number under care (page 220) therefore differs from the number remaining at the end of the year as given below.

The following statement includes patients of each status (voluntary, temporary, certified) :

Resident on 1st January, 1947	134,920
Direct admissions	44,356
Indirect admissions (excluding regradings)	2,115
	181,391
Discharged and Departed :—	
Recovered	15,243
Relieved	14,491
Not Improved	4,002
By operation of Law*	329
"Not now insane"	11
Transferred (under Order) to other care	1,877
Died	10,595
Remained at end of year	134,843
	181,391

The daily average number resident was 134,243 (males 57,651, females 76,592) the proportion of those resident in institutions provided by local authorities being 95·6 per cent.

Direct admissions during 1947 numbered 44,356 (males 18,164, females 26,192), of whom 90·1 per cent. were admitted to institutions provided by local authorities. The number and percentage of these admissions in each status were : voluntary 25,534 (57·6) ; temporary 1,500 (3·4) ; certified 17,322 (39·0).

* By reason of irregular admission documents, the lapsing of reception orders (Sec. 38, Lunacy Act, 1890 and Sec. 7, Lunacy Act, 1891) or discharge after absconding (Sec. 85, Lunacy Act, 1890).

Among these admissions there were probably a number for whom certification might have been avoided if fuller use had been made of Section 5 of the Mental Treatment Act, 1930. The proportion received as voluntary patients, however, which ten years ago was 35·8 per cent. continues to show a gratifying tendency to increase.

First admissions numbered 31,083 (males 12,892, females 18,191) or 70·1 per cent. of all direct admissions ; the average annual percentage for the ten years before the operation of the Mental Treatment Act, 1930, was 80·4.

Discharges and Departures (*i.e.* certified and temporary patients discharged and voluntary patients who departed from statutory care as recovered, relieved, or not improved) numbered 33,736 (males 13,434, females 20,302).

Calculated on the direct admissions the percentage of patients discharged or departed as recovered or relieved was 67·0 (males 63·3, females 69·6) while for recoveries alone the percentage was 34·4 (males 30·1, females 37·3). For the total absolute discharges and departures (including those not improved, those discharged on admission as " not now insane " and the 183 patients discharged after absconding) the percentage was 76·5 compared with an average for the preceding quinquennium of 70·9 ; the average annual percentage for the five years before the operation of the Mental Treatment Act, 1930, was 48·3.

Deaths numbered 10,595 (males 4,696, females 5,899), an increase of 493 compared with the previous year.. The death rate per cent. of the daily average number resident was 7·89 being 0·34 above the rate for 1946 ; the rate for males was 8·15 and for females 7·7. The average rate for the pre-war quinquennium (1934–38) was 6·81 per cent. (males 7·04, females 6·62).

Transfers to other care, etc.—During the year 2,115 patients were transferred to another institution or from single care or were, in a small number of instances, indirect admissions following discharge by operation of law. All such cases, as well as the regradings detailed in Table II, are technically termed *indirect admissions* and call for no further comment.

Numbers remaining under care.—At the end of 1947 the number of patients remaining under care (excluding those in public assistance institutions and public health general hospitals and those in receipt of outdoor relief) was 134,843 (males 57,789, females 77,054) a decrease during the year of 77 (males 103 decrease, females 26 increase).

COUNTY AND COUNTY BOROUGH MENTAL HOSPITALS

Accommodation

Including beds provided at two mental deficiency institutions by transfers under Article 32A(1) of the Defence (General) Regulations, 1939, for 56 female patients, accommodation in recognised bed space was provided on 1st January, 1948, for 125,604 patients (males 56,358, females 69,246). The decrease of 1,483 beds compared with a year ago was mainly due to the adoption of the revised standards of measurement (referred to in the Annual Report of the Board of Control in 1946) at certain hospitals which had been diverted to other use and where remeasurement was not carried out on 1st January, 1947.

Out of this accommodation, however, there remained diverted for purposes arising from the war recognised bed space for 5,509 patients (2,876 males, 2,633 females). In addition, 1,981 beds (434 male, 1,547 female) could not be used owing to shortage of staff ; and bed-space for 3,965 patients was awaiting

restoration, modernisation or re-equipment. As a result the amount of accommodation available for mental hospital patients was reduced to 114,149 (males 51,290, females 62,859) and there were on the books of the mental hospitals 3,925 males and 10,743 females in excess of this number.

Numbers under Care

At the end of 1947 there were on the books of county and county borough mental hospitals 128,817 patients, as follows :—

TABLE V.—NUMBERS UNDER CARE

Status	Males	Females	Total
Voluntary	7,421	9,123	16,544 { Private 1,356 / Rate-aided 15,188
Temporary	104	294	398 { Private 33 / Rate-aided 365
Certified	47,715	64,160	111,875 { Private 6,752 / Rate-aided 105,038 / Criminal 85
Total ..	55,240	73,577	128,817

There was an increase during the year of 238 patients compared with an increase during 1946 of 1,193. Voluntary patients increased by 1,454 while temporary decreased by 31 and certified by 1,185. The numbers in each class were : private 8,141 ; rate-aided 120,591 ; criminal 85.

Movement of Patients

Direct admissions.—During 1947 there were 39,223 direct admissions to county and county borough mental hospitals as shown below :—

TABLE VI.—DIRECT ADMISSIONS

Status	Males	Females	Total
Voluntary—			
Private	639	1,234	1,873 } 21,357 (54·5%)
Rate-aided	8,542	10,942	19,484 }
Temporary—			
Private	41	77	118 } 1,382 (3·5%)
Rate-aided	362	902	1,264 }
Certified—			
Private	151	165	316 }
Rate-aided	6,416	9,669	16,085 } 16,484) 42·0%
Criminal	75	8	83 }
Total ..	16,226	22,997	39,223

Compared with 1946 there were increases of 3,298 in voluntary admissions and 421 in certified and a decrease of 81 in temporary, making a total increase of 3,638.

Discharges and Departures.—The following table shows the status and mental condition at the time of discharge or departure of the absolute discharges and departures during 1947. Patients discharged on admission as "not now insane" and those discharged after absconding (Section 85) are not included in the table.

TABLE VII.—DISCHARGES—DEPARTURES

At time of discharge or departure		Males	Females	Total	
Status	Mental Condition				
Voluntary ..	Recovered ..	2,633	4,840	7,473	19,775 (67·6%)
	Relieved ..	4,123	5,353	9,476	
	Not improved	1,442	1,384	2,826	
Temporary ..	Recovered ..	62	192	254	449 (1·5%)
	Relieved	46	122	168	
	Not improved	15	12	27	
Certified ..	Recovered ..	2,024	3,355	5,379	9,024 (30·9%)
	Relieved ..	1,220	1,948	3,168	
	Not improved	193	284	477	
	Total ..	11,758	17,490	29,248	

Calculated on the direct admissions, the percentage of patients who departed or were discharged as recovered or relieved was 66·1 (males 62·3, females 68·7), for recoveries alone, the percentage was 33·4 (males 29·1, females 36·5) ; the percentage of the total absolute discharges and departures (including the 10 discharged on admission as "not now insane" and the 179 discharged after absconding) was 79·0.

Deaths during the year numbered 9,771 (males 4,359, females 5,412) an increase of 398 on the number in 1946. The death rate per cent. of the daily average number resident was 7·62 (males 7·92, females 7·40) ; this was 0·27 above the rate for the previous year and 0·20 above the mean percentage for the preceding ten years.

Post-mortem examinations numbered 4,865 or 50 per cent. of the deaths.

Service Patients.—The number of Service patients resident in county and county borough mental hospitals at the close of the year was 3,843, of whom 45 were women, compared with a total a year ago of 3,611 (amended figure)—an increase of 232 during the year. On the same date there were also 232 ex-Service patients (13 fewer than a year ago) the cost of whose maintenance is defrayed from a special Exchequer grant (see 11th Report of the Board of Control, page 31).

Registered Hospitals

The number of patients resident in the 13 registered hospitals at the end of 1947 will be found in Tables III and IV (*see* Appendix E), which show a decrease of 18 on the number resident at the end of 1946.

Direct Admissions during 1947 numbered 2,555 (males 928, females 1,627). Voluntary patients formed 83·2 per cent. of the total ; 3·3 per cent. were temporary and 13·5 per cent. certified.

Departures and Discharges.—Calculated on the direct admissions the percentage of patients who departed or were discharged as recovered or relieved was 76·5 (males 70·3, females 80·0) and for recoveries alone 43·2 (males 38·9, females 45·6); for the total absolute departures and discharges the percentage was 88·4.

Deaths in these hospitals numbered 320 and the death rate per cent. of the daily average number of patients resident was 13·3 (males 18·2, females 10·5).

Licensed Houses

The number of patients in these houses will be found in Tables III and IV (Appendix E); there was a decrease of 251 during the year.

Direct Admissions during the year numbered 1,453 (males 391, females 1,062); of this total 78·0 per cent. were voluntary patients, 2·3 per cent. temporary and 19·7 per cent. certified.

Departures and Discharges: Calculated on direct admission the percentage of patients who departed or were discharged as recovered or relieved was 66·8 (males 70·1, females 65·6) and for recoveries alone 37·1 (males 34·8, females 37·9), while for the total absolute departures and discharges the percentage was 78·9.

Deaths in these houses during 1947 numbered 427 and the death rate per cent. of the daily average number of patients resident was 18·3 (males 16·5, females 19·2).

Littleton Hall.—This house, used for the care and treatment of persons suffering from mental disorders for nearly 40 years, was closed owing to serious staffing difficulties, and the licence lapsed.

Stretton House.—For financial reasons the licensees decided to close the house and surrender the licence. Stretton House had been used for the care and treatment of persons suffering from mental disorders for nearly 100 years.

Single-Care

The number of patients who were resident at the end of 1947 in private single-care under the provisions of the Lunacy and Mental Treatment Acts, apart from cases found of unsound mind by inquisition, will be found in Table IV. (Appendix E.) Compared with a year ago there was a reduction of 22 in the number under care. The Commissioners of the Board of Control reported as a result of visits to these patients, that the arrangements for their care and treatment were generally satisfactory.

Certified Patients in Public Assistance Institutions and Public Health General Hospitals*

The number of patients certified under the Lunacy Acts and detained in public assistance institutions and public health general hospitals at the end of 1947 was 8,893 (males 3,873, females 5,020). It should be noted that these numbers relate only to persons certified under the Lunacy Acts and that they by no means represent the total number of mental cases in these institutions.

MENTAL DEFICIENCY

(Mental Deficiency Acts, 1913 to 1938)

Numbers under Care

Mentally defective patients in institutions and under statutory care in the community at the end of 1947 numbered 103,321 (males 53,600, females 49,721), that is 51·9 per cent. males, and 48·1 per cent. females. The proportion of

* The number of mental defectives in these institutions will be found in Table VIII, Appendix E.

patients under 16 years of age of the total of 54,229 patients who were in institutions was 14 per cent. (males 17 per cent., females 11 per cent.). A table showing the distribution of the patients under care is given below.

During 1947 there were increases of 634 in Certified Institutions, 31 in the State Institution, 149 in Public Assistance Institutions and Public Health General Hospitals approved under Section 37 of the Mental Deficiency Act, 1913, four in Certified Houses, 50 in Approved Homes, 201 among those under Guardianship or Notified and 447 among those under Statutory Supervision, making a total increase of 1,516 under care.

The distribution of defectives under statutory care on 1st January, 1939, 1947 and 1948 was as follows :—

	1939	1947	1948
In Institutions, Houses and Homes provided under the Mental Deficiency Act, 1913	46,054	53,361	54,229
Under Guardianship or Notified	4,841	5,172	5,373
Under Statutory Supervision	39,009	43,272	43,719
	89,904	101,805	103,321

Nearly 78 per cent. of the patients receiving institutional care at the end of the year 1947 were in Certified Institutions (Section 36); the distribution of the patients in these institutions according to the conditions under which they were received was as follows :—

	Males	Females	Total
Received under the provisions of the Mental Deficiency Acts	20,803	19,887	40,690
Not certified under the Mental Deficiency Acts—			
Sent by Local Education Authorities	816	499	1,315
Sent by Poor Law Authorities	38	93	131
Sent by relatives or others	23	23	46
	21,680	20,502	42,182

Ascertainment

The following table, compiled from annual returns received from local authorities, gives particulars of the number of mental defectives reported to them.

TABLE IX

On 1st January	Number reported whether "subject to be dealt with" or not	Ratio per 1,000 of the population	Number ascertained to be "subject to be dealt with"	Ratio per 1,000 of the population
1939	129,395*	3·15	95,418	2·33
1947	133,967	3·23	102,073	2·46
1948	135,388	3·26	103,524	2·50
Increase during 1947	1,421	0·03	1,451	0·04

* Including feeble-minded children between the ages of 14 and 16 years notified informally for after-care on leaving school.

The number of children reported by Local Education Authorities during 1947 was 3,799, compared with 4,209 in 1946. Of the cases reported during the year 435 were sent to Institutions, 21 placed under Guardianships, 2,792 under Statutory Supervision and 60 taken to " places of safety " ; 46 died or were removed from the area of the local authority. No action had been taken in 445 cases (12 per cent.).

Table X (Appendix E) shows the proportion per 1,000 of the estimated (mid-1939) population of the area, of mental defectives reported to local authorities ; of mental defectives ascertained to be " subject to be dealt with " ; of mental defectives receiving institutional care ; and of mental defectives placed under some form of Statutory care in the community (i.e. licence, guardianship, statutory supervision.) The ratios in the third and fourth columns, showing the action taken are, except in a comparatively small number of cases, less than the ratios showing the number ascertained ; this is because in different areas varying numbers of those who have been ascertained are still in receipt of poor relief and in some areas, comparatively large numbers have been ascertained but no action has been taken.

It will be noted that 33 local authorities now have found the number of mental defectives in their area for whom they are or may become responsible to be over 4 per 1,000 of the population, and that the comparable figure estimated by the Wood Committee, 4·52 per 1,000, has been exceeded by 22 authorities. At the other end of the scale are 28 authorities, both urban and rural, which give a return of only 2·50 per 1,000 or less, indicating incomplete knowledge of the defectives in their area.

Accommodation

The total number of beds provided on 1st January, 1948, for mental defectives in Institutions and Homes certified or approved by the Board was 49,432, a net increase of 202 since 1st January, 1947.

The difficulty in recruiting staff still prevented full use being made of accommodation in several Institutions throughout the country.

There was a net increase of only 202 beds during 1947. For a variety of reasons, including the continued use by the Emergency Hospital Service of some 250 beds, full use could not be made of those which are certified or approved for mental deficiency purposes. High priority, within the limited building resources available, is being given to accommodation for low grade and troublesome defectives, but the result of schemes now in hand will only be seen in the course of years.

Beds Provided

The following table shows the number of beds provided for mental defectives under Sections 35, 36, 37, 49 and 50 of the Mental Deficiency Act, 1913, on 1st January, 1939, 1947 and 1948. There was a net increase during 1947 of 202 beds, compared with a net increase of 168 beds during 1946.

TABLE XI

	On 1st January		
	1939	1947	1948
(i) Certified Institutions provided by Local Authorities (Section 36)	22,874	27,548	27,657
(ii) Certified Institutions provided by other bodies (Section 36)	10,240	9,569	9,559
(iii) Public Assistance Institutions and Public Health General Hospitals (Section 37)	10,120	9,923	9,985
(iv) State Institutions (Section 35)	1,457	1,531	1,523
(v) Certified Houses (Section 49)	182	172	172
(vi) Approved Homes (Section 50)	844	487	536
	45,717	49,230	49,432

Changes during the year included the reinstatement of Brandesburton Hall (East Riding and York Joint Board) after its war-time use by the Royal Air Force and the closing of The Hermitage (East Sussex County Council) owing to lack of staff. These and other minor changes resulted in a net increase of 202 beds.

Hostels for Working Patients

The following Hostels under the management of non-statutory bodies receive patients, in the first instance, on licence from other Certified Institutions :

Royal Fort Home, Bristol (The Committee of Management) (Women)
Royal Hostel, Elstead (Surrey Voluntary Association for Mental Welfare) (Men)

Two Local Authorities provide independent Hostels as follows :—

71–73, Scott Road, Sheffield (Sheffield C.B.) (Women)
Stoneville, Wakefield (West Riding C.C.) (Women)

The following Institutions have Hostel branches :—

The Manor (London C.) (Men and Women)
Royal West Counties Institution (Men and Women)
Meanwood Park Colony (Leeds C.B.) (Women)
St. Lawrence's Hospital (London C.) (Men)
Monyhull Colony (Birmingham C.B.) (Women)
Harmston Hall Colony (Lincolnshire Joint Board) (Women)
Sandhill Park (Somerset C.) (Men and Women)
Aston Hall (Nottingham C.B.) (Men)
Stoke Park Colony (Women)
Pewsey Colony (Wiltshire C.) (Agriculture Hostel for Men)
Leicester Frith (Leicester C.B.) (Men)
Tilworth Grange (Hull C.B.) (Women)

Emergency Homes

Four emergency Homes used during the war for children evacuated from danger areas were still in existence :—

Under the Management of National Association for Mental Health

St. Paul's House, Upper Maze Hill, St. Leonard's-on-Sea
Bod Donwen, Rhyl
Sherborne House, Basingstoke.

Under Private Management

Field Place, Nursery Home, New Milton, Hants. } For children from the area of the Middlesex County Council.

Holiday Homes

The Old Vicarage, Bognor Regis, reverted to its original use as a holiday home under the management of the National Association for Mental Health.

Hostels for Agricultural Workers

There were at the end of 1947 nine agricultural hostels conducted by the National Association for Mental Health in conjunction with local agricultural committees in addition to the Potterne Wick branch of Pewsey Colony mentioned above :—

Hatherley Court,
Down Hatherley,
Gloucestershire.

Siddington Road,
Cirencester,
Gloucestershire.

Firleaze,
Ridgeway,
Gloucestershire.

Beacon Garth,
Hessle,
Near Hull.

Keyingham,
Near Hull.

Patrington,
Near Hull.

Stottesdon Hostel,
Kidderminster,
Worcestershire.

Denmead Hostel,
Cosham,
Portsmouth.

Avebury House,
St. Peter's Street,
Winchester, Hants.

Community Care and Community Training

The development of occupational and industrial centres is a matter of concern to many local health authorities at a time when institutional care and training is often unobtainable and when openings for mental defectives in industry are being curtailed by increasing competition in the open labour market. There has been a slow increase during the past two years in the number of new or re-opened centres and clubs, but there are still only 104 compared with 191 in 1938. This may be partly accounted for by the difficulty of obtaining suitable buildings, and partly by the lack of teachers with knowledge and understanding of the needs of low grade defectives.

The value of centres both to parents and to the defectives themselves has been amply demonstrated. The relief during the day from the constant burden of caring for a defective child makes home care easier and many parents acknowledge the improvement in the behaviour of a child who is being trained and happily occupied in a Centre with other children of comparable mentality. It is also obvious that adolescent defectives taught to make full use of their limited capabilities and employed in work that interests them are less likely to run the streets and fall into delinquent habits than the defective boy or girl growing up at home with nothing to do.

Community training will always be needed to supplement institutional care : but at the present time, when it is often impossible to find beds in institutions even for the most urgent cases, day centres and home training play an exceptionally important part in the development of mental deficiency services.

A three-term course for teachers in occupational centres and in colony schools, which should be of value to local health authorities and to Hospital Management Committees, was again organised by the National Association for Mental Health. The course is largely practical : ten weeks training is given in London followed by five to six months practical work in occupation centres or colony schools approved for the purpose.

Community Care

Table XII classifies the 54,302 mental defectives under statutory care in the community (i.e. on licence, under guardianship and under supervision on 1st January, 1948), and shows the corresponding numbers for the previous year and for the 1st January, 1939. The increase during 1947 was 661.

TABLE XII

	On 1st January			Increase during 1947
	1939	1947	1948	
On licence from institutions	3,107	5,571	5,616	45
Under guardianship (Section 30 (*a*)) ..	4,531	4,798	4,967	169
Under statutory supervision (Section 10 (*b*))	39,009	43,272	43,719	447

Table XIII shows corresponding particulars for mental defectives under voluntary supervision (i.e. those not " subject to be dealt with " but for whose friendly visitation some arrangement has been made by the local authority).

TABLE XIII

	On 1st January			Decrease during 1947
	1939	1947	1948	
Under voluntary supervision..	26,006	23,783	23,242	541

Community Training

Table XIV shows occupation centres and clubs functioning on the dates specified. Separate classes in one building are counted as one centre and not as distinct units.

TABLE XIV

	1st January, 1939		1st January, 1947		1st January, 1948	
	Centres	Clubs	Centres	Clubs	Centres	Clubs
Local Authorities ..	68	1	46	1	51	1
Voluntary Associations	110	12	52	2	49	3
	178	13	98	3	100	4

Changes during 1947

Five new Centres were opened by local authorities during the year and three by voluntary associations ; six were closed for various reasons. There is a Leisure Club at Letchworth for girls on licence in that area, conducted by the National Association for Mental Health. Although the number of Centres slowly increased at the end of 1947 it was still little more than half of the pre-war figure. The number on the register of all Centres on 1st January, 1948 was 3,474 compared with 2,784 a year ago and 4,244 on 1st January, 1939.

Discharges

TABLE XV

MENTAL DEFECTIVES DISCHARGED FROM (*a*) INSTITUTIONS AND (*b*) GUARDIANSHIP IN THE YEAR 1947

	Reason of Discharge				
	By Board of Control	Owing to nature of Special Report and Certificate or because not received (Section 11)	Orders lapsed whilst absent without leave	On attaining age of 21 (Section 11 (2) and (3))	Total
(*a*) Institutions	375	335	—	21	731
(*b*) Guardianship	32	61	—	1	94
	407	396	—	22	825

The number of defectives discharged in 1947 showed a decrease of 89 compared with 1946.

The total numbers discharged in former years were :—

1939: 1,025 ; 1940: 819 ; 1941: 846 ; 1942: 815 ; 1943: 1,001 ; 1944: 940 ; 1945: 921 ; 1946: 914.

Deaths

The deaths which occurred during 1947 among the mentally defective patients in Institutions (excluding Institutions approved under Section 37) and under guardianship numbered 720 (males 388, females 332), distributed as follows:— certified institutions, 673 ; State institution, 10 ; certified houses, 4 ; approved homes, 7 ; under guardianship, 26.

The proportion of deaths to the average number of patients resident was 14·7 per thousand compared with an average for the preceding quinquennium of 14·5 per thousand.

The chief causes of death were : pneumonia (all forms), 148 (20·6 per cent. of the total number of deaths) ; tuberculosis (all forms), 141 (19·6 per cent.) ; heart disease, 133 (18·5 per cent.) ; epilepsy, 76 (10·6 per cent.).

State Institution* (Rampton)

The following is an extract from the report of Dr. Mackay, the Medical Superintendent of Rampton :—

Numbers Resident—

	Men	Boys	Women	Girls	Total
1st January, 1947 ..	707	17	435	17	1,176
31st December, 1947 ..	724	21	441	12	1,198

Admissions.—Admissions during the year numbered 132 (males 90, females 42); in addition three men and six women were transferred from Moss Side.

The following table shows the sources of admission :—

	Males	Females
Certified Institutions	54	32
Institutions approved under Sec. 37	8	6
Under new Orders :		
(*a*) Prisons	9	—
(*b*) Borstal	1	—
(*c*) Home Office Approved Schools ..	1	2
(*d*) Other sources	10	1
Mental Hospitals	—	1
Places of Safety	4	—
Own Home	3	—
	90	42
Transferred from Moss Side	3	6
	93	48

Transfers.—In the same period patients transferred to other institutions numbered 81, of whom 49 were males and 32 females, these figures comparing with 68 males and 47 females in the previous year.

Of the total transfers 14 men and three women were removed to Moss Side and from that institution, as indicated above, three men and six women were admitted to Rampton in exchange.

Discharges.—Two men and three women were discharged from the Mental Deficiency Acts, and Orders were allowed to lapse in the case of one man and six women who had been sent to Mental Hospitals under Section 16 of the Act. The Order under which one male patient was detained lapsed as the patient was not seen by the Visitors within three months of attaining 21 years. He was detained pending certification and a new Order was made and the patient admitted. In the case of one male absconder not recaptured, certification under the Mental Deficiency Acts lapsed.

Deaths.—During the year eight men and one woman died giving a death rate of 7·61 per 1,000.

* An institution for defectives of dangerous or violent propensities vested in the Minister of Health and managed by the Board of Control under the provisions of Section 49(4) of the National Health Service Act, 1946.

Licence—On 1st January, 1947, 10 men and 19 women were on licence ; 29 men and 32 women were granted licence to other Institutions, their own homes or into service in the course of the year. The total number remaining on licence on 1st January, 1948, was 40, distributed as follows :—in service, two men and five women ; at home, one man and two women ; in other institutions, 12 men and 18 women.

Section 16.—On 1st January, 1948, seven men and 13 women were detained in mental hospitals under the provisions of Section 16 of the Act, whilst during the course of the year one man and six women were discharged from this Section by operation of law.

Absconders.—During the year 19 men absconded as compared with 16 men and six women in the previous year. Return to this Institution of 15 men left 10 men and two women still absent without leave.

General Review.—A matter of particular clinical interest during the period under review was the introduction of the operation of prefrontal leucotomy in the treatment of a specially selected group of cases, male and female, whose extreme conduct coupled with a highly emotional condition seemed to warrant such treatment. At the end of more than a year, it could be reported that in a series of 20 cases, 14 female and six male, five women showed remarkable improvement with freedom from outbursts of violence or self-injury, and others, both male and female, were considerably relieved from their more objectionable and extreme exhibitions of conduct.

Of those cases regarded as remarkably improved it is interesting that after a period of more than a year and not less than six months after the operation, there was no relapse of conduct, and these patients, previously so unstable and extreme in their conduct that no latitude could be permitted in their supervision or occupation, were working either in the nurses' homes or elsewhere without the need for special observation.

The second matter of clinical importance was the increase in the number of male patients suffering from pulmonary tuberculosis. This increase is contributed to by the considerable overcrowding in the male wards. Attention was drawn in previous reports to the effects of overcrowding on health and classification. Congestion will be relieved by the transfer to the State Institution at Moss Side of some 80 patients as soon as staff can be procured. In addition the building programme at Rampton includes measures to remedy the inadequate sanitary and washing facilities still existent in some of the wards. The value of a good portable X-ray apparatus has been amply proved in the earlier diagnosis of tuberculosis and of course in other directions as well. Plans for a fully equipped X-ray department are included in the scheme of modernisation and the erection of a modest operating theatre as an extension of the male and female hospitals is also contemplated. In the meantime the erection of a sterilising room adequate for present and future needs is imminent.

The laboratory played an increasingly active part in clinical activities, despite the absence of the regular technician for a long period, and both patients and staff benefited from these services as well as from the liaison between the consultants' services and the Institution's medical staff.

Increasing emphasis is laid on handicrafts and occupations in the rehabilitation of patients and there was a steady development in this field. The importance from the therapeutic point of view of training given in the utility departments is also fully appreciated.

For those who can be encouraged to look ahead, the prospect of a chance of earning a living is an incentive to good behaviour, and if the process may be

lengthy in certain cases it is nevertheless gratifying to be able to place a number in service, either in private houses or hospitals, and in due course to see these merit their discharge from certificate. With a view to encouraging this outlook on life, the Board were considering, at the end of the year under review, establishing a girls' hostel in the vicinity.

The success in sending selected girls into service has encouraged us to persevere with the system. With the male patients experiment has not given the same encouragement and it is felt that even more perhaps than for women, a hostel system would be a preliminary essential.

During 1947 some necessary improvements to institution amenities were carried out, such as the installation of efficient steam extractors in the kitchen, installation of new equipment in the kitchen and laundry, and a little re-decoration.

The year under review has been one of considerable activity and the burden of work has been heavy on all departments. I have, therefore, to thank the nursing staff as a whole for their loyal assistance in our difficult tasks, and to officials,—medical, nursing and clerical—on whom sometimes the duties have fallen exceptionally heavily I am indebted for their dutiful support.

The following medical officers were confirmed in their appointments :—

Dr. W. T. Macdonald (as deputy Medical Superintendent), Dr. E. H. Hiley and Dr. J. M. McAlpin, all of whom have served for several years in His Majesty's Forces.

Two vacancies have still to be filled.

State Institution (Moss Side)

The following are extracts from the report of Dr. James, the Medical Superintendent of Moss Side :—

Number Resident	*Males*	*Females*	*Total*
1st January, 1947 ..	236	139	375
31st December, 1947 ..	232	135	367

Admissions.—The number of admissions during the year was 15 males and 12 females; 23 were feeble-minded, two were imbeciles, one was a moral defective and one was of unsound mind. Six females were received from certified institutions, one male and one female came from prisons, two females came from mental hospitals and the remainder came from Rampton.

Transfers.—Eight males and one female were transferred to certified institutions or to institutions approved under Section 37 ; three males and six females were transferred to Rampton.

Licence.—Five males and two females were on licence at the beginning of the year—four males and one female being in institutions, one female in employment and one male in an agricultural hostel.

During the year 10 males and seven females proceeded on licence to institutions, one female went to relatives, and one female went into employment ; eight males and four females who were on licence to institutions were transferred to the books of those institutions and two males returned from licence.

At the end of the year five males and six females were on licence ; of those, the five males and four of the females were in institutions and two females were in employment.

Discharges.—One female was discharged from the Mental Deficiency Acts while on licence.

Deaths.—One male died during the year, the death rate being 2·69 per 1,000. The cause of death was tubercular peritonitis.

Section 16.—One female was transferred to a mental hospital under Section 16 of the Mental Deficiency Acts, 1913, and at the end of the year she remained on our books under this Section.

Absconders.—Eight males and seven females absconded during the year, nine males and seven females were returned, and one female was placed on licence. One male and one female were absent at the beginning of the year and none was absent at the end of the year.

General Health.—There were no epidemics during the year and the health of the staff and the patients was good. Careful watch upon the weight of each individual patient was maintained but the restricted dietary showed no effect other than one of fluctuation in weight ; there being no general tendency to decrease or to increase. The work of the visiting dental surgeon and the visiting chiropodist was of much importance in improving the physical and mental health of the patients and it is hoped that the scope of the dental clinic will be expanded.

New Buildings.—Work was resumed on the unfinished male special blocks which are intended to provide accommodation for another 80 patients but shortage of staff deferred yet again the opening of the completed female special block and its workshops.

Occupations.—The scarcity of raw materials for the workshops was more pronounced but in spite of this the general standard and output of work was well maintained.

A second tractor was provided for the farm. Several hundreds of young trees were planted near the entrance gates and in other sites and were provided with wind-breaks of poplar. All of these came from the Institutions' nurseries.

Recreation.—There was no diminution in the general interest and participation in organised and competitive games by the male patients. The programme included cricket, football, an open-air boxing tournament, snooker, cinema performances, scouts and guides, as well as the usual Christmas entertainments.

Prosecutions

Eight prosecutions under the Mental Deficiency Act, 1913, which resulted in convictions, were reported to the Board of Control.

Local Health Authorities' Schemes

During the latter part of the year under review Local Health Authorities began to submit schemes in accordance with Sections 51 and 28 of the National Health Service Act, and in response to Circular 100/47 of 16th June, 1947. In considering these schemes the aim was to ensure that machinery will be available for the discharge by Local Health Authorities of their mental health functions. The following conclusions were made : a Mental Health Sub-Committee of the

Health Committee is needed to which the Medical Officer of Health will be responsible for the administration of the combined mental treatment and mental deficiency services; close co-operation and joint use of specialist staff, medical and social, with Regional Hospital Boards should be ensured in order to prevent inefficiency and to provide continuity in the service; specialist medical advice both on administrative and clinical questions should be available to the Medical Officer of Health and to the Sub-Committee; trained mental health workers are needed to carry out, under medical direction, the care and after-care of mentally ill and mentally defective persons in the community.

Schemes on these lines were being submitted by Local Health Authorities in consultation with Regional Hospital Boards; although in many places these schemes cannot be fully implemented at present, owing largely to lack of trained personnel, they form a foundation on which future mental health services in the community will be based.

IX

SETTLEMENT OF POLES IN THE UNITED KINGDOM

During 1947–1948, the civilian dependants of members of the Polish Armed Forces were brought to this country from Italy, Germany, Africa and the Middle East. These dependants were housed in War Office camps. In July, 1947, the Assistance Board started to take over the camps and up to 31st March, 1948, had assumed responsibility for nine camps out of 19 scheduled to be taken over by the end of June, 1948. On 31st March the number of residents in the camps which had been taken over was about 4,500.

Health Services in Camps

The health services organised in the camps under the powers conferred on the Minister by the Polish Resettlement Act, 1947, included the provision of Polish medical officers, sick bays for the treatment of minor ailments, maternity and child welfare services and nursery facilities for the young children of mothers obtaining employment. Maternity beds were provided at Penley Hall Hospital, Flintshire, which is administered on behalf of the Department by the Ministry of Pensions, at a Polish Resettlement Corps Hospital at Diddington, Huntingdonshire, and at a maternity unit administered on behalf of the Department by the Surrey County Council.

For the provision of general hospital treatment the Ministry of Pensions agreed to administer a second Polish Military Hospital—Iscoyd Park, Flintshire—and also one of the convalescent homes taken over by the Ministry of Health from the Interim Treasury Committee for Polish Affairs in 1947. The convalescent home will be used in conjunction with Penley Hospital and Iscoyd Park Hospital. In view of these arrangements, it was decided that a number of existing Polish institutions for civilian patients were no longer necessary and should be closed.

Provision for Mental Patients

The London County Council's Long Grove Mental Hospital, which had been providing accommodation for Poles since 1943, had 300 under care at the end of 1947. It had become apparent during the year that more accommodation in mental hospitals was required in order to care for the patients who were being concentrated in No. 4 Polish Hospital, which was needed by the Ministry of Pensions for the care of tuberculosis patients. Knowle, Park Prewett, West Ham, Chartham, City of London, and Tone Vale Mental Hospitals all agreed to help, though the majority went to the two first-named. There remained a residue of some 250 patients still requiring mental hospital accommodation.

For patients not requiring mental hospital care it was necessary to find accommodation to replace the existing rehabilitation centres. For this purpose it was decided to use Mabledon Park, near Tonbridge, Kent, previously a civilian resettlement unit. This Centre for 110 patients was opened on 1st March, 1948.

Position of Polish Doctors and Pharmacists

The Polish Resettlement Act, 1947, included special provision for the temporary medical registration of Polish doctors coming to this country under the Polish Resettlement Scheme. The number of doctors registered under this provision was 316.

Registration under the Polish Resettlement Act, like registration by virtue of the Temporary Registration Orders made under Defence Regulations, came to an end on 31st December, 1947, but provision was made for Polish doctors and pharmacists in the Medical Practitioners and Pharmacists Act, 1947 (*see* pages 26–27).

PART II

HOUSING, LOCAL GOVERNMENT, AND THE YEAR'S WORK IN OTHER FIELDS.

I

HOUSING

1.—General Review of Housing Problems and Policy

Introductory Survey

The difficulties of the national economic situation affected housing throughout most of the year. It was announced by the Prime Minister in the House of Commons on 6th August, 1947, that there would have to be a re-deployment and re-timing, including some postponement of the general building programme. Even before then, action was being taken to get the housing programme into better balance by curtailing the number of new commitments entered into by local authorities and concentrating efforts on finishing as many as possible of the houses under construction.* Because, however, of the need to maintain a measure of continuity where good progress was being made, and to implement arrangements made in earlier months, the number of new commitments exceeded completions until July. But from then on the trend was reversed.

It was also announced in the House of Commons on 23rd October that the Government had decided to provide for the completion in the shortest possible time of all the houses in course of construction or on tenders approved but not yet started, but to restrict future approvals so as to bring the number of houses under construction into balance with the foreseeable timber supplies, since the amount of softwood which could be imported would be the greatest limiting factor on the future rate of progress. (The White Paper on Capital Investment in 1948, Cmd. 7268 published in December, 1947, contained a statement on the housing programme in relation to national resources.) A further review of the whole situation was promised for the summer of 1948.†

Other major steps taken by the Government in this connection were the giving of preference, so far as local resources allowed, to the building of houses for coal miners, agricultural workers and key workers in development areas in view of the vital importance of their contributions to the national economic recovery ; and the suspension from mid-August of the issue by local authorities of further licences for the building of new houses by private persons, except for houses to be built in replacement of war-destroyed houses and for letting to agricultural workers, coal miners and key workers in development areas.

During the year there was a steady rise in the rate of completion of houses (the number completed in the last month of the year under review was more than double the number completed in the first month). Whilst the number of houses (exclusive of aluminium houses) under construction at the end of the year was practically the same as at the beginning (about 185,000 as against 184,000) the number of houses approved but not started fell sharply from about

* For fuller information, reference should be made to the introductory survey in last year's report and the statement on the 1947 housing programme published in the Housing Return for England and Wales, 31st March, 1947, Cmd. 7113, H.M. Stationery Office, York House, Kingsway, W.C.2. Price 9*d*.

† Housing Return for England and Wales, 31st May, 1948, Cmd. 7442, H.M.S.O., price 9*d*.

101,000 to about 42,000. The two objectives of getting the programme into balance and finishing the houses under contract as rapidly as possible were therefore substantially achieved—and achieved more swiftly than had been expected. It had indeed become apparent that to keep the programme in balance it would be necessary to authorise fresh contracts, but these adjustments could not be effective until after the end of the year. The main question left unsolved at the close of the year was what the level of future construction would be.

Building Resources

(*a*) *Labour*

During the year the labour position gradually improved. The loss of men during the bad weather at the beginning of 1947, to which reference was made in last year's report, was made good by June, and the total force engaged on the construction of new houses continued to increase until October. At the end of March, 1948, the number of men engaged on the construction of permanent houses was 229,700 as compared with 193,200 at the end of the preceding year. The number of outstanding vacancies for bricklayers on housing sites fell from 16,000 in April, 1947, to 4,800 in March, 1948. In most parts of the country the scarcity of plasterers was perhaps the biggest labour handicap in the completion of new houses.

The repatriation of German prisoners-of-war proceeded smoothly and no serious dislocation was experienced. By the end of March, 1948, the number of prisoners-of-war engaged on housing was negligible.

The training schemes introduced by the Ministry of Labour and National Service at the end of the war could not be maintained under the changed economic circumstances. On 1st September, 1947, Training Centres ceased to accept general applications and (apart from provision for disabled men and other special entrants) the schemes were gradually curtailed and allowed to lapse.

The general uncertainty made building employers reluctant to enter into indentures with boys desirous of entering the building industry, and the Apprentice Master Scheme under the Building Apprenticeship Training Council became increasingly important. Local authority housing sites continued to provide the main field for these Apprentice Master Schemes and an appreciable number of houses was built by boys operating under an approved Apprentice Master.

Defence Regulation 56AB provided, among other matters, that the payment of wages and the conditions of employment of operatives in individual employments should be neither more nor less favourable than those embodied in the District Working Agreements of the building industry. Most District Working Agreements did not permit payments on a piece-rate basis, and in such areas the adoption of an incentive scheme of payments was therefore illegal. The Defence Regulation was amended on 25th July, 1947, removing any statutory objection to the payment of an incentive bonus wherever both employers and operatives agreed. The national wages settlement which took effect from 16th November, 1947, was therefore able to couple an agreed provision for incentive bonus with a flat wage increase. Very little effect from this provision was felt before the end of March, 1948, but there is evidence to show that payment of a bonus directly related to output led to an improvement in the rate of completion of houses.

The system of labour priorities was revised in March, 1948, and the system of issuing W.B.A./H certificates to housing contractors was replaced by a simplified arrangement which maintained supplies of labour but eliminated some clerical work on the part of local authorities and contractors. The new system worked well from the beginning.

(b) Timber

The White Paper on Capital Investment made clear that the Housing Programmes for 1948 and 1949 were to be related to and conditioned by the probable imports of softwood timber. The shortage of softwood timber was particularly acute during the second quarter of 1947 and the total stocks of imported timber fell to 100,000 standards in May, a level at which smooth internal distribution to builders throughout the country was quite impossible. It was imperative to economise to the utmost in the issues of softwood timber in order not only to build up available stocks to the minimum quantity necessary to ensure smooth distribution, but also to provide a reserve for use during 1948 when it was already known that the volume of imports would be substantially less than could be secured for 1947. Timber was made available in minimum amounts necessary to maintain progress and the national stocks were steadily built up, until by December, 1947, they had reached 607,000 standards. From the beginning of 1948 it was necessary, as had been foreseen, to draw on the accumulated reserves and by the end of March, 1948, stocks were down to 515,000 standards and were still falling.

Hardwood supplies presented few difficulties, but hardwood cannot be used extensively in building construction.

Towards the end of the year under review the plywood position began to cause concern and efforts were made to encourage the use of hardwood on certain fitments and joinery items.

(c) Other Materials

The steady increase in the production of building materials and components needed to maintain progress on housing sites was badly interrupted by the severe weather in the early part of 1947. The fuel crisis caused a considerable interruption in output, with the result that stocks needed for the building activities of the summer were not as plentiful as had previously been expected. With the return of good building weather, builders were anxious to get ahead rapidly and it was not surprising that for a time the expansion was accompanied by shortages of certain materials. Cement became particularly scarce during the summer months and special arrangements had to be made to ensure that the needs of housing were met. Certain parts of the country dependent for their supplies on sea-borne deliveries from the Medway Estuary were particularly handicapped by the shortage, which was accentuated by the lack of coastal shipping. The materials which were scarcest were rainwater goods, soil pipes and electrical components. Towards the end of the year some improvement was apparent. Early in 1948 the supply of pitchmastic for surfacing the ground floors of houses became inadequate and delays in completion sometimes resulted. Use was made of alternative materials such as bituminous asphalt and blocks or floors of other compositions. Generally speaking, there was a steady improvement in the supply of other types of building materials and small stocks of some items began again to be held by builders' merchants. Certain difficulties continued to persist in connection with items such as steel and cast iron tubing and electric cable, for which there was a heavy demand for exports and for priority industrial work at home.

The claims of housing work to a proper share of the materials available were helped towards the end of 1947 by the revision of the W.B.A. Scheme for the priority distribution of materials. The Control of Building Materials (No. 1) Order, 1947 (S.R.O. 1698 of 1947, price 1*d.*), made by the Minister of Works, came into force on 1st September, and for the first time it became a statutory offence for a consumer to obtain certain named controlled materials in quantities exceeding those referred to in the priority certificate or for merchants to supply

non-priority users in preference to those holding such certificates. The operation of the scheme in its original form was found to give rise to an undue amount of clerical work and delay in connection with minor urgent repairs. It was therefore amended in November to permit small specified quantities of the main items in general use for repairs to be supplied by merchants without the need for a priority certificate if they were satisfied that the goods were required for emergency repairs.

Building Controls

The system of licensing control outlined in the previous report continued throughout 1947 and early 1948. Zonal conferences continued to be held at intervals in all regions, at which guidance was given on the volume of building work already approved by Government Departments, the available labour resources, the programme of new housing work, and the monetary limits within which licences for repair and maintenance work should be kept.

It became necessary, in July, 1947, to extend the special provision, originally introduced in February, for certain classes of specialist workers employed on painting, shop-fitting, thatching, etc. In Circular 117/47 local authorities were empowered to issue without prior reference to the Ministry of Works any licences necessary to prevent unemployment within the specified specialist trades. Towards the end of the year under review, when the high monthly rate of completions, coupled with the fall in new approvals, suggested a risk of unemployment within the main building trades, a further circular was issued (Circular 40/48 dated 15th March, 1948) outlining arrangements for regional consultation with the Ministry of Works and the Ministry of Labour and National Service in any areas where actual or prospective unemployment might make it necessary to release additional licences. It was made clear that the special arrangements would apply only to men who could not be found alternative employment on work of national importance.

The circular also authorised the putting in hand of a limited amount of reconditioning of existing houses ; the amount of such work which could be allowed being of course governed by the supply position. The Circular indicated that when reconditioning proposals involved the use of scarce materials preference must be given to houses occupied by or intended for agricultural workers.

During the latter part of 1947 discussions began with the local government associations on reimbursement of the additional expenditure incurred by local authorities on licensing building works, and before the end of the year agreement in principle had been reached. At the end of March, 1948, discussions were continuing on details of the proportion of the expenditure to be reimbursed and the items for which claims could be accepted.

Building Methods

New methods of construction provided, as in the earlier post-war years, an important part of the housing programme. The initial difficulties had been overcome and the results obtained showed the value of these methods. In the year under review 17,426 B.I.S.F. houses were finished and erection was continuing at an average rate of 1,800 a month. In addition, 10,627 non-traditional houses of other types were completed during the year.

Orders were placed by local authorities for the total of 20,000 sets of components for Airey Rural houses, but full results of the scheme were not seen during the year. By 31st March, 1948, tenders had been approved for 15,252 of the houses ; construction had begun on 9,434 of which 1,063 were completed.

The need to conserve supplies of steel made it necessary as from 1st January, 1948, to withhold approval from any new proposals for the erection of steel-framed houses.

Early in the year special action was taken to accelerate the rapid provision of additional houses in certain mining areas and for key workers in some industries. In the districts in which these houses were required the local labour force was already building as many houses as possible by ordinary methods. The only way in which the problem could be solved was by the use of aluminium bungalows, redesigned and classifiable as "permanent" houses, which were almost entirely factory-made and could be erected with practically no call on local labour resources. Competitive quotations were obtained from the four firms who had manufactured temporary aluminium bungalows, and arrangements were made for the new bungalows to be manufactured by the firms submitting the two lowest quotations. The bungalows were supplied direct to local authorities and carried grant under Section 17 of the Housing Act 1946.

The programme was limited to a total of 15,000 bungalows because supplies of aluminium were limited and also because it would not have been possible to have prepared sites for a larger number in time to fit in with production at the factories where the bungalows were made.

The special grants towards the cost of non-traditional houses were payable only in respect of houses approved before 31st December, 1947. After that date all new proposals for non-traditional houses had to compare in price with those for brick houses. It was hoped that as the initial costs of developing the systems had been met a number of these houses would continue to be built and to play a valuable part in the housing programme, but it was not clear by the end of the year which systems would be successful under the new conditions.

Standards of Accommodation and Amenities

The good standards of accommodation referred to in last year's report were maintained. Whilst continuing to concentrate on the 3-bedroom house, local authorities began during the year to turn their attention more to diversified types.

A Sub-Committee of the Central Housing Advisory Committee was appointed in February, 1948, under the chairmanship of Sir Miles E. Mitchell, to assist the Department in revising the Housing Manual, 1944. The Sub-Committee expected to complete this work by the end of 1948.

Reference was made in last year's report to another Sub-Committee which was considering ways and means of improving the appearance of housing estates. This Sub-Committee has now issued its report.* It deals primarily with existing estates though many of the recommendations are applicable also to new layouts. The extent to which tenants can themselves contribute to the good appearance of the estates is considered, and a relaxation of tenancy regulations likely to discourage initiative is suggested. The report contains recommendations for the replacement of old trees, and for more extensive planting of trees, hedges and creepers, and in this connection advises a greater use of municipal nurseries. There are a variety of other recommendations including suggestions regarding the colour-washing and painting of houses. Common front gardens are not advocated by the Sub-Committee.

* "The Appearance of Housing Estates," published by H.M.S.O., York House, Kingsway, W.C.2, price 6*d*. An illustrated supplement to this Report "Our Gardens" was published on 2nd September, 1948, by H.M.S.O., price 1*s*.

The improvement of solid fuel heating appliances continued to receive attention, and Circular 8/48 issued to local authorities on 9th January, 1948, gave a revised and extended list of recommended appliances. The circular also stressed the importance of proper installation and drew attention to the guidance given on this matter in a bulletin on " The Gravity Warm Air System " issued by the Ministry of Fuel and Power. Ten local authorities submitted proposals for district heating schemes during the early part of the year, but the restrictions on capital expenditure held up further development.

Finance

The review of subsidies required by subsection (5) of Section 16 of the Housing (Financial and Miscellaneous Provisions) Act, 1946, was duly undertaken, and a report (House of Commons Paper 122, dated 27th June, 1947) was presented to Parliament. This explained that after considering the relevant factors the Minister had reached the conclusion that no reduction of the amounts of contributions in respect of houses to be completed after 30th June, 1947, or of the period for which they should be paid, was justified.

The report stated that in the original determination of the amounts of the contributions to be provided under the Act certain assumptions had been made as to the average cost of providing houses, including the cost of land, roads and sewers, based on the standard three-bedroomed house with an over-all area of 950 sq. ft. Average weekly rents, exclusive of rates, of 10*s.* for the non-agricultural population and 12*s.* for flats on expensive sites were assumed for the purpose, and the calculations were based on the rate of interest then being charged by the Public Works Loan Board for loans to local authorities for the erection of houses, viz. 3⅛ per cent. The report went on to explain that, subsequent to the passing of the Act, the rate of interest charged by the Public Works Loan Board was reduced to 2½ per cent. on 1st June, 1946, and as a result the annual loan charges payable in respect of many of the houses built were considerably less than anticipated. This reduction was, however, offset by increases in the cost of building. During the period concerned an increase of 4*d.* per hour in building wages was granted, there was an increase in the cost of materials, and tenders for the construction of roads and sewers increased. As a result tenders being received at the time of the review indicated that the average total cost of providing a house with a superficial area of 950 sq. ft. would be approximately £110 more than was estimated when the rates of subsidy were fixed. The net result of these factors was that the average loan charges payable in respect of houses then being completed, or likely to be completed in the near future, would not differ appreciably from those assumed in the calculations made for the purpose of determining the amounts of subsidy set out in the Act.

In these circumstances the Minister came to the conclusion that a reduction in the amounts of contribution in respect of houses to be completed after 30th June, 1947, or of the period for which they should be paid, would not be justified and the current rate would therefore be continued in respect of houses completed not later than 30th June, 1948. The Minister intimated, however, that he proposed to make a further review of the position in due course to consider whether a reduction of those rates should be made in respect of new houses completed after that date.*

* This review was published on 30th June, 1948. Housing (Financial and Miscellaneous Provisions) Act, 1946 : Report under Section 16(5) (England and Wales). H.M. Stationery Office, York House, Kingsway, W.C.2. Price 1*d.* The Exchequer subsidies and rate contribution are to remain unchanged for another year.

2.—Special and Subsidiary Features

Rural Housing

During the period under review, rural authorities completed 21,397 new permanent houses (in addition to 32 rebuilt, war-destroyed houses) and 3,456 temporary houses. At 31st March, 1948, they had a further 31,984 permanent and 526 temporary houses under construction and 99·16 per cent. of the rural authorities, covering 99·97 per cent. of the total population of rural districts had had tenders approved ; the total number of new permanent houses completed in rural districts since 31st March, 1945, was 45,499, and of temporary houses 9,206.

Good though this record was, it became evident during the year that more houses would have to be made available for agricultural workers if the industry was to secure the labour force required to achieve the extended home food production essential to national economic recovery. Local authorities for agricultural areas were therefore asked in October, 1947, to work in the closest co-operation with County Agricultural Executive Committees to ensure (bearing in mind their responsibilities towards other groups of the population) that as many houses as possible were let to agricultural workers. During the period 1st April, 1945, to 30th September, 1947, when rural authorities completed 13,991 new permanent houses, 2,638 (or 18·9 per cent.) had been let to agricultural workers ; but this proportion increased during the remainder of the period under review and for March, 1948, was 21·3 per cent. A further rise was expected, especially as some of the houses under construction at the end of the period had been specially authorised to meet agricultural needs.

Reference has already been made (in the introductory survey) to the exemption of agricultural houses from the general ban on private building imposed in August, 1947. 1,290 licences, almost entirely for agricultural cottages, were issued in rural areas between then and the end of the period under review.

Housing of Miners and Key Workers in Development Areas

The effort to expand the existing house-building programme to meet the special needs of miners and key workers in development areas was continued throughout the year, particularly by taking advantage of all practical alternative ways of building houses.

As previously indicated, arrangements were made to manufacture 15,000 permanent aluminium prefabricated houses, of which 13,500 were allocated to the local authorities of the areas concerned who were able to provide prepared sites in time for the erection of the houses during 1948.

As shown in the table below there was a noticeable rise during the year in the number of houses allocated to miners which was expected to continue throughout 1948 :—

	Second Quarter 1947	*Third Quarter* 1947	*Fourth Quarter* 1947	*First Quarter* 1948	
Permanent houses ..	1,796	1,501	1,980	3,012	
Temporary houses ..	100	401	467	473	
Total ..	1,896	1,902	2,447	3,485	9,730

In development areas of England and Wales requests to local authorities for housing for key workers were sponsored by the Board of Trade in 2,357 cases up to 31st March, 1948. In respect of these, 1,109 houses were provided and occupied and a further 1,136 were promised by local authorities. In addition 477 licences were granted for the erection of houses for factory executives.

Temporary Housing

During the twelve months ending 31st March, 1948, 31,278 temporary houses were completed and handed over for occupation. This number brought the programme within a measurable distance of completion and, of the 124,000 temporary houses planned for England and Wales, the hulls of all but about a thousand had by that date been delivered to the sites. The temporary housing programme had been considerably interrupted by the fuel cuts made during the early months of 1947 as a result of which the factories making the houses and their components were slowed down or even stopped. The severe winter also hampered the advance preparation of the sites. The period under review did not, therefore, see the progress which had originally been hoped for and news of the handing over of the last temporary house must necessarily wait for a later report. The slower completion of the whole programme was one of the reasons which made it necessary for the Minister of Works to seek Parliamentary approval for the increasing of the sum available for temporary housing from £200 to £220 millions. This approval was given in the Housing (Temporary Accommodation) Act, 1947, which became law on the 10th December, 1947.

Use of Existing Accommodation

By the end of March 1948, over 115,000 family units of accommodation had been provided by the requisitioning, conversion and adaptation of existing premises. The powers of local authorities to requisition empty houses, as delegated in Circular 138/45 and amended by Circulars 5/46 and 141/46, were extended for two further periods of six months by Circulars 114/47 and 178/47.

The number of camps taken over or administered by local authorities for housing purposes rose from 936 to 1,235. This increase was not due to any considerable addition to the number of camps entered by squatters but in the main to camps becoming redundant to Government needs and being offered to, and accepted by, the local authorities for temporary housing.

War Damage

(a) Rebuilding of War-Destroyed Dwellings

Considerable progress was made towards the objective of rebuilding some 40,000 houses eligible for cost-of-works payments and by the end of the year the large majority were either rebuilt or being rebuilt. During the year 14,185 war-destroyed houses were rebuilt making a total of 21,965 since April 1945, and at the end of the year a further 12,567 were under construction. The arrangement under which priority was given to the smaller houses (i.e. those costing not more than £3,000 to rebuild) continued throughout the year.

(b) War Damage Repairs

London

At the beginning of April, 1947, there remained approximately 83,000 dwellings to be repaired by local authorities to the standard of "reasonable comfort," including about 8,000 unoccupied dwellings (5,500 of which were seriously damaged). The labour force engaged by local authorities on this work was approximately 30,000 men and the number of local authorities involved was 54, of whom 13 had less than 50 men employed.

During the year substantial progress was made. Local authorities provided 6,834 units of family accommodation by repair of seriously damaged unoccupied properties and repaired 62,809 occupied dwellings.

At the end of March, 1948, the number of properties remaining to be repaired by local authorities had been reduced to approximately 5,000, including about

1,500 unoccupied dwellings (1,200 of which were seriously damaged). Moreover, of the 5,000, approximately 3,500 were in contracts let, including over 500 unoccupied dwellings. The labour force engaged by local authorities on this work had been reduced to approximately 4,000 men, involving 37 local authorities, of whom 23 had less than 50 men employed.

Save in a few areas, the repair by local authorities of war-damaged properties to the standard of " reasonable comfort " was substantially completed.

A considerable amount of war damage repair was carried out during the year under building licence and the number of additional family units provided in this way was 5,619. No information is available regarding the number of occupied dwellings repaired under building licence.

Much work still remained to be carried out in order finally to reinstate the large number of dwellings which had only been repaired to the standard of " reasonable comfort ".

Provinces

During the year 8,608 units of additional family accommodation were provided by repair of seriously damaged unoccupied dwellings, 620 by local authorities and 7,988 under licence. In addition 6,744 occupied dwellings were repaired by local authorities ; the number repaired under licence is not known.

(c) Demolition and Clearance of War-Damaged Properties

The amount of work carried out by local authorities under powers conferred by Regulation 50 of the Defence (General) Regulations, 1939, as extended by the Emergency Laws (Transitional Provisions) Act, 1946, and the Emergency Laws (Miscellaneous Provisions) Act, 1947, was small. It consisted almost entirely of the minimum necessary to make war-damaged buildings safe, and the erection and maintenance of walls and fences round cleared basement sites. This work was carried out under terms of reimbursement by the War Damage Commission.

The labour force engaged on this work on 31st March, 1948, was 1,296 and of this force 759 were employed in the London Region.

International Relations

During the year three reports to which the Ministry contributed were circulated to European countries, on Housing Finance, Rents, and Land Acquisition in the respective countries. These papers were prepared by a Working Party of the Housing Sub-Committee of the Emergency Economic Committee for Europe on which this country was represented.

At the Second Session of the United Nations Economic Commission for Europe, held at Geneva in July, 1947, a resolution was adopted setting up a Panel on Housing Problems to advise the Commission on the means of expediting the housing programmes of member countries ; to collect, analyse and disseminate statistical and other information ; and to study housing problems of common interest. This Panel, which superseded the Housing Sub-Committee of the Emergency Economic Committee for Europe, held its first meeting in October, 1947, and arranged to prepare reports on :—

(*a*) housing needs in the years 1948 and onwards ;

(*b*) measures taken in various countries to economise scarce materials ;

(*c*) building-material need (related to housing production and repairs).

The United Kingdom delegation to the Housing Sub-Committee and also to the Housing Panel was headed by a senior officer of the Department.

The report of the sub-committee under the chairmanship of Lord Faringdon on the Appearance of Housing Estates and the appointment of a sub-committee to assist in revising the Housing Manual are referred to in more detail on page 243. The sub-committee on Domestic Equipment (the Chairman of which is the Dowager Lady Reading) continued to devote much of their attention to domestic heating.

3.—Summary of Housing Progress

The following figures show the progress made in the provision of housing accommodation during the year :—

	31*st March*, 1947	31*st March*, 1948	*Increase during year*
New permanent houses :			
by local authorities	28,037*	140,220*	112,183
under licence	34,706*	63,817*	29,111
war-destroyed houses rebuilt (local authorities and private builders)	7,811*	21,996*	14,185
Housing associations	145	1,330	1,185
Government departments	112*	797	685
Total ..	70,811	228,160	157,349
Temporary houses	87,671	118,949	31,278
Use of existing premises :			
Conversion and adaptation—			
Local authorities	28,453	37,311	8,858
Under licence	26,298*	49,943†	23,645†
Government departments ..	4	271	267
Repair of unoccupied (i.e. severely damaged) war-damaged dwellings—			
Local authorities	99,652*	107,106	7,454
Private builders	13,529	22,962*	9,433*
Unoccupied houses requisitioned for residential purposes	26,604*	27,694	1,090
Total ..	282,211	364,236	82,025
Temporary huts	3,480	3,480	—
Service camps	10,865	16,399	5,534
Grand Total ..	367,367	612,275	244,908

* Revised since publication of the appropriate Housing Returns.

† Estimated.

In addition, 768,000 dwellings which were damaged during the war but not so severely as to be unfit for occupation had been repaired up to 31st March, 1948, 70,000 since 31st March, 1947.

Houses under construction at 31st March, 1948, totalled 194,165 (189,521 permanent and 4,644 temporary), and there were 50,193 permanent houses in contracts let or licences issued but not yet started.

4.—Rent Restriction

During the year the Courts made a number of important decisions under the Rent Restrictions Acts, 1920–39.

The claims of tenants to resume occupancy of a house from which they were bombed out when it is repaired or rebuilt have long been a matter of dispute, and one on which varying judgments have been given by the County Courts. In December 1947 the Courts of Appeal held, in the case of *Ellis and Sons Amalgamated Properties Ltd., v. Sisman*, that where a house has been so far destroyed that it had ceased to exist as the same house, no statutory rights under the Acts survived ; and the tenant in this case whose contractual tenancy had been determined by a notice to quit, was held to have no claim under the Rent Restrictions Acts to resume his tenancy when the house was rebuilt.

The Acts do not normally apply to premises let with attendance or furniture, where the amount of rent fairly attributable to the attendance or the use of the furniture, forms a substantial portion of the whole rent. In the two cases of *Palser* v. *Grinling* and *Property Holding Company Ltd.*, v. *Mischeff* the House of Lords considered the interpretation of the relevant provisions of the Acts, and in particular showed what meaning should be assigned to the terms " furniture " " attendance " and " substantial portion ". This judgment, though given under the Rent Restrictions Act, 1920–1939, also has a bearing on the work of tribunals under the Furnished Houses (Rent Control) Act, 1946.

Furnished Houses Act

The Furnished Houses (Rent Control) Act, 1946, which was due to expire on 31st December, 1947, was included in the Expiring Laws Continuance Act, 1947 and renewed for a further twelve months. During 1947–48 orders were made bringing the Act into effect in the districts of 163 local authorities. The 77 existing tribunals were directed to decide cases arising in these additional districts as well as in the 783 districts included at the beginning of the year, and no new tribunals were established. The authorities within whose areas the Act now applies are tabulated below :—

	County Boroughs	Boroughs	Metropolitan Boroughs	Urban Districts	Rural Districts
England ..	71	211	28	302	240
Wales	3	17	—	45	29
Total ..	74	228	28	347	269

The tribunals in London, especially in Central London North of the Thames, continued to be busy. Of 12,723 new cases referred during the year, the nine tribunals in Central London received 4,147. Outside London the busiest areas were Birmingham (with two tribunals), Coventry, Leeds, Blackpool, Brighton, Manchester, Portsmouth, Derby and Nottingham, and Bournemouth.

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Of these 12,723 references, 3,939 fell outside the tribunals' jurisdiction or were withdrawn without decision ; rent reductions, averaging 29 per cent. were made in 6,207 cases, and increases were made in 125 ; 1,209 cases were dismissed and the rent was approved in 1,441 ; of the decided cases, 1,027 were later referred for reconsideration on grounds of change of circumstances ; 273 of these were invalid or were withdrawn, 105 were dismissed, and the rent was approved in 80. In 78 cases the rent was reduced by an average of 15 per cent., and in 484 cases it was increased.

During the year a number of applications were received from clerks of local authorities for the use of special powers of requisitioning to protect tenants threatened with eviction after the expiry of the three months' protection afforded under the Act. These powers were granted in 101 cases, and 191 families were protected.

The Act empowers tribunals to fix the rents of premises let at a rent which includes payments for furniture or services, and there is no appeal from their decision on the question of rent, provided that, in hearing and deciding the case, they do not exceed their jurisdiction. In cases, however, where the tribunal's jurisdiction is in doubt, leave may be granted to apply to the High Court for an order of prohibition (prohibiting the tribunal from considering the case) or of certiorari (quashing a decision already made and entered in the register kept by the local authority).

A number of such applications were made to the High Court with varying success. Many of these turned on small points, and have had little general application ; the two cases mentioned below are, however, of major importance.

In the *King* v. *Hampstead and St. Pancras Furnished Houses Rent Tribunal* ex parte *Ascot Lodge Ltd.*, the premises were unfurnished, and such attendance or services as the lessors did in fact provide was not mentioned in the lease. The Court held that in this case, where there was a written contract of letting, the Tribunal could not accept jurisdiction solely on the strength of services which were not given by virtue of the written contract.

In the *King* v. *Paddington and St. Marylebone Rent Tribunal* ex parte *Bedrook Investments Ltd.*, it was held that a tribunal has no power to reduce the rent of premises to which the Rent Restriction Acts 1920–1939 applied below the level of the rent recoverable under those Acts.*

5.—Building Restrictions (War-Time Contraventions) Act, 1946

At the opening of the period under review 30 appeals against decisions by local authorities under the Building Restrictions (War-time Contraventions) Act, 1946, remained under consideration and during the year a further 103 notices of appeal were lodged. Eleven were subsequently withdrawn or found to be invalid, 60 were determined and 62 were still under consideration at 31st March, 1948. Of the 60 appeals determined, 53 were allowed with a time limit for continued use varying from five months to 14 years—28 with conditions and 25 without—and two were allowed without limitation of time.

At the beginning of the year under review one application which had been referred to the Minister for determination by direction of the Minister of Town and Country Planning under sub-section (10) of section 2 of the Act remained under consideration and during the year three further applications were so

* This decision was upheld by the Court of Appeal on 3rd June, 1948 and leave was granted to appeal to the House of Lords.

referred. These were all determined ; one application being granted with conditions but without limitation of time and the remainder being granted for five, 10 and 21 years respectively.

Forty public local inquiries were held and 27 visits of inspection were made.

The applications and appeals falling for decision under the Act covered a very wide range of development, extending from the use of a domestic garage for making toffee-apples to the continued use of a large chemical and refining plant erected on government account at a cost of over £10,000,000.

One application concerned a factory estimated to be worth more than £250,000 erected during the war for the production of equipment of the highest importance in desert warfare and to the naval forces. The factory is now engaged on the production of somewhat similar equipment in high demand over a wide field of industry. The needs of war called for the siting of this factory in rural wooded surroundings with individual workshops well dispersed and well camouflaged from the air. The planning objections were weighty but having regard to the importance of the contribution being made, through other industries, to the export trade, to the insuperable difficulties of transferring the factory to a new location without serious dislocation of many important industries, and to other national aspects, it was decided to allow the factory to remain in its present location for 21 years.

Shacks and Bungalows

Some appeals concerned the use of self-made shacks and bungalows erected in rural areas by persons who were forced to leave their former homes through enemy action. Apart from objections on planning grounds, these structures usually fell far short of the standard required by byelaws and other provisions of building law. Where, however, the structures were erected under emergency conditions and not in open defiance of the local authority and their continued use was unlikely to be prejudicial to health periods up to five years have been allowed.

In the main, appeals were related to the use of premises in business and residential areas for storage or light industry. In many cases shops designed for retail trade were acquired during the war, often in a derelict condition, and used for the production of high precision components essential to the war effort. These have now been turned to peacetime production—in one case the production of a revolutionary type of lawn-mower in good demand in export markets, in another the production of essential parts for diesel plants calling for the highest precision work known to British industry. In most instances the peacetime products from these small industrial plants are as essential to the home and export markets as the wartime products were to the war effort. In almost every case of this kind the appellants had made exhaustive search for alternative premises without avail. In all cases where export consideration arose some extension of time was given, and where processes involved no dust or fumes and occasional little noise or vibration, periods up to seven years were granted.

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II

LOCAL GOVERNMENT

Local Government Boundary Commission

The Report of the Local Government Boundary Commission for 1946 was published on 22nd April, 1947. Besides giving particulars of reviews in progress, this Report discussed problems which had arisen in the course of the Commission's work and suggested several alterations of the law. One of these suggestions, the abolition of the right of local authorities to receive compensation for added burden falling on their ratepayers as a result of boundary alterations, has been met by section 11 of the Local Government Act, 1948, which received the Royal Assent on 24th March, 1948, in conjunction with the introduction by that Act of a new system of Exchequer grants.

During the year under review the Commission continued their investigations and published a number of preliminary announcements informing local authorities of alterations in their areas which the Commission intended later to embody in Statements of Proposals. Further investigations covering all counties and county boroughs not already under consideration were begun, and preparations were made for the review of the circumstances of county districts. In December, 1947, the Commission published a second series of "Practice Notes" with regard to the procedure to be followed in connection with the review of local government areas by the Commission. These notes superseded the First Series issued in January, 1946, with regard to the early stages of a review, and included an outline of the procedure as far as the stages at which the Commission would publish a Statement of Proposals and hold a local inquiry.

The second annual report of the Commission, covering the year 1947, was transmitted to the Minister on 30th January, 1948.* The Report, which made recommendations involving broad changes in law and procedure, was laid before Parliament.

Committee on the Expenses of Members of Local Authorities

As was mentioned in last year's Report, this Committee under the Chairmanship of Lord Lindsay of Birker submitted Majority and Minority Reports which were published in May, 1947.†

The Majority Report stated that almost all the evidence the Committee had received marked the importance to the community of local government "by men and women giving their time and trouble without recompense or personal gain" but indicated that an extension of the provision for the expenses incurred by members of local authorities was regarded as desirable in the interests of the principle of voluntary service itself, to reduce the strain now imposed on individuals. The Committee accepted these views. They emphasised the value to local government of voluntary work which inevitably involved some sacrifice of time and interests, but thought it wrong that this sacrifice should go so far as to cause hardship to individual members, or to "distort" local authorities by

* Report of the Local Government Boundary Commission for 1947 published 8th April, 1948, by H.M. Stationery Office, York House, Kingsway, W.C.2. Price 1*s.*

† Published by H.M. Stationery Office, Cmd. 7126. Price 1*s.*

preventing suitable persons from offering themselves for election. In consequence the Committee considered that provision to avert hardship was made necessary by the heavy calls made by modern local government on the time and energy of members, and that this provision should be available to all members though, of course, without any compulsion on members to claim allowances.

The Majority Report signed by ten of the eleven members of the Committee recommended that it should be mandatory on local authorities to make available to all their members allowances to meet travelling and subsistence expenses, scales of which they set out in some detail, and a payment for losses resulting from absence from work. In recommending that the allowance for loss of remunerative time should be at a daily—or half-daily—rate the Committee said that they had rejected proposals for allowances of a fixed annual amount as that would suggest a salaried service and perhaps be a source of profit to a member who elected to take an inactive part in the affairs of his council. For the prevention of abuse the Committee recommended that local authorities should be required to use a prescribed form of claim and to publish in their minutes the payments made to each member.

Mr. R. H. Turton, M.P., in his Minority Report, accepted the principle of travelling and subsistence allowances, but he considered that they should be strictly limited, and that allowance for loss of remunerative time should not exceed 15*s.* a day and should be available only to persons of small incomes. He objected also to the suggestion that local authorities should be required to make allowances available to members.

Legislative Provision

The Government accepted the recommendations of the Majority Report in principle and introduced legislation to give effect to them. Part VI of the Local Government Act, 1948, applies, in England and Wales, to county councils, borough councils, and urban and rural district councils, and to various types of joint boards and other local government bodies. The Common Council of the City of London is excluded. Parish councils are covered in relation to duties taking members outside the parish. Under the Act, members are entitled to the following allowances :—

(*a*) Financial loss allowance to a member who, on account of his public duties, necessarily loses earnings or incurs additional expenses other than on travelling and subsistence. This may not exceed £1 a day, *i.e.* within a period of 24 hours ; or 10*s.* a half-day, *i.e.* in relation to loss or expense incurred within a period not exceeding four hours.

(*b*) Travelling and subsistence allowances at rates fixed by the local authority or other body, within maxima prescribed by the Minister. These allowances are available for duties taking the member outside the area of the authority concerned, but within that area they are not available to members of urban authorities, or otherwise for duties within three miles of the member's home.

Section 115 defines the meaning of " approved duty " for the purpose of this Part of the Act. Section 117 enables the Minister to make regulations and it is his intention under this section to prescribe maximum rates of travelling and subsistence allowances, and to apply the Part to bodies established by statutory provision on which any of the bodies to which the Part already applies are represented.*

* Statutory Instruments, 1948, No. 1784, Local Government, England and Wales. The Local Government (Members' Allowances) Regulations, 1948, came into operation on 16th August, 1948. Published by H.M.S.O. Price 2*d.*

Section 116 confers on district councils, urban and rural, a power to pay to the chairman of the council such allowance as the council think reasonable to enable him to meet the expenses of his office. County and borough councils already have this power.

Publicity for Local Government

The Interim Report of the Consultative Committee on Publicity for Local Government, of which the Parliamentary Secretary is Chairman, was published in November, 1947.* In this Report the Committee recognised that there was widespread ignorance on local government matters, and set out to consider means by which local authorities could overcome this. The methods and machinery required, and relations with the local press, were discussed. It was suggested that the general object should be to cultivate more day-to-day, all-the-year-round, democratic interest in local government, and to attract the best men and women to its service as members and as officers.

The two main needs were :—

(1) an efficient service by which each authority could give all necessary information and assistance to individuals on the services for which it was responsible,

(2) to make the fullest possible use of the facilities offered by the local press for supplying regular information,

(3) employment of other publicity methods such as exhibitions, films, etc., in addition where appropriate.

The Committee endorsed the views set out in the statement on " Local Authorities and the Press " issued by the Association of Municipal Corporations, and concluded :—

" *What is now required, in the view of the Consultative Committee, is that every authority should take steps to review all its channels of communication with the public of its area and consider how these can be improved and extended.* The Committee, believing that local government would greatly benefit from increased public interest, criticism and support, urges that this review should be undertaken at once."

The Report quoted the view of the Ministry of Health that reasonable expenditure on local government publicity could be regarded as incidental to the exercise of a local authority's statutory functions. Specific authority for this has since been given by the Local Government Act, 1948.

After making their Interim Report the Committee proceeded to consult organisations concerned with publicity and adult education and to examine how far the work of such bodies could be used for stimulating interest in local government.

Statutory Powers to provide Information for the Public

Section 134 of the Local Government Act authorises local authorities to make arrangements by which the public may, on application, readily obtain information about local government matters and the services provided by local authorities and government departments which are available in the area. This power is so worded as to cover both an information service provided through the local

* H.M. Stationery Office, York House, Kingsway, W.C.2. Price 3*d.*

authority's own paid staff, and arrangements in conjunction with voluntary organisations. Section 135 gives local authorities powers to arrange for the publication within their area of information on questions relating to local government, and to arrange for lectures, discussions, exhibitions and films on these questions. This provision corresponds to the growing use of local government exhibitions and other methods of bringing the work of local authorities before the electorate.

Section 136 gives local authorities power to contribute, with the consent of the Minister of Health, to the expenses of bodies carrying on in their area activities for the purpose of furthering the development of trade, industry or commerce therein, giving advice, information or assistance to residents, or otherwise for the benefit of the area or its inhabitants.

Section 137 increases to the product of a 3*d.* rate the amount town councils and urban district councils may spend in advertising their districts as health resorts or watering places.

Miscellaneous Provisions of the Local Government Act, 1948

Section 129 of the Local Government Act gives local authorities an explicit power to pay subscriptions to any association of local authorities formed for the purpose of consultation as to the common interests of these authorities and the discussion of matters relating to local government. The power extends also to subscriptions to associations of officers of local authorities formed for these purposes, and approved under this provision by the Minister of Health.

Section 130 enables local authorities to insure their members against accident whilst on the business of the authority.

Section 131 amends section 76 of the Local Government Act, 1933, which disables members of local authorities with a "direct or indirect pecuniary interest" in a contract or other matter from speaking or voting when the question comes before the authority. Under the amended law this disability does not apply where the only pecuniary interest is as a small shareholder in a company or other body.

Section 133 extends the powers of maintaining war memorials already possessed by local authorities, except rural district councils.

Rating and Valuation

Reference was made in last year's Report to the Government's proposals for placing the work of valuation for rating on a central department and for amending the present basis for the valuation of small dwelling houses. The Local Government Act, 1948, embodies legislation on these lines. By Part III of the Act, the work of valuation for rates will, in due course, be transferred from rating authorities to the Inland Revenue Department; the Central Valuation Committee, county valuation committees and assessment committees will cease to function, the latter being replaced by courts formed from valuation panels to be constituted by schemes prepared by county councils and county borough councils. Appeals from these courts will lie to county courts in place of the present appeal to Quarter Sessions.

Part IV lays down a new basis for the assessment of dwelling houses. Houses provided by local authorities and housing associations, and other post-1918 houses within the Rent Restriction Acts limits of rateable value will be assessed by reference to 1938 cost of construction and the site cost in 1938 and 1949

respectively; other houses will be assessed by reference to rents payable in 1938 or 1939. The new basis of assessment will be used for the first general re-valuation to be carried out by the Inland Revenue and to come into force in 1952 or 1953.

Part V provides for the relief from local rates as from 1st April, 1948, of railway or canal hereditaments, occupied by the British Transport Commission and premises (other than dwelling houses) occupied by the British Electricity Authority or an Area Electricity Board. The British Transport Commission and the British Electricity Authority will pay into a central fund amounts corresponding to the total rates which they would have paid but for the Act. These sums will then be distributed by the Minister to local authorities on the basis of a rateable value. This Part of the Act abolishes the Railway Assessment Authority and the Anglo-Scottish R.A.A. as from 1st April, 1948, and provides that the railway rolls for the main-line companies for the fourth quinquennial period (1946–51) and the third London Passenger Transport Valuation Roll shall not be completed and that any part of such a roll which had been completed shall be inoperative. Drafts of these rolls had been settled by the Authority during the year 1947–48, and it is hoped that this work, although rendered nugatory by the Act, will be useful in connection with the separate assessment of properties "let out" at 31st March, 1948, but shown in existing valuation lists as railway or transport hereditaments within the meaning of the Railways (Valuation for Rating) Act, 1930.

A vacancy occurring in the membership of the Railway Assessment Authority during the year was filled by the appointment by the Minister of Mr. L. H. Oliver, C.B.E., J.P. Vacancies in the membership of the Central Valuation Committee were filled by the Minister by the appointment of Mr. E. D. Macgregor, C.B. and Mr. L. H. Oliver, C.B.E., J.P.

The Minister shared the view expressed by the Committee in their circular dated 21st June, 1947, that pending the operation of any new rating legislation, local authorities should not relax their efforts to promote uniformity of valuation and that everything which can reasonably be done to maintain and to further the standards of uniformity should be done, especially to remove anomalies which are giving rise to unfairness and hardship.

Consequent on the alterations made by the Local Government Act, 1948, in relation to local government finance and the law of rating, the Minister found it necessary immediately on the passing of the Act, to make new Rules* prescribing new forms of precepts for county councils and rate demand notes for rating authorities.

Private Bill Legislation

The thirty-two Bills which were proceeded with in the Parliamentary Session 1946–7 all passed into law. Four Bills conferred wider powers to provide entertainments than those which had been granted in earlier Sessions, and the London County Council Bill also vested the powers in the metropolitan borough councils. The Southend-on-Sea Corporation Bill contained extensive powers to provide amusements as well as entertainments.

The London County Council Bill secured for Westminster City Council powers, similar to those granted to Manchester in the previous Session, to provide district heating to three specified areas of the city. It is of interest that a

* The R. & V. (Form of Precept—County Councils) Rules, 1948. The L.C.C. Form of Precept Rules, 1948. The R. & V. (Forms of Demand Note) Rules, 1948. And the Form of Demand Note (London) Rules, 1948.

supply of heat for the purpose is to be taken from an electricity generating station on the south side of the river Thames and carried to the north side by ducts through the Metropolitan Water Board's tunnel under the river. The Dudley Corporation Bill enabled the Corporation to provide district heating to their housing estates.

The Dudley Bill in addition contained proposals to confer on the Corporation special powers to instal a central system of house refuse disposal, depending on water carriage and suction, for houses belonging to them. In reporting to Parliament upon the proposals the Minister pointed out that, while a similar system had been in use for some years in blocks of flats in France and at Leeds, it had not yet been proved to be practicable or economic in the case of cottage estates, and there were certain technical difficulties. The system would only pass articles of a limited size, and other articles would have to be collected by ordinary methods of refuse collection ; so long as the present need for salvage continued, separate collections of boxes, paper, etc., would have to be made ; the maximum hydraulic gradient of the pipes necessary to carry away completely solids that could be received had not been ascertained, and it might be that the gradient required would entail very deep collecting chambers and suction pipes and result in very high construction cost. There might be practicable difficulties in maintaining a negative pressure in the suction system and ensuring that the valves at the outlets from the collecting chambers were air-tight. In flats the ordinary "house-to-house" collection of refuse had disadvantages which this system avoided and these might be held to justify some increase over the normal cost of collection ; but it was not yet clear that the increased cost that would be involved by the application of this system to cottage estates at the present time would be commensurate with its advantages to the housewife. This project was still in the experimental stage and there was the risk of heavy and abortive expenditure if it proved unsatisfactory in its operation.

For these reasons the Minister thought that the exercise of the powers should be made subject to his consent so that he should be free to withhold approval until such time as he was satisfied that the system was practicable and economic in operation. The clauses were allowed, but the exercise of the powers was made subject to the approval of the Minister.

Session 1947–48

Thirty-three Bills were deposited but two were withdrawn on being rejected at a poll of the local government electors. Parts of two other Bills were also withdrawn for the same reason, the defeated proposals being a power to provide municipal hotels—common to both Bills—a power to provide furniture and powers to provide entertainments, wireless re-diffusion and a taxicab service.

The Local Government Act, 1948, gives wide powers to local authorities (excluding county councils and parish councils) to provide entertainments and has rendered it unnecessary for such powers to be sought by private Bill. The Act has also made unnecessary the obtaining of certain local Act powers in respect of information centres and subscriptions to local government associations.

Model Clauses Committee

The Model Clauses Committee, with a permanent nucleus consisting of Counsel to the Lord Chairman of Committees in the House of Lords, Counsel to Mr. Speaker, the Secretary of the Society of Parliamentary Agents and a representative from each of the Ministries of Health and Town and Country Planning, was appointed in December 1947, to produce a set of model clauses

for Private Bills, the Model Bill of the House of Lords and the Standard Clauses formulated by the Committee on Common Form Clauses in 1936 having in many respects become out of date or needing revision because of the passing of general legislation affecting the clauses. The Committee had made good progress by the end of March 1948.

Provisional Orders under Section 303 of the Public Health Act, 1875

During the year eleven applications for provisional orders were received, seven of which related to markets. The remainder concerned miscellaneous public health subjects, such as open spaces, building law, etc.

The Statutory Orders (Special Procedure) Act, 1945, enables special parliamentary procedure to be substituted for provisional order procedure in Parliament. Early in the year a decision was taken to seek an Order in Council to convert provisional orders under the Public Health Act, 1875, and numerous other enactments to special parliamentary procedure, which is more expeditious and less costly.

Special Enactments (Extension of Time) Act, 1940

On 3rd July, 1947, an Order in Council was made declaring 30th June, 1947, to have been the day on which the emergency that was the occasion of the passing of this Act came to an end.

III

LOCAL GOVERNMENT FINANCE

Part I of the Local Government Act, 1948, brought to a close the system of grants commonly known as the Block Grants set up by the Local Government Act, 1929. The new Act provides for the payment of Exchequer Equalisation grants to those county and county borough councils whose financial resources, measured in terms of rateable value per head of weighted population, are below the average for England and Wales. Provision is also made for payments by county councils to the councils of county districts within each administrative county and in London to the councils of certain metropolitan boroughs, and for the discontinuance, in relation to any alteration of the boundary etc. of a local authority taking place after the end of 1947/48, of the burden payments provided for in section 152(1)(*b*) of the Local Government Act, 1933.

A description of the new grant system will be given in the Annual Report for 1948/49.

Total Rateable Value

The total rateable value of rateable property in England and Wales, according to the valuation lists in force, increased from £321,081,092 in April, 1946, to £326,015,157 in April, 1947. The estimated product of a penny general rate in 1947/48 was £1,290,554 showing an increase of £34,634 over the corresponding amount for 1946/47. The estimated average rate in the pound levied in all rating areas in England and Wales in 1947/48 was 17*s.* 10*d.* The average rate for 1946/47 was 15*s.* 8¾*d.* The total receipts of local authorities from rates in 1947/48 are estimated at £278,000,000, an increase of £39,000,000 over the estimate for 1946/47.*

Total of Loans Sanctioned

The following table gives the total of loans sanctioned by the Minister during the year 1947/48 and the two previous years :—

	1945/46 £m.	1946/47 £m.	1947/48 £m.
Housing	36·1	222·2	167·7
Education	·4	3·8	19·9
Water and Sewerage ..	1·9	9·0	10·7
Other purposes	4·5	14·6	23·2
Totals ..	£42·9m.	£249·6m.	£221·5m.

The extent of local authorities' capital works since the war had to be restricted by the shortage of labour and materials to projects of necessity. The crises of 1947 and the capital cuts announced in the White Paper " Capital Investment in 1948 "† caused further limitation of the amount of loans sanctioned.

* A summary of local government financial statistics for 1945/46 is given in Appendix A, page 273. It will be seen that, as compared with 1944/45, rate income in 1945/46 increased by £15,947,000, and Government grants and reimbursements increased by £4,671,000. Capital expenditure was increased by £22,725,000.

† Published on 5th December, 1947, as a Command Paper by H.M. Stationery Office. Cmd. 7268. Price 6*d.*

Interest on Loans

Changes in the rates of interest on loans to local authorities out of the Local Loans Fund were made by the Treasury during the year. The following table shows the various rates that have been in operation since 1st August, 1945.

	From 1.8.45	*From* 1.6.46	*From* 3.1.48
Loans for not more than 5 years	2 %	1½%	2%
Loans for periods between 5 and 10 years	2½%	2%	2½%
Loans for periods between 10 and 15 years	2¾%		
Loans for periods between 15 and 30 years	3 %	2½%	3%
Loans for more than 30 years	3⅛%		

Grants to Local Authorities in respect of Financial Difficulties arising out of the War

During 1947/48 further payments totalling £100,570 were made to meet accrued revenue deficiencies in excess of the cash advances made by the Department during the period ended 31st March, 1946, and in respect of the same period repayments amounting to £736,649 were made by local authorities to whom cash advances in excess of the ultimately ascertained revenue deficiences had been made. Grants in respect of the year 1947/48 amounting to £2,044,300 were paid to 40 local authorities whose rate income continued to be seriously affected by the war.

In accordance with the undertaking given by the Parliamentary Secretary during the Second Reading of the Local Government Bill the Ministry considered, towards the end of 1947/48, applications for a continuance of the grants made by local authorities still suffering substantial loss of productivity of rates owing to war damage. The number of authorities to whom grants have been promised and the amount to be paid are :—

1948/49	21	.. .. ..	£1,015,500
1949/50	18	.. .. ..	£649,100
1950/51	13	.. .. ..	£305,000

Programmes of Capital Expenditure and the Full Employment Policy

In previous Reports reference has been made to the steps taken by the Minister to obtain from local authorities—in relation to the Government's Employment Policy—returns of their programmes of capital expenditure. Estimates of the total programmes of all local authorities in England and Wales for each of the years 1947/48, 1948/49 and 1949/50 were given in last year's Report. Since then Returns have been obtained from a large number of local authorities giving particulars of actual expenditure on capital programmes for the year 1947/48.*

Particulars of actual capital expenditure will, of course, continue to be of great importance ; but in view of the limitations on all forms of capital expenditure imposed by the continuing restrictions of labour and materials, and of the fact that the outside limits of all the main classes of capital investment in 1948 had been laid down in the Government's White Paper on Capital Investment in 1948 (Cmd. 7268), it was not considered necessary to ask during the year for further programmes from the individual local authorities.

* Analyses of the Returns received are given in Appendices B and C. *See* pages 274–275.

IV

WATER

Progress on new works of supply and on works of maintenance and renewal continued to be slowed down by shortages of labour and materials. At the end of the year much remained to be done in wiping out the arrears of the war years. There was, nevertheless, definite improvement during the year, the total value of the works authorised being £13,528,000, compared with £8,052,000 during the previous year. The value of works included in the loans sanctioned by the Minister was £6,205,000, compared with £3,900,000 in 1946/7, and £1,550,000 in 1945/46.

It is an encouraging sign for the future that the rate at which it was possible to authorise work was greatly accelerated during the last four months of the year.

Increased Use of Water

One of the major problems of most of the large water undertakings at the moment is the need to plan, for execution within a reasonable period, new works that will cater for the steadily increasing consumption of water. It will always be difficult for large undertakings to obtain completely accurate figures of average daily consumption per head of the population supplied, but from the figures that are available it is certain that the steady upward trend in water consumption which occurred in pre-war years has now been resumed to a marked extent; and it seems probable that if present tendencies continue the overall increase in industrial areas, as compared with pre-war, may soon be about 20 per cent.

During the year, the Ministry analysed the records of water consumption of a number of typical undertakings supplying a total population of some 15 millions. The overall increase of average daily consumption over 1938 was found to be approximately 10·5 per cent. In some of the industrial areas, the increase was as high as from 20 to 33⅓ per cent. From another source, a recent survey of the highly industrialised North-East Development Area, it was found that the average daily supply of the major undertakings was already more than 20 per cent. above the pre-war average.

Causes of the Increase

There are many causes for these increases. Industry working to capacity, new industries and new industrial processes and supplies for agriculture have led to marked increases of consumption. One factor in common to all undertakings is the higher standards of personal hygiene which follow the provision of houses with baths and hot-water systems. One large undertaking obtained data by metering supplies to typical groups of (*a*) small houses without hot-water systems; (*b*) small houses with solid-fuel domestic boilers; and (*c*) flats with constant hot-water systems maintained by the landlords. The daily consumption per head in the houses in the second category was found to be from about 25 per cent. to 60 per cent. more than in the first class of property; in good flats, the average daily consumption per head was nearly double that in some of the houses with solid-fuel boilers only; and in expensive flats it was as high as 85 gallons per head per day.

What is perhaps even more significant was that in a number of good flats with constant hot water occupied by people who had been rehoused from small houses and tenements without hot-water systems, the average daily consumption

per head was nearly 125 per cent. in excess of the consumption in properties of the type from which the tenants had been displaced. The experience of the same undertaking before the war indicated that in slum properties with one cold tap per family, or with two or more families sharing a tap, the consumption of water per head was about six to eight gallons per day, whereas in council houses, shortly after their erection, the consumption reached about 18 gallons per head per day, a figure which was, however, increased when the new tenants became accustomed to the improved amenities. There is little doubt that the current housing programme will accentuate this upward trend of consumption.

Need for striking a Balance

A high rate of water consumption is a healthy sign, provided there is no waste. It is a definite indication of an advanced standard of civilisation and of industrial prosperity ; and it is also one of the principal agents in the prevention of disease. The objective should not be to discourage people from using water, but to strike a proper balance between rational use for all desirable purposes, and careless use, leading to waste. Much can be done, by intelligent propaganda, to bring home to water consumers the need for striking this balance. The Metropolitan Water Board have for some time been carrying out such a programme ; some undertakings have arranged water supply exhibitions or have taken an active part in public health exhibitions ; other undertakings and the British Waterworks Association have sponsored films ; arrangements have been made for talks to school children, and visits of parties of children to works. By these and similar means, consumers can be taught to appreciate the benefits of a pure and bountiful supply of water ; to understand that very expensive works and careful management are involved in providing and maintaining supplies ; and to realise that careless use of water may cause acute shortages or may divert iron, steel and other materials from export and other key industries.

On the physical side, there is evidence that water undertakers are resuming their pre-war practice of detecting waste due to faulty fittings and connections, and, in some areas, of re-washering taps without charge. The importance of this work cannot be too strongly stressed. A recent example of the results that can be obtained is the experience of one large undertaking which found, after investigation of night flows in some twenty sub-districts, each comprising 500 to 1,000 houses, that the curable leakage and waste came to 16 gallons a house. As a result of this work, and of repairs carried out by the undertaking without charge to the consumers, consumption in one area was reduced by 330,000 gallons per day compared with the previous year, although more than 4,000 additional houses had been supplied in the period.

The Minister is always ready to give the highest possible priority to work for the detection and prevention of waste.

Rural Water Supplies

There was substantial progress during the year in the preparation and examination of schemes for rural water supply, and the estimated cost of the proposals submitted up to 31st March, 1948, exceeded £35,000,000. Work to the value of £3,800,000 had been allowed to start and further work estimated to cost over £8,000,000 had been approved in principle. Grants promised under the Rural Water Supplies and Sewerage Act, 1944, covered schemes estimated to cost in all £7,900,000.

The increased use of water is likely to be even more apparent in future in the rural districts than in the urban areas. The introduction of piped water supplies, with sewerage and sewage disposal, into areas now served only by wells and

springs will inevitably increase consumption per head from a few gallons a day to figures corresponding to the urban rate of consumption for domestic purposes of from 20 to 30 gallons per head per day.

In addition, it is already being found that where piped supplies are brought to dairy-farming areas, the agricultural consumption may be comparable with the consumption for domestic uses. The schemes that are in progress or are being planned take full account of these considerations.

Comprehensive Schemes

These works undertaken by local authorities range from the small supply to an isolated village from a well or local springs to the comprehensive scheme embracing a number of parishes, or even a number of rural districts. Water engineers are sometimes criticised for recommending comprehensive schemes of the latter type. Both types of schemes have their advantages. The smaller schemes are easier to plan and to carry out in times when labour and materials are scarce ; they have no lengths of unproductive mains ; they will attract small contractors with small pools of local labour ; they may require less controlled materials. The larger schemes with their more abundant sources and network of mains will more readily afford supplies to the farms ; a comprehensive scheme is more easily managed and maintained than a number of local schemes ; and the purity of the supplies can be more readily assured.

There can be no hard and fast rule. Normally, if costs are reasonable, and pure and adequate supplies can be assured for all purposes, including agriculture, there may be good reasons for adopting the scheme served by a local source. In many areas, however, comprehensive schemes are the only feasible long-term solution ; and substantial improvements of conditions would be impracticable without comprehensive planning, including in some cases, alterations of the existing administrative areas of supply. Even in these areas, the Minister is ready to approve temporary local sources for more urgent needs, provided that the route of the mains will fit in with the comprehensive scheme when the sources for the latter are developed.

There was some improvement in the supply of controlled materials towards the end of the year and it is expected that it will be possible in future to place even greater emphasis on schemes for the improvement of rural water supplies.

Development Areas

Grants under the Distribution of Industry Act, 1945, were promised towards the expenditure to be incurred by local authorities on ten schemes, estimated to cost nearly £345,000.

In addition, approval was given to 63 schemes, estimated to cost approximately £436,000, to be carried out with grants under the Rural Water Supplies and Sewerage Act, 1944, or without grant.

Orders under the Water Act, 1945, and the Public Health Act, 1936

Sixty-nine orders were made during the year under the Water Act, 1945. At the end of the year there were, in addition, 87 orders under consideration. The orders made included three for the transfer of undertakings, namely the Stockport Water Order, 1947, the North Lindsey Water Order, 1947, and the East Worcestershire Water Order, 1948 ; five for the alteration of limits of

supply (Section 10) ; 12 for the construction of works (Section 23) ; and two authorising the abstraction of water from overground sources (Section 26) namely the Bucks Water Order, 1947, and the Tredegar Urban District Council Water Order, 1947.

Regulations made under Section 51 of the Act reduced the rate of interest to be paid by water undertakers under Section 37(2) from 4 per cent. to 2½ per cent.

Nineteen orders were made under the Public Health Act, 1936, one under Section 6 constituting the Ryedale Joint Water Board, and 18 under Section 113 authorising authorities to supply premises outside their district.

Inland Water Survey

An important stage in the Inland Water Survey was reached during the year when regulations* were made by the Minister under Section 6 of the Water Act, 1945, requiring certain persons who abstract water from underground to keep records and furnish returns of (*a*) the quantity of water abstracted, and (*b*) the rest level, if ascertainable, and pumping level of the water, and to provide a copy of any analysis made on behalf of the abstraction. Records are to be kept by persons with works capable of yielding a greater daily quantity than 50,000 gallons ; in the counties of Dorset, Gloucestershire, Hampshire, Lincoln, Suffolk and Wilts where underground resources are relatively small this qualifying rate of extraction is fixed at 20,000 g.p.d. Returns are to be furnished if the daily rate of abstraction during seven or more days exceeds these minima.

The information obtained will be supplied to the Geological Survey. It should, over a period of years, enable a much more accurate assessment to be made of the underground water resources of the country, the reserves that are available in particular areas and the effects of water abstraction on the underground water tables.

While the survey of underground water continued and was, indeed, expanded during the war because of the demands of the Services and other Departments for information and advice in regard to supplies for airfields, camps, factories and other installations, it was not possible to continue the survey of overground resources. It is the intention that this shall be resumed as soon as river boards are established.†

Conservation of Underground Water Resources

The Minister made seven orders during the year under Section 14 of the Water Act, 1945, defining areas in which the abstraction of water from underground will be controlled. The orders cover the North Metropolitan Area ; the South-East Metropolitan Area ; an area around Warminster ; an area including Goole and Doncaster with other parts of the West Riding ; an area in South Lincolnshire, with portions of Northamptonshire and Rutland ; an area including Cambridge and other parts of the Counties of Cambridge, Huntingdon, Isle of Ely and West Suffolk ; and the Mersey area covering parts of South Lancashire and of Cheshire.

* The Water Abstraction Regulations, 1947. S.R. & O., 1947, No. 2342. Price 1*d*.

† The River Boards Act, 1948, which came into force on 28th May, 1948, made provision for the field work to be carried out by the boards under schemes approved by the Minister, and with grants from the Exchequer towards the cost of gauges and other apparatus that will be installed for measuring the flow and volume of inland streams and waters.

Draft orders were under consideration at the end of the year for the Yeovil and Sherborne area ; the Portsmouth area ; Staffordshire and parts of Derbyshire ; Warwickshire, Worcestershire and Leicestershire ; and areas in Kent, South-East Yorkshire, South Sussex, Cheshire and North Shropshire, Essex, Nottingham, North Lincolnshire and Flintshire.

Central Advisory Water Committee

Two Sub-Committees of the Central Advisory Water Committee reported during the year—the Gathering Grounds Sub-Committee (Chairman, Sir Arthur Heneage) and the Water Softening Sub-Committee (Chairman, Lord Walkden).

The Gathering Grounds Sub-Committee, which met on five occasions during the year, made recommendations for the control of gathering grounds and impounding reservoirs. It was recommended that if the water was adequately purified before being put into supply greater public access to gathering grounds could safely be permitted, and that the land should be put to greater agricultural production than is sometimes the practice at present. Land unsuitable for agricultural use should, if possible, be afforested, but with due regard to amenity and the requirements of agriculture. The public should be excluded from the banks of reservoirs, fishing and boating, if allowed at all, should be by permit with stringent control, and bathing in the reservoirs should never be permitted. The Report, which was adopted by the main Committee, has been printed and is on sale.*

The Water Softening Sub-Committee met on seven occasions and reported on their special investigation into the possibilities of softening by water undertakings in the County of Durham. It was decided that the report should not be published as a great deal of the material would probably be made use of in the Sub-Committee's final report. The inquiry by this Sub-Committee into the general question of water softening was still proceeding at the end of the period under review.

The Rivers Pollution Prevention Sub-Committee (Chairman, Mr. Hobday) met on ten occasions. The hearing of oral evidence was nearing completion at the end of the period.

Sir Robert Doncaster resigned from the Committee in November, 1947, and Mr. E. Sims Hilditch was appointed in his place.

Water Surveys

Detailed surveys were completed during the year by the Minister's Engineering Inspectors of (1) the County of Leicestershire and adjacent areas ; (2) Holland, Peterborough and District (South Lincolnshire) ; and (3) the North-East Development Area. Surveys were proceeding during the year of the Wirral Peninsula, Cheshire and parts of Lancashire and the West Riding of Yorkshire.

When a survey is completed a summary of the contents is compiled and copies of the summary are sent to every interested authority and statutory water undertaking in the area. The summary shows the Inspector's recommendations for satisfying the needs of the area either from existing sources or by new developments, and his suggestions how the undertakings might ultimately be reorganised in order to make the best use of their resources. Such summaries were issued during the period under review in respect of surveys of parts of the Counties of Somerset, Gloucester, and Wiltshire (the Mendips area) ; the remainder of Wiltshire ; the County of Leicestershire and adjacent areas ; and the North-East Development Area.

* Report of the Gathering Grounds Sub-Committee of the Central Advisory Water Committee published by His Majesty's Stationery Office, York House, Kingsway, W.C.2. Price 9*d*.

The Water Act, 1948

This short Act, which amends the Water Act, 1945, became law on 24th March, 1948. It simplifies the procedure by which statutory water undertakers or persons desiring to become statutory water undertakers can obtain powers for the purpose. In particular, it enables orders under Section 23 of the Principal Act forming a new undertaking or under Section 9, constituting a new joint board, to include powers for the giving and taking of bulk supplies of water, for the compulsory acquisition of land and water rights and, in the case of joint boards, for new works.

The Act contains a number of minor provisions which will facilitate the administration of water supplies. The most important is, perhaps, the new power (Section 8) for the Minister to authorise local authorities or statutory water undertakers who propose to acquire land, to survey it first so that they may satisfy themselves that it is suitable before going to the expense of obtaining an order for the compulsory acquisition of the land. The section provides for an appeal to the Minister by owners or occupiers and for compensation for damage or disturbance.

Rainfall : Driest Year for Ten Years

The general rainfall in 1947 over England and Wales as a whole was 32·7 inches, or 93 per cent. of the average. Despite much snow and rain and heavy floods during the first four months, the year for the whole country was the driest for ten years. The abnormal consumption of water due to these conditions, which lasted from May onwards, placed a strain on some of the undertakings which have not yet been able to complete the works needed to overtake the arrears of the War. In the Metropolitan Water Board's area, the consumption rose on several occasions to more than 400 m.g.d.—including a maximum of 428 m.g. on 3rd June, as compared with a supply of 336·5 m.g. on the same date in the previous year. By the autumn, many impounding reservoirs became badly depleted. The worst difficulties were experienced in the autumn in the North Midlands and North West including Manchester, Salford and neighbouring towns, Birmingham, Barnsley, Huddersfield and Wakefield.

The Ministry kept closely in touch with water undertakings with a view to ensuring that all possible measures were taken to maintain supplies. At both Manchester and Birmingham preparations were made to reduce domestic supplies and to supply by standpipes and water carts, extreme measures which fortunately proved to be unnecessary. An order made under Defence Regulation 56, empowered the Manchester Town Council to reduce for a limited period the compensation water from the Longendale reservoirs. In other towns, compensation water was reduced for a time by agreement with the river interests and industries concerned. Substantial economy was effected by voluntary reductions of consumption.

The mean flow of the Thames at Teddington in November, 1947, was only 458 m.g.d. as compared with the standard average of 1,613 m.g.d. ; in March 1948, it was 837 m.g.d. as compared with the standard average of 2,388 m.g.d.

V

SEWERAGE AND SEWAGE DISPOSAL

The extension of piped water supplies to areas where none previously existed, the completion of new houses in areas without sewerage, and the necessity for overtaking arrears of work accruing during the previous eight years, led to a further increase in the number of schemes submitted to the Ministry for authorisation. Throughout the year, however, the amount of work which could be put in hand was governed by the availability of resources. Shortages of materials were intensified after the fuel crisis early in 1947, and later in the year the review of the Capital Investment Programme necessitated a careful scrutiny of all new proposals to ensure that priority was given to those which were of proved urgency on public health grounds. In certain areas labour difficulties interfered with the progress of schemes which had already been authorised ; and delays were sometimes met in obtaining satisfactory tender prices.

The total value of sewerage and sewage disposal works authorised during the year amounted to £5,722,000. Loans sanctioned by the Minister (together with capital grants and contributions deducted from the capital cost before loan sanction) amounted to £5,004,000, compared with £5,213,000 in the previous year.

Rural Sewerage

Local authorities continued with the preparation of plans for rural sewerage and sewage disposal, but proposals were, in general, confined to those falling within the limits of cost stated in Circular 87/47, issued on 12th May, 1947. (The reasons for this limitation were explained in last year's Report.) A large number of useful schemes was however, authorised, and where good reason was shown, cases outside the limits were allowed to proceed.

By the end of the year under review the estimated cost of schemes brought to notice since 1945 amounted to nearly £25,000,000, and schemes costing a total of over £1,500,000 had been authorised to start. Schemes to cost in total more than £3,200,000 had been approved in principle, the remainder being at various stages of preparation and investigation at the end of the year. Grants under the Rural Water Supplies and Sewerage Act, 1944, had been promised in respect of work to a total cost of £3,900,000.

VI

THE YEAR'S WORK IN OTHER FIELDS

Public Assistance

The cost of outdoor relief during 1947/1948 was £12,044,172 compared with £11,634,824 during 1946/47. The number of people receiving outdoor relief in March, 1948, was 327,496, a decrease of 15,807 on the figure for March, 1947. The number of people receiving institutional relief during March, 1948, was 131,801 compared with 130,443 a year earlier.

Casual wayfarers who applied for shelter continued to be accommodated at any institution or other suitable place. The number accommodated at the end of March 1948, was 1,860, an increase of 595 over the figure for March 1947. Further reception centres on the lines explained in the last Report were established during the year.

On 1st September, 1947, the main functions relating to children exercised by the Minister under the Poor Law Act, 1930, were assumed by the Home Secretary under the provisions of the Transfer of Functions (Relief of Children) Order, 1947.

On 31st October, 1947, the National Assistance Bill* was introduced in the House of Commons, providing for the repeal of the Poor Law and for the assumption by the Assistance Board (to be renamed the National Assistance Board) of responsibility for the assistance of all persons whose needs can be met by the grant of money, and for casuals. Under the Bill, the functions of County and County Borough Councils—the Public Assistance Authorities under the Poor Law—are, broadly speaking, confined to the provision of residential accommodation for persons who by reason of age, infirmity, or other circumstances need care and attention which they cannot otherwise obtain, and of specialised welfare services for the blind, deaf, and other handicapped classes.

Superannuation and Compensation

Further progress was made during the year in making good the arrears in the quinquennial actuarial valuations of the superannuation funds maintained under the Local Government Superannuation Act, 1937. In all, 129 funds were valued : in 127 cases a deficiency was disclosed and in two a surplus. Schemes liquidating the deficiencies were made by the local authorities concerned. These deficiencies can largely be attributed to abnormal wartime circumstances, *i.e.* the preservation of superannuation rights during war service, the considerable increases in the rates of pay and reduced rates of interest on investments.

The Minister approved 14 agreements under Section 5 of the Act of 1937 between administering authorities and statutory undertakers providing for the application of the Act to certain employees of the undertakers.

During the year 11 appeals were made by local government employees under section 35 of the Act of 1937 and the Local Government Superannuation (Administration) Regulations, 1938, five under section 15 of the Asylums Officers' Superannuation Act, 1909, six under the Local Government Staffs (War Service) Act, 1939, and one under the Local Government (Clerks) Act, 1931.

* The Bill received the Royal Assent on 13th May, 1948, and came into operation on 5th July, 1948.

The National Insurance (Modification of Local Government Superannuation Schemes) Regulations, 1947, were made under section 69(4) of the National Insurance Act, 1946, providing for a modification of the Local Government Superannuation Scheme to take into account the increased benefits and increased contributions under the National Insurance Act. All new entrants to local government superannuation after 5th July, 1948, will pay a reduced superannuation contribution and receive a reduced superannuation allowance. Existing employees have the option either to continue to pay the full contribution and receive the full Local Government pension or to pay the reduced contribution and to have the pension reduced corresponding, in proportion to the number of years during which contributions are paid at the reduced rate.

Proposals for amending legislation to provide for the winding-up of the Local Government Staffs (War Service) Act, 1939, to deal with the superannuation rights of local government employees called up under the National Service Acts and to provide for interchange between the Local Government Superannuation Scheme and other schemes were discussed with the associations of local authorities and the representative employee organisations.*

Compensation Appeals

During the year three appeals were received under the Local Government Act, 1933, two under the Local Government Act, 1929, and one under the Old Age and Widows Pensions Act, 1940.

Government Evacuation Scheme

Although this Scheme came to an end on 31st March, 1946, the Exchequer continued under transitional arrangements pending the coming into force of new legislation to make certain payments in respect of those evacuees who, for good and sufficient reasons, were unable to return to their homes. The total of such persons, apart from those in requisitioned houses, was 5,281 on 1st March, 1947. During the ensuing year some hundreds returned home, and by 31st March, 1948, the total stood at 3,567. This included 1,664 unaccompanied children, 63 mothers with 148 children, 1,518 aged persons, 81 blind persons, and five invalids.

Miscellaneous Works

Miscellaneous local government schemes of development were held up throughout the year to enable work more essential to the country's economy to be pushed forward with the materials available. Towards the end of the year this policy received a new emphasis with the publication of the White Paper on "Capital Investment in 1948", which practically ruled out all schemes not essential on health grounds. There are thus a multitude of works still waiting to be done. To provide better offices for local authorities, to build restaurants, halls and theatres, to lay out parks and pleasure grounds, to make up private streets before adopting them as highways—these are but a few of the more usual types of scheme which will be put in hand in many areas as soon as some relaxation is possible.

Many local authorities continued to be short of refuse and salvage-collecting vehicles, and delivery periods were very long owing to the shortage of steel. The Ministry of Supply agreed early in 1948 to give manufacturers a special

* These proposals are included in the Superannuation (Miscellaneous Provisions) Act, 1948, which received the Royal Assent on 28th May, 1948.

allocation of these vehicles for sale in the home market. Even so, local authorities' requirements, which owing to the effects of the war are substantially above the average pre-war level will take a long time to meet.

Shortage of steel also caused slow delivery of plant for smoke-prevention at industrial works, and generating stations. The cement works on the Thames Estuary are a case in point. The Chief Alkali Inspector's 84th Report in the year 1947 deals with this subject in greater detail.*

Sea Defence

In accordance with the Prime Minister's directive announced in January, 1947, the Ministry entertained proposals from local authorities for sea-defence works protecting public property, and several schemes were in progress during the year, the largest being those at Seaford and Lowestoft. It was not possible, as originally hoped, to include a Coast Protection Bill in the Parliamentary timetable for the 1947/8 session.†

Rag flock

During the year an important step forward in the control of rag flock fillings for furniture, bedding, etc. was taken when the British Standards Institution on 14th January, 1948, published British Standard 1425 : 1948, " Cleanliness of Fillings and Stuffings for Bedding etc." The Board of Trade have adopted this standard in issuing specifications to producers of utility furniture.

War Graves

During the year Circular 35/48 (published 19th March, 1948) was sent to local authorities stating the Exchequer grant which could be claimed in aid of the cost of marking, in permanent fashion, the graves of air-raid casualties buried by the authorities under emergency arrangements.

* Published by H.M. Stationery Office, 1948. Price 9*d.* net.
† The Coast Protection Bill was introduced in the House of Lords in November, 1948.

VII

THE DISTRICT AUDIT SERVICE

In the shorter Annual Reports issued during the war and post-war years, it has not been possible to include any detailed reference to the work of the District Audit Service. A general note is therefore published in the present review.

District Auditors were first appointed under the Poor Law Amendment Act, 1844, and the centenary of their service was celebrated at the annual meeting of the District Auditors' Society in 1946. Formed in 1846, this Society is not only the oldest organised body of auditors in the country, but is believed to be the oldest professional society in the Civil Service. As an interesting sidelight on the remarkable changes in local government during the past century it may be mentioned that according to a Local Taxation report of 1843

(1) the sums annually expended by local authorities in England and Wales totalled about £12,000,000 as compared with State expenditure of about £21,000,000 (excluding interest on and repayment of debt),

(2) of local expenditure more than one-half was on poor relief, and

(3) the general expenditure of municipalities was under £1,000,000.

As will be seen from the summary of income and expenditure appearing on page 273 of this Report, the total expenditure of local authorities on revenue account is now over £700m. Of this amount it is estimated that between two-thirds and three-quarters is audited by the District Auditors.

The District Audit service is now organised into 15 Districts and is responsible for the audit of the whole of the accounts of the 63 county councils, 10* out of the 83 county borough councils, the 28 Metropolitan borough councils, 123 of the 309 non-county borough councils, the 572 urban district councils, the 476 rural district councils, 247 catchment and drainage boards, over 1,000 miscellaneous joint boards and joint committees ranging in function, for example from the Metropolitan Water Board to the Crystal Palace Trustees and all the parish councils (7,375) and parish meetings (3,759). One county borough and 85 non-county borough councils have by resolution adopted the district audit system under the general powers of the Middlesex County Council Act, 1930, the Municipal Corporations (Audit) Act, 1933 or the Local Government Act, 1933.

The District Auditors are also responsible for the audit of the accounts of all local authorities under the Rating and Valuation Acts and the Education Acts ; and recent legislation has provided for their responsibility for the audit of the forthcoming accounts of all local authorities under the National Health Service Act, the Children Act, the National Assistance Act and the River Boards Act. Another large block of work for which the District Auditors are responsible is the certification of the great majority of claims by local authorities for grants from 13 government departments ; about 20,000 such claims were certified during 1947/48. The annual numbers will, however, now diminish by reason of the completion of claims arising from war services and the transfer to the National Health Service of various services involving grants.

While the functional development of local government can be generally reviewed by reference to the Statute book, the organisational development necessary for the execution of these functions is not always appreciated. During the past thirty years great improvements have been made in methods of

* Including one to be audited by the District Auditor as from 1st April, 1948.

accountancy and financial control. Thus, apart from the smallest authorities, accounts are now almost entirely kept on an income and expenditure system whereby greater precision of estimation and financial oversight has been made possible. Official recognition of this progress is exemplified in the Accounts (Boroughs and Metropolitan Boroughs) Regulations, 1930, and in the Education Accounts (Annual Statements) Regulations, 1945, under which it was found possible to make the system obligatory on the authorities concerned. Considerable progress has also been made in loan management through the medium of consolidated loans funds and loans pools. Machine accounting and receipting installations are now in common use and internal accounting technique in such matters as the separation of duties, internal audit, etc., has shown great improvement.

APPENDIX A. (See p. 259)

1.

Income and Expenditure of Local Authorities in England and Wales

	1944–45 £'000	1945–46 £'000
Revenue Account—		
(*a*) *Income :*		
Rates	206,655	222,602
Government grants and reimbursements	230,322	235,783
Other income	325,275	337,534
	762,252	795,919
(*b*) *Expenditure :*		
Loan charges	114,559	107,169
Other expenditure	614,544	672,767
	729,103	779,936
Capital Account—		
(*a*) *Receipts :*		
Loans	14,761	31,048
Government grants and reimbursements	3,079	2,289
Other Receipts	6,176	6,410
	24,016	39,747
(*b*) *Expenditure :*		
Capital expenditure on works including purchase of land	16,486	39,096
Other capital expenditure	7,276	7,391
	23,762	46,487

2.

Outstanding Loan Debt

	On 31.3.45 £'000	*On* 31.3.46 £'000
Gross outstanding loan debt—		
Housing	603,144	600,160
Trading undertakings	482,221	467,812
Other purposes	383,721	358,124
	1,469,086	1,426,096
Amount standing to credit of Sinking Funds	73,368	58,845
Net outstanding debt	1,395,718	1,367,251

APPENDIX B. (See p. 260.)

Actual Capital Payments according to Returns received from 1744 Local Authorities in England and Wales for the Year ended 31st March, 1948*

Area	Number of returns received	Actual capital payments		
		Purchase of land and existing buildings	All other capital expenditure	Total
1	2	3	4	5
England—		£'000	£'000	£'000
Regions:				
Northern	145	1,056	21,357	22,413
East and West Ridings	147	1,434	23,543	24,977
North Midland	175	1,115	24,735	25,850
Eastern	251	2,007	24,060	26,067
London	103	6,619	47,429	54,048
Southern	126	1,729	18,222	19,951
South Western	171	2,227	18,484	20,711
Midland	136	2,575	25,526	28,101
North Western	185	2,518	36,550	39,068
South Eastern	129	2,061	16,645	18,706
Wales	176	628	17,856	18,484
England and Wales	1,744	23,969	274,407	298,376

* For an estimate of the capital expenditure of all Local Authorities *see* Appendix C.

APPENDIX C. (See p. 260.)

Estimated Capital Expenditure of all Local Authorities in England and Wales based on Returns received from 1744 Authorities compared with Estimated Programmes of Capital Expenditure of all Local Authorities for the Year ended 31st March, 1948

Area	Estimated capital expenditure of all Local Authorities			Programme of capital expenditure of all Local Authorities		
	Purchase of land and existing buildings	All other capital expenditure	Total	Purchase of land and existing buildings	All other capital expenditure	Total
1	2	3	4	5	6	7
England—	£'000	£'000	£'000	£'000	£'000	£'000
Regions:						
Northern	1,080	22,007	23,087	2,794	36,774	39,568
East and West Ridings	1,441	23,827	25,268	5,990	48,993	54,983
North Midland ..	1,125	25,197	26,322	2,992	42,593	45,585
Eastern	2,063	24,699	26,762	4,740	44,187	48,927
London	6,630	47,445	54,075	31,571	100,581	132,152
Southern	1,740	18,356	20,096	6,989	30,588	37,577
South Western ..	2,254	19,038	21,292	6,006	37,879	43,885
Midland	2,585	25,541	28,126	11,376	47,567	58,943
North Western ..	2,543	36,958	39,501	5,967	74,552	80,519
South Eastern ..	2,080	16,987	19,067	4,560	32,951	37,511
Wales	634	18,168	18,802	2,813	28,660	31,473
England and Wales ..	24,175	278,223	302,398	85,798	525,325	611,123

APPENDIX D

Summary of Quarterly Returns of Nursing and Midwifery Staffs in Hospitals and Institutions and the Domiciliary Midwifery and Public Health Services in England and Wales

Position at March 31st, 1948

BEDS — NURSES (*a*) AND MIDWIVES

Type of Hospital	Patients' Beds: Staffed Beds: Occupied	Patients' Beds: Staffed Beds: Unoccupied	Patients' Beds: Unstaffed Beds	Patients' Beds: Total (Cols. 1–3)	Nurses, etc. employed full-time: Trained Nurses	Enrolled Assistant Nurses	Student Nurses (*b*)	Pupil or Probationer Assistant Nurses	Other Nursing Staff (excluding Ward Orderlies and Attendants)	Midwives	Pupil Midwives	Health Visitors, etc.	Total (Cols. 5–12)	Nurses, etc. employed part-time: Trained Nurses and Enrolled Assistant Nurses	Other Nursing Staff (excluding Ward Orderlies and Attendants)	Midwives	Health Visitors, etc.	Total (Cols. 14–17)	Ratio of Trained Nurses and Midwives per 100 occupied beds (*c*)	Ratio of total Staff to 100 occupied beds	Additional Nurses, etc. needed, expressed in terms of Full-time Staff: Trained Nurses	Enrolled Assistant Nurses	Student Nurses (*b*)	Pupil or Probationer Assistant Nurses	Other Nursing Staff (excluding Ward Orderlies and Attendants)	Midwives	Pupil Midwives	Health Visitors, etc.	Total (Cols. 21–28)	Ward Orderlies and Attendants employed: Full-time	Part-time
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)
1. General hospitals L.A.	52,888	10,446	15,579	78,913	5,905	2,218	10,628	267	1,214	1,228	1,577	—	23,037	1,672	819	287	—	2,778	14·77	46·18	3,203	1,595	5,519	310	303	605	504	—	12,039	3,238	914
Voluntary	54,630	11,866	4,608	71,104	10,937	1,751	18,611	1,083	1,125	830	293	—	34,630	1,505	691	84	—	2,280	22·56	65·48	1,557	657	3,881	246	166	178	27	—	6,712	2,079	728
2. Chronic sick hospitals	64,306	7,413	8,459	80,178	2,405	4,543	533	938	2,434	418	161	—	11,432	1,348	1,464	123	—	2,935	4·95	20·06	952	2,595	349	761	277	145	20	—	5,099	3,877	1,064
3. Sick children hospitals	5,441	942	1,570	7,953	813	102	2,058	148	97	—	—	—	3,218	105	29	—	—	134	15·62	60·37	196	56	447	47	2	—	—	—	748	223	97
4. Infectious diseases hospitals	10,498	6,527	15,063	32,088	2,240	884	1,178	351	236	—	—	—	4,889	449	180	—	—	629	22·75	49·57	1,547	820	1,912	256	103	—	—	—	4,638	578	146
5. Sanatoria and tuberculosis hospitals ..	20,545	1,136	4,678	26,359	1,627	936	923	241	418	2	—	—	4,147	321	283	—	—	604	8·34	21·65	932	585	1,019	197	140	—	—	—	2,873	1,099	200
6. Maternity hospitals and homes ..	5,797	1,223	355	7,375	106	232	—	—	294	1,695	1,524	—	3,851	131	118	222	—	471	33·5	70·5	14	118	—	—	25	377	121	—	655	277	124
7. Mental hospitals ..	133,743	2,679	3,979	140,401	11,102	140	4,823	—	3,321	—	—	—	19,386	844	2,882	—	—	3,726	8·59	15·89	2,158	13	5,184	—	544	—	—	—	7,899	693	135
8. Mental Deficiency institutions	47,276	1,244	2,542	51,062	2,664	128	1,212	—	1,887	—	—	—	5,891	196	1,049	—	—	1,245	5·82	13·78	745	42	1,305	—	244	—	—	—	2,336	236	36
9. Other hospitals ..	16,194	2,786	2,081	21,061	2,024	909	1,390	401	904	133	133	—	5,894	275	167	12	—	454	13·85	37·8	312	317	540	115	181	8	5	—	1,478	602	201
TOTALS	411,318	46,262	58,914	516,494	39,823	11,843	41,356	3,429	11,930	4,306	3,688	—	116,375	6,846	7,682	728	—	15,256	11·35	30·15	11,616	6,798	20,156	1,932	1,985	1,313	677	—	44,477	12,902	3,645
No. of men included above	—	—	—	—	9,584	2,312	4,439	282	4,322	—	—	—	20,939	39	62	—	—	101	—	—	843	481	2,692	87	223	—	—	—	3,826	4,528	181
10. Domiciliary midwifery	—	—	—	—	—	—	—	—	—	7,139	525	—	7,664	—	—	911	—	911	—	—	—	—	—	—	—	527	7	—	534	—	—
11. Health visiting and other public health work except the School Medical Service ..	—	—	—	—	—	—	—	—	—	—	—	4,562	4,562	—	—	—	238	238	—	—	—	—	—	—	—	—	—	780	780	—	—
12. Day and residential nurseries	—	—	—	—	1,153	268	3,532	—	5,175	—	—	—	10,128	46	199	—	—	245	—	—	53	26	434	—	461	—	—	—	974	—	—
GRAND TOTALS ..	411,318	46,262	58,914	516,494	40,976	12,111	44,888	3,429	17,105	11,445	4,213	4,562	138,729	6,892	7,881	1,639	238	16,650	—	—	11,669	6,824	20,590	1,932	2,446	1,840	684	780	46,765	12,902	3,645

(*a*) Including men.

(*b*) These consist of men and women training for any part of the State Register, or for the R.M.P.A. or T.A. Certificates and Nursery students in training.

(*c*) For this purpose, two part-timers are regarded as one full-timer.

(87015)

Summary of persons suffering from Mental Disorders, 1st January, 1948 — *Arranged according to class*

Where maintained on 1st January, 1948	Private			Rate-aided			Criminal			Total		
	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total
In institutions provided by Local Authorities :—												
County and borough mental hospitals	5,454	2,688	8,142	49,717	70,873	120,590	69	16	85	55,240	73,577	128,817
Other premises	3	5	8	60	70	130	—	—	—	63	75	138
In registered hospitals	894	1,535	2,429	—	—	—	—	—	—	894	1,535	2,429
In licensed houses :—												
Metropolitan	216	536	752	—	2	2	—	—	—	216	538	754
Provincial	496	1,028	1,524	—	—	—	—	—	—	496	1,028	1,524
In hospitals and nursing homes approved under the Mental Treatment Act :—												
Hospitals	—	—	—	—	—	—	—	—	—	—	—	—
Nursing homes	8	46	54	—	—	—	—	—	—	8	46	54
In Naval and Military hospitals ..	204	2	206	—	—	—	—	—	—	204	2	206
In Criminal Lunatic Asylum (Broadmoor)	—	—	—	1	—	1	647	182	829	648	182	830
In Public Assistance institutions and Public Health general hospitals ..	—	—	—	3,873	5,020	8,893	—	—	—	3,873	5,020	8,893
In Private Single-care	20	71	91	—	—	—	—	—	—	20	71	91
In Outdoor Relief	—	—	—	769	1,267	2,036	—	—	—	769	1,267	2,036
Total	7,295	5,911	13,206	54,420	77,232	131,652	716	198	914	62,431	83,341	145,772

		Males	Females	Total
Decrease during 1947	Private ..	8	317	325
	Rate-aided	337	30	367
	Criminal ..	28*	8	20*
Total		317	355	672

		Males	Females	Total
Average Annual Decrease in the five years 1943–1947 inclusive	Private ..	71*	78	7
	Rate-aided ..	305	66	371
	Criminal ..	14*	1	13*
Total		220	145	365

* Increase.

TABLE IV

Summary of persons suffering from Mental Disorder, 1st January, 1948

Classified according to status

Where maintained on 1st January, 1948	Voluntary			Temporary			Certified			Total		
	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total
In institutions provided by Local Authorities :—												
County and borough mental hospitals	7,421	9,123	16,544	104	294	398	47,715	64,160	111,875	55,240	73,577	128,817
Other premises	63	75	138	—	—	—	—	—	—	63	75	138
In registered hospitals	380	691	1,071	4	19	23	510	825	1,335	894	1,535	2,429
In licensed houses :—												
Metropolitan	79	215	294	1	2	3	136	321	457	216	538	754
Provincial	98	377	475	1	11	12	397	640	1,037	496	1,028	1,524
In hospitals and nursing homes approved under the Mental Treatment Act :—												
Hospitals	—	—	—	—	—	—	—	—	—	—	—	—
Nursing homes	8	46	54	—	—	—	—	—	—	8	46	54
In Naval and Military hospitals ..	3	—	3	—	—	—	201	2	203	204	2	206
In Criminal Lunatic Asylum (Broadmoor)	—	—	—	—	—	—	648	182	830	648	182	830
In Public Assistance institutions and Public Health general hospitals ..	—	—	—	—	—	—	3,873	5,020	8,893	3,873	5,020	8,893
In Private Single-Care	2	4	6	—	—	—	18	67	85	20	71	91
In Outdoor Relief	These persons are not classifiable under the above headings but for convenience are included among the certified.						769	1,267	2,036	769	1,267	2,036
Total	8,054	10,531	18,585	110	326	436	54,267	72,484	126,751	62,431	83,341	145,772
Of Total { Private ..	1,209	2,056	3,265	15	56	71	6,071	3,799	9,870	7,295	5,911	13,206
Of Total { Rate-aided ..	6,845	8,475	15,320	95	270	365	47,480	68,487	115,967	54,420	77,232	131,652
Of Total { Criminal ..	—	—	—	—	—	—	716	198	914	716	198	914

TABLE VIII

Summary of Mentally Defective Patients on the books of Institutions and under Guardianship or Notified on 1st January, 1948

Where maintained	Received under the Mental Deficiency Acts, 1913 to 1938									Not certified under the Mental Deficiency Acts			Total of all mental defectives in institutions under Guardianship or Notified		
	Under Orders (Sections 6–9)				Not under Orders (Section 3)		Total								
	Section 6		Sections 8 and 9												
	Male	Female	Male	Female	Male	Female	Male	Female	Total	Male	Female	Total	Male	Female	Total
In the State institution	393	440	607	178	6	3	1,006	621	1,627	—	—	—	1,006	621	1,627
In certified institutions	16,564	18,201	3,562	1,262	677	424	20,803	19,887	40,690	877	615	1,492	21,680	20,502	42,182
In approved (Sec. 37) institutions ..	4,100	4,944	482	197	16	24	4,598	5,165	9,763	—	—	—	4,598	5,165	9,763
In certified houses..	—	4	—	—	88	71	88	75	163	—	—	—	88	75	163
In approved homes..	—	—	—	—	—	—	—	—	—	286	208	494	286	208	494
Under Guardianship or Notified ..	2,140	2,725	75	17	7	3	2,222	2,745	4,967	202*	204*	406*	2,424	2,949	5,373
Total	23,197	26,314	4,726	1,654	794	525	28,717	28,493	57,210 (*a*)	1,365	1,027	2,392	30,082	29,520	59,602†

(*a*) Of these cases approximately 5,616 were on licence from certified institutions.

* Notified cases (Sec. 51).

† In addition to the patients in Institutions and under Guardianship or Notified, there were on the same date 43,719 patients (23,518 males, 20,201 females) under Statutory Supervision (Sec. 30 (*b*)).

TABLE X

	Reported	Ascertained to be "subject to be dealt with"	In Institutions	In Community-Care
	Per 1,000 of the population			
Walsall C.B.	8·61	4·38	2·48	1·60
Swansea C.B.	6·55	3·20	·84	2·09
Suffolk E. & W.	6·52	3·78	1·65	1·33
Sunderland C.B.	5·99	5·17	1·04	3·76
Somerset C.	5·91	3·52	1·90	1·36
Essex C.	5·69	2·58	·62	1·53
Grimsby C.B.	5·68	5·09	1·84	3·08
Rutland C.	5·60	5·60	1·79	3·81
Nottingham C.B.	5·47	3·10	1·23	1·79
Dorset C.	5·45	3·20	1·43	1·74
Darlington C.B.	5·31	2·34	·76	1·58
Oxford C.	5·26	2·15	·97	1·14
Oxford C.B.	5·09	3·56	1·62	1·92
Exeter C.B.	5·01	3·22	1·76	1·37
Burton-on-Trent	5·01	1·97	·83	1·04
Salop C.	4·98	2·57	·86	1·43
Radnor C.	4·87	4·87	1·59	3·28
Derby C.B.	4·86	3·07	·68	2·39
Ipswich C.B.	4·71	3·99	1·83	2·15
Birmingham C.B.	4·62	4·61	1·83	2·67
West Bromwich C.B.	4·60	3·96	2·05	1·91
Wiltshire C.	4·54	3·99	1·89	1·82
Barnsley C.B.	4·45	2·83	1·00	1·83
Cardigan C.	4·45	·56	·31	·06
Smethwick C.B.	4·43	4·32	·86	3·44
Portsmouth C.B.	4·43	2·23	·77	1·45
Worcester C.B.	4·42	2·25	1·06	1·12
Leicester C.	4·36	2·87	·93	·82
Devon C.	4·28	2·64	1·68	·80
Middlesborough C.B.	4·13	4·13	1·14	2·62
Nottingham C.	4·08	2·25	·66	1·58
Cambridge C.	4·06	2·75	·93	1·37
Reading C.B.	4·00	2·93	·99	1·93
Wolverhampton C.B.	3·99	3·22	1·14	1·98
Parts of Kesteven C.	3·98	2·79	1·35	·84
Plymouth C.B.	3·91	3·35	1·33	2·00
Parts of Holland C.	3·87	3·55	1·40	2·11
Cumberland, Westmorland and Carlisle C.B.	3·86	2·90	1·30	1·58
Leeds C.B.	3·85	3·64	1·49	2·07
Doncaster C.B.	3·85	2·93	1·12	1·81
Norfolk C.	3·75	3·11	1·63	1·45
Cardiff C.B.	3·74	3·20	1·12	2·04
Bradford C.B.	3·69	3·54	1·16	2·37
Northampton C.	3·69	3·35.	·75	·77
Isle of Wight C.	3·67	3·38	·90	2·44
Southampton C.B.	3·66	2·77	1·41	1·36
Buckingham C.	3·66	2·70	1·29	1·29
Bristol C.B.	3·60	3·53	1·22	2·30
Northampton C.B.	3·57	2·50	·85	1·64
Berkshire C.	3·53	1·82	1·03	·79
Sheffield C.B.	3·52	3·12	·97	2·12
Norwich C.B.	3·49	3·41	1·59	1·77
Parts of Lindsey C.	3·42	2·85	1·23	1·50
Leicester C.B.	3·33	2·99	1·55	1·44
Stafford C.	3·33	1·67	·69	·80
Southampton C.B.	3·31	2·60	1·23	1·37
Glamorgan C.	3·26	2·44	·80	1·39
Rotherham C.B.	3·26	2·25	1·04	·78
Great Yarmouth C.B.	3·26	1·49	·77	·72
East Ham C.B.	3·26	2·77	1·17	1·48
Gloucester C. and Gloucester C.B.	3·23	1·99	·92	1·06
Gateshead C.B.	3·16	2·84	1·33	1·40

DEFECTIVE PRINTING

TABLE X—*contd.*

	Reported	Ascertained to be "subject to be dealt with"	In Institutions	In Community-Care
	Per 1,000 of the population			
City of York C.B.	3·16	2·54	1·17	1·24
Monmouth C.	3·15	2·84	·69	2·15
London C.	3·13	2·89	1·68	1·20
Lincoln C.B.	3·11	2·54	1·17	1·09
Worcester C.	3·08	1·52	·70	·82
Newcastle-on-Tyne C.B.	3·06	3·04	1·52	1·52
Anglesey C.	3·03	3·03	·41	1·51
Dewsbury C.B.	3·00	2·17	1·27	·90
Wakefield C.B.	3·00	1·80	·88	·88
West Ham C.B.	2·98	2·72	1·43	1·07
East Sussex C.	2·89	2·54	·70	1·81
Warwick C.	2·88	2·37	1·39	·95
Isle of Ely C.	2·88	1·64	·72	·91
Coventry C.B.	2·83	2·81	·96	1·84
Yorks, North Riding	2·83	1·79	·94	·77
Kingston-upon-Hull C.B.	2·82	2·77	·54	1·78
Newport C.B.	2·81	1·54	·58	·96
Soke of Peterborough C.	2·77	2·77	1·06	1·69
Hereford C.	2·76	2·75	·65	2·03
Tynemouth C.B.	2·75	2·70	1·15	1·55
Brighton C.B.	2·74	2·70	1·00	1·58
Derby C.	2·72	1·80	·67	1·13
Lancashire Mental Hospitals Board	2·70	1·97	·90	·96
Bath C.B.	2·69	2·52	1·14	1·38
Stoke-on-Trent C.B.	2·68	2·65	2·02	·63
Wallasey C.B.	2·67	1·76	·78	·93
Hastings C.B.	2·66	2·48	1·01	1·40
Eastbourne C.B.	2·61	1·51	·89	·62
Halifax C.B.	2·58	1·93	1·30	·63
Kent C.	2·58	1·88	·90	·73
Durham C.	2·57	2·57	·51	2·04
Canterbury C.B.	2·56	1·79	·99	·76
Cornwall C.	2·52	2·51	·89	[illegible]
Croydon C.B.	2·50	2·17	·89	·27
Northumberland C.	2·45	2·31	·83	1·43
Dudley C.B.	2·43	2·14	·82	1·32
Cheshire C.	2·42	2·37	·55	1·72
Southend-on-Sea C.B.	2·42	1·93	·72	1·02
Middlesex C.	2·39	1·93	·96	·89
Pembroke C.	2·39	1·33	·67	·14
Surrey C.	2·36	1·58	·91	·61
Birkenhead C.	2·35	2·34	·87	1·32
Yorks, West Riding	2·33	2·06	·75	1·28
Yorks, East Riding	2·33	2·01	·92	1·09
Montgomery C.	2·25	2·23	1·05	1·18
South Shields C.B.	2·23	2·19	1·02	1·05
Carmarthen C.	2·22	1·10	·31	·78
Chester C.B.	2·15	2·15	1·08	1·07
West Hartlepool C.B.	2·09	2·09	·87	1·16
Bedford C.	2·09	1·96	·75	·92
Brecknock C.	2·06	2·06	·44	1·62
Merioneth C.	2·03	1·61	·65	—
West Sussex C.	1·99	1·75	·48	·98
Hertford C.	1·89	1·80	1·12	·55
Bournemouth C.B.	1·83	1·70	·78	·79
Merthyr Tydfil C.B.	1·77	·44	·42	·02
Huddersfield C.B.	1·75	1·75	·90	·85
Caernarvon C.	1·63	·87	·40	·47
Huntingdon C.	1·61	1·57	·42	·96
Denbigh C.	1·60	1·60	·71	·85
Flint C.	1·60	1·60	·57	1·01

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