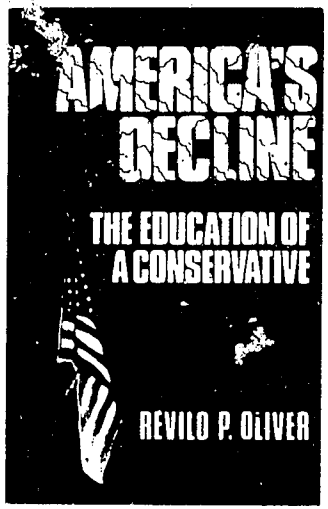

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During World War II, Dr. Oliver was Director of Research in a highly secret agency of the War Department, and was cited for outstanding service to his country.

One of the very few academicians who has been outspoken in his opposition to the progressive defacement of our civilization, Dr. Oliver has long insisted that the fate of his countrymen hangs on their willingness to subordinate their doctrinal differences to the tough but idealistic solidarity which is the prerequisite of a Majority resurgence.

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On the 18th Amendment (Prohibition): "Very few Americans were sufficiently sane to perceive that they had repudiated the American conception of government and had replaced it with the legal principle of the 'dictatorship of the proletariat,' which was the theoretical justification of the Jews' revolution in Russia."

On Race: "We must further understand that all races naturally regard themselves as superior to all others. We think Congoids unintelligent, but they feel only contempt for a race so stupid or craven that it fawns on them, gives them votes, lavishly subsidizes them with its own earnings, and even oppresses its own people to curry their favor. We are a race as are the others. If we attribute to Ourselves a superiority, intellectual, moral, or other, in terms of our own standards, we are simply indulging in a tautology. The only objective criterion of superiority, among human races as among all other species, is biological: the strong survive, the weak perish. The superior race of mankind today is the one that will emerge victorious—whether by its technology or its fecundity—from the proximate struggle for life on an overcrowded planet."

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TYPHUS AND THE JEWS

Friedrich Paul Berg

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George P. Dietz, Editor & Publisher

Typhus and the Jews

by

Friedrich Paul Berg

In an article about Zyklon-B and the German delousing chambers in the Spring 1986 issue of *The Journal for Historical Review*, I included a brief discussion of the large, well-designed gas chambers which were used by Germany and her allies during World War 2 to fumigate entire railroad trains, one or more railroad cars at a time with cyanide gas. Those chambers would have also been ideal for the mass-extermination of people if the Germans had ever intended to commit mass-extermination of Jews or anyone else.

Two of the appendices to this essay are translations of German articles which discuss those remarkable gas chambers in some detail. Those articles are only two among many that can be found in the German literature of that period.

Delousing Tunnels

The history of large gas chambers (more than 200 cubic meters in volume) goes back to at least the early 1920's when tunnels were used by the British to fumigate railroad trains in Russia and Poland when the British had a military presence there during the chaotic post World War 1 period. The standard procedure then was to fumigate an entire railroad train at one time within a sealed tunnel with hydrocyanic acid (also referred to simply as cyanide or cyanide gas). Zyklon-B had not yet been invented and so the cyanide had to be introduced into the tunnels either from gas-filled tanks or else generated within the tunnels by the dropping of cyanide salt into barrels filled with sulfuric acid (the so-called "barrel method").

The British experience with typhus in Poland and Russia during that period was described many years later in the *Proceedings of the Royal Society of Medicine* as follows:[1]

Administrative Measures of Control of Widespread Epidemics

> Though the measures taken are not likely to be applicable to Great Britain it may be of interest to outline the broader administrative steps we took when dealing with widespread epidemics of typhus fever.
>
> The personnel of a number of units was established, including doctors, nurses, and subordinate medical auxiliaries. All were young and all were protected by the use of special clothing. Arrangements

were made for the regular disinfestation of the garments and for bathing the personnel. The stores required included portable baths and showers, fuel for heating water, soap, hair clippers and scissors, nail brushes, towels, &c., in addition to as good rations as it was possible to obtain. Units were sent into the various regions and were administered centrally in Poland from Warsaw, in Russia from Moscow and Kuibyshev, and, two years ago, in China from Chungking and Sian.

The next step was to put a cordon round healthy areas, with the aid of the military and barbed wire, to prevent the ingress of infected refugees. This was in many cases done locally, though eventually a cordon had to be established right across Europe, from North Poland to Rumania. Refugees were only allowed to enter this "clean" zone at certain points established on the roads and railways. Patrols watched the open country and brought stragglers into the disinfesting points. At each such point were arrangements for bathing and disinfestation, and all persons passing the cordon were thoroughly 'de-loused' with their belongings. The size of the work may be gathered from the fact that at one centre alone—Baranowice, on the Polish-Russian frontier in 1921—we were for a long time disinfesting each day 10,000 refugees returning to Poland from Russia. The method of disinfestation varied according to the country and the apparatus available. In Poland, steam and cyanide were both used, the latter being employed on an extensive scale on the frontiers. At Baranowice, where the refugees arrived chiefly by train, a tunnel was built, into which hydrocyanic gas could be introduced. On the arrival of each train, all the passengers were given a blanket and told to strip, leaving their garments and all their belongings on the train. Each person was then bathed in hot water with soft soap and paraffin, while the train was backed into the tunnel, the engine uncoupled, and cyanide gas liberated in the tunnel. When the bathing of the refugees was completed, the train was pulled out of the tunnel by means of a rope attached to a locomotive and was allowed to air. In due course the passengers dressed, gave up their blankets, and continued on their journey. In Mesopotamia, we used a locomotive with waggons attached, into which steam, first saturated and superheated, could be passed. The train included accommodation for personnel and thus constituted a unit which could be moved to any point where typhus broke out.

In Russia, we utilized the Russian baths, with which every village is equipped. These are log huts in which fires are made under heaps of stones, which are thus heated to a high temperature. Buckets of water are thrown on the stones, the water immediately evaporating into clouds of steam. The population was first bathed and de-loused in the bath, and then the amount of heat and steam were increased so as to deal with the bedding and clothing. Subsequently, no further water was thrown on the stones, and the heat of the hut was allowed to dry out the material.

For furs, which are very readily infested with lice and which do not lend themselves to the ordinary methods of disinfestation, crude naphthalene was used. A large box or chest was constructed at the entrance to the house and half-filled with crude naphthalene. Into this all furs and outer garments were dropped on entry to the house and left there until the following morning. I should mention that in winter in a cold country it is, of course, sufficient to hang one's garments in the open for the night for every louse to be destroyed. Whether the nits survive or not depends on the degree of cold, but there is in any case no evidence that these can transmit the disease.

In China, where padded garments have to a great extent superseded furs, brick ovens were used. . .

In spite of the difficulties, the delousing of entire railroad trains was absolutely essential to prevent the spread of typhus from infested areas to non-infested areas. Railroads could otherwise carry typhus-infected lice throughout all of Europe within a few days. Not only the railroad trains themselves but even the railroad stations were important sources of contagious disease, particularly typhus, because it was there that people would spend hours and even days in close contact, often huddled together—an ideal environment for the spreading of lice from "lousy" persons to clean persons. By contrast, busses, trucks and automobiles were still relatively unimportant for public transportation.

The invention of Zyklon-B in 1923 was a major step forward because delousing methods employing this product could handle furs and leather goods without damage as easily as they could handle all other types of clothing. By the late 1930's (see Appendix A), the delousing of railroads had been greatly improved with specially-constructed delousing tunnels or gas chambers. These facilities were subsequently improved even further with blowers and ductwork to circulate air and gas, and with space heaters to raise interior temperatures above the boiling point of hydrocyanic acid (78.6° F).[2] Heating was especially necessary during winter—precisely the time of the year when typhus was generally most severe and when delousing was most needed—in order to be sure that all of the hydrocyanic acid from Zyklon-B would evaporate and fill the chamber interiors.

DEGESCH as an Information Source for a Technology of Mass-Murder

The technology which was employed for fumigating entire railroad

trains was hardly a secret. On the contrary, before the war and throughout most of the war, the DEGESCH company had placed large advertisements for its products and technical expertise in many technical journals which were distributed throughout the entire world. Many of these advertisements clearly showed large gas chambers for fumigating railroad trains and trucks with Zyklon-B.

The half-page advertisement reproduced on the following page appeared in dozens of issues of *Der praktische Desinfektor* just as an example.[3]

Any German official seriously interested in using Zyklon-B for almost any purpose would have been well aware of this superb technology. The people responsible for the "Final Solution," about whom it is generally conceded that they were otherwise intelligent and in many cases well-educated, would have surely read the German technical literature also. Any German official responsible for the purchase of large quantities of Zyklon-B would have surely seen the DEGESCH advertisements, not just once but many times, showing large, well-designed gas chambers about which numerous technical discussions could be easily found.

The importance of circulation and heat are clearly emphasized in the relevant German literature and much of the English language literature as well. The absence of any means for circulating and heating the air-gas mixture in cellar rooms which were supposedly used for mass-murder in Auschwitz is strong and clear evidence that the extermination claims, at least with regard to Zyklon-B, are sheer nonsense.[5]

Disease in War and its Aftermath

A standard feature of the Holocaust story is the reliance upon photographs of thousands of dead bodies found in some of the German concentration camps at the end of World War 2. For people who are unfamiliar with the horrors of war, which includes most of us fortunately, those photographs are more than sufficient proof of a genocidal policy on the part of the German régime. Even for many veterans from the Western Allied armies who may have spent years reading the generally available literature, those photographs constitute convincing evidence of genocide. The claims of revisionists that the bodies were the result of catastrophic epidemics of typhus, typhoid, tuberculosis, dysentery, etc., are readily scoffed at as the foolish ravings of Nazi apologists. After all, how could disease alone have possibly caused such misery as one sees in those photographs?

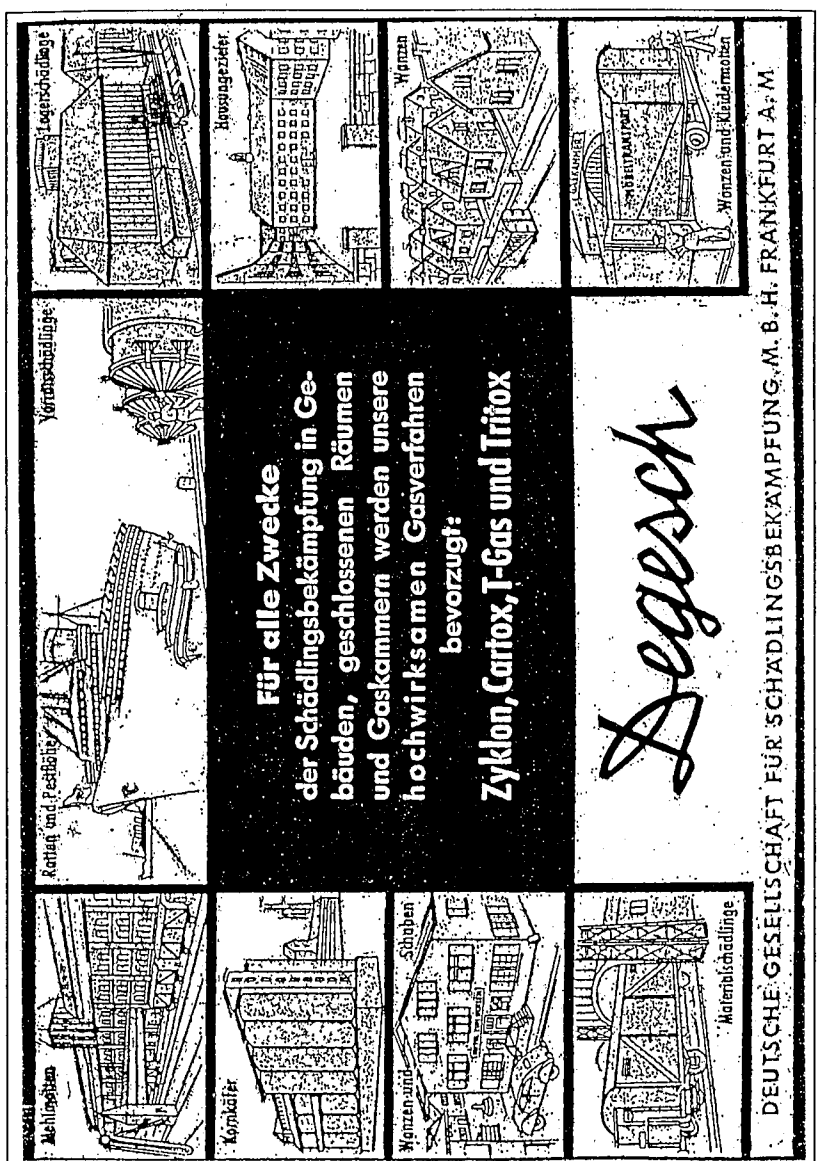

Figure 1: Typical half-page advertisement (actual size) by the DEGESCH Company showing large gas chambers, including one for railroads in the lower left corner.[4]

The bitter reality is that the photographs tell only a small part of the horrors of modern warfare.

How many Americans have any idea that for every Union soldier who died during the American Civil War from combat, including those who died from wounds and injuries, there were approximately two Union soldiers who died from disease. Despite all that has been written and said in a hundred years about the Civil War and shown on film, it would be surprising if one American in a hundred has any idea as to the relative size of these numbers even though the Civil War was fought on American soil and is a major part of America's history.

Out of a total of 359,528 Union deaths from all causes, 110,070 were from combat but 224,586 were from disease.[6] Of the deaths from disease, 44,000 were from "diarrhea and dysentery, acute and chronic" and 34,883 were from "typhoid, typho-malarial, and continued fevers."[7] By contrast, the total number of deaths arising from combat at the Battle of Gettysburg for the Union army is only 3,155 and for the Confederate army is only 3,903.[8]

Conditions in the Confederate armies were probably worse generally than those for the Union army but the statistics were apparently destroyed in a fire in Richmond.[9] As to civilian casualties from disease during the Civil War, especially in the South where most of the fighting occurred—no one seems to know.

In a well-written and moving book entitled *Civil War Medicine*, the author Stewart Brooks wrote:[10]

> Surprising perhaps to the layman but not to the student of history, disease was the great killer of the war. As one soldier wrote, "These Big Battles is not as Bad as the fever." Of the Federal dead, roughly three out of five died of disease, and of the Confederates, perhaps two out of three. During the first year, a third of the Union army was on sick call, and probably an even higher figure obtained South. Intestinal infections, such as typhoid and "chronic diarrhea," and "inflammation of the lungs" headed the list. Indeed, diarrhea and dysentery became more vicious as the fighting progressed.

A major cause of the high incidence of disease was the failure to take hygiene and sanitation seriously. Prison camps were, of course, terrible but apparently the camps where regular soldiers, i.e. not prisoners, spent months in the field were not that much better. Brooks gives us the following description of conditions in the camps generally.

> In the beginning, and to an unhealthy extent throughout the war, the typical inductee on arriving in camp felt as free as a bird and lived like one. Few recruits bothered to use the slit-trench latrines (and those who did usually forgot to shovel dirt over the feces) and most urinated just outside the tent—and after sundown, in the street. Garbage was everywhere, rats abounded, and dead cats and dogs turned up in the strangest places. The emanations of slaughtered cattle and kitchen offal together with the noxious effluvia from the seething latrines and infested tents produced an olfactory sensation which has yet to be duplicated in the Western Hemisphere.
>
> As for water—and seldom was there enough—any source would do in the early camps. Frequently, it was so muddy and fetid the men held their noses when they drank the stuff. In many instances, the heavy rains washed fecal material directly into the supply with disastrous consequences. However, in time, water came to be regarded generally as a source of disease and attempts were made to secure wholesome supplies. The better outfits even progressed to the point of boiling befouled water—visibly befouled of course.
>
> The United States Sanitary Commission was not long in recognizing these deplorable conditions as a threat to the Cause and dedicated itself to their eradication. By placing the matter squarely before the public and military, it paved the way for the institution of corrective measures relating to sanitation and hygiene. The Commission insisted that the bulk of sickness stemmed from filthy army installations and in no uncertain terms held the regimental brass responsible. Above all, it carried through with its proposals and admonitions via publications and workers and inspectors in the field. Nothing of such force was operative among the Southern armies, nevertheless some improvement was to be noted when conditions permitted. Although the camps tended to improve, it is open to question whether the same can be said of personal hygiene. The shortage of water and soap notwithstanding, this was mainly a case of poor education, carelessness, ignorance or, perhaps more to the point, the rural ways of the time. Among the officers, who usually represented the aristocracy, the rate of sickness ran, *one-half* that of the enlisted men. Again, the sickness rate for the Western theater—among the men of the frontier—tended to run double that of the Eastern.
>
> The salutary effects of good sanitation and hygiene are severely compromised in the face of poor nutrition, and bad food was the rule. . .

It is hardly a surprise that Americans know even less about a foreign war, albeit one in which America had a major rôle, but where Americans were generally far removed from the areas of greatest

misery except at the very end.

Those who moralize about the piles of dead at Bergen-Belsen and Dachau should consider Andersonville where 7,712 men died in six months out of an average of only 19,453 held. The Northern prison camps were also terrible. The "average number" of Confederates held in prisons by the North is 40,815 of whom 18,784 died.[12] Only 252 Confederates held in Northern prisons died from wounds whereas 5,965 died from diarrhea and dysentery.[13]

For the Mexican War (1846-48), the ratio of fatalities from disease to fatalities from wounds is even worse. 1,549 were killed or died from their wounds; 10,951 died of disease.[14]

During the Crimean War (1854-56), 12,604 men in the French army died from wounds whereas 59,815 died from sickness. For the English, 4,602 died from wounds whereas 17,225 died from sickness. By contrast, although 35,671 Russians died from wounds, only 37,454 died from sickness.[15]

Unfortunately, when war has ended, the misery of disease and its full extent is quickly forgotten. Medals for diarrhea and fever will not inspire new generations of young men to risk their lives for their country.

Diarrhea and dysentery, as well as typhoid, are all spread through contaminated water. Revisionists have generally not been aware of the importance of water contamination except for typhoid. In reality, all three of these diseases are extremely dangerous, especially in wartime when large numbers of people often live in camps with primitive sanitation and water supplies. During peacetime, one can afford the luxury of burial in sealed caskets or perhaps even the kind of watertight "body bags" that were used in the Vietnam War. However, in World War 2 this was a luxury which the Germans could not afford as a rule, even for their own people. As a preventive measure, the cremation of the dead was entirely appropriate to protect against all three of these deadly diseases.

In addition, elaborate water purification measures were employed at Birkenau, for example, where one can still see nine large water treatment tanks within 200 yards of Kremas 2 and 3. The life-saving purpose of these tanks is deliberately misrepresented by the Auschwitz Museum authorities today by a nearby placard stating that these facilities were "intended to produce driving gas from human excrements." The seriousness of any such intent on the part of the Nazis is refuted by the absence of roofs over these tanks either today or during the war as well as by the elaborate internal structures for

filtering and settling of solids within the tanks.

The bodies of men who have died or are near death from diarrhea or dysentery do not look any different if they were in a German concentration camp or in a Civil War prison camp or were part of a disease ridden army under Grant or Lee or Napoleon. They are not a pleasant sight. There are, unfortunately, relatively few pictures of sick soldiers from before World War 2 but they are available if one searches, even for the Civil War, and they are every bit as awful as anything from Bergen-Belsen.

Typhus

Typhus during the Civil War was apparently not the great problem that it has been historically in Europe.

To get some idea as to the historical importance of typhus, one should read Prinzing's *Epidemics Resulting from Wars*[16] or some of the French or German works of the last century about Napoleon's Russian campaign.

One discussion which is particularly meaningful for this analysis is by Dr. Wilhelm Pfannenstiel, who accompanied Kurt Gerstein to Belzec and Treblinka in August of 1942. Pfannenstiel was Director of the Institute for Hygiene at the University of Marburg an der Lahn and a major (*Obersturmbannführer*) in the SS. According to the "Statement of Kurt Gerstein," Pfannenstiel made a speech while in Treblinka in which he said the staff had performed "a great duty, a duty so useful and necessary" and "Looking at the bodies of these Jews one understands the greatness of your good work!"

That Pfannenstiel made a speech complementing the staff at Treblinka is hardly surprising. However, the meaning and content of his speech in Treblinka was probably quite similar to the speech he gave only a year and a half later in Bremen on January 10, 1944 from which the following is an excerpt.[17]

> The accounts which we have about the spread of pestilence as a result of the Napoleonic wars are shocking:
>
> > Because of the massive movements of troops through Germany, because of the quartering of the troops in houses of the civilian population and because of the economic consequences of the continental blockade, the groundwork after 1800 was especially well-prepared for the spread of epidemics. Russian troop masses brought what was at the time called 'war-typhoid'—which included paratyphoid, dysentery and similar diseases, but above all typhus—to Eastern Germany. The French contaminated not only Western Germany but all of

Western Europe including Spain with 'war-typhoid.' Even in Sweden there were terrible epidemics. Only England remained untouched by the epidemics because of her position as an island.

The catastrophe which befell the army of Napoleon, which had originally numbered 500,000 men, was completely sealed with pestilence. During the initial advance, in one battle, four-fifths of the men became casualties from disease. In Moscow, which was rich in provisions, the soldiers recovered again. But then, after the burning of Moscow when the 80,000 men of the French army had to return over the infested military roads, they were almost totally wiped out from dysentery, typhoid and typhus. In Smolensk, the number of troops who had to remain behind from typhoid and dysentery rose to 15,000. In Wilna of 30,000 captured French troops, 25,000 had succumbed to disease. Among the civilian population in Wilna at that time, 55,000 fatalities were reported in half a year.

The massing of troops before Leipzig brought new heavy outbreaks of epidemic. A report from Reils to Freiherr vom Stein describes the terrible conditions which arose primarily from the lack of medical care and military hospitals:

> Leipzig, October 1813. Your Excellency has assigned me to submit an account about my findings regarding the military hospitals for the Allied armies on this side of the Elbe . . . I found approximately 20,000 wounded and sick warriors of all nations in Leipzig. The wildest imagination could not invent so lurid a picture of misery as I found in the reality before me. . . The wounded were lying either in gloomy dens in which amphibians would not have found enough oxygen or in schools with windows which had no glass and in high ceiling churches in which the chill in the air increased proportionally as the foulness diminished. . .
>
> In those places they lie in layers like so many tons of herring, all still in the bloody garments in which they had been carried from the heat of battle. Of the 20,000 wounded not a single one has a shirt, bedsheet, blanket, cover, straw sack or bedstead. . . . Wounded who can not raise themselves to an upright position must discharge feces and urine under themselves and putrefy in their own excrement. For those who can get up, open tubs are available but these overflow on all sides because they are not carried outdoors. In Petri street there was one such tub next to another which was used to deliver the midday soup. This neighborliness between food and human wastes must certainly produce such nausea that it can only be overcome by the fiercest hunger. The most hideous example of this occurred at the clothing market. The loading platform was covered with a row of such overflowing tubs whose stagnant contents were slowly oozing over the steps. It was impossible to bring oneself through this cascade of slops and force oneself to the entrance from the streetside. . .
>
> I close my account with the most horrible scene which drove chills through my limbs and shattered my spirit. On the open field of the public school, I found a mountain consisting of garbage and the corpses of my compatriots. There they lay, naked and being eaten by dogs and rats as if they had been lawbreakers and homicidal arsonists.
>
> I appeal to your excellency's humanity and to your love of my king and his people—help our brave ones, help soon, for every wasted minute is an act of murder.

We do not wish to deny that in this war on the enemy's side, for instance, in that hell which we inflicted upon the Poles in the pocket of Kutno, conditions in the Polish emergency hospitals were not very much different.

In all wars until the middle of the 19th century, fatalities from disease were on the average six times as high as those inflicted by weapons. It was only in the War of 1870/71 that, for the first time in world history, the number of fatalities from disease was smaller. It was only half the total number killed. In the world war of 1914/18 the fatalities from disease were only one-tenth the number killed by weapons.

The recently deceased tropical hygiene specialist Muehlens comments: "If there were any victors in this war, then it was the doctors and hygienists and those who faithfully assisted them. They saved thousands upon thousands through efforts from disease and death from epidemics."

During the First World War the German army and above all the German people remained almost totally protected from larger epidemics. The reason for this astounding fact is to be found in the fact that even before the war, thanks primarily to the scientific work of mainly German researchers, especially Robert Koch (whose 100th birthday we already celebrated on December 11, 1943) and his students, who discovered and brought to public attention the most important disease carriers, their means of transmission and the possible ways to combat them. During the campaign it developed, thanks to the scientific work which was conducted in the field examination stations as well as in the epidemiological branch, an additional series of discoveries was made in the area of causative agents of disease and their modes of transmission. So it was that Paul Uhlenhuth, the recipient of the first Behring Prize, discovered the carrier which occurs with jaundice, namely the often fatal Weil disease (a waterborne spirochete which is infected through rat feces and carried to humans in the hot summer months.) The Vohlynian disease again gave us trouble in southern France where it afflicted soldiers who had been bathing in rivers even though they had been warned by the civilian population that to bathe there in the hot season would make them sick. Also it was established once and for all that humans were infected by the classical typhus as well as the Vohlynian or five-day fever only through the feces of infested clothes lice. Consequently an urgent need to construct appropriate delousing facilities was recognised to work as a filter and effectively

prevent the spreading of this wartime disease into the territory of the Reich. While studying typhus, many a scientist—for instance, the Marburg student of Emil von Behring, Paul Roemer—came to his death. The recognition that European relapsing fever is also transmitted by lice and can be treated with Salvarsan, which is also effective against syphilis, saved the lives of thousands of Turkish soldiers in the Dardanelles campaign. They were treated by our present tropical hygienist in the military medical academy, surgeon general Prof. Dr. Rodenwaldt.

During World War 1, a number of germs were discovered in the feces as well as the soil which (if transmitted into open wounds) would cause gasodemia and other equally serious wound infections. Without any doubt, war has here furthered the bacteriological research as well. The new discoveries were of utmost importance for the armies.

However, there still were epidemics and illnesses which one could not master. Foremost among them was the bacillus dysentery which must be regarded as the "primary war epidemic of the world war." This disease increased rather than decreased and retained its high mortality rate. Even amoebic dysentery caused considerable casualties which were so great among the English at Gallipoli that they contributed to the abandonment of this Churchill-inspired campaign.

Typhus and dysentery are the diseases which give us the most trouble in this war in addition to the venereal diseases and malaria. In peace time, we did not have to fear the outbreak of major epidemics. But, the moment we crossed the borders with our armies, we entered areas in which (as for example in Poland) there was little trace of a prepared peacetime practice of defensive hygiene. It was only there that the first contact with the disease pathogens was made. And with the increase in the number of people who remained healthy, but who carried the germs, the introduction of diseases into the Reich was assured.

Therefore, above anything else we must prevent any contact with foreign disease material through hygienic and prophylactic measures. Above all else, we must inoculate our soldiers and all medical personnel as widely as possible against all likely disease germs so that as far as possible, no casualties from illness will occur. How many millions of lives of recently wounded soldiers have been saved through prophylactic serum inoculation against tetanus cannot be measured. Today we even have vaccines which (for example, upon conscription into the Wehrmacht) could probably give lifelong immunity against tetanus. Also, in the development of vaccines against typhus and against dysentery this war has once again brought great progress. Vaccines against typhus from lice intestines, from chicken eggs, from rabbit lungs and from mice lungs are

produced in gigantic quantities in large, newly constructed institutes, for example, in Cracow and Lemberg (Lvov). The inoculated cannot be protected completely against contracting the disease but they are protected against death from the typhus. The other kinds of typhus which are occasionally observed in the south of Greece, such as the so-called "murine" typhus which is carried by the feces of rats including their other parasites, or the so-called "tick typhus" from the brown dog tick are, despite the high fever, far less harmful to people than the "classical" louseborne typhus. The vaccinations against the classic typhus have been effective against the rare rat typhus but not against the tick typhus. Here one can protect oneself best by prohibiting troops in tick fever infested areas from keeping dogs, which can be carriers of other tropical diseases as well.

German hygienic science is also in the process of developing effective vaccines against dysentery. To control dysentery it is of the utmost importance to make human waste products harmless and to not give flies any opportunity to carry dysentery bacillus from feces to food. This is an especially important consideration in the construction of latrines. The East African campaign taught us in this regard about the very useful smoke latrines, the present war about the drill hole latrines which makes the transfer of disease from feces practically impossible.

Germany at War's End—the Wild West and the Hordes of Genghis Khan

Although great progress had been made in military medicine as well as medicine in general between the American Civil War and World War 2, what use was all that amidst the chaos which reigned on the territory of the loser, particularly in Eastern Europe, near the end of the war? Should anyone be surprised that after years of intense bombardment of civilian targets, to the extent that journalists agreed that Germany's cities looked like the face of the moon, the conditions to which people had been reduced were comparable to those from which the world had supposedly advanced in only eighty years?

Perhaps the best discussion of conditions at the end of World War 2 in Germany is by John E. Gordon, M.D., Ph.D., Professor of Preventive Medicine and Epidemiology at the Harvard University School of Public Health. I hesitate to give so many details about an author but it is probably necessary to establish the fact that the excerpts which follow are not from someone who can be easily branded as another pro-German revisionist. The following passages by Gordon were published in 1948 by the American Association for

the Advancement of Science:[18]

(5) *Foreigners in the Rheinland. . . .*

The whole area seethed with foreign peoples, conscript laborers moving this way and that and in all directions, hoping to reach their homes, in search of food, seeking shelter. Most of the typhus was within this group and they carried the disease with them. They moved along the highways and in country lanes—now a dozen Roumanians pulling a cart loaded with their remaining belongings; here a little band of Frenchmen working their way toward France, there some Netherlanders, or perhaps Belgians; and everywhere, the varied nationalities of the East—Ukrainians, Poles, Czechs, Russians. They moved mostly on foot, halted, then gathered in great camps of sometimes 15,000 or more, extemporized, of primitive sanitation, crowded, and with all too little sense of order or cleanliness.

These were the people where typhus predominated, more than a half million of them in the Rhineland, wearied with the war, undernourished, poorly clothed and long inured to sanitary underprivilege and low level hygiene. Add to this shifting population the hundreds of released political prisoners, often heavily infected with typhus but happily far fewer in numbers; the German refugees, first moving ahead of our troops and then sifting back to their homes through the American lines. Rarely if ever has a situation existed so conducive to the spread of typhus.

Typhus fever in a stable population is bad enough. It has demonstrated its potentialities in both war and peace. The Rhineland in those days of March, 1945, could scarcely be believed by those who saw it—it is beyond the appreciation of those who did not. It was Wild West, the hordes of Genghis Khan, the Klondike gold rush, and Napoleon's retreat from Moscow all rolled up into one. Such was the typhus problem in the Rhineland.

The Epidemiologic Situation.

The great assault of the Rhine River got under way on March 24, the British 21st Army Group and the U.S. Ninth Army to the north, the First and Third Armies in the center, and somewhat later the U. S. Seventh Army and the First French Army to the South. All found typhus fever; the British scarcely any, the Ninth some, the First and Third a great deal, while in the south the U. S. Seventh and the First French Armies again encountered relatively little.

The first really serious condition appeared when Buchenwald concentration camp was occupied by the Third Army on April 12th. The British soon uncovered Belsen camp, with still more typhus and misery. Then followed in order Dachau, Flossenburg and finally Mauthausen, all with hundreds of cases of typhus fever and sometimes thousands.

These concentration camps with their political prisoners and their typhus fever would have been problem enough. Added to the situation were millions of conscript laborers suddenly released from employment and from camps that were many times typhus infested. They scattered throughout the country. Many were gathered in large improvised camps. They spread typhus widely. . .

Germany in the spring months of April and May was an astounding sight, a mixture of humanity traveling this way and that, homeless, often hungry and carrying typhus with them.

Special Epidemiological Problems

The outbreaks in concentration camps and prisons made up the great bulk of typhus infection encountered in Germany. Each presented an individual epidemiologic problem. That of Dachau is illustrative. The Dachau camp, located in Bavaria about 5 kilometers north of Munich, was one of the largest and certainly one of the most notorious of the Nazi installations housing political prisoners. It was liberated by units of the U. S. Seventh Army on May 1, 1945.

An estimated 35,000-40,000 prisoners were found in the camp, living under conditions bad even for a German camp of this kind and worse than any other that came into American hands. Extreme filthiness, louse infestation and overcrowding prevailed throughout the camp buildings. Several car loads of human bodies were found packed in box cars in the railroad yards adjacent to the camp, the vestiges of a shipment of prisoners from camps farther north who were transferred to Dachau in the late days of the war to escape the advancing United States troops.

The number of patients with typhus fever at the time the camp was first occupied will never be known. Days passed before a census of patients could be accomplished. Several hundreds were found in the prison hospital, but their number was small compared with the patients who continued to live with their comrades in the camp barracks, bedridden and unattended, lying in bunks 4 tiers high with 2 and sometimes 3 men to a narrow shelf like bed; the sick and the well; crowded beyond all description; reeking with filth and neglect—and everywhere the smell of death.

During the first few days little more could be done with the limited staff that was available than make the rounds of the barracks, pulling out the dead and the dying. . .

Available records failed to demonstrate how many of the 4,032 patients of the Dachau epidemic were actually ill with typhus at the time the camp came under American jurisdiction, how many developed the disease within the succeeding 14 day incubation period,. . . Even the appreciable figures cited fail to include all who contracted typhus fever in Dachau concentration camp. Freed from

the sort of existence they had been living, it was no wonder that those strong enough should attempt to escape. Many did, and scattered widely through the nearby country, especially to the region south of Munich. Some were actually in the clinical stages of typhus fever and many were incubating the disease. They were later found with typhus fever in other areas.

The camp was promptly quarantined. Hospitals were moved in to augment the small prison hospital. Case finding teams initiated control work through survey of the surrounding area for former inmates developing typhus after leaving. The dusting of prisoners with DDT powder was started May 3, 1945, and completed May 8.

Summary and Conclusions

Conditions in Western Europe in many respects favored a much greater spread of typhus fever than actually occurred. Germany was in chaos. The destruction of whole cities and the path left by advancing armies produced a disruption of living conditions contributing to the spread of the disease. Sanitation was low grade, public utilities were seriously disrupted, food supply and food distribution were poor, housing was inadequate and order and discipline were everywhere lacking. Still more important, a shifting of populations was occurring such as few countries and few times have experienced.

Native Germans, dislodged from their homes and often moving long distances to escape the enemy, were finding their way back to their native lands. The roads, the countryside, were full of released German prisoners of war who lacked transportation and were their to their homes on foot. . .

Two important factors served to limit the extent of the outbreak. The most significant was the time of the year that allied troops entered Germany. Had this been December instead of March, as would have happened except for disrupted military plans, the problem would have been much more serious. Von Rundstedt's Battle of the Bulge, although of serious import militarily, had the favorable aspect of postponing contact with typhus until the spring months.

Spring brought a lower potential of louse infestation, it permitted life outdoors instead of crowding within existing habitations, and the movement of displaced persons and refugees was facilitated, with consequent greater dispersal. Dispersal of course, had advantages and disadvantages. It tended to disseminate infection broadly—it limited concentrated outbreaks.

Early repatriation of all Russian nationals, both prisoners of war and conscripted labor, was undertaken in May and completed in June. A large part of available American transport was turned to this end, with the result that thousands of Russians were repatriated every day. They were the population groups with the heaviest incidence of typhus.

Under any interpretation of governing circumstances, much credit must be given to the efficiency of recently developed methods of typhus control. The value of delousing through dusting with DDT, and the usefulness of typhus vaccine were tried and tested on a scale greater than ever before and under conditions epidemiologically more conducive to extensive and continued spread of the disease. The results attained in the Naples epidemic were confirmed and extended.

No single factor contributed more to the satisfactory end of the outbreak than that never in the course of the epidemic were the fundamental supplies of DDT powder and vaccine lacking. Occasional difficulties arose in local distribution, but the supply system was such and the stock piles so great that they were promptly remedied.

The middle of July saw Western Europe return to a satisfactory situation of low grade typhus endemicity.

Because of their overwhelming air power, the Western Allies had been able to wreak enormous havoc upon Germany, particularly her cities, long before any ground troops were engaged near those cities. Cities which had taken a thousand years to build were destroyed in a few hours long before a single Allied tank or infantryman appeared.

In a recent best selling book by the first man to break the sound barrier entitled *Yeager: An Autobiography* the author described how in the Fall of 1944 his fighter group was[19]

> "assigned an area fifty miles by fifty miles and ordered to strafe anything that moved. . . We weren't asked how we felt zapping people. It was a miserable, dirty mission, but we all took off on time and did it. . . We were ordered to commit an atrocity, pure and simple, but the brass who approved this action probably felt justified because wartime Germany wasn't easily divided between 'innocent civilians' and its military machine. The farmer tilling his potato field might have been feeding German troops."

The farmer tilling his potato field might have also been feeding concentration camp inmates or prisoners of war—how could one possibly tell the difference? How can Americans condemn Germans for not giving enough food to prisoners when they themselves were deliberately killing farmers growing potatoes in their fields? All of this occurred, incidentally, at a time when there was no reasonable doubt about the eventual outcome of the war nor any danger to the United States.

One can well imagine that during the last months of the war—when entire German cities were destroyed almost daily—many German medical or supply personnel, who would have otherwise gone to perform assigned duties at concentration camps, simply felt that Germany's enemies could fend for themselves. How can anyone realistically blame them? How can anyone imagine that they would risk their lives under almost constant air attack to get to the camps, there to face death from disease and, sooner or later, the vindictiveness of the inmates and the liberators who had a major part, at the very least, in bringing about the atrocious conditions in the first place?

As far as conditions essential for the health and survival of large populations are concerned, the clock had been turned back—in some respects, as far back as the Middle Ages. By the Winter and early Spring of 1945 in Germany, tens of millions of people were fleeing into an area so small that, even in the best of times, enough food could not be produced to sustain the normal population. Casualties were in the millions. All major cities were in ruins. The fact that Germans facing extinction in these circumstances neglected the health and nutrition of many of their most bitter enemies in concentration camps should not be at all surprising.

Typhus in Eastern Europe

Typhus in recent centuries has afflicted primarily the countries of Eastern Europe during wartime, especially during cold weather when soldiers and civilians are least inclined to endure the brief discomfort of bathing or cleaning their clothing. The misery that arises from such personal behavior is, of course, compounded by the social upheaval and movement of large masses of people that war tends to bring with it.

The misery is probably unimaginable to a Western European or an American. Some idea may be derived, however, from the following text from the same British doctor who described the makeshift delousing tunnels:[20]

Predisposing Conditions

Louse-borne typhus fever is an acute infectious disease lasting from twelve to sixteen days and characterized by a continued temperature, a generalized maculopapular rash which may become haemorrhagic, severe toxaemia, and marked nervous manifestations. The disease is carried by lice and spreads with extreme

rapidity especially through a badly nourished population. Thus in Russia during the period 1919 to 1922 the estimated number of cases was 10,000,000, with 3,000,000 deaths, in a population of 120,000,000. These are stupendous figures. Their scale can be realized to some extent by recalling that in the much described typhus epidemic in London in 1856 only 1,062 cases were recorded as treated in the London Fever Hospital out of a population of 3,000,000 whereas in Russia in the year 1921 alone there were 4,000,000 cases in a population of 120,000,000. These figures can, of course, only be approximate, as many cases diagnosed as typhus were in reality instances of relapsing fever; on the other hand a vast number of cases of typhus were never admitted to hospital and so remained unrecorded. Of the cases admitted to hospital very many were never notified by the Russian medical officers owing to pressure of work. So uncertain were the statements that when we went into a new district to survey the amount of typhus present we found it more useful to base our estimate on the number of women with recently shaved heads seen in the streets, than to rely upon notification figures. All cases on admission to hospital for typhus were closely shaved and consequently it was possible to sit in a cafe and determine the proportion of women with closely cropped heads to the general population and so to estimate roughly the amount of typhus in the region.

Epidemic typhus fever, is, classically, associated with famine and overcrowding, but there is a third factor which, to my mind, is perhaps of even greater importance, namely, widespread movements of military or civilian populations bringing non immunes into a district where the disease is endemic or carrying the disease into a typhus free region. A third possibility is that such movements may introduce into an endemic region either a new strain of the disease or one of enhanced virulence. The first mode of infection I saw well demonstrated in the epidemic in North China two years ago which was due to the introduction of masses of non immunes with the Army into areas where the disease was endemic. The second method occurred on the return of Polish prisoners of war to Poland from Siberia in 1919-1922. These men, women and children had been heavily infected with typhus in Russia, and passed into Poland at the rate of tens of thousands a day, going to regions in which the disease either was already endemic or did not exist previously; in both cases widespread epidemics resulted.

Apart from mass movements of the kinds instanced above, a striking feature of epidemics is the amount of local movements of the population that they initiate. Once typhus is really established in a district, fear of contracting the disease, combined with terror of the appearance and acts of delirious patients, is soon widespread. Transport of food and fuel quickly breaks down, starvation

threatens, the sick are abandoned, often in the roads, the houses are deserted and the terrified population flees from the infected area into a neighboring village or another part of the town as the case may be, carrying the disease with them. Too often the hospital staffs may flee with the others.

But there is still more horror. In Russia during the early 1920's conditions had deteriorated so badly that even cannibalism had become widespread. Mothers murdered and then ate their children; adults murdered and then ate their parents. 26 people who had resorted to cannibalism and 7 others who had sold human flesh were identified by one Russian doctor alone on the basis of his own personal observations. In the town of Samara, the entire mental hospital was set aside for people who had committed cannibalism. The German doctor who reported such incidents in 1923 wrote that such acts were not unusual and attributed the practice to the psychological deterioration of people suffering from protracted hunger and disease. One mother, for example, had gone into a rage as her murdered child was taken away from her and had cried out that it was her child, she had borne it, and that no one had the right to eat it except for her. Interestingly enough, the German doctor thought it significant that the people who had committed such acts were all native Russians from the lower social strata and that "there were no German colonists, no Jews and no members of any other nationality among them."[21]

As I write this, there are reports in the press of mass starvation in Palestinian refugee camps in Lebanon. A UN relief official has just explained that the people are already eating cats, dogs and rats but that they have not yet resorted to cannibalism. Her remarks suggest that to people who deal with famine, incidents of cannibalism are not unusual.

One hesitates to write about such behavior for fear of sensationalizing an already morbid subject, but it is probably necessary to convey the depths to which human beings can be brought by the conditions which must have existed, at least in some places, in Germany and Poland at the end of World War 2.

Typhus Vaccine

One interesting fact which Pfannenstiel discussed in the text quoted earlier was that in 1944, the Germans still did not have a totally effective anti-typhus vaccine but only a vaccine which "protected against death from the typhus"—in other words, they only had a vaccine which reduced the severity of typhus when a vaccinated person contracted the disease. American troops were repeatedly inoculated against typhus which suggests that the American vaccine was not totally effective either. The major line of defense against typhus, for the Americans as well as for the Germans, was thorough and repeated delousing.

The SS personnel records for Dr. Josef Mengele show that he contracted typhus while at Auschwitz even though he, as a doctor, would certainly have been given preferred access to any available vaccine. There were probably some bad experiences with the German anti-typhus vaccine which is illustrated by the fact that even after the war at Belsen where a German Army medical team had been put to work caring for the sick at the "human laundry," at least one German doctor had refused to let himself be vaccinated by the British against typhus and had apparently told the German nurses not to take the vaccine either. About a month later, 32 of the 48 German nurses were in bed with typhus.

The German wartime medical literature abounds with articles about German research into the development of anti typhus vaccines and treatment. No doubt, there were many experiments upon concentration inmates in this regard which did provide a basis for some atrocity stories after the war. The principal beneficiaries of this research, however, were the inmates themselves since it was they who were in the greatest danger from typhus.

Typhus and the Jews

The German wartime medical literature makes it quite clear that many Germans in positions of authority regarded the Jews as a major source of typhus infestation in Poland. The article by Zimmermann (Appendice C) is typical of material that can be found in the German literature. Of course, because such articles are highly critical of Jews as a group and were written by Germans living under National Socialism, many readers will simply dismiss them as anti-Semitic propaganda. In any event, regardless of the motivations of the German authors, confirmation of many of their observations can be found in credible non-Germans sources.

In a lengthy article published by the Royal Society of Medicine, E. W. Goodall, one of Britain's most highly regarded epidemiologists, described his experiences in Poland in the Summer of 1919:[23]

The city of Warsaw had at the time of the epidemic a population of about 700,000 persons. I understood that this figure did not in-

clude any of the German troops, but represented the civil, Polish, population only. The epidemic started in the Jewish quarter of the city, and at first spread chiefly amongst the Jews. According to Dr. Trenkner the same thing happened at Lodz, of which city he was medical officer before he was appointed to Warsaw in 1917, and in many other places in Poland. Dr. Janiszewski confirms this statement. In the Warsaw epidemic, 73 per cent. of the cases occurred amongst the Jews, and 23 per cent. of these in one particular part of the Jewish quarter where the population was most dense. In the other quarters the number of cases was in proportion to the number of Jews amongst the inhabitants. The Jews form 30 per cent. of the population of Warsaw. Roughly, the number of cases in the different districts was in proportion to the density of population, and the density is highest in the parts of the city inhabited by Jews.

Since the epidemic of 1917-18 typhus has become more widely diffused through Warsaw, but the 1919 epidemic, if it can be called such, was comparatively slight. Lately (1919) the Christians have been attacked in larger numbers than the Jews. The attack rate of the 1917-18 epidemic was between 3 per cent. and 4 per cent., and the fatality was about 9 per cent. It is a curious fact that the fatality amongst the Jews was half that of the Christians, 7 per cent. as against 14 per cent. Dr. Trenkner accounted for this difference by the greater care and attention the Jews bestowed upon their sick. They also called in medical advice earlier than did the Christians, so that their patients came under treatment sooner.

As regards age-incidence I was supplied with the following figures relating to 5,747 consecutive cases occurring at the end of 1917:—

Age	Cases	Deaths	Fatalities
0-10	908	7	0.7
-20	2,407	29	1.2
-30	1,035	43	4.1
-40	717	71	10.0
-50	513	86	16.7
-60	112	59	52.6
-70	50	19	38.0
-80	5	3	60.0
Total	5,747	317	5.5

It is evident that these figures relate to a period of the epidemic when the fatality [rate] was below the mean. . . .

Zawiercie

. . .At the time of this epidemic the population of Zawiercie was about 44,000, so that the attack rate was about 3 per cent. From official figures which were given to me it appears that the Jews

formed 19 per cent. of the population. According to Dr. Ryder the Christians were attacked in a larger proportion than the Jews, as shown in the following table, which deals with about three quarters of the epidemic and with the first six months of 1919: . . .

. . . The Jews were said to be less cleanly than the Christians, and from what I saw of them I should say that this was true. But there were reasons for thinking that there was more concealment of cases amongst the Jews; the authorities had had some trouble in getting certain of the Jewish medical attendants to notify . . .

Causes of the Prevalence of Typhus

It is not difficult to account for the wide prevalence of typhus in Poland since the beginning of the war on general grounds. Constant warfare, the movements of troops, the influx of refugees from the districts which were the actual scenes of fighting, the return of prisoners of war, especially since the armistice, in both directions across the country, the lack of soap and clothing and of medical and surgical necessities in the country districts and in many of the towns the difficulty of obtaining sufficient water, would be factors conducing to the prevalence and dissemination of lice, that is to say of typhus, in a country where the disease had been endemic before the war. Medical men and nurses have been very scarce, and there has been a deficiency of food for the poorer classes, especially in the East and South east. The figures I gave at the commencement of this paper showed that typhus had been especially prevalent since the armistice. There is no doubt that when the Germans and Austrians established themselves in Poland in 1915, they both, and especially the former, used their utmost endeavours to keep infectious diseases under control, not from any love they bore to the Poles, but with the object of keeping their armies free from sickness. There can also be little doubt that to a certain extent, especially in the country and smaller towns, they succeeded. In spite however of their efforts there was the large epidemic in Warsaw in 1917-18. Dr. Trenkner attributed the epidemic chiefly to the action of the Jews. Much smuggling, especially of food, went on from outside into the city, the smugglers, who were chiefly Jews, hid and slept together in little groups in sheds and barns. Members of the groups became infected with typhus and carried the disease into the city. Dr. Trenkner on various occasions traced fresh cases to group infection in this way. Overcrowding and want of cleanliness did the rest. In Zawiercie the action by the Germans seems to have had more effect, and there was not any great prevalence of disease before they left. In that part of Poland which I visited—viz., the county of Bendzin, typhus had become especially rampant since the armistice, as was exemplified in the Zawiercie epidemic. Directly the Germans left there was an unrestrained movement of popula-

tion to and fro between the town and surrounding country; released and escaped prisoners of war began to return, especially from the East; and refugees flocked to the West from the devastated Eastern districts. . . The Germans had been severely thorough in their sanitary measures. They set up de lousing stations and forced the inhabitants to be de loused at the point of the bayonet. When they left compulsion ceased and personal cleanliness diminished.

. . . Although in Warsaw and other places the Jews suffered more severely than the Christians, it is doubtful, in my opinion, that they so suffered because they were Jews: the more probable reason is because they were more densely crowded together, for, as has been mentioned, the Jews were less attacked in Zawiercie than the Christians, and as far as I could see from inspection of houses in different quarters of the town, amongst the poorer classes, there was as much overcrowding amongst Christians and Jews.

Adverse, however, as the circumstances have been in Poland, during and since the war, it must not be supposed that the authorities have not attempted to deal with the epidemic. As far back as April, 1918, that is to say, six months before the Germans quitted Warsaw, Dr. Trenkner made a great effort to cleanse the houses and their inhabitants in the worst and most crowded parts of the city, a proceeding to which the Germans offered no objections, as of course such a measure was conducive to keeping their army free from infection. But the task was a very difficult one as the people were by no means anxious to help the authorities. If the inhabitants of a certain square for instance got wind that their houses were going to be visited by the sanitary squad, they cleared out and locked their rooms up. However, this obstacle was overcome by making unexpected visits very early in the morning, taking the passports away from the inhabitants, who were sent off to the delousing station, with the instruction that they would not receive their passports back again until they produced the certificate that they had been deloused. Meanwhile, their homes were disinfected and cleaned. . .

The percentages given above for the incidence of typhus among Jews are actually quite close, almost identical in some instances, to those given by Zimmermann (see Appendix C) a generation later. It is, therefore, more than likely that the German authors were accurate also.

A possible explanation for the high incidence of typhus among Jews may be their rôle as merchants of old clothing. For example, in Prinzing's classic work *Epidemics Resulting from Wars*, the author discusses the possible cause for the spread of bubonic plague and typhus in Eastern Europe during the Russo-Turkish War of 1769-72.

After every trace of the pestilence had disappeared except for military hospitals, the re-emergence of the plague later on was traced to the purchase by a Jew of a fur coat in a military hospital in Jassy.[24] Later again, in Transylvania during the same war, "Jewish pedlars, who purchased clothes, furs, and war booty in the Russian camp, likewise helped to spread the disease."[25] At the end of Napoleon's Russian campaign, Prinzing tells us about the typhus epidemic in Vilna in 1812-13 which "In a short time spread throughout the city, not so much because the soldiers were quartered in private houses, as because the Jews got possession of the clothes of the dead. Of some 30,000 Jewish inhabitants, no less than 8,000 died."[26]

Jewish Resistance and the Torture of Bathing

The intense resistance by the local population, by Poles as well as Jews, to the public health measures that responsible authorities intended for their welfare is also evident in a remarkable, recent book entitled *Typhus and Doughboys* about the American military experience in post World War 1 Poland. The book is based largely upon the internal correspondence of the American Polish Typhus Relief Expedition from 1919 to 1921. The book deals at great length with the difficulties American troops encountered when they tried a variety of methods to induce people simply to bathe and have their clothes deloused either with steam or cyanide.

The difficulties are illustrated by the following passage about the efforts of one American officer in what appears from the context to have been a predominantly Jewish community.[27]

> The school children were next bathed and deloused, Gorman observing that 'if the older people were as enthusiastic as these children, typhus would no longer be a dread in Poland.' Unfortunately, the older people were content to live in the unimaginable dirt and filth, one old woman having been heard to cry out, 'death here in my hovel rather than the torture of bathing.'

The book is quite valuable for its insights based upon the actual correspondence of American officers. However, one should recognize that the book was written recently in an age when the foulest rubbish can be written about Poles, Germans, Austrians and even Americans with almost no hesitation at all but when criticism of Jews is almost inevitably accompanied with deep apologies. The following passage is informative nonetheless.[28]

Dixon pointed out some difficulties with the Jews, revealing his own anti Semitic bias. In the town of Busko, which he inspected, he reported 'there is considerable Typhus in the town particularly among the Jews. They are afraid to go to the hospital and use all means to keep the disease among them hidden.' They believed, in fact, 'that at the hospital they would not be able to live according to their religion—that they would be required to eat what the others ate—that they could never eat with their hats on and that if one of them died there he could not be buried according to his religion. This belief is being overcome and the hospital now has ten Jews as patients.' Dixon also induced local authorities in Busko to impose a fine of 500 ruble on anyone who hid or attempted to hide a case of typhus. But, he recorded, 'it did not prove very effective as the Jews, who were afraid of the hospital bribed the police and kept their sick hidden.'

Except for Dixon's charge that Jews bribed the police, there seems no reason to believe he was biased; he seemed to be simply reporting what he saw.

The same intense resistance to the most minimal measures which any civilized society can impose for its own survival—the simple act of accurately reporting cases of a highly contagious disease—is evident in Lucy Dawidowicz's *The War Against The Jews* for 1939-42 for the Warsaw ghetto:[29]

In the Warsaw ghetto alone, epidemic typhus was believed to have affected between 100,000 and 150,000 persons, though the official figures were barely over 15,000. The spread of disease was concealed from the Germans. Hospital cases of typhus were recorded as 'elevated fever' or pneumonia. Mainly, the stricken were treated in their homes in a massive clandestine operation, covering up the presence of the disease from German inspection teams who periodically threatened to seal off the affected areas.

The intensity of the Jewish resistance to the simple act of bathing, for the 1920's at least, is illustrated in *Typhus and Doughboys* by the following passage about American efforts in the town of Wlodowa:[30]

. . .further difficulties were in the form of considerable resistance among the population to bathe. The town's officials also vacillated, whereupon the police had to be used to compel the people to do so. Soon the town officials devised a plan whereby those persons who had been bathed were provided with a ticket and only those who possessed one could buy bread and potatoes in the stores. However,

this was rather ineffective as forged tickets soon appeared and also, as Gillespie [an American first lieutenant] contemptuously charged, 'The Jews would get their tickets, alter the name on them and sell them to some other person.' Theft was not unheard of, and the Poles hired to assist the operations proved the worst offenders. This necessitated daily searches by the police.

Another passage tells us just how often the people in a largely Jewish community took baths even under American administration.[31]

It went without saying that none of the houses had any modern sanitary conveniences. All refuse was poured into the gutters at the front door, two latrines were provided by the town but were little used. Snidow [an American first lieutenant] noted that 'in almost all of the house areas would be found after much search an open latrine which they jealously guarded from us by all kinds of disguises and camouflage as the product therefrom would be used after the harvest to put on their small patches in the outskirts of the town.' Most of the drinking water was obtained from a sluggish creek at the edge of the town, which a mill dam rendered more sluggish and sometimes covered the yards of some of the houses, turning them into 'reeking swamps.' The people were inclined to wade in the creek, as were the cattle and geese. There were a few wells, 'but all of them drained directly from the nearby latrines.' Moreover, as Snidow recounted, 'in the first preliminary council we were assured by the priest, the rabbi and mayor and later confirmed by two doctors that not a soul in the town had had a bath for over a year. This statement we considered conservative and I personally doubt if water had touched the persons of most of them since the departure of the Germans during whose occupation they were required to bathe at least once a week, when they could be caught.' There was a good community bathhouse, but the people had 'formed a horror of it' from being compelled to bathe there by the Germans, and would not use it.

Confirmation of the general filthiness of the Polish Jews was even given by the Jewish Chairman of the Warsaw *Judenrat*, Adam Czerniakow. In his diary, which has been highly praised by Raul Hilberg among others, Czerniakow wrote for May 29, 1942:[32]

I have been going through the streets with Brodt issuing reprimands or dispensing money awards to the janitors. Considering the level of civilization in this community, the ghetto cannot be kept clean. People, unfortunately, behave like pigs. Centuries of slovenliness bear their fruit. And this is compounded by the utter

misery and dire poverty.

After World War 2, General George S. Patton described Jews living under his military authority in southern Germany. Martin Blumenson the editor of *The Patton Papers* regarded these remarks as indicative of a growing anti Semitic attitude. For September 17, 1945—five months after the liberation of the last of the German concentration camps—Patton wrote:[33]

> We drove for about 45 minutes to a Jewish camp. . .established in what had been a German hospital. The buildings were therefore in a good state of repair when the Jews arrived but were in a bad state of repair when we arrived, because these Jewish DP's or at least a majority of them, have no sense of human relationships. They decline, where practicable, to use latrines, preferring to relieve themselves on the floor. . .
>
> This happened to be the feast of Yom Kippur, so they were all collected in a large wooden building which they called a synagogue. It behooved General Eisenhower to make a speech to them. We entered the synagogue which was packed with the greatest stinking bunch of humanity I have ever seen. When we got about half way up, the head rabbi, who was dressed in a fur hat similar to that worn by Henry VIII of England and in a surplice heavily embroidered and very filthy, came down and met the General. . .
>
> However, the smell was so terrible that I almost fainted and actually about three hours later lost my lunch as the result of remembering it.

Clearly, on the basis of the preceding passages, there was general agreement among numerous German doctors, British doctors, Polish doctors, American military officers and even some Jews as to the incredible filthiness of Jews in and from Poland. To some extent, the backwardness of the Polish Jews can be explained by poverty and persecution. But, whatever the cause, it is still difficult to comprehend the hysterical resistance to minimal standards of hygiene and civilized living when a modest amount of common sense should have persuaded them that it was necessary for their own survival. An attachment to a traditional lifestyle going back centuries, if not millennia, may have been regarded as vital to their religious and ethnic identity.

In any event, it should be understood that Jews from Western countries were generally quite different in their personal habits. When these Jews were placed in camps with Polish Jews, they were

as appalled as any other Westerners would have been. It does not seem fair to attribute the behavior of the Polish Jews to religion alone—but, religion may be important, nonetheless.

Regardless of the true extent of the Jewish contribution to the spread of typhus, it is certainly safe to say that the Germans authorities were absolutely sincere in their statements that the Polish Jews were a major contributing factor in the spreading of the disease. They had not only the evidence of their own doctors to support this view but that of British and Polish doctors as well. They can hardly be blamed for applying severe measures to the Jews in order to control the epidemic. The severe measures included restrictions on the movements of Jews and eventually to the construction of a wall around the entire Warsaw ghetto. These measures during wartime were entirely reasonable to control the spread of typhus, and to prevent catastrophes like those which had already occurred in Poland and Russia during and after World War 1.

Although medicine had made great progress in the years between the world war, not much progress had been made with regard to typhus. There was still no truly effective vaccine or treatment. The means for detection of typhus had been improved but that in itself did not go very far in preventing catastrophic epidemics except to alert authorities to be more stringent in their delousing of people, or of contaminated areas or trains coming from or passing through those areas. The real breakthrough came only near the end of the war with the availability of enormous quantities of DDT from the Americans for delousing.

In any event, it is quite clear that the high incidence of typhus among Jews was not simply the result of persecution by the Germans, or of the confinement of Jews first in ghettoes and then in concentration camps. One of the main objectives of the camps was to maintain strict enough control upon the inmates so that typhus would at least subside if not disappear altogether. During the last months of the war, however, when typhus reappeared with a vengeance, the Germans had no choice but to maintain as tight control as they possibly could upon the inmates, to keep any of them from escaping, even if they could do little to help them. When the British took Bergen Belsen at the request of the SS, they were appalled at what they found and considered simply moving the inmates out of the camp into neighboring dwellings.[34] They quickly realized, however, that that would have only compounded the disaster.

Delousing as a Cover for Mass Murder?

It is often claimed in the Holocaust literature that the Germans disguised their extermination facilities as delousing stations with showers and barbers and laundries in order to lull Jews into the gas chambers. From the material I have already quoted, it should be obvious that a more unlikely arrangement to lull Polish Jews into doing anything would be hard to imagine. The prospect of bathing could have only had the opposite effect. In addition to their fear of showers and bathing generally, it was inevitable that there would have also been many false rumors which could have only compounded the Jewish resistance.

Was the visit of a highly respected professor of hygiene, Professor Pfannenstiel, to Belzec and Treblinka only for the sake of putting on a convincing disguise? His visit makes no real sense unless the purpose of these camps was to do precisely what all other *Durchgangslager* or transit camps were intended to do, i.e., to delouse and medically examine and possibly quarantine people who were being moved to a new location. Although specific details about Treblinka, Belzec and Sobibor may no longer be available, the planning and organization in general was not a secret. The planning and organization was thoroughly described in German wartime technical journals such as *Gesundheits Ingenieur* and *Arbeitseinsatz und Arbeitslosenhilfe*.[35]

Basically, each transit camp or *Durchgangslager* was divided into a "clean" zone and a "dirty" zone with a strictly enforced barrier between the two zones. A delousing station straddled the boundary between the two zones at some point. Each camp was arranged so that new arrivals could only enter the "dirty" zone. To get over to the "clean" zone, they had to pass through the delousing station. Inside the delousing station, each person had to remove all of their clothing and belongings which would then be fumigated with cyanide, or steamed, or else heated with hot air while they took a shower and underwent a thorough medical examination which might include X-rays to determine their state of health and whether or not they had any contagious diseases such as typhus and tuberculosis. If they failed the exam, they might be sent back to wherever they had come from originally or they might simply be kept in a quarantine area for several weeks. If they passed, they would eventually be sent on, usually to another camp and put to work.

Some additional details as to how people riding the trains in Eastern Europe were processed were given by a German doctor:[36]

> The large delousing facilities worked in the last years according to the following principle: The train arrives at the unclean side of the railroad station. All passengers then give their baggage on the unclean side to the baggage handlers. They are then led into the unclean changing rooms where specially constructed iron clothes hangers and linen sacks which can be boiled with valuables and flammable objects are available. After giving up the clothes hangers with their clothing, they each each receive a control token. Now they go with their boots and the sack with valuables to a short medical examination, for the sorting out (selection) of persons sick with infection, and after receiving a handtowel and soap to the showers. Here even the boots are disinfected with 5% creosol soap solution. After showering, one receives a linen suit. In the dressing room of the clean side, they wait for the calling of their control token number and then the deloused clothing is put on again. Upon leaving the delousing facility one receives a certificate and can then, after picking up one's baggage on the clean side of the baggage area, get on to the train which is waiting on the clean side of the railroad station for continuation of the trip. The entire facility is so constructed that it is impossible to go directly from an arriving train into a departing train without passing through the delousing facility. In all rooms of the facility there are, of course, medical personnel who, among other things, see to it that all flammable objects are taken out of the pockets and that all pieces of clothing and pockets are turned inside out before being hung on the hangers.

The drawings that one occasionally sees in the Holocaust literature of Treblinka, Belzec and Sobibor and which we are told were drawn from memory, usually by "survivors," do bear some resemblance to the drawings in the German technical literature, especially with regard to the separation of dirty and clean zones and some kind of facility with gas chambers stradling the boundary between the two zones.

What has apparently happened over the years is that a certain amount of truth has filtered its way through the lies and nonsense. For example, when it was claimed that the Jews were killed at Treblinka with steam—at least until the Diesel method was supposedly developed—there was probably some truth to that story. The truth is that steam was used, but for delousing of clothing and not for murder. When the Germans referred to Treblinka, Belzec and Sobibor as *Durchgangslager*, it was precisely because those places actually were *Durchgangslager* in the sense in which the Germans

always used that term; the *Durchgangslager* were places which people had to "pass through" on their journey to some other destination.

Were the trains for the deportation of Jews fumigated?

As bad as hygienic and sanitary conditions were in the Jewish ghettoes, conditions on the trains carrying Jews must have been even worse. We are assured of this by the Holocaust literature itself. That literature abounds with stories of misery and filth on crowded railroad cars, in many cases freight cars, which were indeed used to move many Jews to the East. On the return trips back to the West, these same railroad cars would logically have been used to transport freight and people, German troops, prisoners and Eastern European workers.

Is it conceivable that railroad cars used on one occasion to transport Jews in conditions that were even worse than those in the Jewish ghettoes would be subsequently used on the return trips to transport non Jews back to the West *without* thorough delousing and cleaning? The answer must be—no! It would have been madness for the Germans not to delouse these trains. If there was ever a need to delouse a train, that need would surely have been greatest for trains that had carried Polish Jews. The mere fact that a train had come from the Warsaw ghetto where typhus had been rampant would, in itself, have been reason enough for a thorough delousing of the entire train afterwards before using it for any other purpose.

The Budapest Fumigation Plant for Mass-Murder?

How then could the knowledge of the operation of those superbly designed gas chambers, which used Zyklon-B as a matter of routine to delouse railroad trains, have been unknown to the very same Nazis who were supposedly exterminating the Jews? Furthermore, once the existence and the locations of the railroad delousing tunnels would have been known to the mass murderers, why would they have ever again bothered to use anything else for mass murder?

The fact that neither the Budapest gas chamber nor any other railroad delousing tunnel, either in Hungary or anywhere else, has ever been implicated by any of the Holocaust "scholars" merely shows how twisted the Holocaust story really is. Surely, the SS would have seen the logic in using the gas chamber in Budapest to exterminate the Hungarian Jews, if extermination had ever been their intent, rather than transport the same Jews to Auschwitz in mid-1944

when Germany was desperately trying to move troops and supplies to the Normandy invasion area. Surely they would have used the Budapest gas chamber rather than try to use "gas chambers" which were hardly more than ordinary cellars with small holes in the ceilings through which the Zyklon-B granules were dumped either onto the heads of intended victims or else down perforated sheet metal false columns with internal spirals.

Those claims are absurd for technical reasons alone. However, they are also absurd because of the superb technology which could have easily been employed to do the terrible deed properly. Surely, Adolf Eichmann and at least some of the people around him with their expertise in railroad transportation and scheduling would have known—the Final Solution of the Jewish Problem was, after all, largely a problem of transport even on the basis of what the Holocaust "scholars" write themselves.

Can anyone believe that the Nazi murderers shipped hundreds of thousands of Jews away from a gas chamber which was one of the most advanced large gas chambers in the entire world, designed specifically for Zyklon-B, to kill them instead in cellar rooms which had been designed as cold storage mortuaries but subsequently disguised as showers?

Conclusions

Despite great progress in hygiene and sanitation in the last century and despite German efforts throughout most of the war to practice good hygiene and sanitation in the concentration camps, conditions by the end of the war had deteriorated horribly. The history of the American Civil War and other wars of the last century tells us that conditions in the regular military camps of that era, not just prison camps, were appallingly similar.

Anyone seriously interested in possible applications of Zyklon-B would have certainly read the DEGESCH advertisements and seen the large gas chambers for the fumigation of railroads and trucks. Surely anyone reading the relevant technical literature about Zyklon-B would have also read some of the detailed discussions about the same gas chambers and how they were constructed with blowers and ductwork for circulation and specially coated interior walls as well as heaters to raise the interior temperatures above 78.6° F.

The very idea that the Germans would have constructed showers and delousing facilities in order to lull Polish Jews into gas chambers is ridiculous. Polish Jews were probably the least likely people in all

of Europe, if not the world, to react calmly or peacefully to the prospect of bathing under any circumstances.

Polish Jews were regarded by many as among the filthiest people in Europe with the most primitive personal habits. They lived in some of the worst pestholes in the world where highly contagious typhus had often reached epidemic proportions and from where typhus was more than likely to spread again despite a strict quarantine imposed by the Germans. They accounted for roughly 3/4 of all known cases of typhus for all of Poland not only during the early part of World War 2 but also during the years following World War 1 after German troops had left.

On the basis of the "Holocaust" literature itself, even the Polish Jews regarded as appallingly filthy those railroad trains which were used after 1941 to move large numbers of Polish Jews to the East. If there were ever a need to fumigate a railroad train, the need would have been greatest of all for such a train. Regardless of the ultimate fate of the Jews at Treblinka or Belzec or Sobibor once they had stepped off a railroad car, the Germans would have certainly fumigated that railroad car afterwards before using it to carry German troops or prisoners or freight on a return trip to the West. To do less than that would have been totally inconsistent with numerous Jewish comments that the Germans were "obsessed" with cleanliness and fear of typhus.

Adolf Eichmann and many others responsible for carrying out "the Final Solution of the Jewish Problem" would have been well aware of the need to delouse trains used to transport Jews. They would have also had the good sense to recognize the obvious: gas chambers used to fumigate empty trains with Zyklon-B could just as easily be used to fumigate trains filled with Jews; gas chambers used to fumigate empty trains after the Jews had stepped off could just as easily be used to fumigate trains before they stepped off. What could have been simpler or more logical—and no fake showers, delousing stations or transit camps either. For these reasons as well as for many others, the Holocaust story is absurd.

Footnotes

1. Melville D. Mackenzie, "Some Practical Considerations in the Control of Louse borne Typhus Fever in Great Britain in the Light of Experience in Russia, Poland, Rumania and China," *Proceedings of the Royal Society of Medicine*, Vol. 35 (London: 1942) p. 152 [p. 12 of: Section of Epidemiology and State Medicine].
2. In German technical jargon, the term *Begasungstunnel* (in English: "fumigation tunnel") was applied for many years to the fumigation plants even though these were not true tunnels—they were only open at one end. For example, in the article by Peters to which he refers in Appendix A—Peters, "Durchgasung von Eisenbahnwagen mit Blausäure (Fumigation of Railroad Cars with Hydrocyanic Acid)," *Anzeiger für Schädlingskunde*, Vol. 13, Heft 3. pp. 35-41—one can see two photos of the *Begasungstunnel* in El Paso, Texas as well as one of the *Begasungstunnel* in Sarajewo. The persistence of the term "tunnel" is an obvious link to the typhus control measures employed by the British, and probably others, during the post WW1 epidemics. It is also a clear suggestion of much larger chambers that could have been employed.
3. This particular journal was probably the one which any especially interested person would have been most likely to examine for detailed information about the actual application of Zyklon B. The journal was also, incidentally, the same journal in which the Ruppert article (Appendix D) appeared only a few months later with its vividly anti Jewish portrayal of Jewish hygiene in Poland.
4. *Der praktische Desinfektor* (Berlin: Verlag Erich Deleiter, 1941), Heft 2, Inside cover.
5. F. P. Berg, "The German Delousing Chambers," *Journal for Historical Review* (Torrance, CA: Institute for Historical Review, 1986), pp. 73- 94.
6. Stewart Brooks, *Civil War Medicine* (Springfield, Ill.: Charles C. Thomas, 1966), p. 126.
7. Paul Steiner, *Disease in the Civil War* (Springfield, Ill.: Charles C. Thomas, 1968), p. 10.
8. Brooks, p. 132.
9. Brooks, p. 125.
10. Brooks, p. 6.
11. Brooks, p. 108-9.
12. Brooks, p. 126.
13. Friedrich Prinzing, *Epidemics Resulting from Wars* (Oxford: Clarendon Press, 1916), p. 181. Prinzing gives a slightly higher number 19,060 than Brooks for the total number of Confederate dead in Northern prisons even though both sets of figures are based upon *The Medical and Surgical History of the War of the Rebellion*, J.K. Barnes editor (Washington: Government Printing Office, 1870).
14. Fielding H. Garrison, *Notes on the History of Military Medicine* (Washington: Association of Military Surgeons, 1922), p. 170 quoted from Duncan, *Military Surgeon* (Washington: 1920 and 1921).
15. Garrison, pp. 171-2.
16. See Prinzing above.
17. Wilhelm Pfannenstiel, "Der moderne Krieg als Lehrmeister der

Hygiene (The Modern War as a Master Teacher of Hygiene)," *Bremer Beiträge zur Naturwissenschaft*, Vol. 8 (Oldenbourg: Gerhard Stalling Verlag, 1944), Heft 2, pp. 7-13.

18. John E. Gordon, "Louse-borne Typhus Fever in the European Theater of Operations, U. S. Army, 1945," in *Rickettsial Diseases of Man* (Washington, DC: American Association for the Advancement of Science, 1948) pp. 21-7.
19. Chuck Yeager, *Yeager: An Autobiography* (New York: Bantam Books, 1985) pp. 79-80.
20. Mackenzie, pp. 144-5 [pp. 4-5 of: Section of Epidemiology and State Medicine].
21. Abel, "Von Hungersnot und Seuchen in Russland (Of Famine and Pestilence in Russia)," *Münchener Medizinische Wochenschrift*, Vol. 70 (April 20, 1923) Nr. 16, pp. 485-87.
22. William A. Davis, "Typhus at Belsen," *The American Journal of Hygiene*, Vol. 46 (July, 1947) p. 77 reprinted in: United States of America Typhus Commission, *Collected Reprints No. 14* (Washington, DC: War Department).
23. Edward W. Goodall, "Typhus Fever in Poland, 1916 to 1919," *Proceedings of the Royal Society of Medicine*, Vol. 13 (1920) Section of Epidemiology and State Medicine, pp. 265-73. Goodall had been President of th Section of Epidemiology and State Medicine for the Society at the time of publication.
24. Prinzing, p. 86.
25. Prinzing, p. 88.
26. Prinzing, p. 118.
27. Alfred E. Cornebise, *Typhus and Doughboys* (Newark, Delaware: University of Delaware Press, 1982) p. 65.
28. Cornebise, p. 117.
29. Lucy S. Dawidowicz, *The War Against The Jews 1933-1945* (New York: Bantam Books, 1975), p. 289.
30. Cornebise, p. 66.
31. Cornebise, p. 122.
32. A. Czerniakow, *The Warsaw Diary of Adam Czerniakow*, eds. Hilberg, Staron, Kermisz (New York: Stein and Day, 1968), p. 360.
33. Martin Blumenson, *The Patton Papers* (Boston: Houghton Mifflin Co., 1974) pp. 753-4.
34. "Typhus Causes a Truce," *Journal of the American Medical Association* (May 19, 1945) p. 220. The JAMA story explained that the reason the Germans negotiated a transfer of the camp to the British was "because typhus is rampant in the camp and it is vital that no prisoners be released until the infection is checked. The advancing British agreed to refrain from bombing or shelling the area of the camp, and the Germans agreed to leave behind an armed guard which would be allowed to return to their own lines a week after the British arrival." Numerous articles in *The Lancet* over the next few months gave more details. That the food shortage in Belsen was not deliberate but had only arisen in the last months of the war is explained by Dr. Russell Barton, "Belsen," *History of the Second World War*, Part 109 (Michael Cavendish Publications Ltd.,1966) pp. 3025-9.
35. See for example: Franz Puntigam, "Hygienische Gesichtspunkte bei der Auswahl des Platzes für ein zu errichtendes Durchgangslager mit Entlausungseinrichtungen für ausländische Arbeitskräfte (Hygienic Consideration in the Site Selection for a Transit Camp with Delousing Facilities for Foreign Workers)," *Arbeitseinsatz und Arbeitslosenhilfe* (Berlin: Feb. Mar.,1942), Heft 3/6, pp. 27-8,— — Hucho, "Die Durchgangslager für ausländische Arbeitskräfte (The Transit Camps for Foreign Workers)," *Arbeitseinsatz und Arbeitslosenhilfe* (Berlin: Nov. Dec., 1943), Heft 21/24, pp. 124-7, — —H. Kayser, "Ärztliche Erfahrungen bei der Planung, dem Bau und Betrieb von Durchganglagern für ausländische Arbeitskräfte (Medical Experiences in the Planning, Construction and Operation of Transit Camps for Foreign Workers)," *Arbeitseinsatz und Arbeitslosenhilfe* (Berlin: Nov. Dec., 1943) Heft 21/24, pp. 127-9. The most detailed discussion with many construction plans was given in: Franz Puntigam, "Die Durchgangslager der Arbeitseinsatzverwaltung als Einrichtungen der Gesundheitsvorsorge (The Transit Camps of the Labour Supply Administration as Facilities for Protecting the Public Health)," *Gesundheits-Ingenieur*, Vol. 67 (1944) Heft 2, pp. 47-56.
36. Heinrich Kruse, *Leitfaden für die Ausbildung in der Desinfektion und Schädlingsbekämpfung* (Göttingen: Verlag Muster Schmidt, 1948, 4th printing), pp. 85-6. Although this particular printing was made after the war, it seems clear enough from the printing number and from the context that the events described occurred during the war.

APPENDIX A

A Modern Railroad-Disinfecting Plant

(*Eine moderne Eisenbahn-Entwesungsanlage*)

by Dr. G. Peters

translated by F. P. Berg and E. Kniepkamp from:
Anzeiger für Schädlingskunde, Vol. 14
(Berlin: Verlagsbuchhandlung Paul Parey, 1938), Heft 8, pp. 98-9.

In Heft 3 of this journal from the previous year, we summarized the development over the years of methods for fumigating railroad trains with hydrocyanic acid. Within that discussion, several fumigation tunnels were also mentioned, some of which are in operation in the Balkans and some in Central America. Finally, the application of vacuum plants (*Vakuumanlagen*) for this purpose was also discussed. In the meantime, another quite interesting, larger fumigation chamber for railroad cars which deserves a special discussion has been built and brought into operation in Budapest.

The facility which was proposed by the Hungarian State Railways and constructed in collaboration with the German Company for Pest Control, G.m.b.H. [DEGESCH], Frankfurt on the Main, is special because it is the first time that a fumigation chamber on the largest scale has been created and tested with a circulation system. The circulation arrangement (Kreislaufführung) for mixing air and gas is known to have great advantage[s]: on the one hand, the gas evolves [is driven out of the granules in the cans of Zyklon-B] more easily and, on the other hand, the gas is distributed faster.[1] We need not examine the construction of such circulatory plants in great detail—it is sufficient to point out that: circulatory gasgenerating equipment (*Kreislaufvergasungsapparaturen*) allows one to easily and safely handle even the most poisonous substances; furthermore, by means of a repeated exchange of the entire air-gas mixture during the first hour of fumigation, the concentration of the air-gas mixture is ideally distributed so that the losses [of cyanide] due to adsorption are minimized; and finally, because of the special design of such chambers, they can be vented with the doors closed. In this way the circulation principle (*Kreislaufprinzip*) encompasses technical improvements which increase the likelihood of success of the fumigation procedure while, at the same time, significantly reducing the safety hazards. It was these advantages which apparently also motivated the Hungarian State Railways to make the first attempt at the construction

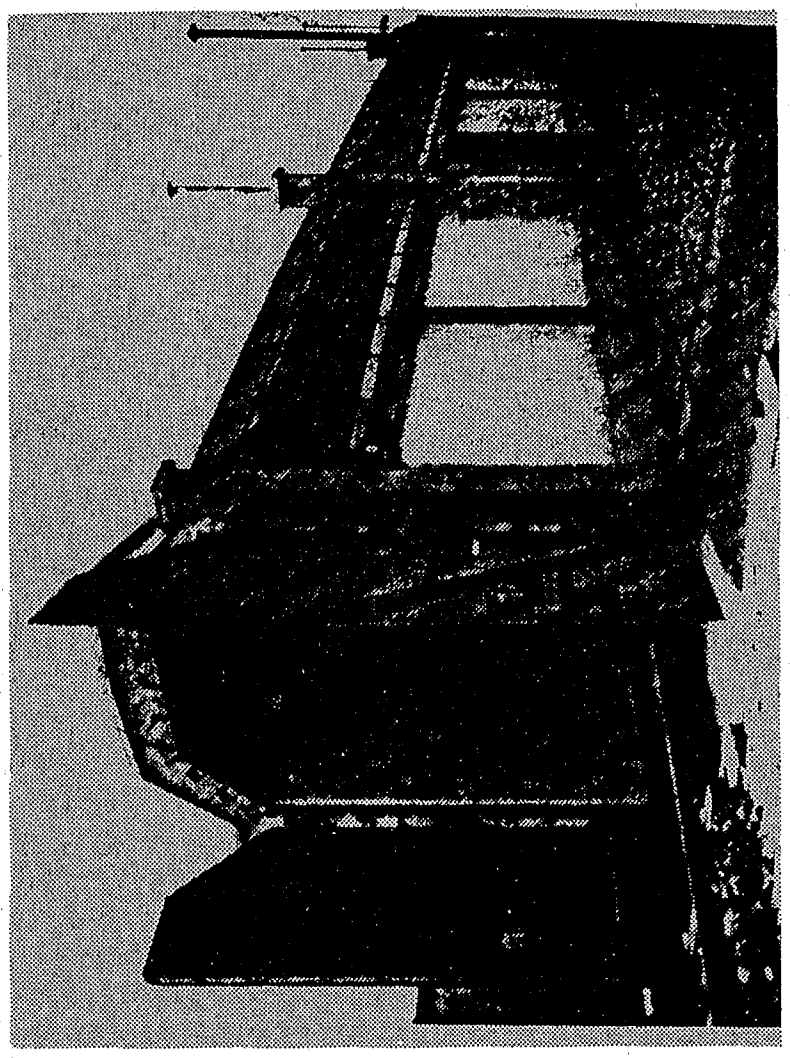

Figure 1: Railroad Fumigating Plant in Budapest (empty with doors open).

of such a facility in Budapest. Already after several months of almost uninterrupted use of the chamber, the elegance and safety of this facility have been clearly recognized.

The plant is used for fumigating railroad passenger coaches as well as for disinfecting freight cars. For the first type of application, one is concerned with bugs (*Wanzen*) and vermin whereas for the second type of application, one is especially concerned with the extermination of chicken mites (*Hühnermilben*). The transport of chickens in Hungary leads to a heavy accumulation of mites in the cars used for this purpose which are, as a result, frequently infested, not only within the railroad cars themselves but, also, on the exteriors of the railroad cars. It was precisely for this reason that one had to construct a fumigation tunnel; otherwise the fumigation of only the interiors of the railroad cars would simply not have eliminated these pests.

The accompanying photographs give some idea as to the exemplary manner in which the fumigation plant was actually constructed, structurally as well as technically. (Only the construction of the large double door with countless screw joints is unnecessarily cumbersome.) The gas-tightness of the steel-reinforced concrete chamber is so great that when the blowers are turned on inside the closed chamber, the pressure drops almost 200 mm H_2O which is truly remarkable for a room with a volume of 350 cubic meters. The venting as well as the circulation of the air-gas mixture is achieved by a powerful medium-pressure blower which is sized large enough to permit 30 complete air-exchanges per hour. For this purpose, the supply and return ductwork are arranged diametrically, one above the other, (see Figure 2) with appropriate registers or louvers. For a single fumigation, two cans of Zyklon (see Figure 3) [Photo not available for Figure 3—See the original text] are sufficient. The cans are opened in the "apparatus room" inside special gasifiers which are built into a bypass (*Nebenschluss*) of the circulation system so that in just a few minutes, all of the gas is drawn out of the cans so that the cans can be removed totally free of poison.

During the cold months of the year, the facility is heated by four furnaces so that the minimum temperature of 20-25°C. (68-78.2°F.) which is necessary for rapid penetration can be achieved quickly and maintained for weeks at a time. The furnaces were specially designed by the Hungarian Korompai, a member of the Board of Public Works (*Baurat*). They require no service or maintenance for days at a time and are unusually economical to operate.

The chamber operates almost without interruption and is at this time probably the most modern facility of this type.

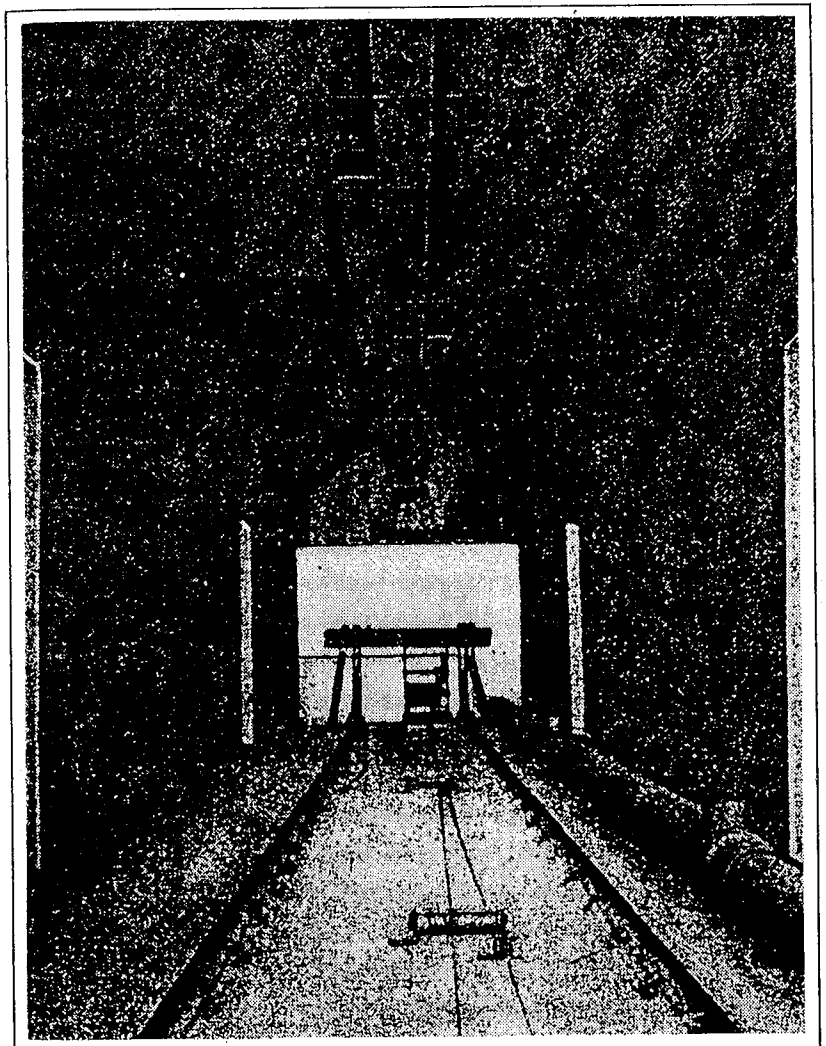

Figure 2: Interior view of the chamber with three openings in the supply ductwork (on the ceiling) and a return pipe (on the floor)—at the rear wall a powerful blower for mixing and venting.

APPENDIX B

Transportation Hygiene and Disinfestation

(Verkehrshygiene und Schädlingsbekämpfung)

by Dr. Ludwig Gassner, Frankfurt on the Main
translated by F. P. Berg and E. Kniepkamp from:
Gesundheits-Ingenieur, Vol. 66 (1943) Heft 15, pp. 174-76.

One special area within the field of pest control for the control of carriers of disease pertains to the disinfestation of transportation vehicles. In this category, the most important above all else are the railroads. Practically all of the civilized nations in the world have dealt with the problem of disinfecting railroad cars, but generally only in a theoretical sense. As a rule, it is less often disinfection, in other words, the sterilization or killing of bacteria which is meant than the extermination of vermin for which, since it is primarily insects and their brood which is involved, the word "disinsection" was coined. Even in Russia, this question was discussed more than 20 years ago[1] and one arrived at the only correct conclusion that, on the basis of all experience up to that time, the disinfestation of railroad cars could only be performed thoroughly if one used hydrocyanic acid.

Ever since World War 1, this substance, which is gaseous at room temperature, was used as a standard issue preventive substance (flour moth control in large flour mills). Thanks to thorough preliminary studies and the receptiveness of the responsible German authorities one could no longer disregard this gas for use in the food industry. The prejudices and above all the great fear of the "devastating poison" disappeared. During this period (1916) the first hydrocyanic acid fumigation of a military-hospital train took place in Germany and in a rather makeshift manner which was replaced several years later by the German Zyklon method (absorbed liquid hydrocyanic acid) which reduced the danger for well-trained technicians to an absolute minimum.

It was and still is true that of all the methods for the killing of clothes lice, bugs and fleas with larvae, pupae and eggs—the goal is achieved most ideally with hydrocyanic acid gas.

For the practical implementation of such a disinfestation, various approaches to the problem come to mind:

1. Disinfestation in the open without a cover over a thoroughly sealed vehicle which one intends to reuse.
2. Disinfestation in the open with a tent cover over the vehicle.

3. Disinfestation in a gas chamber.

Within Germany proper there was very little reason for intensive pest and vermin control of railroad coaches and freight cars.[2] But the necessity for this was extremely great in several Balkan countries, Spain, Africa and South America where, incidentally, the German methods became predominant. The elimination of disease carriers in the coaches and sleeping compartments often goes hand-in-hand with the extermination of vermin that infest foodstuffs and provisions in

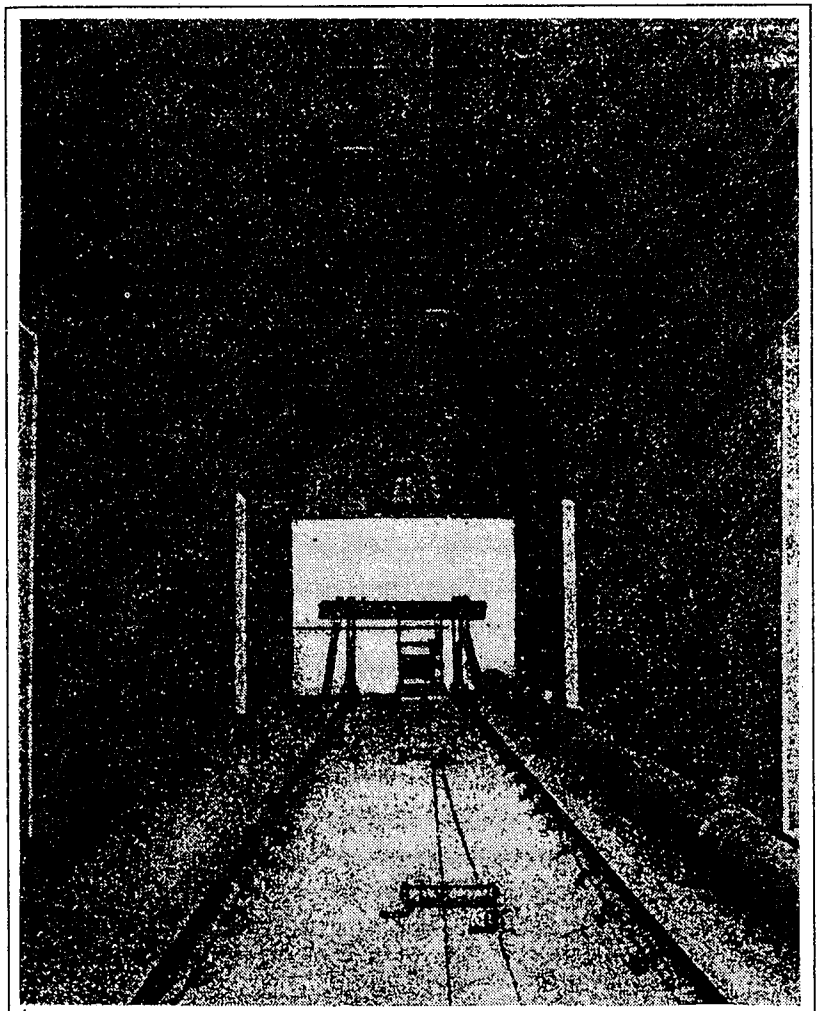

Figure 1: Facility in Budapest—Interior View

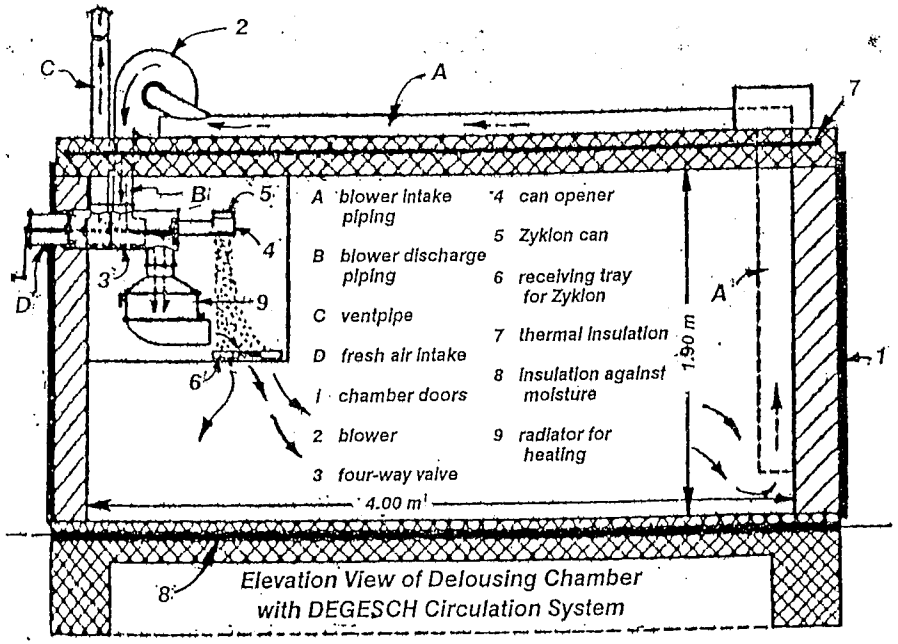

Figure 2: Schematic of a Circulatory Facility

freight cars. Of the three methods which have been mentioned, the method which is preferred almost exclusively employs fumigation chambers.

Probably the oldest published work on this subject was by Schumacher and is entitled "The Disinfection of Railroad Coaches in Repair Shops."[3] In Europe such chambers exist in Potsdam, Cologne-Nippes, Posen, Zagreb, Budapest, Bucharest, Sarajevo, Skoplje. The most ideal arrangement is a circulatory system, which can handle even the most poisonous substance with ease and safety. There are also fumigation tunnels, as in Sarajevo for example, which can handle two railroad cars at a time. Of importance is the rapid and uniform distribution of the gas by means of circulation ducts or blowers, at least partly because the speed of the operation is the very key to its efficiency. Only relatively small amounts of the gas are necessary for this work. A Zyklon container with 500 grams of hydrocyanic acid is already sufficient to delouse a modern express passenger railroad car (approx. 200 cubic meters); larger containers are used in the fumigation tunnels where 500 to 1000 grams of hydrocyanic acid, depending upon the temperature, are used per 100 cubic meters of interior

volume – the higher the temperature, the greater the effect of any given amount of the gas.[4]

Another hydrocyanic acid method which has recently been used here and there is the spreading of Calcid, a powdery cyanide of calcium (*zyanwasserstoffsäurem Kalzium*), which reacts with the moisture in the air and gives off quantities of hydrocyanic acid but which leaves traces behind whose removal is time consuming. Because of the greater amounts of material which are needed to achieve an effective gas concentration, one must also expect longer fumigating periods (*längere Arbeitsbelastung*).

It should also be emphasized that the use of hydrocyanic acid gas, on passenger railroad cars for example, has absolutely no effect on upholstery, leather, fabrics, metals, paints and interior furnishings of any sort.

On June 23, 1942 the Reich Ministry of Transport issued an unpublished decree to plant managers and others which specifies the measures to prevent the spread of typhus (Disinfection of passenger cars and freight cars). Only a small number of disinfection substances are mentioned.

In 1941 a decree was published regarding the removal of contagious substances from trains and ships engaged in the transport of livestock within the Generalgouvernement [those parts of German-occupied Poland that were not annexed] which specified precisely when and under what circumstances trains had to be immaculately cleaned and disinfected; and also, which chemicals could be used for this purpose. The chemicals which were permitted were primarily a mixture of cresol and sulfuric acid, caustic soda solution, concentrated watersoluble chloride of lime preparations or raw chloramin (*Rohchloramin*). It can be noted also that a single certifiable cleaning and disinfestation made within the German Reich, would be sufficient [to meet the regulation].

Dry heat together with vacuum (*Unterdruck*) has also been used to disinfest railroad cars. This hot air process has, however, not proven itself successful in the long run; furthermore, it only works in stationary chambers, as long as sufficient fuel is available for heating.

For all practical purposes, the best method for the fumigation of small spaces on ships is probably with T-gas (ethyloxide).

No less important, but particularly during peace time, are the methods for exterminating rats on ships. It is well known that the rats which exist on every large ocean liner can spread the plague bacillus, the germ of this terrible disease, which lives on or in the rat

flea. One used to try to kill off the ship rats with makeshift methods. In America one tried at first to use poison gas. Ever since the International Sanitary Convention which was ratified on June 21, 1926 in Paris by most countries of the world[6] this despicable dangerous parasite has been fought in an organized fashion. Of course, one has tried to get rid of the rats, as already mentioned, from ships arriving from countries which may be plague-infested. At this point, the method which comes to mind is the very practical Nocht-Giemsa process (producer gas) which was formerly used in the harbor of Hamburg. The fight against ship rats became a universal responsibility only with the implementation of the international treaty mentioned above which provided for uniform procedures for the control of contagious disease and, of special importance, even went so far as to specify the actual measures for controlling the spread of diseases that are a public menace because of international shipping.

In Germany one worked a great deal with sulfur dioxide (according to the Clayton Method or through the generation of SO_2 from carbon disulfide, Salforkose, and sulfur preparations, etc), but this was steadily replaced by hydrocyanic acid over the years. The spreading of poisonous bait had only limited success on ocean-going vessels because the rodents within the cabins, galleys, and cargo bays were able to find more suitable food elsewhere. The "ratproofing" system which was introduced sometime ago in the United States of America did not prove itself over the long run.

This method relied upon simple devices to prevent rats from climbing onto ships at dockside without considering the fact that these animals could also be brought on board with the cargo.

Regarding ship disinfestation in general, hydrocyanic acid won hands down over the competition. Appropriate personnel for the intended tasks are the exterminators, health inspectors and fumigation companies. The certification of the fumigation results is the responsibility of the harbor authorities.

Aside from pest rats—laboratory experiments in Algiers have shown that a single rat may at times carry as many as 2500 fleas and each flea can be the host to 5000 pest bacilli[7]—one must also mention mice (Weilsche disease), lice (typhus), mosquitoes (malaria, yellow fever), and flies (typhoid, dysentery) as carriers of disease on ships.[8] With the regular control of the most dangerous parasites, the rats, one is also controlling all other vermin on board as well; of course, this includes bed bugs, fleas and cockroaches.

Hydrocyanic acid gas kills all vermin including the brood and,

because of its great ability to penetrate, is able to fill every space as well as all cracks and hiding places as no other gas available for pest control purposes and, as has already been mentioned, is harmless to furnishings and cargo because of its chemical inactivity.[9] Even foodstuffs need to be removed only if they happen to be uncovered liquids. But live animals and plants, photographic products, raw coffee and tea must all be removed from aboard ship. For years hydrocyanic acid has been applied in the form of Zyklon. The ship being fumigated must be cleared of all people except for the ship's watch and must be distinguished until the ship is released by means of a special flag by day and by a particular light by night.

A few words are still necessary regarding rat elimination from decks with Calcid. On the basis of experience, rats are often present, for example, in the steampipe insulation, under the winches, in the potato bins, lifeboats and similar equipment. For the procedure to be successful, it is necessary to exterminate these as well. Whereas when one is working with Zyklon one simply spreads out the contents of a can upon pieces of paper, on deck one normally uses Calcid tablets [instead] which are ground into a fine powder in a pulverizer and blown onto the locations to be disinfected.

Regarding the hygienic treatment of ocean-going vessels in German harbors, there is a regulation from the Reich Minister of the Interior dated December 21, 1931[10] in which the extermination of rats is regulated in Paragraph 12.

That the field of hygiene for transportation vehicles has been extended just recently to include airplanes is not really surprising since it has been established that dangerous disease carriers can even be carried by aircraft. The danger is especially great when the airplanes land in regions which are still today a constant source for disease.[11] In the International Sanitary Treaty for Air Travel of April 12, 1933 (The Hague) a series of preventive measures have been established for the removal of vermin and rats as well as for sanitary services in airports and the possible quarantine of travelers, the treatment of the sick and—under certain circumstances—the pest control of goods and mail. Foremost among the diseases which can be carried are: plague, cholera, yellow fever, typhus and smallpox. In the treaty just mentioned, the controlling substances are not specified. However, at the conference of the International Sanitary Office in Paris in May of 1937 a report from the Quarantine Commission for Air Travel discussed pyrethrum powder, hydrocyanic acid and other fumigating substances for killing mosquitoes on aircraft and also indicated the

toxicity of these gases for humans.

In reality, it is very difficult to disinfect aircraft with gas even though it has been done in the past and will continue be done again many more times. A fumigation of a covered aircraft (often practically impossible because of the often immense proportions of the wings) or an aircraft in a hangar is possible. However, it is necessary to protect the expensive, important, often oil-enclosed and not hermetically sealed instruments in the cockpit; oils can absorb gas—they can even combine chemically with them.

Aedes and anopheles, the carriers of yellow fever and malaria, are most effectively destroyed with gas but these species of mosquitoes can also be exterminated with pyrethrum-based insecticides. In the United States one is less particular. Griffiths and Michel[12] recommend without any reservations the use of hydrocyanic acid preparations and Carboxide, a mixture similar to the German Cartox which is made from ethyl oxide and carbon dioxide. In South Africa and even North America, airplanes were already treated without any hesitation with Zyklon with special care for the wing interior spaces which could not be sealed. Nonetheless, the use of highly toxic gas (by the natives) in transcontinental air traffic has not yet established itself; similarly, it has not been possible, at least for the time being, to implement the plan to build mosquitofree aircraft.

Before World War 2 Germany had no special reason to disinfest aircraft for hygienic reasons. However, many experiments had been initiated which could not be completed under the circumstances—otherwise, German discoveries would have certainly pioneered in this field once again.

It is hardly necessary to mention the demothing of automobiles (passenger vehicles) and the fumigation of trucks for the extermination of vermin that infest foodstuffs. Clothes moths, including their brood, as well as other vermin which infest foodstuffs and provisions can be easily neutralized with sulfur dioxide (difficult to remove), T-gas and, most of all, hydrocyanic acid. The methods are, as is apparent from the above, simple and safe; but, these measures play almost no role as far as hygiene is concerned. Delousing of passenger vehicles (carriages, streetcars, boats) is regulated by a decree from the Reich Minister of the Interior of February 13, 1941.[13]

In closing, it should be added that [supposedly] louse-infested railroad trains, airplanes, etc., are in reality often quite harmless because there simply may not even be a single louse present. As Rose[14] explains, it is not the suspected means of transportation but quite

often it is the louse-infested people themselves in close proximity to one another in overcrowded vehicles who are the true source of the lice. In other words, one should not overestimate the benefits to be derived from a totally lifeless transport vehicle.

Footnotes

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APPENDIX C

The Epidemiology of Typhus in the Generalgouvernement

(Zur Epidemiologie des Fleckfiebers im Generalgouvernement)

by Assistant Physician Prof. Dr. E. Zimmermann
(deceased at the front)

translated by F. P. Berg and I. Steinwarder from:
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(Berlin: Springer Verlag, 1942), Heft 5, pp. 552-7.

Typhus has always reigned as an endemic disease in the Eastern and Southeastern provinces of the former Polish state. This was especially true for the provinces of Wilna, Nowogrodek and Stanislawow. Here during severe outbreaks, about 510% and more of the population would fall ill annually whereas in the Western parts of Poland, the disease declined steadily over the years so that it was virtually unknown in the present Warthegau or else occurred only in isolated cases or clusters without any tendency to spread. During the last years before the present war, the pestilence had almost been eradicated within the central parts of the country, just as conditions in the Eastern parts were also improving. That the present wartime dislocations would again increase the frequency of typhus was to be expected since it had always been a typical plague of war, but the magnitude of the reoccurrence in 1940 was many times less than had been expected. If we adjust the number of previously reported cases [for all of Poland] in order to try to get numbers that only apply to the area of the present day Generalgouvernement—obviously, these values will be only rough approximations in order to be able to make comparisons with those for 1940—we get the following.

Table 1.

Typhus occurrences per year in the present-day Generalgouvernement.

1919	44,000	1930	320
1920	34,000	1931	420
1921	10,000	1932	500
1922	8,500	1933	680
1923	2,200	1934	1,000
1924	1,500	1935	800
1925	800	1936	740
1926	700	1937	680
1927	600	1938	700
1928	500	1939	?
1929	400	1940	7,900

Obviously, the statistics can not show all occurrences because it can be assumed that, at the very least, the undiagnosed, mild cases were not reported. It is quite possible that the true morbidity rates are actually double or triple the values which have been reported.

It is well-known that during the world war [World War I], typhus had been widespread on the Eastern front and had caused sickness among our own troops. Then in 1919-1920, the Russian-Polish war came again with great troop movements, refugee treks, food shortages, great poverty and from 1921-1922, the Poles returned in great waves from plague-infested Russia. And so, it is not at all surprising that *Typhus exanthematicus* developed dramatically at that time. With the gradual consolidation of the political situation, which resulted in an improvement in the general hygienic conditions, the pestilence subsided quickly and steadily until the general economic crisis of 1930-33 with its unemployment interrupted the favorable progress and brought with it another peak in typhus mortality in 1934. After that, conditions improved once again. Although many attempts have been made to try to relate the reduction of the epidemic to the anti-typhus inoculations given by Weigl after 1930, the contribution of these inoculations to the favorable development could only have been rather modest since the decline of the typhus had already begun earlier. According to Weigl, 67,893 persons had been vaccinated but these were predominantly doctors, sanitary personnel, civil servants, people close to patients and others who might be endangered by close contact.

It was inevitable that troop and refugee movements, in addition to economic difficulties arising from the developments in 1939, would

lead to a re-emergence of the epidemic but an ever-increasing number of cases in strength could only be expected at the beginning of 1940 since the usual course of the typhus epidemic would produce many cases. At any rate, since the morbidity rate did not increase more than usual in 1940 and since our troops were practically unaffected by the disease, a number of favorable factors were cited: on the one hand, ideological beliefs of our troops resulted in less fraternization with the Jewish population, i.e., the carriers of the epidemic, than during the world war. On the other hand, this war was over too quickly to allow the disease to establish itself and to spread. Additionally, this time the refugee treks came, in contrast to the years after the world war, not from a center of contagion (*Seuchenherd*), but from the West, from a region which was free of the pestilence.

Although it was in the nature of earlier population figures and epidemiological statistics in Poland that there are no exact numbers available, nonetheless *the Jewish share* [*(Anteil der Juden)*—emphasized as in the original] in the typhus phenomenon has obviously always been rather high. Normally it seems to have been about 70%-80%, but in 1940 the Jewish share in some communities was 95% or even more of all typhus cases. We personally had the opportunity to study an outbreak of the epidemic in greatest possible detail in one town with approximately 30,000 inhabitants of whom about 11,000 were Jews. Of the 303 cases of the illness, 295 were among Jews, i.e., 97% among Jews and only 3% among Poles. For our further investigations it was important that we examined the significance of age of the people in the homes affected by typhus. A total of 3464 Jewish persons, living more or less without any non-Jewish intermingling, were evaluated statistically.

The *mortality of the disease* in all these years seems to be surprisingly low. For the years following the world war, the rate was 7%-9% with the exception of 13.4% for 1920. Thereafter, the mortality rate decreased to 5.2% in 1938 and in 1940 to 5.6%. However, many mild cases may not have been reported so that the hazards of the illness might, in fact, be even less.

If it seemed as if Jews were especially resistant to typhus, that picture changed as soon as age was taken into consideration (Table 2, Column a). More than half of all the cases of illness which were observed by us were of persons less than 20 years of age, and one quarter of the total number of cases occurred among persons between 16 and 20 years of age. It should not be necessary to explain any further that the usually favorable course of the disease for this

age group lessened the mortality rate in general. Contrary to the widespread opinion that Jews are less susceptible to typhus, the mortality rate of approximately of 5% for the 16 to 20 year old group and 25-30% for middle-aged adults (Table 2, column C) is absolutely normal. This fact appears favorable only because the typhus of 1940 affected primarily children and adolescents. Perhaps this had also been the case in former years with the exception of 1920 and its higher death rate.

Table 2.

Morbidity and Mortality of Typhus in 1940

Age Group	(a) Age Combination of the ill in %	(b) % of ill in age groups	(c) Mortality
1-5	5.6	6.4	0
6-10	12.4	11.3	0
11-15	15.7	10.4	0
16-20	25.7	20.9	5.2
21-25	8.6	8.2	11.5
26-30	3.6	3.5	18.2
31-35	5.4	5.7	
36-40	6.6	8.3	35
41-45	5.6	8.9	30
46-50	5.4	8.3	31
51-55	2	4.2	33
56-60	2	5.84	
61-65	1.4	4.0	

The high percentage of adolescents among the ill suggests an *immunity of adults* which might have been acquired during the epidemic years following the world war which protected them now even though typhus usually produces only limited immunity. This influence can only be examined more closely if we calculate the percentages of the affected within their respective age groups. To begin with, we can make the following estimate. The Jewish population over 20 which might have become immune after the heavy epidemics following the world war could not be more than 1.2 million in the Generalgouvernement. Assuming that 250,000 Jews had become ill at that time, then one can estimate very roughly that 25-30% of those who are 20 years old today would be immune while all the others in this age group and practically all adolescents in 1940 would have

been susceptible. Our age calculations (Table 2, Column B) gave indeed few differentials which could have been appraised as partial immunity of the 20-year olds. The percentage of the 1620 year olds is conspicuously high because 77 out of 369 from the age group fell ill, while the 15 year olds might either have an inborn immunity or the illness developed abortive, which is typical at this age, and remained undiscovered. It is, however, a fact that in the beginning of 1940 enough people susceptible for the epidemic were available to spread the ground for epidemics during the next year.

In the area for which we were responsible—about a quarter of the Generalgouvernement—according to statistics and reports from doctors, typhus had occurred only sporadically before the year 1940. This was also evident from the fact that the younger people among them were not personally acquainted with the clinical facts of *Typhus exanthematicus*. Only a few towns showed an unexplained slight increase of morbidity during 1938 and 1939, while only only half a dozen cases showed up in towns with 10,000 to 20,000 inhabitants.

Thus, the winter of 1939-40 started at first with only a very limited number of cases. Only in 1940 did isolated cases occur at the same time or quickly following each other, mostly in small towns, in many cases in villages which had until now been untouched by the pestilence and which were far removed from each other. Of course, one imagined that a [single] carrier of typhus-infected lice might have caused the outbreak because of his wanderings, but this explanation remained unsatisfactory for all practical purposes. Very often the villages affected were 100 to 200 kilometers apart and it seemed unlikely that at a time of unusually severe cold with masses of snow on the ground that a person might have gone wandering over such great distances. It seemed much more likely that several virus carriers were wandering around who had sought shelter because of the weather conditions and had left the infection behind. Beggars and tramps have traditionally been the most important carriers. But it also has to be remembered for the first cases of an epidemic that a virus can remain alive in the lice excrements on clothing for a long time and that the re-use of winter clothing might result in new infections. Experiments conducted by Weigl showed that the virus is capable of infecting for several months.

After only a few individual cases had occurred in January and the beginning of February, the interconnection of which was unclear, the further course of the pestilence could be observed accurately. Sometimes the illness disappeared by itself, even without special protective

measures being taken. In other cases, there were cases within the vicinity or greater outbreaks, these only in towns and often it could be verified how the typhus had been carried from one community to another. Very often, but not always, beggars and vagabonds were involved, but the principle cause was the lively Jewish wandering which still prevailed at that time. The elders of the Jewish communities were supposed to care for these wanderers, but this care often failed since Jewish solidarity was definitely not always as dependable in crisis as it should have been (*Notfest*) to include practical measures of disease prevention. Arrivals were very often considered and treated as unwanted guests in the communities. They were quickly urged to go away again with a small contribution and thereby promoted the wanderings. In other cases they were housed in mass quarters which quite frequently developed into terrible epidemic hotbeds. In extreme cases only 34 square meters of floor space and even less were made available per person.

Smaller communities with less than 7000 inhabitants and the flat countryside were generally at first hardly affected by the epidemic. Only in April and May, when under the influence of countermeasures and other factors the *Typhus exanthematicus* started to subside in the cities, several small farming communities were affected, even if the occurrences were limited to isolated cases. Here too, it was mostly Jews who became ill, but the Polish share was greater than in the cities. With regard to the unpleasant result that the typhus spread to the countryside and therefore evaded the measures used to combat the epidemic, this was caused to a significant degree by the fact that many Jews had succeeded in breaking out of the quarantine zones in the cities. Very often the inhabitants of a community could give very exact information as to who had brought the disease. Not infrequently, however, it was the Polish farmer who brought a typhus infection upon himself when he, as was customary, without comprehending the precariousness of his acts, took a wandering Jew along on his vehicle for a ride for part of journey.

As the month of May came to an end, the illnesses in the cities decreased markedly but the countryside was still very much affected. Numerically the high point had passed but the danger that farming communities would be dangerous endemic centers of contagion was not eliminated. Contrary to expectations and without any apparent reason, the number of affected persons declined suddenly in the second half of June in the countryside. Since for a long time already, about 20-25 small towns had been identified in which new cases were

reported, the number suddenly fell back to 5 or 6. Shortly before there had been an increase in the summer temperatures and perhaps the increased formation of perspiration diminished the multiplication of lice and consequently the virus. This development was of course consistent with the usual decline for the disease during the summer months but the simultaneous decline over a wide area was striking, nevertheless, on the whole, the course of the epidemic was more or less typical because the late winter and early spring months had, just as during many other typhus outbreaks, brought the peak of the illnesses.

The subsequent course of the epidemic for the rest of the year 1940 was typical also. The summer months showed only isolated cases and it was only the month of November which slowly brought once again the winter rise of the pestilence.

Summary

(1) The epidemiological circumstances of typhus in the General-gouvernement in the year 1940 were examined thoroughly. (2) The results showed that the highest number of cases occurred within the age groups of 16-20, and that the percentage of Jews affected by typhus was on the average 70-80%, in some communities even 95-97%. (3) The mortality rate generally grew with increasing age. It was no less for Jews than for non-Jews.

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