Typhus: The Influence of Society and State on a Human Disease

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Abstract

The infectious disease typhus is unusual in its interaction with humans. In Nazi Germany typhus was characterised as the Jewish plague and was pivotal in the medicalisation of anti-Semitism. This came to reflect a society, and its values, through the influence of state ideology and legislature. Medical thinking about a human illness was altered, as was traditional Hippocratic based medical practice, aided by manipulation of the law, to create one of mankind's bleakest periods.

Key Words: Typhus, Eugenics, Public Health, Genocide

Introduction

In the period leading up to the Second World War, and during the war itself, German doctors were instrumental in the institution of a system which identified, transported and killed human beings deemed either mentally ill, physically deformed or "racially and cognitively compromised" (Strous, 2006, p30). Typhus played a significant role in the Nazi genocide. The establishment of sealed ghettoes was partly in response to the belief that Jews spread disease and cause typhus (Kuntze, 2004, p192). Yet, it was in ghettoes and concentration camps that typhus was allowed to flourish, and those that suffered from it died in huge numbers. On the pretext of disinfection and quarantine, typhus became the rationale for murder, and the "delousing baths" a camouflage for the gas chambers (Baumslag, 2005, p24).

Deliberate infection was carried out to test typhus vaccines with total disregard for the human subjects (Weindling, 2000, p358). Such thinking was wholly in accordance with Nazi ideology, but in complete contradiction to medical ethics. The role of the medical profession appears to have been central and critical to the success of the Nazi regime rather than marginal or incidental. Indeed doctors provide the technical expertise, as well as the supervision and documentation, of the Holocaust. How did the medical profession reconcile their traditional beneficence role with a mandate of genocide in a country with supposedly the best standard of medicine, and ethics, in the world at the time (Hassenfeld, 2002, p184)? How did, arguably, the finest medical institutions in the early 20th.century, which were advancing medical science, and medical education, become part of the worst program of organised mass destruction in the history of mankind (Seidelman, 2000, p331)?

These complex ethical issues are difficult to comprehend but it is from this dark period of medical and human history that our modern views of human rights and medical ethics have evolved (Gostin, 1997, p1785).

The Disease

Typhus (modern Latin from the Greek "tuphos" meaning smoke, stupor) is a disease of high mortality caused by the microorganism Rickettsia Prowazekii spread by the human body louse. It is an obligate organism, unable to survive for long outside living cells (Cotran, 2005, p396). Louse-born typhus is unique because it is the only rickettsial infection that is primarily a disease of humans, with the human acting as a host, which occurs in epidemic form (Baumslag, 2005, p15). The rickettsia is consumed by the louse after it attaches parasitically to a human host and ingests infected blood. The organism then multiplies in the gastrointestinal tract of the louse which deposits its faeces on the human's skin. The lice bites and subsequent skin irritation produces an intense itch. Scratching introduces the organism into the human bloodstream.

After an incubation period of five to 15 days, the disease suddenly manifests itself with high fever, severe headache, muscle pain, nausea, prostration and chills. A patchy, purplish body rash appears which spares the face, palms and soles, and, as the disease progresses, increasing weakness, delirium and stupor develop (Kipple, 1993, p1008). Infected vasculitis may occur, resulting in gangrene of fingers and toes, as well as cardiomyopathy. Death rates of 40% are the norm but increase substantially in poor, undernourished populations.

Body lice spend their entire life cycle of twelve days in the clothes of the human victim. They bite the host four to six times a day to consume blood and lay nits (eggs) in the seams of the host's underwear causing irritating skin rashes. When the lice are infected with the microorganism they become the source of typhus epidemics. The lice leave a human body that is feverish or dead and search for a new host, thereby spreading the disease (Baumslag, 2005, p15). Rickettsia can persist for a short period in dust and dried louse faeces. Endemic typhus spreads rapidly and becomes epidemic when there is overcrowding, poor hygiene and infected lice.

History of Typhus

The first reliable description of the disease appeared during the Spanish siege of the Moors in Granada in 1489. During the siege the Spaniards lost 3,000 men to enemy action but an additional 17,000 died of typhus (Porter, 1997, p26). In 1669 the English physician Thomas Willis first differentiated typhoid fever from typhus, the latter being more contagious, extensive and haemorrhagic (Baumslag, 2005, p4).

Typhus was common in prisons ("goal fever") and epidemics occurred routinely throughout Europe, from the 16th to the 19th centuries, in the English Civil War, the Thirty Years War and the Napoleonic Wars. During Napoleon's retreat from Moscow in 1812, more French soldiers died of typhus than were killed by the Russians (Porter, 1997, p27). Major epidemics occurred in Ireland 1816-1819 and during the Great Irish Famine 1846-1849 when it spread to England. Here it was known as "Irish fever" and was noted for its virulence (Kipple, 1997, p107).
Doctor Rudolph Virchow recognized that, to prevent typhus, living conditions had to be improved (Taylor, 1985, pp547-559) and a good deal of empirical knowledge about the epidemiology of typhus was known by the end of the 19th.century. Many studies showed that the risk of typhus increased in the overcrowded and destitute, in migrant populations, prisons, and in troop movements with undernourishment a key factor. Customary preventative measures included hospitalisation and isolation of the sick with disinfection of clothes, bedding and residences (Patterson, 1993, p361-381). Medical concepts regarding the cause of typhus evolved over time but bathing, shaving hair, quarantine and disinfection became common measures for control and eradication of lice (Baumslag, 2005, p3).

In 1909 Doctor Charles Nicholle of the Pasteur Institute in Tunis first clearly showed that epidemic typhus was transmitted by lice, winning the Nobel Prize in 1928 (Gross, 1996, p1054). In the same year an American pathologist investigating typhus in Mexico City, Doctor Howard Ricketts, described the causative organism which did not grow on artificial media and only multiplied in the cells of a living animal. It was smaller than bacteria and larger than a virus, but more closely related to bacteria than protozoa, and required a separate classification. Ricketts subsequently died of typhus in 1910 and the organism is named after him, shared with Stanislaw Prowazekii, a Polish protozoologist who died of typhus in 1915 while working on the disease in a Turkish prison (Baumslag, 2005, p13).

During World War 1 typhus caused over three million deaths in Russia, Poland and Romania. De-lousing stations were established for troops on the western front but the disease ravaged the armies on the eastern front with over 150,000 dying in Serbia alone (Kipple, 1997, p108). Many millions more died in the post war chaos of Europe until the widespread use of the newly discovered disinfectant, DDT, on the huge numbers of refugees and displaced persons (Baumslag, 2005, p8). During the most turbulent period of the Russian revolution, epidemic typhus killed millions (mainly civilians) and forced Russia into an international exchange and cooperation for typhus control with the Health Commission of the League of Nations (Patterson, 1993, p379).

The first successful typhus vaccine was developed in 1926 by the Polish zoologist Rudolph Weigl from louse faeces. In 1938 Harold Cox developed a chick embryo vaccine used by the allies in World War 2 (Baumslag, 2005, p133). In fact during the war there was an international exchange between German scientists and the allies for the production and testing of typhus vaccines (Weindling, 2000, p344). Typhus is now easily treatable with modern antibiotics, and the diagnosis confirmed by the Weil-Felix agglutination test, but it is still a feared disease.

The myth that Jews were typhus carriers became ingrained and incorporated in anti-Semitic literature under the Nazi regime. In part this began with an epidemic occurring in Warsaw in 1917. Under German occupation at the time, the Polish minister for health, Doctor Trenker, blamed the Jews for the outbreak whereas, in fact, the disease rate was twice as high in the Christian community (Baumslag, 2005, p17). However public health officials continued to scapegoat the Jews for the epidemic declaring them to be the principle carriers of typhus. Jewish doctors were accused of concealing typhus cases and were stigmatized as carriers despite the lack of any statistical evidence (Maurer, 1985, quoted by Baumslag, 2005, p17).

Eugenics

The British biologist (and cousin of Charles Darwin) Francis Galton in 1865 first published the idea of eugenics and used the term in 1883 to describe the process of strengthening the human race through selective breeding (Sofair & Kaldjian, 2000, p312). "Social Darwinism" became popular throughout Europe and North America by the end of the 19th.century, with the United States at the forefront of the eugenic initiative (Baumslag, 2005, p35). This large international movement was galvanised by revolutionary advances in medicine, particularly the new science of human genetics, with utopian ideas of perfecting humanity by manipulating hereditary characteristics.
In 1895 a book was published in Germany entitled The Right to Death which advocated state initiated killing and gave support to euthanasia (Hassenfeld, 2002, p187). Alfred Hoche, a German psychiatrist, and Karl Binding, a legal scholar and retired jurist, published Permitting the Destruction of Unworthy Life in 1920. This was offered as a solution to the economic burden of institutionalised mentally handicapped patients, virtually dismissing the Hippocratic Oath (Sofair & Kaldjian, 2000, p313). In fact they argued that, as theirs was a "life not worth living", their destruction was not only tolerable but humane (Hassenfeld, 2002, p188).

The eugenics movement is critical to the understanding of why the medical profession played a pivotal role in the evolution of the sterilization, euthanasia and genocide programs of Nazi Germany (Hassenfeld, 2002, p188).

The Weimar Republic

The German nation was in political, social and economic turmoil following their defeat in World War 1. High unemployment, food shortage and malnourishment to the point of starvation, allowed the infectious diseases (tuberculosis, dysentery, typhus and the influenza pandemic) to become rampant. In 1921 Ernest Rudin of the German Society for Race Hygiene, founded by Alfred Ploetz in 1905, advocated a eugenics program to strengthen the nation (Proctor, 1998, p64). The political and economic crises overwhelming the government provided fertile ground for the German support of eugenics. Advocates of eugenic solutions to Germany's problems included government officials and academics in the biomedical fields. This was an era when science and the biological sciences in particular, were seen by many as holding the solution to the nation's problems.

A government supported scientific institute that embodied the growing state interest in eugenics was the Kaiser Wilhelm Institute for Anthropology, Human Heredity and Eugenics founded in Berlin in 1927. It was directed by Eugene Fischer who had previously tested his theories in German South West Africa using concentration camp survivors of the Herero rebellion for his medical experiments. Fischer openly advocated the extermination of mental patients, criminals and Jews (Baumslag, 2005, p37).

The medical profession began developing the pseudoscience of racial hygiene to secure scant resources and not waste them on the "sick, disabled or inferior" (Hassenfeld, 2002, p191). Psychiatrists were instrumental in forging this policy, particularly Ernest Rudin who became director of the Kaiser Wilhelm Institute of Psychiatry founded in Munich in 1924. Rudin was the author of the official manual implementing compulsory sterilization of individuals with psychiatric or hereditary disorders, including those deemed genetically inferior (Friedlander, 1995, p254). This became one of the first laws promulgated when Hitler came to power in July 1933, and thus became a driving force behind the application of eugenic principles (Strous, 2006, p31).

Eugenics and Nazism

Eugenic thinking was absorbed into the ideology of the Nazi Party which transformed racial hygiene ideas, practices and institutions to fit their political agenda and mesh with their racial ideology (Kuntz, 2004, p9). Although eugenic practices occurred in other western countries, their regulations were generally varied and flexible. It was only in Nazi Germany that forced sterilization and euthanasia became national public policy enshrined in law (Hassenfeld, 2002, p186).

A progressively comprehensive, systematic program of sterilizing those that were seen as "genetically flawed" was undertaken which included homosexuals, the disabled, Jews and gypsies (Gostin, 1997, p1785).

The Nazi takeover resulted in a plethora of eugenic and specifically anti-Semitic legislation (Gottesman & Bertelsen, 1996, p319). The Nuremberg Laws of 1935 were designed to racially "cleanse" Germany and excluded Jews from being German citizens. This was a crucial step in their dehumanisation and subsequent portrayal as harbingers of infectious disease, especially typhus. The stigma of being Jewish was also considered acquirable through contact with blood or through sexual intercourse, making sex and marriage between Jews and non-Jews criminal (Polsky, 2002, p176). This meant that marriage had to conform to racial guidelines with certification issued by medical practitioners. In 1936 the Section for Research on Race Hygiene and Population Biology of the German National Department of Health was established under the direction of psychiatrist Robert Ritter, and a program of genetic and racial surveillance expanded rapidly (Hassenfeld, 2002, p186).

Hitler and the Medical Profession

It is important to recognise that Hitler asked the German medical profession to "address the race question" as he rapidly took control of the profession. This included medical schools and public health departments as well as centralising the insurance and payment systems (Sofair & Kaldjian, 2000, p313). He ordered Jewish doctors to be discharged from their government and university positions. Many academics that harboured anti-Semitic views collaborated with the Nazi regime removing Jewish colleagues from academic positions and integrating anti-Semitic material into revised racial hygiene textbooks and lectures.

Instruction in eugenics became compulsory for medical students and Jewish medical students were actively dismissed. By 1935 students were required to wear Nazi uniforms and undergo Nazi indoctrination. Biology, anthropology, philosophy and politics were combined into a frightening mixture of pseudoscience undermining bona fide medical education (Bloch, 1973, p301). The forcible removal of established Jewish medical academics and practitioners lead to the loss of some 40% of Germany's medical leaders (Connor, 1990, p526). After the annexation of Austria the famed medical school of Vienna lost 80% of its faculty (Ernst, 1996, pp789-792).
By 1938 all Jewish medical licenses were revoked and the profession was largely "Aryanised". This meant that ambitious younger doctors joined Nazi causes to further their careers and earn more money. Financial incentives added to Nazi promises to restore their perceived lost status under the Weimar regime and joining the Nazi party guaranteed a government sponsored practice (Sofair & Kaldjian, 2000, p313). Many doctors were attracted to Nazi ideology and the medical profession had one of the highest rates of party membership of any profession. By 1942 45% of German doctors were members of the Nazi party (Ernst, 1996, p579).

To obtain a civil or military post a doctor had to endorse racial hygiene as the basis for direct medical killing justified by the concept of "lives not worth living" (Proctor, 1995, p192). Capping this process of medical politicization and professional disintegration was the emerging impact of the Second World War. Growing civilian and military casualties subsequently created more demand for doctors who were speedily but poorly trained at increasingly infiltrated Nazi controlled medical schools and research institutes (Connor, 1990, p526).

Doctors and German Society

The medical profession was broadly influenced by life under Hitler as much as the general population. This included writings that were permeated with biomedical metaphors identifying groups such as Jews, gypsies and homosexuals, as subhuman and disease ridden (Connor, 1990, p526). They were blamed for all manner of social ills as well as the poor state of the economy. Nazi medical theorists exploited and refined eugenic literature "documenting" differential racial susceptibility to disease with unwanted ethnic minorities stigmatised and cast as parasites (Proctor, 1995, pp170-175).

Nazi medical propaganda was heavily directed at existing medical practitioners. However the moral implications of this corrupted eugenics program for the medical profession were significant and negated Immanuel Kant's categorical imperative that all persons should be treated as subjects to be respected (Pilgrim, 2008, p279). This principle is a universal cornerstone of medical practice. Public health also increasingly became an instrument of Nazi ideology and many public health, social welfare and aid programs were eliminated (Browning, 1992, p145).
The Jewish community in Germany was one of the most successfully assimilated in Europe, despite an undercurrent of anti-Semitism, and there was little evidence of any government campaign of hatred against the Jews until the Nazi dictatorship (Drobniewski, 1993, p542). Without doubt the role of the media was pivotal.

The use of propaganda was skilful in inspiring fear of the Jews with the perception of the threat of an international Jewish "conspiracy". Racial hygiene, Aryan supremacy and the "sub humanity" of the Jews was widely publicised drawing on a background of smouldering anti-Semitism. Doctors were no less susceptible to these campaigns and indeed, were frequently the vanguard of the development of such doctrines (Drobniewski, 1993, p542). Propaganda distributed through scientific journals and the general media promoted the denigration of Jews, transforming them into hated, infected and polluted sub humans (Glass, 1997, pp62-65). Hitler equated Jews with non humans and Nazi doctors portrayed Jews as carriers of disease, particularly associating them with lice and typhus (Hilberg, Staron & Kermisz, 1979, p90). The image of the Jew as a carrier of pestilence appeared everywhere in anti-Semitic literature.

The medical profession had progressively become informers for the state and medical confidentiality, a mainstay of traditional Hippocratic practice, had disintegrated in Germany. Medical ethics, demanding that a doctor should always respect a patient's autonomy and dignity, was lost (Horton, 2004. P1084). The traditional doctor-patient relationship had effectively been destroyed laying the groundwork for a logical progression from compulsory sterilization to involuntary euthanasia and genocide, supported by the notions of economic necessity and racial purity (Gallagher, 1995, p94).

On the 1st. of September, 1939, the day that World War 2 commenced, Hitler instituted a program of involuntary "mercy killing". This was initially carried out in six psychiatric institutions, in relative secrecy, under the direction of Werner Heyde, the Wurzburg professor of psychiatry (Proctor, 1988, p187) after being devised and set up by Karl Brandt. Brandt was Hitler's personal physician and the supreme medical authority in the Third Reich (Gostin, 1997, p1785). He later testified at the Nuremburg trials that the euthanasia program was a natural outgrowth of the 1933 sterilization law (Sofair & Kaldjian, 2000, p314).

Senior psychiatrists were involved in this process of murdering over 70,000 patients, including children, with medical and neurological disorders. Methods used included starvation, morphine injection and gassing (Strous, 2006, p32). These institutions conducted show tours for thousands of Nazi groups, both civilian and military, to illustrate the inherent "uselessness" of the patients and their "subhuman" nature (Burleigh, 1994, p217). After strong opposition by Protestant and Catholic Church leaders, the program "officially" ended in 1941 but continued in a limited manner until the end of the war (Proctor, 1988, p191). In 1943 a macabre triage system was arranged where institutionalised patients were increasingly killed to make room for bombing victims (Hassenfeld, 2002, p187).

There was almost no organised resistance from the medical profession. There were some rare individuals who refused to participate in this inhuman behaviour and even aided intended victims; the result was often arrest, incarceration and execution (Baumslag, 2005, p40). A small organisation of medical students, "The White rose", who denounced the regime and its unethical practices, were condemned by a Nazi "people's court" and beheaded in public in February, 1943 (Kater, 1989, p168).

Typhus and Public Health in the Third Reich

German public health physicians were aware that typhus was endemic in Eastern Europe and of the potential consequences of typhus epidemics. Anti-Semitic propaganda posters and slogans linked Jews to lice and typhus (Weindling, 2000, p278) and driven by racial hygiene ideology, Nazi doctors and officials forced Jews into ghettoes. At a conference on typhus control in 1940 Doctor Jost Walbaum, Chief Health Official, claimed that Jews posed a serious health risk. He stated they were overwhelmingly the carriers and disseminators of the disease "because of their low cultural level, uncleanness and infestation with lice" (Weindling, 2000, p277).
Hygiene was thus used as a pretext to establish Jewish ghettoes and this allowed justification of other repressive measures against the Jewish population. One such "hygienic necessity" was prohibiting railway travel in occupied Poland (Proctor, 1995, p176). The concept of medical quarantine was effectively used by the Nazi authorities to portray Jews in the ghettoes as dirty, rat infested and parasitic. Quarantine signs were posted outside ghettoes warning that entry was forbidden because of epidemic typhus (Hilberg, 1979, p90).

After 1940 contact with Jews was declared "a threat to public health" and any Jew trying to escape were shot on the grounds they were "violating the quarantine" (Proctor, 1995, p179). The poor living conditions of inadequate housing, overcrowding and poor sanitation together with shortages of food, clean water, soap and electricity did indeed lead to outbreaks of infectious disease, particularly typhus, but also tuberculosis and typhoid.

This was exacerbated by a lack of medical supplies as the ghettoes were progressively sealed off from the outside world (Roland, 1992, p130). This only further justified their continued use on the pretext of epidemic control.

Typhus in the Ghettoes

In the Warsaw ghetto 500,000 humans were crowded into 100 acres of uninhabitable housing with impoverished living conditions. Essential food, water and medical supplies were unobtainable after April, 1941 when the ghetto was sealed. In particular anti-typhus serum was disallowed (Weindling, 2000, p344). The German medical authorities knew they were deliberately exposing the population to a typhus rich environment and the first of three serious epidemics occurred with thousands of deaths (Tory, 1990, pp141-143).

Wilhelm Hagen, chief medical officer of Warsaw, blamed the ghetto inhabitants, after the 1941 epidemic, for non compliance with his orders for delousing as well as not reporting typhus cases. Both of these accusations were partly true but had little to do with spread of the disease. The delousing measures, woefully inadequate anyway, were quite inhumane and cruel, causing havoc and misery with starving inhabitants standing naked for hours in all weather conditions (Weindling, 2000, pp283-284). Typhus cases were often concealed for good reason. In Kovno ghetto the hospital was burned to the ground with both patients and staff locked inside when typhus was reported (Tory, 1990, pp141-143).

The other sources of typhus coming into ghettoes included forced delousing of German troops, forced handling of infested clothing in ghetto workshops and mass importation of typhus cases from labour camps to the ghetto hospitals (Baumslag, 2005, p92). Typhus was rampant in all the ghettoes and the Nazis carefully devised long periods of quarantine with pernicious unsanitary conditions to achieve their destructive aims. In August, 1941, 16,000 Jews were driven into the cavalry barracks of the Dvinsk ghetto in Latvia. There was no running water, sewerage or electricity. By November a typhus epidemic had erupted resulting in strict quarantine for four months, whereas two weeks was the usual practice. All but 100 people died of typhus or starvation (Gutman, 2004, online).

"Disinfection" Chambers

As the euthanasia program was being (officially) phased out the gas chambers, disguised as shower rooms in psychiatric institutions, were dismantled and reassembled for larger scale genocide operations in concentration camps aimed at the annihilation of individuals considered a "biological" threat to the German nation (Strous, 2006, p32).

At Treblinka the concentration camp was commanded by a psychiatrist, Imfried Eberl, who was instrumental in helping to establish the use of poison gas as a highly efficient method of killing (Strous, 2006, p33). The poison gas was Zyclon B which, in its powder form, was initially used as a delousing agent on the Eastern Front in 1917. It was converted to a gas form after the adoption of the "Final Solution to the Jewish Question" at the Wannsee conference in 1942 (Baumslag, 2005, p23). As Jews arrived at the extermination camps those selected for work were sent for head shaving and delousing. The majority were selected to die and packed into rooms with disinfection signs. They were ordered to undress, their hair was shaved and they were crowded into poison gas chambers disguised as shower rooms with fake shower heads. When the gas was pumped into the room they were told that "inhaling deeply will prevent infection" (Hausner, 1968, p160).

In the Chelmo camp, and others, mobile vans with "showers" were set up as "disinfection instillations against typhus" but were sealed and pumped with exhaust gases (Hausner, 1968, p161).

Typhus in the Concentration Camps

In the concentration camps typhus was rife. Inmates were overworked, beaten and starved in overcrowded, lice infested barracks without adequate sanitation, clothing, soap or water. So called medical inspections did nothing to control the disease but terrorized the inmates whilst identifying individuals for selection and extermination by gassing. Often, even on the slightest suspicion of typhus, German doctors had inmates hanged or shot on a casual basis apart from the formal selections (Weindling, 2000, p252).

No standard public health measures were undertaken other than head shaving. Attempt at disinfection of camp inmates was totally ineffectual as lice were left in barrack blankets, straw mattresses and inmates clothing. It was only after SS personnel came down with the disease, in Majdanek camp in 1942, after over 1,000 typhus deaths, that camp authorities asked for washing facilities and adequate disinfection (Baumslag, 2005, p59).

The existence of hospitals in the concentration camps was a paradox. There was no real medical care for the inmates. Paper was used instead of bandages. The so called hospitals were filthy, lacked drugs or basic equipment, and patients lay dying, infected and starving. They really served as selection centres for human experimentation and to "isolate" infectious diseases cases. The sickest were given intra-cardiac adrenalin or sent to the gas chambers (Weindling, 2000, p252).

Typhus Experimentation

From December 1941 until the end of the war a large program of unethical medical experimentation was carried out on inmates, in several concentration camps, to investigate the value of typhus vaccines and various drugs. In Buchenwald at least 1,000 prisoners were deliberately infected with typhus to test the efficacy of typhus sera of different origins. Also a number of toxic and untested pharmaceuticals were tested on inmates without their knowledge or consent, often with serious side effects culminating in an agonizing demise (Weindling, 2000, pp355-363).

Nearly all of the subjects of the typhus experiments died, or were killed, after the results were recorded. The chemical giant I.G.Farben, with close ties to drug companies Bayer and Hoechst, invested heavily in the experiments in attempts to dominate vaccine and pharmaceutical production for profit (Weindling, 2000, p359). However, the clinical vaccine and drug trials were scientifically unsound and statistically flawed, quite apart from being unethical (Alexander, 1949, pp40-41). At Natzweiler concentration camp Dr Eugene Hagen conducted so called research with a typhus vaccine causing frequent deaths and yet, when arrested for crimes against humanity, maintained his experiments advanced scientific knowledge despite immoral behaviour and wilful disregard for human life (Neuberger, 2005, p799).

Doctor Ludwick Fleck

In Lvov ghetto in 1942 typhus was the leading cause of death and no vaccine was available. The Weigl vaccine had previously protected the population but was not being re-supplied by the authorities. Interned with his family was Dr Ludwick Fleck, an infectious disease specialist who had trained with Weigl and who, with brilliant insight, prepared a vaccine based on antigens in the urine of infected patients. Fleck inoculated himself, his family, his medical team and some 500 others all of whom did not get typhus or only a mild, abortive disease episode (Weiss, 2009, p2).

The results were clandestinely reported and published. Fleck was subsequently transferred to Auschwitz and Buchenwald concentration camps where he was forced to work in secret on anti-typhus serology for German troops. He survived the camps to subsequently become head of the Israel Institute of Biological Sciences but the fate of his family remains unknown (Weiss, 2009, p3).

Many Jewish doctors died of typhus whilst treating patients in ghettoes, and concentration camps, where they faced obvious moral dilemmas when choosing between their own safety, the safety of individuals and that of the community. Concealing cases of typhus was problematic risking their lives and that of others. Their efforts at prevention, containment and concealment of the disease were forms of sacrifice and resistance (Baumslag, 2005, p120).

Nazi Doctors and "The Final Solution"

Nazi doctors collaborated significantly in the death camps in a number of ways. They performed daily "ramp" selections and routinely examined thousands of individuals in rapid succession in the camps sending any with infectious diseases immediately to their death. Doctors supervised the gas chambers, determining when victims were finally dead, and it was the policy and practice that at least one medical practitioner had to be present during executions by gas (Gostin, 1997, p1785). It was often doctors themselves who administered lethal injections and completed false death certificates (Strous, 2006, p30).

Doctors carried out unconscionable and ignominious medical experiments of the most barbaric kind in the concentration camps with deliberate disregard for those individuals in total contradiction of medical ethics (Neuberger, 2005, p799). They then plundered the remains of murdered individuals for university departments of anatomy and pathology as well as research institutes (Weindling, 2000, p358). Apart from the substantial ethical issues, data collected from the appalling experiments by Nazi doctors and scientists was of very questionable validity (Alexander, 1949, pp30-41). Sigmund Rascher's study on hypothermia was rejected by three German universities and much of the data was faked (Reinhardt, 1990, p646).

Why were doctors so easily recruited, including from the highest level of academic medicine, with over 90% of the medical profession involved in genocide activities (Drobniewski, 1993, p541). Four theories offer differing perspectives to explain how medical practitioners came to endorse programs so at odds with their traditional beneficence roles (Dadrian, 1986, p182). One view argues that they reinterpreted medical ethics to coincide with the prevailing agenda: eugenic and genocide policies placed the health of the state ahead of that of the individual. A further viewpoint promotes the "slippery slope" hypothesis whereby transgressions begin on a small scale and gradually build, particularly if there is empowerment under the law against medical, ethical and societal moral codes (Drobniewski, 1993, p542). The third theory reflects motivation by fear of personal or professional harm and that medical practitioners may have faced internment in a concentration camp if they failed to comply with state rules. The final view argues that some doctors wanted to participate in genocide activities, either for personal or professional gain, or for "scientific" opportunity. I suspect that a combination of these four factors, to one degree or another, played a role in the majority.

Psychiatrists and the Holocaust

Why were psychiatrists in particular so complicit in these atrocities?

It has been suggested that psychiatry, by its nature, will always incorporate contemporary ideology into individual treatment. Perhaps also influential was psychiatric involvement in aggressive military treatment practices dating from World War 1 to return "hysterical" soldiers quickly to combat duty (Strous, 2006, p35). Exhausted or "neurotic" soldiers were medically terrorized back into conflict through crude, barbaric shock therapies (Burleigh, 1994, p214). This may have desensitized psychiatrists to their role in genocide (Strous, 2006, p34).

Individuals with mental illness were seen as targets for eugenics and this concept already existed in the minds of many psychiatrists before Hitler came to power. Indeed racial hygiene was promoted by Eugene Bleuler, a respected German psychiatrist in the early 20th.century (Strous, 2006, p34). The Nazi racial hygiene program, although based on scientifically invalid conclusions from evolutionary biology, allowed the establishment of new institutes with increased funding for "research" and prominent psychiatrists took leadership roles (Hassenfeld, 2002, p187)

The involvement of psychiatry further legitimized, in turn, the scientific basis for eugenic treatments. This then led psychiatrists to become involved in formulating pseudoscientific criteria to identify those as "unworthy of living" (Bacharach, 2004, p419). Psychoanalysis was also perceived as "Jewish" and officially banned in 1938. Many psychiatrists regarded the emphasis on empathy in Freudian analysis as inconsistent with the growing genetic understanding of mental illness, underpinning the Nazi's euthanasia policy (Lifton, 1986, pp47-48).

Medical Behaviour under the Third Reich

Can the behavioural characteristics of medical practitioners, who were involved in genocide, be identified so that, in the future, they can be identified and either counselled or dissuaded from the profession?

An "authoritarian syndrome" has been described where some doctors have a rigid connection to the conventional values of society and identification with the existing social order. Often there is associated aggression with a strict adherence to a moral or religious code and a strong belief they are more virtuous than others. These individuals are intolerant of minorities and are submissive to higher authority. Furthermore, they become more aggressive when they believe that this authority agrees with their actions. A sense of belonging to a special group is a key feature making them feel elitist, self-righteous and morally superior (Drobniewski, 1993, pp541-542). The quest for scientific advancement, unhindered by consideration of its source, combined with prejudice and bigotry in this milieu, may decouple standard ethical medical behaviour (appendix 1). Others have suggested aggressive and violent behaviour is learned from one's social group, together with the inhibitions that keep these behaviours in check (Drobniewski, 1993, p542). Clearly a number of these inhibitions were removed in Nazi Germany, and there were very few dissenters or critics within the profession.

Most important was the law itself. The diminution of sanctions with leniency towards anti Jewish atrocities, coupled with rewards of advancement and honour, were powerful promoters of genocide (Drobniewski, 1993. P542). The Nazi government enshrined in law the sub humanity of Jews, and other groups, who could then be exploited for property seizure, slave labour and experimentation. The passing of these laws empowered doctors, shifting the balance politically and legally, toward euthanasia and genocide (Strous, 2006, p36).

Influence of the State on Medical Ethics

Lessons have been learned from this infamous period in medicine. There has been a dramatic change in medical ethics since the end of the Second World War and exposure of the events of the Holocaust (appendix 2). The improper behaviour of German medical practitioners was based on several fundamental errors of scientific, professional and ethical conduct that have now been addressed by world declarations and agreements. Medical ethics as it existed in Germany prior to the Third Reich was sophisticated but then became an example of how ethics training without a focus on history, and separated from a context of mature understanding and self reflection, is ineffectual (Strous, 2007, p5). Good ethical judgement cannot exist outside the fundamental tenets that all doctors must adhere to in order to prevent repeating one of the cruellest episodes of history (Drobniewski, 2003, p53). It is difficult to grasp and fully comprehend the multitude of complex factors that explain the behaviour of the medical profession in Nazi Germany. The profession allowed the prevailing political system to influence and govern medical practice. They were impelled by pressure from peers, unquestioning obedience and racial ideology. Dissociation and denial were facilitated by deceptive language, bureaucratic proficiency and deviant notions of "a greater cause" (Dudley & Gale, 2002, pp585-594).

According to Parsons the motivational balance and the generation of an ambivalent motivational structure within a society may result in either repression of hostility, and a compulsive need to conform, or a dominance of hostility with compulsive alienation. Compulsive motivation distorts attitudes and pathological motivation arises out of corrupt circles of deepening ambivalence (Parsons, 1987, pp147-150). I believe this prevailed in Nazi Germany distorting that society's normative values which became racially prejudiced, bigoted and paranoid.

It is my position that the deviance of German psychiatrists, in particular, helped the development of an abnormal social structure to become institutionalised under the Third Reich. They made little or no delineation between the mentally ill and the morally reprehensible, between the physically disabled and the ethically "unclean". These psychosocial and ethical constructs were determined by German society under the influence of the Nazi regime.

Fundamentally there was a breakdown in the doctor-patient relationship, with the loss of medical confidentiality, while doctors became agents of the state rather than acting on behalf of their patients (Hassenfeld, 2002, p193). A doctor's most important obligation is never to abandon their patient, and never to exploit a patient's inherent vulnerability, but to safeguard them against harmful actions. This basic understanding was lost in Nazi Germany.

Doctors were never ordered to murder but were legally empowered to do so and willingly, often enthusiastically, complied (Drobniewski, 1993, p542). Two of the major pillars of Western Civilisation, the law and medicine, had collaborated to create one of mankind's bleakest periods. This remains an unfathomable paradox (Pellegrino & Thomasma, 2000, p262).

Summary

Germany's economic crisis, together with the rise to power of radical nationalism, perverted the eugenics movement. Pseudoscientific genetic research became a wayward justification for improving the "Aryan Nation" at the expense, not only of patients, but of normal healthy individuals classified as "subhuman" on the basis of so called racial hygiene. Scientific, ethical and religious values were replaced by economic utility and Hitler's regime gained significant control over the medical profession who willingly participated for financial and ideological reasons (Sofair & Kaldjian, 2000, p318). From involuntary sterilization, to euthanasia and finally genocide, medical practitioners, particularly psychiatrists, played a central and intimate role in the facilitation of crimes against humanity (Strous, 2006, p31). Subtle, scientifically framed versions of racism and anti-Semitism were presented by medically trained experts, developing and promoting Nazi policies, giving them legitimacy in the eyes of the German public. These policies were explicitly expressed in biological and medical terms.

Conclusion

Typhus, a uniquely human infectious disease, became one of the most powerful means of extermination used in the Holocaust. Crude, pseudoscientific Nazi propaganda depicted Jews as vermin and harbingers of typhus, a disease which had been relatively well controlled in the latter part of the period between the World Wars by rigorous public health measures (Baumslag, 2005, p28). Typhus now played a pivotal role in the medicalisation of anti-Semitism. Typhus epidemics were made deliberately inevitable by Nazi policies with quarantine and "disinfection" chambers, under the subterfuge of health care, used to murder millions of Jews and other marginalised humans (Hausner, 1968, p156).

Justice Robert h Jackson, reflecting on the Nuremberg Trials, stated:

"The wrongs which we seek to condemn and punish have been so calculated, so indignant, and so devastating, that civilisation cannot tolerate them being ignored because it cannot survive them being repeated" (quoted by Gostin, 1997, p1785).

Appendix 1

Medical ethics is never cultural, ethnic or time sensitive and a medical practitioner should always respect autonomy, beneficence and patient confidentiality with dignity (Horton, 2004, p2). The basis for ethical behaviour should remain constant, irrespective of time or place. Philosophical constructs and ideas should never define clinical practice and the interests of science, whatever its quality, must never take priority over the interests of the individual patient (Strous, 2007, pp2-3). Scientific advancement can never be freed from ethical consideration of the source of the data (Drobniewski, 1993, p542). Kant's categorical imperatives to practice within a framework of moral judgement and to never treat a person as a means to an end, must not be breached, whatever the circumstances (Shell, 2003, pp55&72). Political and economic pressures should not govern clinical practice nor should preventative medicine be instituted at the expense of treating illness (Strous, 2007, p4).

Appendix 2

The Nuremberg Code of 1949 defined ten principles of medical experimentation including voluntary consent and minimising harm. The World Health Organisation in the mid 1960's introduced the more extensive Helsinki Declaration and in 1979 the Belmont Report outlined the three central principles governing ethical research: autonomy, beneficence and justice. Ethical guidelines for the practice of psychiatry were outlined in the Declaration of Hawaii in 1977 and updated in Vienna in 1983. The World Psychiatric Association, in the Declaration of Madrid in 1996, adopted a comprehensive code of professional behaviour for psychiatrists (Strous, 2006, pp35-36).

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