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THE HEALTH PROBLEM IN BERLIN

BY

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As a political experiment in international co-operation the government of a city such as Berlin by four Allied Powers—with different outlooks and different aims—is unique. The importance of the success of such an experiment is widely realized, and it was thought that an account of the problems facing and the work done by the Public Health Section of the British Military Government would not be without interest. These problems will be described as they presented themselves to the Public Health Section. The situation was chaotic on arrival—in spite of the existence of a German administration, normally very efficient, struggling to resuscitate itself. It must be appreciated that it was always very difficult to obtain information as to exactly what was occurring. Anyone who saw the city last July and sees it to-day cannot but be struck by the general improvement of the health conditions.

General Situation

The story of Berlin during the year 1945 is well known. Until the Russian advance early in the year the city's Health Department had, in spite of the heavy bombing, managed to keep the health services functioning. In the early months of the year the city became more or less an operational area and disintegration started, culminating in complete chaos with the battle for Berlin and the city's capture on May 2. There then followed a period of Russian occupation, when military and political considerations were paramount and the health of the population was of secondary interest. The British troops arrived on July 4, and British military government began to function on July 12.

Berlin, a city with a pre-war population of 4,306,500, is governed by a "Magistrat," which includes a Health Department headed by a Medical Officer of Health. The city is subdivided into 20 districts, or Bezirks, each with its municipal authority and health department. Unlike the Metropolitan Boroughs of London, the Bezirk is not an independent authority, but comes completely under the control of the city's Magistrat.

The actual German administration was left unchanged by the Allied Powers, but each Power became responsible for a section of the city*—comprising a number of Bezirks, as shown on the accompanying map (see p. 425).

Control over the German Magistrat is exercised by a joint Allied body known as the Kommandatura. Policy is determined at meetings attended by the Commandants (the general officers commanding the four Allied contingents in Berlin). Technical matters are dealt with by committees of the Kommandatura, comprising a representative of each Allied Power. Meetings are held weekly, or oftener if necessary, when problems are discussed, and if agreement is reached appropriate instructions are sent—in the case of the Commandants' meeting, to the Magistrat of the city, or, on technical matters, by the committee concerned to the appropriate department. The four Allied Powers provide a chairman for the main meeting and committee meetings in rotation, each chairman holding office

for one month. The Allied Power providing the chairman is responsible for the secretarial work of the Kommandatura.

The experiences of the different committees vary, but the Public Health Committee was generally successful in agreeing on all measures to be adopted. In such a committee the language difficulty is a real one, and agreements have to be couched in general terms; a certain latitude in interpretation is inevitable.

Like any other great city Berlin is not self-supporting, and obtained supplies from all parts of the country. Of particular importance from the health point of view is the food supply, which in normal times largely comes from the rural country surrounding the city. It is a cardinal principle that the four Allied Powers accept responsibility for feeding the population in their own sector. As Berlin is situated in the Russian zone the normal larder of the city is not available for the British, United States, and French authorities. The communications, with their respective zones for road transport, are along the autobahn from Berlin to the west. The nearest point in the British zone is Helmstedt, some 100 miles from Berlin, and transport is limited to this road. Military traffic is unrestricted, but German civilian traffic requires a Russian clearance before it can pass over the border. Rail transport from the west is now running, but there is only a single-track line functioning on the 80 miles between Berlin and the Elbe at Magdeburg. This line is under Russian control, and the fact that it is a single and not a double track reduces its carrying capacity some twenty times.

The above sketch of the conditions in Berlin is intended to give an idea of the background against which public health problems must be judged. It is now proposed to describe some of the main health problems encountered.

Staffing of Health Departments

It is well known that the Nazi party permeated the public services in Germany. The Allies all agree on the necessity for de-nazification, but the policies of the different Powers vary somewhat. The Russian policy insists on complete elimination of any party member. British policy recognizes that party membership may have been merely nominal, and allows such persons, after "screening" by Special Branch officers, to be retained in and appointed to office. (In certain categories—e.g., S.S.—removal is mandatory.)

The Russian policy was applied for two months before the British occupation. The medical officer of health of the city was an extremely capable man; of the Bezirks, one medical officer of health was an old but very experienced man, two were inexperienced and had got their position more on political than on professional grounds, and the fourth was "hopeless."

The medical officer of health described as "hopeless" fully justified the description, and attempts were made to find a substitute. The city medical officer of health recommended a suitable medical officer who had, unfortunately, become a nominal member of the Nazi party. This doctor was "screened" by Special Branch officers, and no objection to his appointment was made. He has proved himself a most capable official, in spite of a campaign of anonymous letters and

* The French took over their sector on Aug. 12, 1945. Previously this sector came under British administration.

posters on walls abusing both the British Military Government and himself.

Other similar difficulties arose. For instance, the Director—viz., the lay superintendent—of one hospital was found to be ignorant of the number of beds in his hospital—his only experience of the job being a short period in the hospital office as a clerk some years ago.

"Nazi-ism in reverse" constituted another problem. The fact that the Nazi system was one of the most abhorrent institutions known to mankind did not, in itself, make those who fell foul of it into saints! A large number of the finest Germans suffered from this system, but unfortunately some of the less reputable victims (or self-appointed victims) obtained positions of influence and started victimization of their rivals. This victimization took the form of dismissing persons from their positions on the grounds that they "belonged to the party." To prevent this victimization the British Military Government reserved to itself the power of dismissal. Cases frequently came to light involving such persons as hospital nurses who, when "screened" by Special Branch officers, were found to have been mere nominal members of the party, and in some cases had been forced into it.

This problem is stressed, as much criticism of British Military Government policy in connexion with de-nazification has arisen. The problem is a difficult one—especially for a technical service, such as public health, where replacements are not easily made; its solution is not simply deciding between black and white.

General Sanitation

In normal times Berlin had an extremely well organized system of water supply, sewage disposal, and refuse disposal. On the arrival of British Military Government the organization was chaotic and much of the equipment and installations had been damaged. The city obtains some 90% of its water from shallow wells and the remaining 10% from surface water. There are normally 87 interconnected pumping stations. No gravity reservoirs exist, the maintenance of pressure depending on the functioning of the pumps. It was estimated that in the city there were 3,111 known major breaks to the mains as a result of the bombing and fighting. The waste of water was enormous. In July the estimated measured consumption was 50 gallons per head, but the bulk of this water was running to waste. The pumping machinery worked intermittently, causing frequent negative pressure.

The sewage organization of Berlin consisted of three systems leading to sewage farms and sewage plants. There had been 2,323 known major breaks, and only some 20% of the sewage reached the disposal works. The rest seeped away into the sandy soil, but did not cause as much nuisance as might be expected. Its presence was, however, very obvious in the city's many waterways and canals.

The above description will make clear the danger of water contamination. The only radical cure was the complete repair of the water and sewage systems, and such work was given the highest priority by the Public Works Department. By January 106 major defects to the water system and 399 sewage defects remained to be repaired. As a stop-gap measure the water was chlorinated. It was necessary to get quadripartite agreement to such a measure; this caused some delay in its inception. The water was examined by the "Reich Institute for Water- and Air-Hygiene" for signs of contamination, and by a British Army hygiene section for the presence of residual chlorine. Results were also checked by a British mobile laboratory, and were more or less consistently satisfactory after heavy chlorination. All water for British troops was specially chlorinated in military water-carts, etc. As an additional precaution the population was advised to boil the water—rather a counsel of perfection when it is remembered that very few people had even enough fuel for cooking. That these methods were effective is shown by the fact that, so far as is known, the typhoid epidemic which raged from August to November was not water-borne.

On our arrival the refuse-disposal system was more or less non-existent—the main trouble was that of transport. The Germans largely used a very cumbersome refuse-wagon requiring two heavy horses to move it; the only horses available were underfed light-draught animals. Much of the refuse was normally

taken outside the city by barges, but the waterways were blocked through war damage. At first refuse was disposed of by burial in gardens and open spaces. Where this was not possible refuse-carts were left at suitable points of the street and moved when filled to overflowing. It was necessary to clear the waterways before an adequately organized system could be instituted.

Casual fouling caused a certain amount of difficulty, which was not surprising, as few public lavatories were functioning and thousands of German refugees were thronging the city: a city of ruined buildings gives extensive opportunities for such habits! Energetic measures were taken to supply public lavatories, whose provision overcame this nuisance.

Nutrition and Fuel

The feeding of such a city as Berlin is an immense problem, and the difficulties, due largely to the transport situation and the cutting off of normal sources of supply, have already been briefly indicated. The conditions on arrival were bad. The casual observer going about the streets could not fail to note the high proportion of pale anaemic faces, and the extremely slow rate at which gangs of labourers, etc., did their work. As an illustration of this, some British medical stores supplied for the use of Berlin had to be unloaded, and it was estimated that 18 labourers were required. In actual fact 50 had to be pressed into service to get the work completed in the allotted time. The medical observer would have noticed other signs. The time spent by patients in hospitals was above the average. Dysentery had a case mortality of 28%. Cases of hunger oedema could be seen in almost any hospital.

The rationing system in force divides the inhabitants into five broad classes:

	July, 1945	Jan., 1946
Class I: Heavy workers	2,443 cals.	2,443 cals.
Class II: Workers	1,957 "	1,957 "
Class III: Sedentary workers	1,581 "	1,581 "
Class IV: Children up to 15 yrs.	1,500 "	—
Class IVa: " 6-9 yrs.	—	1,375 "
Class IVb: " 9-14 "	—	1,473 "
Class IVc: " 9-14 "	—	1,543 "
Class V: Non-workers	1,200 "	1,504 "

* Milk ration: Children up to 1 yr., $\frac{1}{2}$ litre per day.

" 1 " 6 yrs., $\frac{1}{2}$ " "

" 6 " 9 " $\frac{1}{2}$ " "

Mothers: 2 months before and 4 months after birth, $\frac{1}{2}$ litre per day.

Hospital patients: $\frac{1}{2}$ litre per day.

It must be remembered that, apart from the black market, Berliners had little opportunity of supplementing their rations. During the autumn many Berlin families spent the week-end walking into the surrounding country and trying to buy extra food from farmers—who, in the Soviet occupation zone, must hand over 75% of their produce to the authorities, but are permitted to dispose of the other 25% as they wish. The more enterprising Germans certainly obtained some food in this way—mainly vegetables. Most of the food was obtained by barter and was liable to looting on the way back to Berlin. In addition to this innocuous type of black market, food could be obtained on the real black market, but at an exorbitant price. One doctor used most of her salary for two months to give her parents a present of a kilogramme of butter—at the cost of 800 RM.=£20 nominal value.

The Class V ration was, with grim humour, known by the Germans as the "death class" and did mean slow starvation. It is true that in actual fact comparatively few people had to subsist on this ration alone—the majority of families having someone on a higher scale. The housewife received a Class V ration card in spite of the fact that she had a most strenuous job in catering for her family. This important class of citizen always seems to get "more kicks than ha'pence."

The effect of a diet of 1,200 calories alone was well illustrated in one of the prisons. Even prisoners sentenced to hard labour received this diet and could obtain no supplement. Many had to be kept in bed as they were too weak to work. Some deaths occurred from malnutrition alone. There were many cases of hunger oedema. When oedema developed, the prognosis was bad and death usually occurred within 14 days, as it was quite impossible to provide the correct treatment. An improvement has now been made, and working prisoners receive Class III ration.

In the early days of the British occupation (July to August) it frequently happened that the ration cards were not honoured.

the scanty ration of fats being as much as two months in arrears. The nutritional condition of the population gave rise to much anxiety—especially with the knowledge that a winter had to be faced. Fortunately the mechanism of rationing was greatly improved by the Food Section of Military Government. By November the ration cards were being honoured and many improvements were made, which will be seen in the foregoing table. After 6 months of occupation the nutritional state of the people was much improved, and, while the winter is not yet over at the time of writing, it appears that serious epidemic disease may be avoided.

The protective foods—fats, milk, etc.—were extremely scarce, but in the early days the difficulty of the food situation was such that never once was the Public Health Section asked to advise

and distribution of the rations are so irregular that even such basic foods as bread and potatoes are bought for the week and eaten up in a few days, after which time the dietary intake is extremely low until the next ration becomes available, not necessarily at the beginning of the next ration period. This impression is substantiated by values from one-day diet histories, which give figures ranging from 1,830 calories to 384 calories from rationed foods alone on a basic ration of 1,163 calories."

Fuel was also extremely short in Berlin. Supplies had to be brought from the Ruhr, and from Silesia in the Russian zone. In addition, to being scarce, much coal was of the soft brown variety which was not suitable for many of the furnaces in use in the city.

Public utilities had the first call on fuel, after which hospitals had a high priority. Distribution was irregular at first, and large

on what foodstuffs should be brought into Berlin. This was not due to any lack of interest in the medical side of the problem—it meant that any food possible was obtained. In such circumstances nutrition experts will perhaps think leniently of the Public Health Section when it is stated that vitamins were not a priority demand! By November the question could be considered, and the same policy of "get what one could" was adopted. Cod-liver oil and vitamin tablets were sent in from the British zone and distributed to children.

The above description of the food situation is based purely on observation and knowledge of the administrative machine. Berlin was visited by a British nutritional team in September, 1945, and the following is an extract from their report:

"Dietary information covering the previous week has been collected on 65 households (176 people) and dietary intakes of a single day's meals have been recorded for approximately 80 of these people. Few of these daily records equal the rationed amount the people alleged they were able to buy. There is no peak period of consumption as in Düsseldorf. The impression is that the availability

hospitals were often running with only the most meagre reserves and had to curtail their work as no steam was available for sterilizing. The Economic Section of Military Government appreciated the importance of hospital needs, and by November a sufficient if not a liberal amount was available. Economies, such as not heating corridors, had to be exercised, but during the winter no hospital had to close down on account of lack of fuel.

The supplies available allowed no coal for domestic purposes, and the gas and electricity supplies were strictly rationed. Use was made of the extensive wood in the forests which surrounded Berlin. The population shivered, but, by the use of wood fuel and by whole families occupying one room only, deaths from exposure were prevented. The lack of fuel was probably one of the factors in the high death rate from respiratory disease among old people and infants. One result was a high incidence of skin disease in young children due to the lack of washing facilities.

Dysentery

When the British took over their sector in July they found a dysentery epidemic in progress. The reason was not far to seek: disorganized sanitary services, lack of personnel to advise on precautions, and flies breeding in the hot weather. The extent of the epidemic is shown by the following statistics:

	British Sector		Total for Berlin	
	Cases	Deaths	Cases	Deaths
July, 1945	1,203	62	4,332	906
Aug., "	985	170	3,398	1,014
Sept., "	279	57	1,764	608
Oct., "	217	84	923	268
Nov., "	256	57	1,029	215
Dec., "	233	77	871	276
Jan., 1946	55	11	306	51

The preventive measures adopted consisted in the reconstitution of the normal sanitary services. The improved conditions began to make themselves felt by August, but it was perhaps fortunate that this month was exceptionally cool.

The disease was mainly of the Flexner type. Of great interest is the high case fatality—28% of all cases from July to November. This high mortality can be explained by the poor nutritional state of the population. Visits to hospitals indicated that many of the fatal cases, although infected with the dysentery bacillus, were in fact cases of debility and malnutrition.

It must be remembered that treatment facilities were also lacking. No sulphonamide drugs were available, and the food supplies—black bread, etc.—did not allow proper dietetic treatment. Necropsies on many cases showed a large intestine with no inflammatory reaction, in spite of the fact that the Flexner bacillus had been demonstrated.

Typhoid Fevers

The extent of the typhoid epidemic in Berlin is shown by the fact that 12,740 cases occurred in the city (2,397 in the British sector) from July 12, 1945, to Jan. 12, 1946. It was known that many cases were occurring in July and August, and all doctors, nurses, and others likely to come into contact with the disease were protected by inoculation. About the middle of August, however, the number of cases suddenly increased, coincident with an increase of refugees, and it was felt that some more drastic measures should be taken.

Typhoid differs from dysentery by its long incubation period. It was estimated that some 80% of the cases were imported and were occurring among refugees arriving in the city from the east. The health conditions and standard of hygiene of these people were poor, and many cases resulted from direct contact. In view of the fact that between 700 and 800 cases were occurring each week, careful epidemiology was out of the question, and "shot-gun" methods had to be adopted. Compulsory immunization was decided upon, and an order was issued to this effect on Aug. 24—the other Allied sectors adopting the same procedure. It is interesting to note that such a, to us, revolutionary order was accepted by the German health authorities more or less as a matter of course. Stations were soon set up in the districts, and ration cards afforded an easy method of checking those who had been treated. Some delay was experienced in collecting supplies of vaccine and syringes, and inoculation started early in September. In the British sector over 90% of the population had been treated by the end of October.

Statistics of typhoid cases are given below:

	British Sector		Total for Berlin	
	Cases	Deaths	Cases	Deaths
July, 1945	79	—	245	22
Aug., "	444	27	1,688	177
Sept., "	688	53	3,922	406
Oct., "	508	65	3,059	336
Nov., "	354	61	1,979	328
Dec., "	240	47	1,452	256
Jan., 1946	84	17	395	75

Clinically the disease showed no special feature. The proportion of each type is not known, as bacteriological facilities were limited; the bulk of the cases were true typhoid. The

case fatality was approximately 12%. The explanation of this more or less normal fatality rate is probably that the poor diet did not have such a bad effect on a disease for which a low diet is part of the treatment. Hospital accommodation was fully taxed and many patients had to be treated in their own homes.

The inoculation of the Berlin population against the enteric group was carried out in the presence of an epidemic, and there was evidence that the "negative" phase made people more susceptible. Doctors were continually reporting the occurrence of the disease in inoculated persons, with a considerable number of severe and fatal cases. One physician thought that the disease was just as severe in inoculated persons but that complications were less frequent.

At this stage it has not been possible to analyse results and assess the efficacy of inoculation in the presence of an epidemic. The point to be remembered is that it is likely that in the spring of 1946 large numbers of refugees will be passing through the city and inoculation ought then to prove its value.

Typhus

The advances made in the control of epidemic disease cannot be better illustrated than by Berlin's experience of typhus since July, 1945. Apart from the fortunate fact that it was summer-time, British Military Government found a stage that seemed to be set for a large-scale epidemic. The chaotic and semi-famine conditions have already been described. In addition there was an extensive movement of population from the eastern districts, where typhus was known to be prevalent, into a community which had no immunity against the disease.

A few cases were reported in other sectors of the city towards the end of July. It was known that the refugees who arrived were lousy, and arrangements were immediately made for their delousing: nothing could be done with those who "filtered" in to relations. Fortunately the Berlin population has a high standard of hygiene. Effective delousing was made possible only by the use of D.D.T. and the provision of necessary dusting equipment—from Army sources. R.A.M.C. sanitary officers and N.C.O.s soon taught the German health department staff the necessary technique and supervised the work. Without D.D.T. dusting, louse control would have been almost impossible, as most disinfection stations were damaged and fuel was difficult to obtain.

There was not enough typhus vaccine to carry out a wide-spread inoculation campaign, but this protection was given to doctors, nurses, refugee workers, and others likely to come in contact with cases. This was completed by the end of September.

A number of cases occurred in the other sectors, but the British sector remained free until the end of October, when some 10 cases or suspected cases occurred among refugees. Since then a few cases have been occurring every week, but there has been no epidemic outbreak. All cases in the British sector, with two exceptions, were infected before arrival. The eastern part of the city had the largest number of cases, partly because west-bound refugees arrived in this sector, and partly because the conditions of overcrowding were worse owing to more extensive damage.

The following statistics cover the first 6 months (July 12, 1945, to Jan. 12, 1946) of British occupation:

	British Sector		Total for Berlin	
	Cases	Deaths	Cases	Deaths
July	1	—	1	—
Aug.	1	—	18	3
Sept.	2	1	26	7
Oct.	2	—	27	1
Nov.	4	2	25	4
Dec.	20	6	126	21
Jan.	7	3	61	14

Clinically the disease was moderately severe, with an 11% case fatality. Typical exanthemata were only rarely seen, and perhaps the most striking symptom was the "typhoid" state and delirium—a fantasy of one German P.O.W. returning from Russia being that he was the Tsar. The Weil-Felix test was used throughout for diagnostic purposes. Convalescence was slow—not surprising in debilitated patients.

One German physician who had much experience of typhus gave it as his opinion that the disease had not become more widespread because lack of fuel caused all German households to be cold and the low temperature discouraged the louse from migrating. Be that as it may, the occurrence of typhus was more or less inevitable in Berlin. The limitation to sporadic cases rather than an epidemic is a great tribute to modern preventive methods—especially as, while exact information is not available, reports indicated that the disease reached epidemic proportions in certain other cities in Eastern Germany.

Venereal Disease

Many lurid articles have appeared in the lay press with regard to prostitution and venereal disease in Berlin, and it cannot be denied that the position was bad. The Germans had experienced a rise in incidence on account of war conditions, as had occurred in Great Britain. As already noted, the health services had been completely disorganized; Berlin had been the scene of much fighting, and after its capture the inevitable licence and promiscuity took place. Families had been separated, and many women had no news of their menfolk for months. Food was desperately short, and many were no doubt driven to prostitution to obtain extra nourishment.

It is very difficult to obtain accurate figures of the incidence. A survey in one district disclosed the fact that 10% of the total female population were infected with venereal disease. It is likely the incidence was even higher, and has been put at 40% of the total female population.

The problem resolved itself into the tracing of infected females and ensuring they were treated. A "Vice Squad" of British military police was formed to work with the German civil police in tracing the contacts of Service cases. At first the proportion traced was small, but after the system was properly organized about 80 to 90% of contacts were traced. These persons were, if infected, retained in a special hospital till rendered free from infection.

A variant of this method was the organization of raids on "black spots"—e.g., notorious cafés where much "picking up" took place. The war has not altered completely the habits of a city, and many of the "black spots" were well known to the German criminal police. Other "black spots" developed owing to the presence of Allied troops. When a raid took place all women who could not produce a suitable identity card or were "known to the police" were apprehended and medically examined by the German health authorities. It is probable that many "amateurs" have been missed by this method, but the results of some raids are interesting:

	No. of Women Sent to P.H. Dept. for Examination	No. of Cases of Syphilis	No. of Cases of Gonorrhoea
Sept., 1945 ..	247	10	60
Oct., " ..	52	—	3
Nov., " ..	52	1	2
Dec., " ..	273	10	53
Jan., 1946 ..	238	14	71

The raids did not seem to cause much resentment among the German population. Except for a few instances, all were carried out with almost excessive politeness on the part of everyone concerned. No doubt the presence of British military police had a deterrent effect on any male partner who was inclined to be truculent. After a number of raids had been made in a particular district the proportion of women found infected decreased.

Such raids might not be tolerated in normal times, but, in the peculiar situation of Berlin in the autumn of 1945, it is considered the results justified this procedure.

Another factor in encouraging the spread of the disease was the inadequacy of treatment facilities. In Berlin the system of public V.D. clinics has not been developed as in Great Britain, and most of the treatment is in the hands of specialist doctors, who see patients in their own consulting-rooms. Such doctors were short of sulphonamides. British stocks were brought into Berlin, but it was impossible to supply such drugs to doctors working privately, as there was a flourishing black market in this commodity. A compromise was effected by issuing drugs to the health departments and insisting that they supplied drugs only to recognized hospitals and centres set

up for the purpose. The illicit treatment of venereal disease by black-market drugs undoubtedly caused the development of many sulphonamide-resistant cases.

Refugees

The end of hostilities brought with it the necessity for returning millions of people to their homes. Allied nationals—"displaced persons"—were given priority over Germans, and in the British zone their care absorbed most of the energy of the Military Government detachments. In Berlin "displaced persons" never constituted a problem, as they were few in number, but the German refugee question very soon began to cause much worry. Food was short and additional mouths to feed threw a great strain on the available food supplies.

Attempts were made to prevent refugees coming to Berlin at all unless they were bona-fide residents of the city. In theory their entry was forbidden, but in actual practice they came in large numbers. Early November was probably the peak period, and it was estimated that they were reaching the city at the rate of 20,000 a day, of whom some 2,000 remained in the city. As a matter of interest, the population increased from 2,947,500 in August to 3,038,777 in December; a considerable number never registered.

The problem was one of refugees from the east. This point is stressed, as the British authorities had no control over and very little information concerning the source of refugees—the ceded territories—or their entrance into the eastern part of the city. Refugees arrived in the city by train and on foot. The conditions of rail travel were beyond description. An everyday sight was family groups, usually without any menfolk, trudging through the streets carrying their belongings on their back or, if lucky, on hand-carts. Accounts have appeared in the lay press about the terrible conditions of these people: these reports, although somewhat sensational, gave essentially a true description.

In some of the refugee camps that, as described later, were set up it was possible to see sights which showed only too well the aftermath of war. Sick-bays were provided, and they were largely occupied by moribund cases which hospitals would not accept. One curious sign was the unemotional way in which a mother with perhaps four children would state that she had heard nothing of her husband for months or even years. Many seemed to have lost all normal human emotions.

When the stream of refugees began in August it was imperative that something should be done, and refugee camps were set up in the British sector under the supervision of the Displaced Persons Section of Military Government, which was responsible for dealing with the refugees. These camps were run by the Germans themselves—much credit going to a number of German Red Cross workers. Conditions in the camps were not good, but they did provide the minimum of care and, what was more important, prevented large numbers of potential disease-carriers from becoming lost in the city. Typhus was an ever-present danger, and the concentration of refugees in camps allowed effective delousing with D.D.T. powder.

With the co-operation of the authorities of the British zone, many refugees were evacuated west in October. Towards the end of this month and early in November the numbers increased alarmingly: one camp for 1,500 at one time housed almost 8,000 people, and it was essential to make definite arrangements for dealing with them. It would have been preferable, from the point of view of the city, to prevent the arrival of refugees altogether; but such a course was impracticable, and it was necessary to set up camps where refugees could be under control. By January, 1946, accommodation for some 10,000 had been provided. In addition a more or less regular evacuation of refugees to the west was arranged, trains running when the occasion demanded it. By December and January the numbers reaching Berlin had declined and the accommodation provided was not taxed.

The main problems were accommodation and feeding. Accommodation in a heavily damaged city like Berlin was not easy to find, but use was made of barracks, etc. Until enough camps were set up, large numbers disappeared "underground" and lived in cellars and rooms in bombed buildings. Many appeared from nowhere when there was any chance of evacuation to the west. Refugees were not given ration cards, but

were fed from soup kitchens at the camps. In the estimated requirements of the city the Food Section had a 10% reserve which was available for such needs.

From the medical point of view the refugees caused many problems. They brought with them much disease—some 80% of the typhoid and almost all the typhus cases. Many suffered from debility and took up much hospital accommodation. The minor-treatment rooms and sick-bays in the camps required medical supplies at a time when the shortage was acute. Lacerated feet in undernourished people were particularly difficult to treat.

Another problem was the returning prisoners of war passing through Berlin. The responsibility for such men belonged to British Troops Berlin, and a transit camp was set up on the outskirts of the city. The Public Health Section arranged for a near-by civil hospital to admit any needing hospital treatment. Many had infected wounds necessitating a long stay in hospital. Anyone wishing to see to what a condition the once proud Wehrmacht, in ragged uniform, had fallen had only to visit this camp. It would discourage the most belligerent from wishing to take the risk of starting a war.

The subject of refugees has been described fully, even though the responsibility was not merely a medical one. It showed the aftermath of war at its worst. Many more refugees are still to be moved, but it is to be hoped that the agreement to move people in a more humane and orderly fashion will be carried out, as the terrible conditions of the autumn of 1945 must lead to bitterness.

Good work was done by both Allied and German authorities and voluntary societies in the relief of suffering, under difficult conditions. On the British side, mention will be made only of the fine work of the Friends Ambulance Unit stationed in Berlin, and the way in which the ordinary British soldier gave help to refugees with whom he came in contact—far beyond what mere duty demanded.

Personal Health Services

The first stage in the development of the modern health service dealt with problems of environmental hygiene and the control of infectious disease; the conception of personal health services was a later development. It is curious to note that in the rescue of the Berlin health services from the chaos into which war had thrown them the same sequence was followed, and only after some three months of occupation was it possible to give much attention to the personal health services.

As might be expected, tuberculosis has greatly increased. The environmental conditions—poor food, bad housing, etc.—encouraged its spread, and the lack of hospital beds prevented the isolation of cases. Like any modern city, Berlin owned many sanatoria outside its boundary, and such beds were now largely unavailable. Transport difficulties prevented use being made of institutions in the British, French, and American zones of occupation. A large tuberculosis hospital centre just outside the boundary of the city in the Russian zone was in use by the Red Army for military purposes.

The fact that very little could be done had to be accepted. It is true that a general improvement of living conditions and food supply was taking place, but no immediate steps could be taken. As many hospital beds as possible were made available for tuberculous cases. Persons who could produce evidence that accommodation in a sanatorium was available for them in some other part of Germany were granted travel permits, but there was always the feeling that the signing of such a recommendation merely absolved one of the responsibility of doing nothing. Undoubtedly some got safely to sanatoria, but it is certain many suffered from the rigours of the journey.

The following statistics for the city of Berlin are of interest:

1938: Incidence of tuberculosis per 10,000 per annum = 25.8
July 12, 1945, to Jan. 12, 1946: Incidence of tuberculosis per 10,000 per annum = 48.9

Maternity and child welfare clinics caused no special difficulties. It so happened that the premises in which such clinics were held had not been so badly damaged as to make them unusable, and the German health authorities soon got them working again. They were largely staffed by women doctors, which meant that there were no special staffing difficulties. The functions of the clinics are the same as in Great Britain.

The Germans seem to use these clinics freely, and it is claimed that all children are either seen by health visitors or attend the clinics at least once. Some 70% of children under 12 months attend regularly. The work of the clinics was handicapped by the lack of medical supplies and supplementary nourishment. They served, however, a particularly useful function in instructing mothers how to make the best use of the child's ration.

In the British sector of Berlin there was no actual shortage of general practitioners, but they worked under considerable difficulties. Hardly any had motor-cars—even a medical officer of health 68 years old in a semi-rural district did most of his visits on a bicycle—and only a few had a telephone. Conditions are gradually improving, and doctors now receive priority in the provision of telephones, motor-cars, etc. Many minor difficulties over accommodation arose, but it was agreed that a doctor's house should not be requisitioned by the military, and arrangements were made for a special issue of fuel for heating surgeries.

Many specialists had been evacuated from their hospitals and others were prisoners of war. The hospitals soon tried to collect their staff again, and when anyone was specially required application was made to the Control Commission for this particular person. A considerable number of medical men thus returned to Berlin at a comparatively early date.

Hospitals

Hospitals, like other buildings, suffered from the effects of bombing and the battle for Berlin. While comparatively few hospitals or hospital blocks were completely destroyed by direct hits, all in the British sector had been damaged to a greater or lesser degree. A number of institutions outside the city were no more available for Berlin's population. The pressure on the hospital beds was great. In July there was a dysentery epidemic—shortly to be followed by a typhoid epidemic. The city was full of refugees with no homes who, if ill at all, had to be admitted to hospital; there were many wounded requiring treatment. There was another cause for the strain on the bed accommodation. Owing to the poor nutritional state of the population and the lack of drugs and supplies, many patients had to be kept in hospital longer than usual.†

The first step was to arrange for the repair of the hospitals, as in August it was estimated that 60% of the beds would be put out of commission in bad weather. It was agreed by all sections who had a call on labour and materials that hospital repair must have a high priority. There are in the British sector of Berlin a few large municipal and voluntary hospitals of over 500 beds, a considerable number of medium-sized hospitals of 100 to 500 beds, and many small hospitals of 50 to 100 beds. Many of the small hospitals are what in Great Britain would be looked upon as nursing homes. In September the Health Branch of the Control Commission initiated for the British zone of Germany and the British sector of Berlin a Winter Plan which, so far as Berlin was concerned, meant the finding of 2,000 more beds in the British sector. In a badly damaged city, buildings for 2,000 beds were not easy to find, but it was done. Equipment was the difficulty, but simple if not lavish equipment was sent up under British auspices from the British zone. This was immediately issued to these reserve hospitals.

The following statistics give the hospital position in July, 1945, to January, 1946. They refer to the British sector only:

	July, 1945	Jan., 1946
No. of hospitals over 500 beds ..	3	5
" " from 200 to 500 beds ..	5	9
" " under 200 beds ..	29	30
Total No. of hospitals in section ..	37	44

No. of beds available: July, 1945—5,817; Jan., 1946—9,143

By January, 1946, the position was such that, in the absence of epidemics, the hospital provision could be considered satisfactory.

† Sepsis in wounds was one of the commonest causes of long stay in hospital. Many German prisoners of war arrived on their way to West Germany in a terrible state—septic amputation stumps were frequently seen. The German hospital is normally a well-run institution, but one of the most noticeable features in wards being used for prisoners of war was the all-pervading stench of pus. It made one imagine one had returned to the pre-Listerian era.

Medical Supplies

In July there was an acute shortage of drugs and other medical supplies. The position was such that numerous hospitals had to curtail or stop their surgical work on account of a deficiency of anaesthetics. Sulphonamides were practically unobtainable in hospitals, and chemist shops were empty. The repercussions on a population suffering, among other things, from a dysentery epidemic need not be stressed.

The matter was so urgent that it was decided to take steps to relieve the position in the British sector. Early in August some 60 tons of mixed medical stores were received from British sources, and a British medical store was set up. On account of the extensive black market in drugs—one ampoule of penicillin would fetch the equivalent of £75—the drugs were issued to hospitals only. The system worked well, and by December some 500 tons had been brought in from British sources.

At the early meetings of the Kommandatura an attempt was made to develop a uniform drug supply policy for the city of Berlin as a whole. The idea was that the Magistrat would inform the Kommandatura of what drugs were short, and demands would be made to the four Allies, who would, so far as possible, agree on what each would supply for the city as a whole. It, however, was more or less impossible to get enough information from the city authorities. The British view was that an urgent need existed which could not wait until the actual or potential German stocks could be accurately determined. Complete agreement could not be reached on this point by all four Powers, and therefore the need of the British sector was met from British sources, other Powers dealing with their sectors in their own way. By December the hospitals in the British sector, to which issues were first limited, had an adequate if not liberal supply of drugs, and it was then possible to agree to the dispensing of out-patient prescriptions normally obtained from chemists.

The German pharmaceutical industry is a powerful one, and a number of big firms have factories in Berlin. They may soon begin to try to re-establish their production, and if the firms were regarded by the medical officer of health of Berlin as producing reputable and essential drugs the British Military Government would give such manufacturers assistance to obtain raw materials and finished products from outside the city.

Considerable stocks should soon be obtainable through normal trade channels, but it is claimed that the action of the British authorities in making drugs available during the period August to December prevented a serious breakdown in medical treatment in the British sector. The urgency of the situation justified a departure from the general policy of treating Berlin as a whole in agreement with the other Allies.

The difficulties in getting German production going are well illustrated by the experience with typhus vaccine. The rickettsiae had to be flown from Frankfurt-on-Main, and arrangements were made to obtain 2,000 eggs from outside Berlin. The rickettsiae arrived, but at the last moment the arrangements to get eggs failed. No animals were available to keep the rickettsiae alive, so the whole process had to be started again.

Summary

A description has been given of the main medical problems which were met with during the first six months of the British occupation of Berlin. Many more arose—ranging from the de-nazification of the German Red Cross and its reconstitution on democratic lines and the encouragement of learned societies to the tracing of doctors wanted as war criminals; but such subjects are perhaps out of place in an article on health matters.

In September and October a somewhat gloomy view was taken as to Berlin's fate during the winter 1945-6. At the time of writing, with the winter more than half over, it would seem that fortune has been kind and the expected epidemics have not occurred.

The following statistics may be of interest in illustrating the impaired vitality of a city after the ravages of war.

	Population of Berlin	Birth Rate per 1,000	Death Rate per 1,000	Infantile Mortality per 1,000 Live Births
Pre-war, 1939 ..	4,306,500	15.1	14.3	5.9
During 1944 ..	2,863,600	8.6	16.2	12.3

Figures are not available from January to June, 1945, but the following are given for the period of British occupation (population, Berlin, British Sector: 527,000):

	Birth Rate per 1,000 p.a.	Death Rate per 1,000 p.a.	Infantile Mortality per 1,000 l. b.
July 12-Aug. 12 ..	Accurate figures not available		
Aug. 12-Sept. 12 ..	15	54	231
Sept. 12-Oct. 12 ..	15	54	231
Oct. 12-Nov. 12 ..	13	54	183
Nov. 12-Dec. 12 ..	12	46	246
Dec. 12-Jan. 12 ..	12	46	246

Acknowledgment.—The above description deals with public health matters, but the functions of military government are even more extensive than those of a big city in Great Britain. Any progress would have been impossible without the co-operation of all sections of Military Government and of British Troops Berlin. One cannot enumerate the many sections, but the support of the Senior Military Government officer, Brig. W. R. N. Hinde, D.S.O., and the assistance of the A.D.M.S. British Troops Berlin, Col. E. C. Beddows, O.B.E., M.C., made any success attained possible. We would also like to acknowledge the pleasant experience of working with Allied medical colleagues: Col. Pigareff, U.S.S.R., Col. Freyche, French Military Government, and Lieut.-Col. Scheffer of U.S. Army. As at home, a Health Department does not only depend on medical men. We were fortunate in having Capt. G. H. Chambers, R.A.M.C., and Capt. W. Stapleford, R.A.M.C. (who died while serving in Berlin), as sanitary officers, and Capt. G. Smitham, R.A.M.C., as quartermaster and general staff officer. We would also mention W.O.II Pavitt, R.A., chief clerk, who in addition to his ordinary duties has given great assistance on the revision of this article. Our thanks are also due to Mr. Boucher, O.B.E., and Brig. T. Kennedy, O.B.E., of the Health Branch Control Commission, for their support in the work in Berlin.

NUTRITION OF SCHOOL-CHILDREN IN LEEDS, WINTER, 1943, AND SUMMER, 1944

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In order to obtain some idea of the total nutrition of the children in those schools in which we were investigating the nutritional values of the school meals (Bray *et al.*, 1945) we have carried out a survey on the home dietaries by an adaptation of a method commonly recommended. Children in the age groups 8-11 and 11-14 from five schools were interviewed individually during either the winter of 1943 or the summer of 1944. Two of the schools on new housing estates and a third in a poorish-class neighbourhood were examined over both periods. The fourth, examined during the winter period, also served in part a new housing estate, and it was changed for one in a poorer district in the summer period. The total number of children interviewed was 155, of whom 60 were seen during the winter period.

The children were selected at random, except that equal numbers of boys and girls were taken in each age group from each school and that a proportionate number of children receiving free meals were included in each selection. It is interesting to note that this random sampling was satisfactory, since the proportion of children in the sample taking school milk was the same as the proportion for the whole city. The children were asked individually what they had eaten for breakfast and up to dinner-time that day, and for tea, supper, and at other times since dinner the preceding day. They were then shown previously weighed samples of the foods they had mentioned and were asked to select the amounts of the foods they had eaten. A high degree of precision cannot be attributed to the results of this survey, but, on the basis of work carried out with our students, it seems likely that most of the estimates are accurate to $\pm 10\%$, and the results provide an outline of the diet into which the school meal must fit.

In an endeavour to get some spread of meals three groups include Sunday tea and supper, the rest being weekday meals. Breakfasts, over the two periods, consisted usually of tea but