

THE DECLINE OF GERMAN MEDICINE, 1933–45

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INTRODUCTION

Until the early twentieth century Germany was the most advanced country in Europe, scientifically and industrially, in both medical care and research. This article will explore how German medicine (apart from some isolated reforms that might have occurred in any case) deteriorated under the Nazi party and became an accomplice to Nazi crimes against humanity.

This decline of medicine in the inter-war period in Germany was not simply due to the rise to power of Hitler. From the end of the nineteenth century onwards Austria and Germany became increasingly nationalistic, racist and anti-Semitic, regarding not only non-Germans but also 'inadequate' Germans as 'unworthy', even valueless. This was given a semblance of respectability by following Volk (a term that in the abstract means 'nation' or 'people' but, as the Nazis used it, meant the German Aryan people, whom they regarded as inherently superior to the rest of humankind) myths and misconceived eugenics.

EUTHANASIA OF PSYCHIATRIC PATIENTS

Theoretical background

The debate on the 'right to die' and 'negative human worth' began in the late nineteenth century: a law sanctioning voluntary euthanasia was drafted in 1913. Dr Ernst Haeckel (1834–1919), a Darwinist, zoologist and one-time physician, fused the notion of killing as an act of mercy with the materialistic argument that this would save much public and private money.¹ Attention became focused on the vulnerable population of patients in long-term German psychiatric asylums.

The underfeeding of German psychiatric asylum patients during the First World War

The Allied blockade in the First World War led to a shortage of food in Germany; people survived on their rations with difficulty, and by buying food on the black market. However, patients in psychiatric asylums could not obtain food by such means and died in squalor. Between 1914 and 1918, 140,234 people died in German psychiatric asylums. With an average peacetime mortality of 5.5% per annum, the implication is that 71,787 people died as a result of hunger, disease or neglect, about 30% of the entire pre-war asylum population. The psychiatrists recorded mortality rates, weight loss and the progress of epidemic diseases. They could do nothing in the face of governmentally decreed wartime rationing.²

Post-First World War

After the First World War, the number of patients in psychiatric asylums increased: 'Between 1924 and 1929 the number of psychiatric patients rose dramatically, from 185,397 to more than 300,000. There was no commensurate increase in bed capacity.'³ It became recognised that 'caring for chronic or geriatric patients was a "luxury that Germany could not afford". A financially constrained nation was in the process of "caring itself to death."⁴

Hans Roemer remarked, 'in future an impoverished state will be unable to bear the type of mental asylum provision which developed extensively in most of the regions of Germany before the war'.⁵

Germany was impoverished and was paying heavy post-war reparations. It was thought that the state could not afford to bear the financial burden of psychiatric asylum provision.

THE DEVELOPMENT OF ACTIVE PSYCHIATRIC TREATMENT

State psychiatrists recognised that, on economic grounds, they could not keep large numbers of patients in the asylums, and they started to practise a very active programme of rehabilitation. Instead of just providing custodial care, they made use of the new 'electric' and 'insulin shock' therapies, and thereafter discharged patients into the community.⁶ German psychiatrists were very systematic and thorough, and when they followed up patients in the community they recognised that the families of these psychiatric patients showed a higher incidence of mental illness.⁷ The idea of stopping the mentally subnormal from breeding or even selectively eliminating these whole families became accepted policy.

Instead of being just a theoretical solution for discussion, euthanasia became a practical post-First World War policy. It was not implemented until 1933, when the Nazis came to power, because it was illegal; in 1939, the Nazis legalised compulsory euthanasia.

EUGENIC ATTITUDES OF GERMAN DOCTORS AND THE DEVELOPMENT OF RACIAL HYGIENE INSTITUTES

Theoretical background

Francis Galton, a cousin of Charles Darwin, founded the science of eugenics in the UK. It was believed that various characteristics (such as genius) could be inherited and

this led to the concept that, by selective breeding, the race could be enhanced. Conversely, desirable factors could be bred out of the race and lost by interbreeding with 'inferior' people; this led to the science of racial hygiene. These ideas were reinforced and given spurious scientific backing by a study published in 1913 by the anthropologist Dr Eugen Fischer. Dr Fischer carried out tests on German settlers in southwest Africa who had interbred with the local Hottentots. He concluded that their offspring were invariably of an inferior type;⁸ he made no comment on social stigmatisation, but his study resulted in the mixing of races being regarded as leading to spiritual and cultural degeneration, and dilution of race.

Racial hygiene institutes

These ideas were adopted avidly by certain groups of the German medical profession. The Racial Hygiene Society was founded in Berlin in 1905. Membership of the Society rose from 175 to 411 between January 1910 and March 1911. By 1932, more than 20 institutes for racial science and racial hygiene had been established at German universities, and at least ten journals were being published on racial hygiene.⁹ They gave a theoretical basis for Nazi policies.

The Germanic tribes were in possession of certain customs. They were averse to mixture with the blood of the dark European races. The Germanic father recognised whether a child was fit to survive when he inspected the newborn and lifted it up in the air. Deformed children were left to die.

The Germans regarded the criminal as a degenerate from whom the clan rid itself through the death penalty. The public death penalty was born of the effort to keep the race pure. The penalty for deliberate injury to the sexual powers was death; abortion was punished with slavery.¹⁰

When translated into politics, the effect of such views was to reverse the whole process of religious and ethnic equality flowing from the eighteenth-century Enlightenment.

THE ADOPTION OF EUGENIC IDEAS BY HITLER AND THE NAZI PARTY

The scale of their losses in the First World War dramatically heightened the Germans' racial awareness. The differential birth rates could lead to the 'nation being utterly impoverished in its capable, gifted, and strong-willed elements'.¹¹

They were in favour of eliminating the weak and the infirm: 'That which falls must be pushed as well.'¹²

The Great War had brought incalculable losses on the most able. The pick of society had stood for four

years in the trenches and suffered heavy losses whereas the least able had not fought.¹³

While in prison in 1924, Hitler read a textbook entitled *Outline of Human Genetics and Racial Hygiene* by Eugen Fischer and Fritz Lenz. He incorporated the ideas from this text into *Mein Kampf*; thus, his racial policies were ready-made for him.¹⁴ At the time, people who read Hitler's writings dismissed them as the rantings of an ignorant man. When Hitler came to power, Max Planck went to reason with him.

Hitler regarded other people's views as an annoying interruption. He repeated incessantly old phrases about the decay of healthy intellectual life during the past 14 years and about the need to stop the rot even at this late hour. Max Planck formed the impression that Hitler believed all the nonsense that he poured forth and that he indulged in his own delusions by ignoring all outside influences. He was so possessed by his so-called ideas that he was not amenable to argument. 'A man like that can only lead Germany into disaster.'¹⁵

Unfortunately, Hitler meant literally every word he had written in *Mein Kampf*, a template for the concentration camps where several million Jews, gypsies and other 'inferior' people were exterminated systematically.

THE WEIMAR GOVERNMENT: PRE-MARITAL CLINICS AND ENACTMENT FOR VOLUNTARY STERILISATION

There was a healthy exchange and flux of ideas from the end of the First World War until the advent of the Nazi party. There were both proponents and opponents of racial hygiene and sterilisation. Germany lagged behind the US and France in its policy on sterilisation. Such ideas and policies did not start in Nazi Germany but had been practised in many countries where mentally subnormal people were being institutionalised and/or sterilised.¹⁶

Practice in other countries

The US was more committed to these policies than Nazi Germany, and the Germans looked to the US where, by 1929, nearly 15,000 people had been involuntarily sterilised during the previous 20 years – mainly prisoners and those in psychiatric institutions.⁹ From the 1930s onwards, half the states were practising compulsory sterilisation.¹⁷ Attempts in the UK to legalise sterilisation and euthanasia did not succeed but in Sweden 63,000 people, mostly women, were sterilised between 1934 and 1975, when the policy was finally halted.

Nazi marriage laws

A series of laws instituted by the Nazis made marriage subject to intense eugenic vetting. Marriages between healthy 'Aryans' and racial 'aliens' were prohibited. In December 1931, Himmler took this a stage further and ordered that the elite troops of the SS had to obtain

permission to marry and all prospective marriage partners had to be examined by a physician to see that they were racially pure going back for five generations on both sides. Lenz called this a 'worthwhile exercise'.¹⁸

In July 1932, the Prussian State Health Council recommended the enacting of a law to permit the 'voluntary' sterilisation of schizophrenics, manic-depressives, congenital epileptics and people with congenital mental defects.

THE NAZI GOVERNMENT

Economic background

When the Nazis came to power in 1933, Germany was virtually bankrupt: they said that they could not afford to keep mentally subnormal patients ('life unworthy of life') in hospitals, choosing to spend the money on healthy people instead. When the Nazis talked of 'life unworthy of life', they meant that the person's life was unworthy because it did not contribute to the health of the Volk.¹⁹

Protecting and purifying the German race

The Nazi euthanasia programme was never intended to benefit the individual but to further the objectives and goals of the Volk.²⁰

A double attack was mounted: on people whose ethnic background would contaminate the pure blond Aryan race, and on mentally subnormal people whose unhindered reproduction rate could outstrip that of intelligent users of birth control methods, thereby weakening the race. Aryan women were encouraged to have large families. In 1938, the Nazis instituted Mothers' Crosses in gold, silver and bronze for women 'rich in children'.²¹

The Nazis believed that it would be possible to solve social and political problems by biological means. They introduced eugenic legislation: the Law for the Prevention of Genetically Diseased Offspring, which was passed on 14 July 1933. This permitted sterilisation of anyone suffering from 'genetically determined' illnesses, including feeble-mindedness, deafness, blindness, severe alcoholism, Huntington's disease, schizophrenia, severe malformations and insanity.

Medical approval

The Nazis' views fell on fertile ground, since prior to 1933 psychiatrists had advocated sterilisation but this was on a voluntary basis. The orthopaedic surgeon Adolf Lorenz, who was the doyen of European orthopaedics, had recommended that patients suffering from hereditary defects should not be treated.²² After July 1933, sterilisation was made compulsory.

Legal implementation

By 1934, 181 Genetic Health Courts and Appellate Genetic Health Courts had been established to administer

the Law for the Prevention of Genetically Diseased Offspring.²³ Doctors were required to register all genetic defectives (not just mental but other physical defectives) and to undergo training in genetic pathology. In the first year in which the sterilisation law was in operation, nearly 400,000 people were denounced to the Hereditary Health Courts, 75% of them by their doctors; only 80,000 of these actually came before the courts. Of these, some 62,000 were made the subject of a sterilisation order; about half of them were actually sterilised.

Reports on such persons, for which the doctors could charge fees, had to be submitted to the courts: therefore, doctors benefited financially. They moved from being concerned about sick individuals to being concerned about the health of the nation.

The Nuremberg Laws

Between September and November 1935 the Nuremberg Laws were passed: they excluded Jews from citizenship and prohibited marriage or sexual intercourse between Jews and citizens of German or related blood. All prospective marriage partners had to be examined by a physician to prevent 'racial pollution'.²⁴

The 1939 programme of killing children, and later adults, who were defective

Hitler regarded it as right that the 'worthless' lives of seriously ill mental patients should be eradicated, but he was nervous and sensitive that this would not be popular in Germany or the US, so it was not legalised until war was declared. In 1939, Hitler's physician, Theo Morrell, wrote a memorandum framing a possible law 'for the destruction of life unworthy of life'.

Registration of defective children

On 18 August 1939, the Reich Committee for the Scientific Registration of Hereditary and Congenital Illnesses introduced the compulsory registration of all 'malformed' newborn children, echoing both the language and the methods of Morrell's memorandum. In return for a payment of two Reich marks per case, doctors and midwives were obliged to report instances of idiocy and Down's syndrome, microcephaly, hydrocephaly and physical deformities (such as the absence of a limb or late development of the head or spinal column and forms of spastic paralysis).

Legal basis

In October 1939, Hitler issued an order allowing German doctors to perform involuntary 'mercy killings' of patients, but in view of the sensitivity of the issue he issued this order on his private notepaper (backdated to 1 September) as head of the Nazi party but not as Chancellor of Germany. It thus had no legal standing. There was disquiet among the doctors who met with Hitler, who told them that it had to be done. It was a 'Führer's order' that had to be carried out, but it was never published.

Methods of killing

The Reich Committee examined children for the Registration of Severe Diseases of Childhood. This was intended initially to examine the cases of infants up to the age of three, but was later extended until the upper age limit was 16. Once the selection for euthanasia had been made, the children were transported to a group of specially selected clinics – usually on the pretext of receiving better treatment. Some were killed by having serious respiratory diseases induced, some with drug overdoses, and some were experimented on. Their parents were usually told that they had succumbed to pneumonia and clinical illnesses such as measles.

Dr Hermann Pfannmüller, a director of one of these institutions, described how he killed children: 'we do not kill . . . with poison, injections, etc.; . . . No, our method is much simpler and more natural'. Sudden withdrawal of food was not employed, rather it was a process of gradually decreasing rations. A woman visiting his unit questioned whether a quicker death with injections would be more merciful.²⁴

Extension to adults

After the declaration of war when the Germans occupied Poland, Polish patients in psychiatric asylums were gassed at Posen by the German army. Also, in 1939, the euthanasia programme was extended to all forms of mental illness in adults (the orders were backdated to coincide with the start of the war). German psychiatrists regarded those patients who could not be discharged, cured or put to work as liabilities. The money that was being devoted to treating them could be used for the healthy. Specially designated physicians examined questionnaires returned by psychiatric asylums on each patient. Gassing was carried out in rooms in hospitals built to resemble shower rooms. The purpose of elimination was not only to continue the struggle against genetic disease but also to make available hospital beds for the war-wounded.

Pseudo-suspension

The euthanasia programme was officially suspended in August 1941 because of public disquiet and protests by the church, particularly the Bishop of Limburg and Archbishop Galen of Münster, who preached sermons attacking this policy. The RAF printed Galen's sermons and dropped them as propaganda pamphlets. The original plan had been to eliminate 70,000 patients.

Wild euthanasia

A second phase of so-called 'wild euthanasia' started and the killing continued in psychiatric asylums, where special nurses, supervised by doctors, administered lethal injections. In September 1944, German patients in psychiatric asylums in Bavaria were killed to make beds available for war casualties. Responsibility for selecting

and killing patients was left, at this stage, to individual doctors in the psychiatric asylums.²⁵

Further extension

The extermination started with the newborn, then extended initially to the age of three and then to 16. There was also a programme of killing mentally or physically abnormal adults, and of sterilisation to prevent hereditary medical and antisocial diseases. It was not just the physically and mentally deformed that were selected for death. Killing became permissible for anyone who did not measure up to the norm. Patients committed to psychiatric asylums were killed to make space for soldiers. Victims included people who suffered breakdowns in Germany's burning cities and who were then committed to psychiatric asylums as 'disturbed air-raid victims'.⁶

Soldiers

On 9 February 1942, an order 'on treatment of soldiers with hysterical and psychogenic reactions' by the head of the military medical service, Siegfried Handloser, decreed 'war hysterics who cannot be cured of their symptoms through treatment are to be committed to the hospital sections of mental institutions'.²⁶ On the Eastern Front, 15,000 German soldiers who were suffering from shell shock and who had deserted were executed by court martial.²⁷ Air force crews were too valuable and they were treated in psychiatric units.

By the time the war ended, only 15% of the patients in psychiatric asylums had survived.²⁵

NAZIFICATION OF GERMAN DOCTORS

Membership of the Nazi party

By January 1933, when Hitler came to power, 2,800 doctors in the Weimar Republic had already joined the Nazi Physicians' League (6% of the total). The medical profession became the staunchest supporter of the Nazi regime, and by the end of the war more than 38,000 (45%) of German doctors were members of the Nazi party. More than 7% of all physicians were members of the SS, compared with less than 0.5% of the general population.²⁴

Benefits to doctors

Doctors prospered under the Nazis. They had a higher status and their wages increased because they received fees for sterilisation operations. They received jobs in the university posts vacated by Jews.²⁸ When Jewish general practitioners (GPs) had to give up their national insurance practices, these were also taken over by German non-Jewish doctors.

Active participation

Doctors were the driving force in much of the Nazi medical/social legislation: running courses on racial hygiene, drafting the racial legislation, giving evidence in

court (which was so time-consuming that other work was compromised) and becoming the bureaucrats and administrators of the medical aspects of the regime. These doctors were not unique: they were part of mainstream life in Germany – well-trained, reputable and competent physicians and scientists who became ardent Nazis.²⁹ It is a myth that the physicians and public health officials who staffed the concentration camps, who murdered the inmates and advanced theories of racial hygiene were lunatics, charlatans and quacks.³⁰ In fact, many volunteered to work in the concentration camps because of the opportunities for experimentation. Serving in the concentration camps advanced their academic careers, enabling them to carry out research and experiments and to write theses. They were well-paid and well-fed. They made the selections about who was to work and who was to be exterminated on the ramps at the concentration camps.

HOW THE NAZI PARTY INFLUENCED TREATMENT

Führer doctor

The doctor's function in Nazi Germany was to lead the Volk to better personal and racial health. The doctor was to be a servant of the state and his greatest responsibility was not to the health of the individual patient but to the health of the state.

In 1935, new regulations were imposed on doctors by a small number of Nazi colleagues. A 'doctor Führer' controlled all doctors and had to report back centrally. A two-tier system of staggered penalties was introduced. Lower courts issued warnings, assigned demerit points, fines or suspensions; higher courts ordered striking off. Contracts had to be approved and, if a doctor received higher qualifications, these too had to receive approval.

Data recorded

Cases of alcoholism, incurable hereditary or congenital diseases, and contagious diseases such as sexually transmitted diseases had to be recorded (this information could then be used in the sterilisation programme). To be upgraded, doctors had to attend special courses run by Nazi fanatics.

Doctor–patient relationship

The Nazis exploited the traditional physician–patient relationship. Confidentiality between patient and doctor was eroded by an ordinance in 1935, which stated that a medical secret could be laid bare if the higher interest of the people demanded it. As a result, doctors became legally obliged to inform the Nazi health authorities about their eugenically unfit patients. Doctors who dared to oppose Nazi 'scientific' racism risked losing their jobs, freedom and even their lives. In March 1942, the Reich Health leader publicly repeated the regime's desire to establish a 'health file' on every German from the cradle to the grave, which again violated the principle of confidentiality.

When the Germans conquered the Netherlands, Dutch doctors were asked to report on patients and breach confidentiality as part of this Nazi policy. To their eternal credit, they refused and several hundred were transported to the concentration camps.

Nationalisation of doctors

Another change in the profession's public status occurred later: it was planned to nationalise all the doctors and pay them a salary. In August 1944, Himmler said that doctors should be put on fixed salaries and made financially accountable for every day their patients were sick.

Treatment

Some medical treatments were Nazified. They were not based on what was good for the patient but what the state wanted. For example, abortions and sterilisation were banned for Aryans but were to be performed on Jewish people for racial reasons. Similarly, while sterilisation was ordered for Jews, an Aryan who could not have a child would be offered fertility treatment. An air force pilot needed by the state received psychiatric help; a German deserter was shot. Severely injured German soldiers were not treated and were subjected to euthanasia.³¹

Anti-hospitals

There was aversion to hospital medicine, therefore existing clinical facilities were not enlarged or developed. There was a decline in building hospitals from the beginning of the Nazi regime, so there was increasing pressure on beds. As a consequence, there was a rise in industrial injuries, scarlet fever, typhoid and diphtheria.

THE ROLE OF DOCTORS IN EXPERIMENTATION ON CAMP INMATES

It was the advent of the experiments in the concentration camps and the post-war Nuremberg trials that drew the world's attention to the practice of experimentation on human subjects. But there was a long history of patients and soldiers being used as subjects for experiments in the late nineteenth century that would not be accepted today.

Historical background

Pre-Nazi

Doctors had acquired an evil reputation for treating hospital patients, children and the mentally ill as guinea pigs, particularly in the colonies where doctors were out of public surveillance. Scientific medicine was stigmatised as inhumane. A wide spectrum of opinion including the socialist press, anti-vivisectionists and nature therapists mounted a public campaign. The experiments included transplantation of cancerous tissue and the deliberate infection of subjects with gonococci. The worst example was by the research dermatologist Neisser, who injected young prostitutes with a cell-free syphilitic serum in the

hope that this would provide immunity. Instead, it infected the unfortunate victims with syphilis. He was saved by the support of medical colleagues such as the dermatologist Blaschko and the medical historian Julius Pagel with official support from Althoff, by whom Neisser had been appointed. The professors took a cavalier attitude towards experimentation, believing that they would get support from the state. He continued his work in Java, funded by the state, and was one of the first to observe the spirochete of syphilis. With von Wasserman he developed the test for syphilis based on the analysis of blood serum. There are ominous precursors of the Nazi work in that Neisser's prestigious supporters in the medical profession and public health administration argued that a certain amount of sacrifice was justified to maintain the forward march of science.³² By a cruel irony, Neisser was himself a Jew.

Legislation to prevent abuse

As a result of these abuses, whereby patients were experimented on, the doctor and socialist Julius Moses waged a successful campaign and the Reich Health Council agreed to guidelines on human experimentation on 14 March 1930. It was agreed that experiments should not be carried out on the dying and that children needed special protection. Doctors had to behave as though the experiments were on their families. Nazi experiments were known by the experimentees to be unethical and illegal.³³

Second World War

When the Second World War began, human experimentation was rationalised on the grounds that animal experimentation had taken the researcher only so far and better results would accrue only after transfer to humans.

Experimentation in the Nazi concentration camps was not just an aberrant performance by SS doctors. The doctors were well-qualified, working in collaboration and under the direction of prestigious scientific institutes in Germany, such as the Kaiser Wilhelm Institute (now called the Max Planck Institute), who encouraged, formulated and supervised it. They used material from it and they monitored it. Results were presented at scientific meetings, and these are still being used.^{34, 35}

The pattern of the research followed an aberrant but diabolical logic. The root causes of the concentration camp experiments were: obedience to the Führer; the ideology of race; the ideology of science; the ethos of professionalism; and the impact of war on soldiers and civilians.³⁶

EXPERIMENTS ON PRISONERS

Eugenic work

Much of the eugenic and hereditary work was based on twin studies. The aim was to populate the world with

Aryan stock, so there was interest in how to produce multiple births. This was part of the twins study that was carried out by Dr Joseph Mengele, the notorious 'angel of death' at Auschwitz. In 1935, Mengele had been awarded a PhD entitled 'Racial Morphological Research on the Lower Jaw Section of Four Racial Groups'. He was well-trained in eugenics and was interested to learn from his twins studies how the population could be increased. Much of Mengele's work when he was infecting children, and then killing them, seems unscientific, but he was trying to discover if the infection could modify the twin. He sent material back to the Kaiser Wilhelm Institute, which was internationally renowned for this type of work and boasted many Nobel Prize winners. One of the leading German surgeons, Ferdinand Sauerbruch, was on the Research Review Committee that approved grants for Mengele's work.³⁷

The physiologist Emil Abderhalden showed that the hereditary basis was transferred through proteins.³⁸ He believed that if one could isolate these proteins one could work out the basis of heredity.

Conversely, experiments were being carried out to sterilise people by the use of X-rays and injections.

Applied work

Hypothermia

Specific research was ordered by the Luftwaffe on survival in the sea. This was carried out by the camp doctors. The Luftwaffe was concerned that many of their pilots were being shot down in the English Channel and lost to hypothermia, so experiments were carried out to determine whether people should be re-heated quickly or slowly. Prisoners (not volunteers) were plunged into freezing cold water and re-heated by different means. The experiment that attracted the most attention used women to reheat them. The most efficient means of re-heating was to resuscitate quickly in hot baths.

High-altitude decompression

To intercept Allied bomber planes, the Germans had to produce fighter planes capable of flying at high altitudes experiments were carried out to enable pilots to withstand such high altitudes. These were completed by Sigmund Rascher, a scientist who was under supervision of the Luftwaffe Institution of Aviation Medicine, at Dachau in May 1942. This work, although camouflaged, is incorporated in German aviation medicine and serves as the basis for much work today (see Figure 1).^{34, 35}

Wounds

The army was concerned about treating wounds on the Eastern Front, so they were producing fractures, infecting them and then treating them with different means; there were no controls in these experiments.

A separate series of experiments was carried out after



FIGURE 1

Experiments carried out on human beings in concentration camps. A concentration camp inmate in a simulated parachute drop in the low-pressure chamber at Dachau, 1942. Note the inmate's uniform. Picture reproduced from Adrian Weale's *Science and the Swastika* (Channel 4 Books, 2001).

Himmler's deputy, SS Obergruppenführer Reinhard Heydrich, was mortally wounded. There was dispute as to whether he should have received sulphonamide, so doctors produced some gangrenous wounds in camp inmates and carried out experiments on different forms of treatment.

Cholera experiments

An epidemic of cholera occurred on the Eastern Front. Camp inmates were deliberately infected with cholera to assess different forms of treatment.

Surgery

Doctors and medical students came to the concentration camps and carried out operations on healthy (if that term can be used under those circumstances) prisoners, such as gall bladder operations, in order to learn the surgical techniques. Among the prisoners were doctors, who were enlisted to show the visiting Germans how to operate.

Brain and tissue research

Brains of different ethnic types were obtained for research purposes. Victims were killed and their brains were sent off to form a museum. Injections were carried out on individual cells to investigate their structure. It would seem as though the inmates were being injected and then killed so that staining of the different tissues could be seen. As recently as 1989, these brains were still being

used for teaching purposes; only in 1990 did many German medical schools and institutes bury their tissue sample collections.³⁹

The Pernkopf Atlas, which was still being published in 1990, is believed to have used the victims of Nazi terror as subjects for its anatomical illustrations, since early editions contained hidden swastikas and the double lightning-bolt symbol of the SS.⁴⁰ The heads of several of the cadavers were closely shaved, concentration camp style, and at least one of the models was circumcised.

Presentation of the work

This work was in the public domain and was presented at different scientific meetings. Data on hypothermia studies was presented to 95 physicians at the annual meeting of the Luftwaffe Medical Service in Nuremberg in October 1942, at a conference of Wehrmacht physicians in Berlin in December 1942, and to a select group of physicians at a meeting in Berlin, including Sauerbruch, in May 1943. Results of the Ravensbruck experiments on women were reported at a Congress of Reich Physicians in May 1943.⁴¹

There has been much debate not just about the ethics of this experimentation but as to whether this work should still be used, as the data now exists. It is considered that much of the hypothermia work was so badly controlled that it is of no value,³⁴ but a contrary view has also been expressed and some of the results of this work have been incorporated in current air-sea rescue techniques.³⁵

Nazi-era doctors believed they were being 'good doctors' because, although they were perhaps producing brief suffering in their patients, in the long term they would create a healthy race. Not one of the doctors or public health officials at Nuremberg pleaded for mercy on the grounds of insanity.⁴²

NAZI INFLUENCE ON MEDICAL CARE AND RESEARCH **How the Nazis took over**

Universities were no longer regarded as intellectually isolated but became organs of the state. The doctors' trade union movement became an organ of the Nazi regime and the Neurological/Psychiatric Association was dissolved.

Doctors lost their independence and their responsibility shifted from the individual patient to the state. They had a multiple role as accessories to a criminal regime, carers and healers concerned with professional corporate progress (overall responsibility to society) and technicians of people's health charged with preserving civilian and military manpower resources. Medicine served as a cloak for executing people.⁴³

As a result of the Editors' Law, passed on 4 October 1933, German Jewish medical scholars were forbidden

to publish the results of their research in German books or journals.⁴⁴ German doctors could not quote Jewish work. However, this was not applied rigorously, particularly with regard to cancer research.

The attack on the universities

The Nazi movement's calls to restore traditional values to education appealed to the conservative academic establishment, which trained Germany's civil servants. Nazism was popular among students, who eagerly responded to appeals to join the common cause of rebuilding Germany's greatness. Jews were driven out even before Nazi legislation was introduced.

Hitler said, 'Nowadays the task of the universities is not to cultivate objective science but soldier-like military science, and their foremost task is to form the will and character of their students.'⁴⁵ His idea of a good education was one that produced a sound physique and a 'good firm character'; scholarship and research produced pacifist weaklings.⁴⁵

University appointments were controlled by the civil administration. Prospects for achieving a teaching job in the universities were almost guaranteed by a candidate's membership of the SS; anyone with affiliations to political or religious organisations not aligned to National Socialism was passed by or even dismissed. In Leipzig, assistants and medical students agreed to use the Nazi salute. It is estimated that Germany may have lost as many as 40% of its medical faculty to racist fanaticism. Jews and socialists were removed from university posts. Since it was necessary to be a Nazi to be appointed, second- or even tenth-rate people were appointed if they were Nazis. Vacancies were filled by enthusiastic Party members.⁴⁶ Consequently, the universities became downgraded.

Academic standards

A specific attack was mounted on academic aspects of the universities, and a greater emphasis was placed on practical work and natural subjects. Standards of entry were modified and university entrance was restricted. Members of the SS were given preference. In 1933, the matriculation of new Jewish students was limited to about 1.5% (Table 1). In winter 1932/3, Jewish students made up 4.8% of the total number of students; in medicine they totalled 7.8%. Time was taken up at the universities for special courses on marching and politics. Instead of attending lectures, students were tramping around the countryside to get fitter. So strenuous were these activities that many were injured and lost time from their studies. The professors were attacked by their students and not allowed to lecture at the outset. If they were Jewish, they were booed and shouted down, and thrown out. The higher examination – the habilitation test – was abandoned in some instances, and a lower standard was accepted. Foreign travel was discouraged. German

doctors and scientists could not attend meetings. There was restriction of interchange of ideas with other countries. Heisenberg wrote, 'The immediate pre-war years or rather what part of them I spent in Germany struck me as a period of unspeakable loneliness.'⁴⁷

The Nazi regime had a policy against doctors accepting Nobel Prizes, fearing they might be given to Jews or Social Democrats.⁴⁸ The Austrian Jewish physiologist, Otto Loewi, was forced to transfer his Nobel Prize money from Sweden into a Nazi-owned German bank.⁴⁹

German medical students had to show commitment to the National Socialist concepts of health and medicine and their loyalty to the party was regularly monitored. The role of the *Fachschaften* (specific Nazi medical study units) in medical schools was to organise lectures to indoctrinate students with Nazi ideology. Students became accustomed to brutalisation in the classrooms and carried this on when they graduated. From 1935 onwards, both GPs and specialists were required to attend training courses every five years that were run by Nazi instructors.

The change in the training of doctors

The Nazis modified the medical curriculum, adding *Rassenkunde* (race science); more conventional subjects were gradually squeezed out. They tried to biologise a broad range of social problems, including crime, homosexuality, the falling birth rate, the collapse of German imperial strength and the Jewish and gypsy 'problems'. Endurance of pain was regarded as a mark of character. The Jew was believed to be less able to tolerate pain than the Aryan.

Changing the curriculum from academic to practical

Nazi doctors rejected modern 'mechanistic' medicine in favour of a more holistic approach. They were opposed to both institutionalised patient care and specialisation, preferring general practice. The *Völkisch* physicians strove for a return to a pre-industrial state, where the forces of nature, rather than synthetic pharmacological products and the technology of a laboratory or operating room, were enlisted to aid the human body in maintaining or recovering its balance. It was their conviction that healing was a craft to be executed on the basis of intuition rather than reason. Applied medicine based on hunches and experience was rated far more highly than theoretical medical science as practised at the universities. Nazi leaders organised unprecedented support for midwifery, homeopathy and a number of other areas of heterodox medicine.

Natural healers

The role of natural healers was controversial. On the one hand, their role was regularised and subject to more strict regulations than elsewhere; on the other, they were

TABLE 1
The percentage of Jewish doctors and students in different regions of Germany relative to the number of Jews in the general population.

Category	Place	Date	Number	Reference
Jewish students	Germany	Winter 1932–3	4.8% of total; 7.8% in medicine	Kater ⁶¹
Jewish doctors	Germany	1 April 1933	8,000–9,000 in total Approximately one in eight doctors were of Jewish ancestry 12 out of 13 cancer researchers lost their jobs at the Berlin Charité Hospital	Friedländer ⁶²
Jewish students	Germany	25 April 1933	Matriculation of new Jewish students limited to 1.5%	Friedländer ⁶³
Jewish doctors	Germany	Mid 1933	11%	Friedländer ⁶³
Jewish students	Würzburg	Autumn 1933	Reduction in Jewish dental students from about 60 to seven	Kater ⁶¹
Jewish students	Germany	1933–4	Just over 1%	Kater ⁶¹
Jewish doctors	Germany	Early 1934	Non-Aryan panel doctors declined from 16.5% to 11.4%	Kater ⁶⁴
Jewish doctors	Germany	End of 1934	5,800–6,800	Friedländer ⁶²
Jewish doctors	Greater Wiesbaden	1934–5	Total of 274 physicians, of whom 161 were 'Aryan'	Kater ⁶⁵
Jewish doctors	Berlin	1935	Over half the capital's panel doctors were still Jewish	Kater ⁶⁶
Jewish doctors	Germany	Beginning of 1936	5,000 (2,800 in Public Health Service)	Friedländer ⁶²
Jewish doctors	Germany	1937	4,200	Friedländer ⁶²
Jewish doctors	Silesia	Autumn 1938	312,191 in panel insurance system	Kater ⁶⁷
Jewish doctors	Silesia	30 September 1938	15 Jewish doctors	Kater ⁶⁷
Jewish doctors	Württemberg	1938	55 discontinued, 30 of them panel doctors	Kater ⁶⁸
Jewish doctors	Stuttgart	1938	20 remained	Kater ⁶⁸
Jewish doctors	Munich	Early 1939	Ten remained	Kater ⁶⁸
Jewish doctors	The Reich	Early 1939	285 Jewish doctors	Kater ⁶⁸
Jewish doctors	Austria	No data	More than 50% of all doctors, with 65% in Vienna alone	Kater ⁶⁹

encouraged. Promising natural lay-healers were channelled into the regular medical student body, thereby safeguarding the ideals of 'New German Healing' in a formal academic setting. Quacks were allowed to practise and the Nazis decreed that regular doctors should assist registered natural healers at their request. Hitler was treated by Morrell; Hess, Himmler and other members of the hierarchy underwent bizarre forms of natural healing. Himmler 'poached' Felix Kersten, an early Western expert in Chinese acupuncture, from the Dutch royal family.

Shortening the curriculum

Aside from the loss to the curriculum incurred by the introduction of new politically inspired subjects, the medical curriculum was shortened by two years when war broke out in 1939. This left little time for the perfunctory dissertation; it had to be completed in the second, clinical half of the course or immediately after the final state examination.⁵⁰ Understaffing led to senior medical students being conscripted to the medical corps after provisional final examinations, or in some cases after no final examination at all. These specifically Nazi-trained young doctors entering medical practice between 1933 and 1945 had lower standards of training. Because medical teachers continued to be drafted, professors were kept on well beyond retirement age.

ANTI-SEMITISM

Pre-Nazi

In the eighteenth and nineteenth centuries, there was institutional anti-Semitism in Austria and the German principalities. To obtain a university appointment, one had to be a German citizen of the Christian faith: unconverted Jewish doctors could not obtain official appointments. Nevertheless, Germany was regarded as having less anti-Semitism than Poland, Russia and Hungary, and it did attract Eastern European Jews to study there, particularly to Berlin. The well-publicised case of Freud, who initially trained in neurology but was unable to secure a position and instead founded psychiatry, is not the only example. Jacob Henle, a Jewish convert, and Heinrich Romberg, a Jew, both obtained official appointments. In contrast, Robert Remak could not obtain a post and worked in private practice. Hermann Oppenheim, the outstanding German neurologist, was not appointed to a university post but received an honorary title. The stipulations of the Weimar constitution in respect of equality of treatment for *all* German citizens in *all* spheres were 'unacceptable to great and important segments of the population . . . on the eve of the Nazi take-over there were still only two Jewish professors in all Bavarian universities'.⁵¹

Jewish doctors had the greatest difficulty in obtaining university appointments, and as neurology/psychiatry was not looked upon as prestigious, they gravitated to these fields.

Advent of the Nazis to power – expulsion of Jews from their jobs

As soon as the Nazis assumed power, the situation reached its climax with the Enabling Laws. Possession of even a single Jewish grandparent disqualified academics from teaching the German Master Race.⁵² At Tübingen, the number of Jewish faculty members dismissed was distinctly low – for a simple reason: no Jew had ever been appointed to a full professorship at this institution, and there were very few Jews among the lower-ranking appointees.⁵³

Jewish doctors were forbidden by law to hold state or university appointments or to treat German patients, but had to have a lesser title of 'attendants to the sick' and could only treat Jewish patients.

Expulsion from Germany

Sir Ludwig Guttmann was dismissed as first assistant to Professor Foerster at the Wenzel Hanke Hospital. He worked as the Director of a Jewish hospital, and at the outbreak of the Second World War fled to the UK. Ernest Bors, who had worked in Czechoslovakia, went to the US. Otto Marburg, who remained the outstanding contributor to spinal injuries in the inter-war years, fled Austria in 1939 and also went to the US. The urologist, Oswald Schwartz, who wrote papers on spinal injuries in the First World War, was also Jewish. Thus, Nazism's gift was to expel all these pioneers from the Third Reich, bringing their outstanding training in spinal injury treatment to the Free World, where they were responsible for the development of today's principles of spinal injury management.

This was repeated in many fields of medicine. For example, gastroenterology was developed in the US as a result of the influx of a distinguished group of refugees from Germany that included George Glass, Kurt Isselbacher, Charles Lieber, Severo Ochoa, George Palade, Rudolf Schindler, Max Bergmann, Siegfried Thannhauser, Hans Popper and Fenton Schaffner.⁵⁴ Several became Nobel Prize winners – Europe's loss was America's gain.

Statistical background

Quantity

On 1 April 1933, about 9,000 Jewish physicians were practising in Germany, constituting 11% of the medical profession; in certain specialties such as neurology and psychiatry there was a preponderance. It is impossible to determine the exact numbers who lost their jobs because specialties were only just emerging and there are only figures for the overall number of doctors. Some idea can be derived from the fact that, following the Civil Service Law of 7 April 1933, 12 of 13 cancer researchers lost their jobs at Berlin's famous Charité Hospital. Jews were not allowed to practise as GPs and were driven out of the universities. All teaching hospital posts were government servants, so Jews were driven out of these

positions. By 1937, only 4,200 Jewish doctors were still practising (Table 1).

Quality

Many of the Jews who lost their jobs with the universities were brilliant and were Nobel Prize winners – for instance Paul Ehrlich, Fritz Haber and Otto Warburg. Ehrlich died before the Nazis came to power. Haber was thrown out of his post. Other doctors killed themselves in despair: for example, Boas, the founder of gastroenterology. The case of Warburg is extraordinary: while under constraints, he carried on working at the Kaiser Wilhelm Institute throughout the Nazi period.

The situation for Jewish doctors under the Nazis

Jewish doctors could not earn fees from insurance companies. Their practices and property were confiscated. They were not allowed to call themselves doctors. They could not get their work published. They were not allowed to refer to Jewish doctors, nor could they treat German patients.

National Socialist student leaders strove to remove both Jewish university professors and Jewish students, who were notable for their examination success and were strong competitors for their jobs in an overcrowded profession. At the University of Frankfurt in 1933, even before any laws had been promulgated, German medical students drove out their Jewish fellows, confiscating their student identity cards and chasing them off campus. Many university departments with Jewish staff were closed down. German physicians persecuted their own Jewish colleagues, for example, by getting their mortgages foreclosed to cause them financial ruin. Embarrassingly for the Nazi regime, a large number of civil servants and members of party organisations still consulted Jewish doctors despite being forbidden. They valued the confidentiality of Jewish doctors, fearing that if they visited Nazi doctors they would be denounced to Reich Hereditary Courts. So, in 1934, the Nazi Physicians' League issued a directive exhorting all non-Jewish patients to see only Aryan doctors.

Finally, in July 1938, Hitler decreed that all Jewish doctors were to be decertificated, save for a few exceptions in areas of dense populations of Jews. Those who were retained were no longer to be regarded as members of the German medical community, and lost the designation of 'physician' and all memberships of professional organisations. They were known as *Krankenbehändler* (sick-treaters). As the Jews fled, the Jewish hospitals in Leipzig, Mannheim and Breslau were closed by the authorities.

BENEFICIAL ASPECTS OF NAZI MEDICINE

The deleterious effects on the individual, on the training of doctors and on the ethos of medicine of the Nazi regime has been described, but not everything about Nazi medicine was detrimental. Perverse as this may sound,

there were also fertile, creative faces of Nazism. By its nature Nazism was dynamic, forward-looking and worked against the recognised establishment and conventional thought. Public health initiatives were pursued not just in spite of Nazism, but also in consequence of Nazism.

Cancer

Physicians in Germany were the first to recognise the relationship between cigarette smoking and carcinoma of the bronchus. Fritz Lickint published statistical evidence in 1929 linking lung cancer and cigarettes.⁵⁵ Franz H. Müller's 1939 medical dissertation was the world's first controlled epidemiological study of the tobacco–lung cancer relationship. He carried out a survey-based retrospective case-control study comparing the smoking of lung cancer patients with a healthy 'control group' of comparable age, finding that lung cancer victims were more than six times more likely to be 'extremely heavy smokers'.⁵⁶ Eberhard Schairer and Erich Schöniger's publication demonstrated the central role of smoking in the development of lung cancer.⁵⁷ This was not isolated academic research but was incorporated into practice.

Campaigns were instituted to stop people smoking. Research was carried out to eliminate nicotine from cigarettes. Smoking was banned in many workplaces, government offices, hospitals and rest-homes. Women were denied tobacco-rationing coupons on the grounds that nicotine could harm the fetus.

Public health

The whole population had to be registered and a detailed medical history was recorded. Accurate statistics were produced. Mass screening programmes were instituted. Women were screened for breast and cervical cancer, children for dental cavities, students for tuberculosis, factory workers for silicosis and lung cancer, and pregnant women for health impairment. Many hundreds of people were X-rayed every day. Women were urged to have regular cancer examinations and men were advised to have check-ups for their colons.

This was furthered by post-mortem examination studies, and as many as 20% of deaths in certain states were subjected to autopsy. They sought to record not just cancer mortality but incidence. Genetic and racial maps were constructed.

Occupational health

Advanced work was carried out in occupational health. The number of physicians on factory floors increased greatly: they supervised worker health and identified shirkers. Stringent health regulations were instituted. They showed that radium in the air of mines could cause cancer of the bronchus. It was recognised that mesothelioma was asbestos-induced, and research was instituted on the relationship between exposure to X-rays and heavy metals to carcinoma.

Diet

It was the German citizen's duty to be as fit and healthy as possible. Diets high in fruit and fibre were promoted. Every German bakery had to produce wholegrain bread. There was a campaign to reduce alcohol consumption. The sale of alcohol was banned in Berlin.⁵⁸



FIGURE 2

With its slogan 'The dreadful legacy of a drinker' this propaganda poster depicted the degenerative consequences of alcoholism. The Nazis were concerned with preventative medicine. Picture reproduced from Adrian Weale's *Science and the Swastika* (Channel 4 Books, 2001).

Exercise

Exercise, particularly marching, was strongly encouraged.

Advertising

A Nazi campaign was launched to establish truth in advertising.

Exclusions

Unfortunately, the health regulations that were instituted applied only to peacetime and to German workers and not to slaves and foreign workers, who were exposed to carcinogenic agents in the mines. They would die from exhaustion and malnutrition before the carcinoma became effective. Screening and registering was arrested by the decimation of the medical profession when war was declared.

LONG-TERM EFFECTS OF NAZI MEDICINE

Despite the fact that more than half a century has passed since the end of the Nazi regime, the consequences persist.

Doctors were involved at different levels in many different ways, reporting children and the disabled to the Genetic Health Courts in sterilisation cases, working as military doctors and in institutions where they carried out executions. In the concentration camps they still carried out experimentation. They were witnesses to the expulsion of their colleagues, benefiting by taking over their jobs and practices. It was all-pervasive.

Distinguished research that originated in Germany, such

as the causes and prevention of cancer of the bronchus, was viewed with suspicion and ignored. Work from the concentration camps, such as *The Pernkopf Atlas* and the altitude trials, have caused debate as to whether they should be used.

As a result of the distortion of the curriculum by the introduction of race hygiene and the shortening of the training by two years, a whole generation of doctors trained during the Nazi regime from 1933 until 1945 emerged who were a liability professionally.

Before the First World War, German medicine led Europe. Germany was the Mecca to which doctors flocked from around the world for undergraduate and postgraduate training. Now few doctors travel to Germany for higher training, and young German doctors try to go abroad for postgraduate study/research, especially to the US.

An even more insidious problem is that many German doctors today are ashamed or unaware of what went on in the past and are averse to looking at any German work prior to 1945. There is both ignorance and denial of the persecution of Jewish doctors.⁵⁸

There are administrators in responsible positions in Germany today who obstruct any research or enquiry on the practice of medicine in Germany under the Nazis.⁶⁰ The legacy persists.

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The College proposes to offer to Collegiate Members an annual prize from the Myre Sim Fund for the best article published in *The Journal of the Royal College of Physicians of Edinburgh*. Up to £1,000 per annum has been allocated for this purpose.

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