Rescue of the Remnants: The British Emergency Medical Relief Operation in Belsen Camp 1945

E Trepman

ABSTRACT
The British Army liberated the German concentration camp at Belsen on April 15, 1945. The thousands of inmates (estimates range from 60,000 to 78,900 inmates), mostly Jews from eastern Europe, were dying at a rate of 500-600 per day from disease, and many more were being killed by the German guards and co-workers. Diseases prevalent included typhus, tuberculosis, nutritional and infective diarrhoea, severe malnutrition and starvation, and others. Despite huge obstacles including the ongoing war effort, shortages of supplies, and limited numbers of workers, a relief operation was rapidly organized to control the typhus epidemic and salvage as many inmates as possible. The 10,000 emaciated corpses which had been lying all over the camp were collected and buried in mass graves. Inmates were disinfected with D.D.T., scrubbed in a ‘human laundry,’ and evacuated from the typhus-ridden Horror Camp (Camp 1) to a hospital organized in the barracks of the Panzer Training School (Camp 2). Feeding of the inmates was carefully regulated, and some basic medical treatment organized. The relief operation was performed by British Army units, detachments of the British Red Cross, British and Belgian medical students, and other volunteers including those from among the less debilitated inmates. Although 13,000 inmates died after the liberation despite the relief operation, thousands of others were rescued.

Key words:
Concentration camp, Typhus, Tuberculosis, Diarrhoea, Starvation, Genocide, Germany, World War II, Holocaust

The Liberation Of Belsen Camp
On April 12, 1945 two German messengers notified the oncoming British Army that there was a concentration camp at Belsen with 60,000 “political” prisoners, among which, they claimed, were 1500 cases of typhus (1, 2), 900 of typhoid fever, and others with various illnesses (1). However, when units of the British Army (14 Amputee Unit of the Intelligence Corps, followed by 63 Anti-Tank Regiment, Royal Artillery) entered Belsen Camp on April 15 (3, 4), they found that the condition of the prisoners was far worse than what had been forewarned. In the part of Belsen known as Camp 1, a half square mile area (5) which the British liberators referred to as the “Horror Camp” (6), they found an estimated 22,000-28,195 women (1, 3, 7), 18,000 men, and 5,000 children packed into approximately 120 wooden huts (7, 8, 9) divided into five main compounds, three for men and two for women (1). The huts were approximately 110 feet by 30 feet in size, and each contained from 400 to 800 inmates (3, 5). In the brick buildings of Camp 2 (7, 8), which had been previously used as the Panzer Training School (10) and as housing for SS and Wehrmacht troops (1), an estimated 17,000-27,000 male prisoners were held (7, 8) including 15,000 men who had been brought five days earlier from the V1 factory at Dora Camp near Nordhausen (3). The large majority of prisoners in Camps 1 and 2 were Jews from Poland and the Soviet Union (including the Baltic countries, particularly Lithuania), transported to Germany from concentration camps such as Auschwitz, Majdanek, and Stutthof during the Soviet advance westward, as well as others from Czechoslovakia, Belgium, France, Italy, and Yugoslavia (7, 8).

Lieutenant Colonel JAD Johnston, RAMC of 32 Casualty Clearing Station (CCS) (11), who was appointed Senior Medical Officer (SMO) of Belsen Camp (12, 13, 14), reported on April 18, one day after he entered the camp (7, 12, 13, 14):

“It is impossible to give an adequate description of this camp. Camp 1 - A dense mass of emaciated apathetic scarcrow huddled together in wooden huts without beds or blankets in many cases, without any clothing whatsoever in some cases. The females in worse condition than the men; their clothing generally, if they have any, only filthy rags. The dead lie all over the camp and in piles outside the blocks of huts which house the worst of the sick and are miscalled hospitals. Approximately (10,000) naked and emaciated corpses in various stages of decomposition are lying about the camp. Sanitation is non-existent. Pits were dug in only a few instances, wooden perch rubbish are available in totally inadequate numbers, but the majority of inmates, from starvation..."
apathe), and weakness, defaecate and urinate where they sit or lie, even inside the living huts. There is no running water or electricity. All water is being brought in by our water trucks.” (7).

The approximately 10,000 “dead lay in naked walls of bodies around the huts, many of which were filled, literally filled, with the dead and the dying” (3, 7). They lay crowded on bunks or on the floor, “in foul rags drenched in excreta, covered with lice” (7). Of the 40,000-69,000 prisoners in Camp I, 500-600 were dying daily from disease (over 1000 on one day in March 1945 (15)), and many more were being killed by the German guards (7, 16); on April 15 the death toll was 800 (3). There had been almost no water for a week prior to the liberation (7) because of “the German cutting the water-supply as a final gesture before they left” (8), and no food or water had been provided for four or five days before the British Army arrived (8).

Organization Of The Relief Operation

The British 11th Armoured Division entered Belsen Camp on April 15 at midday, and by 4 p.m. the medical relief work was begun by the Divisional Field Hygiene Section (17). The Divisional ADMS Col D Blaett immediately arranged for supplies of AL63 and disinfectant, and thus 15,000 inmates were decontaminated during the first three days after the liberation (17). The Deputy Director of Medical Services, Second Army, Brigadier H L Glyn Hughes, who personally inspected the camp on April 15 (3, 4), ordered five British medical units to Belsen which arrived on April 17 (1, 7), and several days later these were reinforced with three additional medical units, thus beginning “the colossal medical task of transforming a death-trap into a hospital.” (7). This rescue operation required the diverting of these units from the ongoing military campaign (2), and although it “could not be regarded as a commitment which came strictly under the Army Medical Services... the dictates of humanity required quick action” (7). Even after the full establishment of the British Military Government, which assumed responsibility for the Displaced Persons in the concentration camps in British-occupied Germany of which Belsen was the largest, the Army Medical Services continued to provide large-scale medical assistance because the Military Government had only a “skeleton staff” without adequate material resources, equipment, or personnel for the task (18).

Johnston’s report of April 18 included a list of proposed urgent measures, which became the plan of action for the first few weeks of the rescue operation (13, 14) (Table 1). On April 18 the British forced the German S.S. and Hungarian guards at gunpoint, assisted by trucks and bulldozers, to collect and burn the thousands of dead bodies in mass graves and to clean up the filth (4, 7, 13). Under the direction of Johnston, a hospital of 17,000 beds was set up in the barracks of Camp I (7) including the Round House, a building which had been the S.S. officers’ mess hall (10, 16). All inmates from the typhus-ridden Horror Camp (Camp I) were evacuated to the Camp 2 hospital, at a rate of 700-1500 per day (3, 4, 20, 21); the first 500 typhus cases were evacuated on April 18 (3).

The evacuation of Camp I consisted of four steps: calling the inmates out of their blocks, registration, bathing and disinfection and embussing on lorries to Camp 2 (3). The 30,000 inmates were processed 20 at a time in “human laundries” which was set up in an old former horse stable near the entrance to Camp 2 (21). Here they were “placed on slabs, scrubbed down to remove the caked dirt and faces of months and dusted with DDT,” (7, 8, 20, 21, 22) the newly developed insecticide which had recently been used successfully to kill mosquitoes and prevent malaria during the Italian campaign (23). The delousing of the entire population of 40,000 inmates with DDT (7) was completed by April 30, just two weeks after the liberation (8). Despite this, numerous healthier inmates waiting to be evacuated from Camp I contracted infections and died, including those who were helping in the relief effort (3). By May 18 the evacuation of Camp I was completed, and 13,834 patients had been admitted to the Camp 2 hospital (8). Although accurate numbers were impossible because of the enormity of the problem and the utter chaos present, it was estimated that a total of 78,900 inmates had been evacuated from Camp I, and that 23,000 dead had been buried, including the 10,000 corpses that were found unburied on April 15 and 13,000 that had died after the liberation because of disease and starvation (22). By the end of May, 30,000 living inmates remained in Belsen, including 11,200 to 13,000 in the main hospital area (3, 7).

The practical problem of organizing such a colossal rescue operation was enormous. It was necessary to find beds, bedclothes, medication, dressings, and other necessities which were scarce after the liberation (7).
Large supplies of drugs and dressings were captured from the Germans (1, 3). German military medical stores were collected into central dumps, such as the large dump at Celle near Belsen where nearly 2000 tons of medical equipment were concentrated, sorted, and issued to the Belsen hospital areas and other Allied ex-prisoners of war and German military hospitals (2). Captain Leslie Hardman, the Jewish Chaplain of 8 Corps, obtained tinned and fresh milk, porridge, peas, rice, and other foodstuffs from Red Cross parcels by requisitioning and appealing (3). The physician in charge of hospital stores at Belsen, Capt. "Frosty" Winterbottom, RAMC, equipped 7000 beds in one week by "freezing all he could lay hands upon" in the district around Belsen (13). In addition, Winterbottom organized thousands of sets of clothing and footwear for the liberated prisoners, a hairdressing salon, a group of plumbers and carpenters for the hospital buildings, internee seamstresses who mass-produced the "standard Belsen nightie" for the sick, and a workshop for wireless and bicycles (13). He also organized a night club - "The Coconut Grove" - "chiefly for rehabilitating the patients" (10, 13). A former stable in Camp 2 was converted to an issue store for clothing requisitioned from German townships miles around Belsen, and was named "Harrods" (3). However, by early May German medical supplies were short, and stocks of some essential items were exhausted because the medical resources of the British Army Medical Services were "fully stretched" in dealing with the heavy commitments at Belsen as well as to the inmates of other concentration camps, British troops, and Allied ex-prisoners of war (2, 18).

Approximately 3000 British troops were directly involved in the relief effort in Belsen (3). Nursing and domestic help was organized from liberated prisoners who were strong enough to work, and also from the German population (7). Furthermore, in response to an appeal from the military, six detachments of British Red Cross workers arrived on April 23 to help nurse the sick and evacuate them from Camp 1 via the "human laundry" to the Camp 2 hospital (4, 7). One week later, a group of 95-100 medical students arrived from London, who helped with the huge job of cleaning and feeding the weak inmates, and also provided medical help (3, 7, 16, 24, 25). The students took over the major job of feeding the starving inmates in Camp 1 (3, 7, 16, 26, 27). Forty tons of dried milk and protein hydrolysate were delivered (7). Within 10 days of arrival of the students, the daily death rate dropped from 300-500 per day in half (24), and subsequently to 60 per day in mid May (7). The British nursing services also had a major role in the transformation of Belsen during the weeks after the liberation (28).

As the evacuation of Camp 1 was nearing completion, the barracks were burned down to prevent further spread of the typhus epidemic. The last of the huts of Camp 1 was destroyed in a ceremony on May 21 (3, 4, 13, 19, 21, 22). Mid May in the Camp 2 hospital, there remained 11,200 patients in the main hospital area and 2300-3500 sick in another area (7). Each square of Camp 2 accommodated approximately 700 patients in five barracks under the direction of one medical officer from the RAMC and one of two British nurses; each of the barracks housed approximately 150 patients under the care of one Swiss internee, or German doctor, assisted by internee or German nurses (7). Acute surgical cases, both major and minor, were treated in the Camp 2 hospital area including the Round House hospital (5, 10). Anaesthesia with pentothal sodium, open ether, or ethyl chloride was administered by the medical students (5).

Camp 3 at the village of Bergen (10) was the convalescent area of 20 barrack buildings (3)-with 8000 inmates (7) who were not as critically ill as those in Camps 1 and 2, but who were weak and susceptible to disease. Typhus epidemic broke out in Camp 3 in mid May which necessitated the transfer of sick from the Camp 2 hospital (7, 13). A group of smaller barracks of former German officers' quarters, known as Camp 4, was also used to house healthier surviving inmates (3).

The policy adopted by the British relief administration at the beginning of the rescue operation was to attempt to save the greatest number of prisoners using a group decision. The prisoners who had "a reasonable chance of survival" were treated with suitable feeding and hygienic measures to prevent further infection, whereas the most sick were provided with bedrest and elementary nursing (8). One of the medical students who had requested that one of his patients be transferred, was advised by the administrative officer that "to treat these people individually is a great mistake... When an ambulance calls at your hut, the sick will be taken to hospital. Until then you must wait. It is folly to waste time on one patient" (29). This student was angered by "the continual sense of frustration" which is natural for a physician who is accustomed to giving the individual patient the utmost priority (29). Despite the administrative emphasis on mass treatment which was dictated by the mammoth numbers of sick and starving, acuteness of the medical and epidemic emergency, and limited resources available, the experienced of individual prisoners left a deep impression on the relief workers, especially the medical students (30).

However, some individual care was provided to critically ill inmates in the Horror Camp. As the evacuation of inmates from Camp 1 to the Camp 2 hospital was begun, an improvised emergency hospital...
was organized in the former S.S. pharmacy inside Camp 1 within several days of the liberation to provide support for critically ill individuals until they could be evacuated (3). This Camp 1 hospital was organized by Captain Leslie Hardman (the Jewish Chaplain of 8 Corps), Stephen Green (British Red Cross), and two Polish prisoners, Dr. Natolski and Lieutenant Marian Tatarczuk (3). These workers assembled and distributed medication and special food, transported patients to and from the hospital block, and diagnosed and treated critically ill inmates. From mid April to mid May, 200 men and women were treated in the 12 bed inpatient unit of this hospital, and another 200 as outpatients (3). Furthermore, the British medical students organized another acute care hospital in one of the blocks inside Camp 1 for emergency treatment of inmates waiting to be evacuated (3, 16).

Even after the evacuation to the Camp 2 hospital, treatment of the starving inmates was a difficult task in primitive conditions (20, 31, 32):

"Hospital facilities (in Camp 2) were primitive. The authorities had taken over for use as a hospital a large well-built but incredibly dirty German barracks. All the furniture had been removed and the rooms were at best furnished with plank beds, straw palliasses and blankets. There were two cold water taps on each floor to serve about 75 patients. The water supply often gave out and then the hospital depended on a cart that might or might not come. Hot water we boiled up ourselves on a rather dilapidated primus stove. For a week there was no artificial light except candles in the investigation ward... Fourteen thousand severely ill people had to be treated under these conditions..." (20)

Diseases

It was not possible to keep systematic records, but attempts were made to describe and estimate the prevalence of the various diseases (8). When the British Army first entered Belsen, the prisoners were dying from starvation, typhus, tuberculosis, dysentery, and murder by the Germans (7, 16). During the first month after liberation, more than one quarter of the 60,000 surviving inmates died because of disease and starvation (3).

Typhus

Typhus was a difficult problem in the Belsen hospitals. The typhus epidemic in Belsen began in January (15) or February 1945 (33). At least two known incidents contributed to the epidemic. First, a large transport of prisoners was admitted to Belsen in October 1944 without being disinfected because of damage to the shower-bath machinery; some of these prisoners carried lice, which then spread throughout the camp (15). Second, a group of Hungarian prisoners had been incarcerated in cattle trucks for ten days prior to arrival at Belsen and many had developed typhus due to failure to segregate these prisoners from others in Belsen, along with the crowding, poor nutrition and lack of sanitation, which contributed to the outbreak of the typhus epidemic (14).

An estimated 10,000-20,000 cases of typhus were uncovered when Belsen was liberated on April 15 (22). After the liberation, 25% of patients admitted to the Belsen hospitals suffered from typhus and many others admitted during the incubation period developed it later (8). Well-Felix testing supported the clinical impression that the majority of patients in Belsen had developed typhus (33). Even a large percentage of patients (9 [47%] of a sample of 19 patients) who denied having had typhus tested positive with the Weil-Felix reaction, demonstrating that they had had the infection (33)(Table 2).

Table 2. Typhus in Belsen Camp.

<table>
<thead>
<tr>
<th></th>
<th>N**</th>
<th>Weil-Felix positive no. (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>May 1945</td>
<td>20</td>
<td>12 (60%)</td>
</tr>
<tr>
<td>June and early July 1945</td>
<td>22</td>
<td>9 (41%)</td>
</tr>
<tr>
<td>Total</td>
<td>48</td>
<td>21 (44%)</td>
</tr>
<tr>
<td>Patients who died typhus</td>
<td>19</td>
<td>9 (47%)</td>
</tr>
<tr>
<td>Patients who reported typhus</td>
<td>9</td>
<td>5 (56%)</td>
</tr>
</tbody>
</table>

* Data from Majors Griffin, Morris and Prior, reported by Molten (33).
** Sample size from which percentage estimate was made.
† Possible result defined as titre of 150 or more.

The clinical symptoms and signs of typhus included high fever, violent headache, delirium, tinnitus, deafness, palpable spleen, and rash (13). Parotitis occurred in typhus patients, particularly those who were dehydrated, and sometimes required drainage (13). The mortality rate from typhus was estimated at 10-20% at age 20 yr and almost 100% at age 50 yr (13).

The typhus epidemic in Belsen continued to spread after the liberation (9), but the situation improved after the camp was cleaned and disinfected. The British were assisted by Capt WA Davis, a representative of the United States Typhus Control Commission (7, 8), who estimated that 95% of the lice were eliminated by the first delousing of the huts (14). The epidemic was eventually controlled by the delousing, evacuation and burning down of Camp Belsen, but not until many inmates had died. Those who suffered from typhus also had severe complications, including thrombocytopenia, gangrene, bronchopneumonia, meningitis and severe attacks of chest pain (7, 28). Several (10 according to
Diarrhoea

Almost all inmates of Belsen suffered from diarrhea - 80% according to one estimate (37). The etiology of the severe, uncontrolled diarrhea of Belsen was nutritional or infective (38).

The great majority of cases of diarrhea was of nutritional or dietary etiology, and improved with a controlled diet (8). Several drugs were used, including opium, antispasmodics, sulphasalazin, sulphathiazole, (Tannalazine), and a "German drug of unknown composition" (5), nicotinic acid, calcium, charcoal, and kaolin (10, 14). In a group of patients with pellagra-like vitamin deficiency, diarrhea improved with nicotinic acid (28).

Nonetheless, the nutritional diarrhea was generally difficult to control and the associated dehydration contributed to death (14).

Although dysentery was not diagnosed in Camp 1 during the first few days after liberation (7), it was felt to be present and was treated in the Camp 1 hospital with eleodrin injections as well as a diet of biscuits and hot cocoa or milk (3). Bacillary dysentery was subsequently documented in 8-15% of patients with diarrhea, primarily resulting from B. dysenteriae Flexner II (8).

These patients responded to sulphasalazin or sulphathiazole except when severe starvation was present (8). Another study of rectal swabs revealed pathogenic organisms in 17% of 100 cases of diarrhea, with Sonne bacilli demonstrated in 15% and Flexner bacilli in 2% (38). Infective diarrhea was also caused by intestinal tuberculosis (28).

Starvation

Starvation was widespread in Belsen from at least January 1945 until the liberation (8, 33). Malnutrition from "plain lack of food and water" was evident in all patients, and 60% of inmates had starvation disease (8). The starvation cases were characterized by extreme emaciation, dehydration and apathy, and hunger edema was present in 6% (8).

The severe emaciation of the corpses showed that starvation was universal among them prior to death (8). Not only was starvation the primary cause of death among inmates in Belsen, but it also facilitated the spread of lethal infections.

The chronic food deprivation in the concentration camp became progressively worse during the four months before the liberation of Belsen. A Hungarian woman doctor reported that in January 1945 the prisoners received 300 gm (one sixth of a loaf) of bread daily along with varying amounts of a thin, watery "soup" of mangelwurzel, a common beet used mainly as cattle feed (8, 33). Subsequently, there was a period when the "soup" was given only three nights a week and a small amount of margarine or jam on the other four nights (33). In March...

Table 3. Prevalence of tuberculosis (TB) in Belsen Camp.

<table>
<thead>
<tr>
<th>Population</th>
<th>N*</th>
<th>Patients with TB (%)</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prisoners in Camp 1 **</td>
<td>-</td>
<td>(&gt;33%)</td>
<td>(14)</td>
</tr>
<tr>
<td>Patients in Camp 2†</td>
<td>331</td>
<td>(&gt;20%)</td>
<td>(8)</td>
</tr>
<tr>
<td>Patients in Camp 2‡</td>
<td>1575</td>
<td>(&gt;30%)</td>
<td>(28)</td>
</tr>
<tr>
<td>Starvation cases in Camp 2‡</td>
<td>64</td>
<td>27 (42%)</td>
<td>(33)</td>
</tr>
<tr>
<td>Deceased with known cause of death##</td>
<td>18</td>
<td>12 (97%)</td>
<td>(33)</td>
</tr>
</tbody>
</table>

* Sample size from which percentage estimate was made.
** Clinical estimate of inmates prior to evacuation to Camp 2 hospital.
† Radiographic screening of miscellaneous patients in Camp 2 hospital selected at random.
‡ Those workers estimated that 25% of all patients in Belsen had active tuberculosis.
## Data from radiography, blood testing, and autopsy.
### Method not explicitly noted (33), but the context suggests that there were autopsy data; autopsy studies cited elsewhere noted "active tuberculosis disease in the lungs of a very high proportion of cases of starvation" (8).
only one-twelfth of a loaf of bread was given for supper, and when there was no bread, mangel-wurzels were eaten (33). In April there was no bread distributed; the prisoners received a half litre of the thin "soup" daily and nothing else (33). It was considered remarkable that some inmates had survived despite a diet of 400 calories or less for two to three months (38). The distribution of food had been arbitrary, and those who did not have the strength to stand in line had often missed the daily ration (8).

The British relief workers documented the extreme physical deterioration of the starving inmates, especially the "Muselmänner" - inmates who were on the verge of death because of extreme starvation and exhaustion (33, 39). As noted by one of the medical student volunteers:

"Physically, the most startling was the degree of emaciation to which (the inmates) had been reduced. 'Skin and bone' here was a literal description. Their heads were more than parchment covered skulls, their thighs could be circled by finger and thumb and it was easy to grip the bodies of their vertebrae through their anterior abdominal walls. Their muscles were mere fibrous strands and the women's breasts just wrinkled flaps of skin... many were too weak to move..." (5)

The sick lay on their bunks, apathetic, indifferent to the deaths occurring around them, many leaving their food untouched, and incontinent of feces (33). The faces were "appallingly thin", "the eyes were sunken and the cheek-bones jutted out," and the heads shaven (33). They were so thin that "the ribs stuck out, and it was difficult to use a diaphragm type of stethoscope because it simply bridged across two ribs and made no contact with the skin dipping down in between" (33). "In some cases their superficial bones had burst through the skin" (28). The feet and ankles were swollen, with the "leg as thin as a stick with a fat swollen foot on the end of it" (33). The "muselmänner" had large bed-sores on the buttocks and the lower back, and would cry out, "Schließt
er mit," because of the severe diarrhea (33).

In a group of 11 starving patients who were strong enough to stand upright on scales, the original body weight of 47-80 kg had decreased to 25-45 kg; the range of percent loss of original weight in this group was 29-56% (33). The weight loss was more extreme in the thinnest patients, who were too ill to be weighed, and they died earlier (33).

Hematologic studies in 75 starvation cases showed that almost all were anemic, with average hematocrit in men 31%, women 29%, and children 30% (33). The anemia was normochromic and normocytic, and bone marrow examination in several cases revealed normoblastic erythropoiesis, suggesting that the anemia was a result of decreased production of red cells (28, 33).

The sedimentation rate was elevated in patients with starvation, even when infection was not evident (33).

Circulating blood volume was decreased by 16-21%; average blood volume was 4.5 litres in a sample of 6 males and 3.17 litres in 10 females tested (33) (normal 5.1 litres in males and 4.0 litres in females (40)). Another report estimated the circulatory capacity to have been one third to one half normal (41). Autopsy studies showed that heart weights were an average of 40% less than normal: (average heart weight, 186 gms (N=17), normal, 310 gm) (38, 41); "the adult heart... atrophied to about the size of the heart of a ten-year-old child, and the aorta was about the size of a pencil" (28).

Other autopsy findings included almost complete absence of fat (95% decrease) of normal body fat (38). Fatty change was noted in the liver. The large bowel was distended, thin, and transparent, with many ulcers, scarring, bleeding points, and absent haemorrhage. The rectum often contained undigested food (38).

The relief workers had to determine the appropriate type of food for the chronically starving prisoners (19). The camp inmates had been adapted to subsistence on little food and water, and the gastrointestinal system was unable to digest a larger meal, especially one containing fatty food (8). In the first two days after liberation, when the British soldiers gave the starved inmates full rations, the inmates developed abdominal pain, vomiting and diarrhea, and an estimated 2000 died as a result, "many dropping dead literally at the first mouthful" (8, 27, 38). Subsequently, the inmates were fed gruel, soup, tea and a glucose-vitamin mixture with hot water (5, 16).

Food in Camp 1 was prepared in five cookhouses and delivered by Army truck to the individual barracks (5). In the early days and weeks breakfast consisted of tea or milk, bread, and biscuits, and lunch included vegetables, soup, potatoes and occasionally meat stew (5). Tea and biscuits were again distributed in the afternoon (5). This diet provided less than 1000 calories per day, dictated by the acute shortage of supplies (5). Repeated breakdowns in the water supply further complicated the feeding problem (5). The food supply gradually improved, but not until the third week of May was any butter or margarine available (5).

The importance of careful control of blood volume intake, because of the diminished circulatory capacity, was also recognized (6, 41). Therefore, a three-stage diet, high in protein, was devised which enabled gradual increase of daily caloric intake for the starving inmates. The first stage of 800 calories per day for 3-4 days was based primarily on skimmed, fresh, or powdered reconstituted milk with added sugar, salt, water and vitamins. This was followed by a second stage of 1700 calories for seven days, and a third stage of 3000 calories (8).
Bengal Famine Mixture was tried, but was unsuccessful in Belsen because it was too sweet for the inmates, "loathed by all and sundry" (5, 21), and caused diarrhoea (3, 9, 10, 38). Other diets used, presumably for the healthier patients, included some potatoes, soup, a little meat and white bread if available (38). However, food shortages persisted beyond mid May, and even the relief workers found food supplies for themselves limited (16).

Strict supervision of the supply and distribution of food by British personnel was necessary to make certain that the very sick actually received the food, because stronger internees or German personnel would steal the food for themselves or their friends outside the hospital (8). Inmates with nutritional diarrhoea often refused to eat, and feedings had to be carefully supervised (38). The majority of the starving inmates were able to take food and water by mouth, and only less than 5% required intravenous therapy or an esophageal feeding tube (8). The use of an esophageal tube was limited, both by the inmates' fear of torture (9, 10, 32) and the dried atrophic nasal mucosa which caused difficulty in passing a tube (32). In the Camp 1 hospital, patients with desperate weakness resulting from starvation were given injections of leptazol (Cardiazol) or coramin for their hearts and glucose for energy (3, 16).

Fourteen days after the liberation of Belsen, a small team from the Medical Research Council arrived to study the relative efficacy of skimmed milk, protein hydrolysate, and serum in the treatment of starvation (20, 31, 32). The protein hydrolysate, an acid hydrolysate of casein, was so nauseatingly unpalatable and also appeared to irritate the gastrointestinal tract that patients did not take it for more than a day (8, 16, 20, 28, 38). Some patients had vomiting, severe colic and watery diarrhoea - in one case, a half a bucket - after taking oral hydrolysate (32). Intravenous administration of protein hydrolysate was complicated by severe rigor and venous thrombosis (5). Thus, protein hydrolysate became suspected by the suffering inmates of being a "new form of torture," further contributing to the failure of this therapy (5, 42). Therefore, it was concluded by Dr. Janet Vaughan of the Medical Research Council group that overall efficacy of protein hydrolysate was poor and that use of protein hydrolysate was not practical under field conditions (20, 31, 32). As a result, 270 litres of the hydrolysate was destroyed - a paradox of waste in a situation of great need (27). Other disadvantages of the protein hydrolysate included the potential for tryptophan deficiency and volume overload (28, 43). Nonetheless, it was suggested that oral protein hydrolysate could be useful together with other foods because it appeared to stimulate the appetite of the starving inmates who were so weak and anorectic (38). However, the most satisfactory method of feeding those who could swallow was the use of diluted unsweetened condensed milk or skim milk powder in water (28).

Hunger (oedema) edema was generally managed with feeding, as well as transfusion of double strength plasma or blood (28). Some patients with persistent oedema despite improved nutrition, a trial of Salvarsan (merylsal-1 - a diuretic) resulted in a reduction of edema and stimulation of appetite, with clinical improvement (28).

Pediculosis conditions
The liberated children of Belsen also suffered from starvation, marasmus, tuberculous and sexual disorders (7, 36). Very high percentage of children in Belsen were infected with tuberculosi, with 80% of the children (average age, 7.1 yr) testing Pirquet positive (36). In Belsen it was "queer ordinary" that deliveries were done in women suffering from typhus and in mid May many babies were still dying of neonatal sepsis (7).

The complexity of the medical and social problems of these children was exemplified by the following case report:

"A boy, Z.Z., aged 5, was admitted to the children's hospital, Belsen, from the general hospital on the death of his mother. His mother, an Austrian Catholic, died at Belsen of typhus. The father, a Slovak Jew, last heard of in Sachsenhausen, was probably dead. A sister, aged 6, was alive and well in the camp. Two other children died in Ravensbrück lager. Nothing was known of the patient's past (medical) history. On admission he was very emaciated. He lay rolled up in a ball under the bedclothes, moaning, and wouldn't eat or speak. Examination revealed pleurisy with an effusion on the right side and some infiltration in the right and the upper zone of the left lung. The temperature was irregular, rising to 101°. Sedimentation rate, 101 mm. first hour (Westergren). Pirquet plus. 10 c.cm. of serous fluid was aspirated to exclude empyema.

The child was hand-fed with specially appetizing meals while being talked to in his own language. He was given a high-protein diet with an addition of vitamins and calcium and at first was kept in a warm room; later he was placed in the open air. After one week he began to talk; after two weeks his appetite returned; and after eight weeks the sedimentation rate was 50 mm. He was then evacuated to Sweden. The latest report states that he has put on 7 lb. (3.2 kg.) and is now almost well.

Comment...the final problem of the Belsen children...is a social one of the most profound complexity...What is to become of him? Is he to be brought up Jew or Catholic? Is he to be left in an orphanage? He has
found a temporary refuge in Sweden, but what of the future?" (36)

Psychological status

The medical officers observed that “many (of the inmates) are as tortured in mind as they are in body” (7). Nonetheless, it was concluded that psychosis and psychoneurosis, excluding that secondary to typhus (16) and other toxic infections, was less evident among the surviving inmates than in other communities, “possibly because only the more exorcised and robust psychological types had survived the ordeal of their captivity” (8).

Patients with frank psychosis from schizophrenia or post-typhus mental derangement were treated in an asylum organized in Block 27 of the Camp 2 hospital (3).

The most notable psychological abnormality was anti-social behaviour and selfishness, proportional to the degree of malnutrition (8). It was evident to the British that the “mortal starvation conditioned all happenings in the camp” (3). With more advanced starvation, consideration for others became progressively limited to friends, immediate family and, finally, personal survival (5, 8). There was a “blunting of sensitivity to scenes of cruelty and death,” even among children who had grown up in concentration camps (8). Generalised apathy was observed, with inmates noted walking about the camp without clothing and eating meals from the same bowls used as bedpans (5). However, normal behaviour rapidly returned with improved bodily health, “leaving only a feeling akin to that of having experienced a bad dream” (8). The sick children were noted to have “terror symptoms” and apathy, but both improved with physical recovery (36).

The sick inmates of Belsen were dreadfully fearful of the British relief workers, undoubtedly because of their horrifying experiences with the German physicians during the war (6). The inmates recalled how the German doctors had given intravenous benzol, benzene, petrol, or creosote to paralyze their victims prior to sending them to the crematorium (6, 7, 10, 20). Therefore, when the British workers attempted to start an intravenous drip or use a syringe to collect a blood sample, the inmates shrieked, “Nicht krematorium!” (6, 7, 20, 21). They reacted similarly when the British attempted to segregate inmates for treatment or pass a nasal tube (9). This was compounded by difficulty in communication because there was no common language between the British workers and the inmates, who were mostly from eastern Europe (20, 28, 32, 37).

In the healthier inmates, such as those of Camp 3, a behaviour referred to as a form of “famine psychosis” was observed (3). Despite apparently adequate supplies of food, inmates complained of hunger, and “were not satisfied as long as some other inmate got more. The same thing in abstracted form was also seen in a few cases of scrapings off food by starving people in Holland (44). The Red Cross did not have enough workers for the effort, and therefore, 100 volunteers were solicited by the Red Cross (44) and the Ministry of Health (25) from among the sick, who went out in the streets at night to pass their coats to other inmates (3).
students in the final 18 months of study in the London medical schools (13, 14, 16, 44). However, the liberation of Holland was delayed and the students awaited orders (16, 44). In the meantime, Belsen was liberated, and the critical need for assistance was recognized. Therefore, instead of Holland, 96 students (24, 26) learned at short notice on April 28, 1945 (5, 16) that they were to depart for Belsen (5, 13, 14, 16, 44), under the auspices of the British Red Cross and St. John Ambulance (25). The first students arrived at Belsen Camp two days later on April 30, 1945 (26) and they remained until May 28-29, 1945 (16, 22, 45, 46) (Table 4).

The supervisor of the medical students was Dr. AP Meiklejohn, member of the Rockefeller Foundation Health Commission and the Nutrition Section of the European Regional Office of UNRRA (United Nations Relief and Rehabilitation Administration) (26, 42). The students immediately went to work in the Horror Camp, responsible primarily for food distribution for the starving inmates and improvement of living conditions (3, 5, 26, 44). In the days after the liberation the strongest inmates took whatever food they could get and became sick from overeating, whereas those too weak to leave the barracks died because they could not feed themselves (26). The students took over the responsibility for the barracks in the Horror Camp - two (24) or three students in each of the barracks, or occasionally, one student for one or more barracks (26). Each of the barracks contained 100-150 patients in addition to 200-300 inmates who were able to feed themselves (26). Therefore, some of the students had as many as 400-600 patients under their care (5).

The students had daily conferences with Meiklejohn and with the officers in charge of the kitchens to plan out the work (9). However, the students were required to use their own initiative and "improvisation was the order of the day" (14). There was a great shortage of help, especially after the healthier inmates who had provided some assistance were transferred to Camp 3 (3, 27). The students themselves washed the filthy barracks of Camp 1, disinfected the floors with creosote and DDT powder to kill the lice, organized the healthy inmate volunteers for work in the hospital and fed the weakest of the starving inmates individually (3, 5, 15, 24, 26, 27). Within two weeks of arrival the students had washed, disinfected and reclothed 1200 patients (26).

The students also organized an emergency hospital in the Horror Camp (3, 10), "entirely by their initiative... in which the worst cases had to wait to the last (to be evacuated to Camp 2) were nursed and undoubtedly saved" (4, 46). This work was started by a team of medical students on their second day in Belsen, who scrubbed, disinfected and stocked several of the evacuated barracks (5). By the end of the first afternoon they had bedded down over 100 patients and within twelve days the hospital area consisted of twelve barracks, containing 1100 patients (5). In addition, nursing and feeding the sick and starving inmates, the students set up a dispensary and began medical treatment (9, 26). Medicines dispensed included aspirin, sulphanilamide, acriflavine, lupalan and penicillin (16), opium, Tannolbin, nicotine acid, charcoal and sulphanilamide were used against diarrhoea (5). Mittiga, a German drug, was used to treat scabies (5). Bedsores were dressed and abscesses were drained (26). Medical and nursing supplies were extremely lacking, with only three bandages for one hand in which there were over 80 patients with diarrhoea (10). Drugs were limited; especially during the first two weeks of May, and the language barrier made evaluation and explanation of treatment difficult (3, 14). Nonetheless, by giving out a pill, even one of limited therapeutic value, the students noticed improved morale and reduced apathy in the inmates (9, 14, 26). On May 14, two field transfusion units were obtained, which were used to administer blood plasma, concentrated serum, glucose and protein hydrolysate (5, 16, 28); however, intravenous therapy was complicated by poor venous access because of collapsed veins, venous thrombosis, severe rigors and volume overload resulting in pulmonary (oedema, heart failure, ascites and death (5, 29, 30, 38).

The immersion of the medical students in the realities of the Horror Camp also resulted in some of the clearest descriptions of the situation of individual inmates as well as the overall state of the camp (9, 10, 13, 14, 22, 29, 30, 38):

"We took a look around. There was faces all over the floor, the majority of people having diarrhoea and passing a stool like a small pop - there were the cans and lumps of black bread all mixed up with it, and the place could not have been swept for years. I was standing rather aghast in the middle of all this... trying to get used to the smell, which was a mixture of post-mortem room, sewer, street, and foul pits, for none of the windows were open, when I heard a scrabbling on the floor. I looked down in the
half light and saw a woman crouching at my feet. She had black matted hair, well populated (with lice) and her ribs stood out as though there were nothing between them, her arms were so thin that they were horrible. She was dehydrating, but she was so weak that she could not lift her buttocks from the floor, and, as she had diarrhoea, the yellow liquid stools bubbled up over her thighs. Her face was white and puffy from famine oedema and she had scabies. As she crouched, she scratched her genital parts, which were scabious too. (The bunk) were all smeared with faeces, because the people with diarrhoea did not bother to get out of bed. The result was that urine and faeces dribbled through the wooden boards of the top two bunks on to the lowest one and as this last was the least comfortable, all the dying and weaker patients could be found there...” (10)

After the evacuation of Camp 1 was completed, the students worked in the hospitals of Camp 2 and 3, where there remained 12,000 sick (9, 10, 26). By now, there were more drugs, a minor operating theatre and radiography equipment (9). The students were now able to examine patients properly, make diagnoses and provide more appropriate drugs and treatment (9, 14).

The medical students also assisted in the social relief work for the inmates. One survivor, a German Jewish nurse who had learned English prior to the war, described how the students picked her up at her barracks daily so that she could serve as a translator in the collection of demographic information from the inmates; thus, lists of survivors were made to facilitate contact with relatives who had survived the war (47).

Regarding Meiklejohn, one student commented that “his calm, diplomatic handling of students and the higher authorities greatly added to the effectiveness of our efforts” (13). Meiklejohn noted that the students brought “initiative, energy, enthusiasm, team spirit, medical knowledge, and hope” (24), and he concluded that “there can be no doubt that the large majority of the patients in this students’ hospital (of Camp 1) owed their lives to this achievement” (26). Glyn Hughes added that the students “we were given the heaviest of responsibilities and their initial efforts depended entirely on their own initiative. One and all they threw themselves into the task with unbounded enthusiasm; they worked long hours in the worst possible conditions and never spared themselves” (45, 46).

Other Workers
Although most of the rescue operation in Belsen was performed and directed by the British, there were others who made important contributions. By June 9, UNRRA had sent 205 teams, each with doctor and nurse, to help the Displaced Persons (D.P.) in Germany and had plans to send a total of 450 teams (42). The physicians were recruited from France, Belgium, Poland and Czechoslovakia (42). Sweden offered to accept 10,000 D.P., sick people and children (36, 42) and 7000 patients were sent there. From Belsen to convalesce (3). American volunteers helped in the evacuation of the Horror Camp (10, 21, 48), as well as doctors and nurses from Switzerland (7). A large group (100-150) of Belgian medical students (3, 5, 16, 22), including a group of approximately 12 medical students from Louvain (49) and members of the Shad Medical (Belgian) Mission (M. John Moerman, Ghent Medical School) (36), also came to Belsen to assist in the rescue operation.

The surviving inmates also offered assistance. When the British Army entered Belsen on April 15, they found that even before the liberation, attempts had been made in the women’s camp to maintain some order and cleanliness, despite the thousands of dead, weak and sick women throughout the camp (1). “...the care that had been taken of the children was most noticeable...and medical help went on whatever happened. One woman gynaecologist was conducting all the obstetric cases, 5 to 7 a day, and for several days had had to work without water” (1). After the arrival of the British:

“...many hundred capable and well qualified people among the victims of Belsen...voluntarily and without payment helped the British in their formidable task... (They) formed an indispensable auxiliary staff (which) consisted of doctors, nurses, interpreters, cooks and, later, schoolteachers, librarians, entertainers and political helpers for the War Crimes Commission. Without the help of these hundreds of able, and often selfless, helpers it would have been impossible to run either the hospital or the rest-camp” (3).

The Senior Medical Officer of the British Red Cross Commission for Civilian Relief in Belsen Camp, W.R. Collis (36), commented: “Nor must the gallant efforts of the internists, doctors and nurses be forgotten. Many were sick and weak themselves, but, forgetting their tired and wasted bodies, they have worked and fought beside our medical personnel to their utmost power” (7).

Rehabilitation
After the first two months following the liberation of Belsen, when the immediate danger to the lives of the remaining survivors had passed, the goals of the relief workers had shifted from saving lives to rehabilitation of individuals. As the last barracks of the Horror Camp were evacuated and burned down, hospital activities were organized to entertain and lift the spirits of the survivors. In Camp 1 a library and recreation room was organized in mid May, within one week, by Derer Sington of the British Army and Mrs.
Montgomery and Miss Heard of the British Red Cross, complete with arm chairs, gramophones, pianos and two hundred volumes (3). English language classes were offered and within three days, 400 inmates registered (3). In July, linguaphone classes in English were started in Camp 4, supervised by Girl Guide Teams (3).

On May 21 the first of a series of open air dances took place (3). Three nights later, on May 24, an "International Cabaret" was given in Camp 3, with dances and songs performed by survivors (3). This was so successful that a more elaborate program was arranged beginning June 4 for four nights to a full house of 800 spectators in the tented theatre of the Panzer Training School (Camp 2) (3). During June and July, the cabaret shows became a weekly event and the open air dances were repeated every other week (3).

In mid June, under the direction of the Camp 4 director Major Berney and Lady Abrahams of the British Red Cross, a community centre was organized in a block in Camp 4, complete with music room, card room, billiard room, library, news room, studio, barber and workshops (3).

Activities for the 300 child survivors remaining in Belsen in April, many of whom were sick, tubercular and without family, were also organized, including an elementary school started by Lieutenant Hodges, the Welfare Officer (3). Most of the teachers in this school were young women who had been inmates of Belsen (3).

In August 1945 UNRRA took over responsibility for the Glyn Hughes Hospital in Belsen, with 29 relief workers from 12 countries, in addition to DP workers (50). The work spirit was strong, despite the language difficulties (50). The Chief Welfare Officer of UNRRA in Belsen, Dr. Erika Fischova-Gachova from Czechoslovakia, taught and encouraged the patients of the Glyn Hughes Hospital to make all types of handicraft, including toys, bags, baskets, clothes, gloves and belts, and thus, the sick were encouraged to move stiff joints and paralyzing limbs (51). Self-respect and confidence came back slowly (51). An exhibition of their creations, including cartoons by a hospital patient, was held in the UNRRA offices in London from October 31 to November 7, 1945 (51). Individual relief workers took initiative in helping survivors learn new skills; for example, a Dutch physician taught my mother, recently recovered from typhus and starvation, how to drive a car (52). A post office was organized for the DP in Belsen by Mr. Whitehead of the British Red Cross to facilitate the search for surviving family members (49). Whitehead also obtained lists of survivors in twenty other camps which were published, circulated in Belsen and sent to other camps to facilitate the search for relatives (3).

As the survivors regained their health, they organized themselves in the spirit of self-help and community. The first issue of Union Zyzyme, the first Yiddish newspaper in the British Zone of Germany, was published July 12, 1945 by the Jewish Committee in Camp 4, a town near Belsen (53, 54). A Central Jewish Committee was organized in Belsen, which held the first Jewish Survivor's Congress on September 25-27, 1945 (55-56). Community activity included the maintenance of the Glyn Hughes Hospital, the coordination of assistance from UNRRA and the Joint Distribution Committee (57), and the organization of schools for the children (58), a children's home (59), religious institutions (60, 61, 62), sports clubs (63, 64), a Yiddish theatre group (63), and political activity (65, 56, 66).

The senior British medical officials understood the problem of statelessness of the liberated eastern European Jews. The personal documents of all the prisoners who had been destroyed by the Germans before Belsen was liberated (3, 5, 15). In May 1945, Collis noted that "...many thousands of the internees from the East, particularly the Poles, have no homes to go to, have apparently no future, no hope. The problem of what to do with these forsaken, almost lost, souls is immense, and only one which if not tackled and solved will make all our efforts here mere waste of time..." (7).

However, not all relief workers or military officials were as sympathetic. In one instance, the Jewish Chaplain of the British Army in Belsen was accused by a high-ranking officer of being a "Zionist agent" who was "spreading Zionism propaganda and trying to wright British plans" (19). One of the medical students wrote that "the Poles, who comprised the largest single national assembly in the place, will not go back to Poland and all want to come to England or the U.S.A., which to them are lands flowing with milk and honey..." (9). This student failed to understand that the historic "land flowing with milk and honey" was British-occupied Palestine and that the failure to distinguish between "Poles" (i.e. Polish Catholics) and "Polish Jews" in the British vernacular and political posture was a deterrent to the rehabilitation of these survivors as citizens of their own, Jewish State (67).

Despite what was witnessed in Belsen, the same student had sympathies for the Germans, writing: "I could not bring myself to believe that my nurses were responsible for the war," and "one could not help feeling sorry for the wretched German civilians in all the completely dead and devastated German cities who had nothing to do but queue for food and queue..." (9). However, these feelings were not shared by others, evidenced by another student who commented: "The result of a month at Belsen is that I have quite unprintable views on the whole German race" (10).

Ironically, political differences later resulted in major conflict between the British authorities and the liberated Jews of Belsen.
In May 1946 the British authorities locked the gates of the DP camp at Belsen and did not allow the Jews to exit the camp (68). The Belsen Jews became active in the political protest against the British policy opposing Jewish immigration and statehood in Palestine (67, 69). Despite these conflicts with the British authorities, the surviving inmates recognized the extraordinary efforts made by the military and non-military medical relief workers long after they regained strength and departed from Belsen:

"At this point should, with praise and thanks, be mentioned the detachments of the British army, which were the first to come to us, and especially the Medical Corps, the British Red Cross along with the military doctors and nurses, the young Belgian doctors and the hundreds of medical workers, who from a long list of countries volunteered, and with superhuman strength and unnatural perseverance brought help to those for whom merely a good word and a simple drop of water was even more important than bread in those horrible moments. Their names and images will until the end of time remain engraved in the hearts and memory of the thousands of survivors." (70)

Indeed, the expeditiously organized medical rescue operation in Belsen was one of the most important humanitarian events of the first few days and weeks after the liberation, thanks to which thousands of inmates were saved from a rapid and certain death. The operation will remain a landmark model for disaster relief (71).

Acknowledgements

Presented in part at the Ninth Annual Paul Trepsman Memorial Lecture, Jewish Public Library and Montreal Holocaust Memorial Centre, Montreal, Canada, May 12, 1997. Translated by the author from the Yiddish article published in the Forverts (Yiddish Forward), 100th Anniversary Issue, Vol CI, No. 31132, Section three, pgs. 6 and 20-23, May 16, 1997. The author is grateful to Len Levin, M.S.L.L.S., for library assistance, and to Susan Date, Hilde Goldberg, Grete Munn, David Rosenthal, Mordechai Strigierz", and Babey Trepsman for helpful discussion.

References

34. MacAslan A. Belsen: medical aspects of a WW II concentration camp (letter). JRAMC 1948;130:199.
52. Trepmann BW. Personal communication. 1997.
64. Der fadof fun sport-yom-tov in yorrog fun baireigung (The course of the sport-festival on anniversary of the liberation). Unzer Sztyme 1946;10:25.
70. Trepmann P. Ha-atosnem ha-yeveyshes... ten year noch der baireigung fun Bergen-Belsen (The end of the bones... ten years after the liberation of Bergen-Belsen). Kemeder Oder (Canadian Jewish Eagle) 1955;49(83):2-4.
71. Cordell RF, Forstich DH. Symposium on the commemoration of the liberation of the Belsen Concentration Camp and medical management of disasters study period. JRAC 1959;145:28-30.