

New revelations about Hans Berger, father of the EEG, and his ties to the Third Reich

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Abstract

Hans Berger was a German neuropsychiatrist and head of the neurology department at the University of Jena, who discovered the human EEG. Many sources state that Berger was forced into retirement and suicide by the Nazis because he was at odds with the regime. In fact, Berger helped select his Nazi successor Berthold Kihn (also complicit in “euthanasia” murders), financially supported the Nazi SS, and was a willing participant on Nazi genetic health higher courts that reviewed appeals for forced sterilizations of neuropsychiatric patients. His motivations may be related to avoiding Nazi harassment, indoctrination by Nazi ideology, or less likely, career opportunism. His actions stand in contrast to colleagues who partially resisted the Nazis, and hopefully will serve as an example to future generations of neurologists regarding the danger of allowing one’s professional standing to be used as a tool to support the policies of tyranny and oppression.

Introduction

Hans Berger, (Figure 1) neurologist, psychiatrist, and discoverer of the human EEG, was born near Coburg, Germany in 1873, and committed suicide in Jena, Germany in 1941.¹ Based on Berger's written statement to the University of Jena Medical Faculty² most biographical sources³⁻⁶ contain an accurate summary of his early life and EEG discovery. Berger completed his medical studies in Jena in 1894 and passed his state exams in 1897. He completed his habilitation (postdoctoral qualification) in 1901, and thereafter lectured in neuroanatomy, neurophysiology, and general and forensic psychiatry. Berger was a German army staff physician during World War I and following the war's end, he returned to Jena and became a full professor and director of the University Neurology and Psychiatry Clinic (*Nervenheil klinik*) in 1919. In 1924 Berger discovered the human EEG, and after five more years to verify the stability of his findings, he published his research in 1929.⁷ In 1931, he first documented alpha and beta waves in EEG, and subsequently described the disappearance of alpha and appearance of beta waves with eye opening or in response to other stimuli, the newborn child and elderly EEG, the brain death EEG, the EEG in intracerebral hemorrhage, brain tumors, and cerebral contusions, and the EEG in epileptics inter-ictally, in response to hyperventilation, post-ictally, during a complex partial attack,⁸ and the 3 Hz waves during an epileptic absence.⁹ He summarized all 14 of his publications in a monograph¹⁰ in 1938.

So far, no biographies have addressed Berger's collaboration in National Socialist (Nazi) activities in Germany. Niedermeyer and Da Silva³ noted, "His relationship to the Nazi regime was not good and Berger was most unceremoniously made a professor emeritus at earliest convenience..." Goldensohn⁴ wrote, "Berger showed his dislike of the regime and they retaliated. In 1938, he was humiliated by Nazi functionaries who abruptly removed him..." Wiedemann⁵

noted, “Berger, who did not accept the regime...from one day to the next... was dismissed from his position and died by his own hand...” Lemke⁶ stated, “...Berger was no adherent of Hitler and so he had to relinquish the service of his University; not having expected this, he was gravely hurt...The loss of his place of work, the lack of any possibility of continuing his EEG researches...bestowed upon him a depression which finally killed him.” We have uncovered evidence that refutes available biographies and clarifies Berger’s Nazi connections.

Berger’s involvement in the *Erbgesundheitsobergericht*

The Nazis’ central eugenical “racial hygiene” theories led early on in their reign over Germany (the “Third Reich”) to the July 14, 1933 passage of the “Law for the Prevention of Genetically Diseased Offspring,” or Sterilization Law. Under this law, approximately 400,000 forced sterilizations of neurologic and psychiatric patients with “congenital feeble-mindedness,” hereditary epilepsy, Huntington disease, major brain malformations, congenital blindness, congenital severe hearing loss, pre-senile and senile dementia, encephalitis, poliomyelitis, “therapy-resistant paralysis,” multiple sclerosis, Parkinson’s disease, schizophrenia, manic depression, chronic alcoholism, and other disorders occurred.^{11,12,13} Sterilization, which had been illegal in Germany before the Nazis took over, was more “successful” in Nazi Germany than elsewhere in the world (more than 30,000 sterilized in 29 US states from 1907-1939 vs. 400,000 in Nazi Germany in just 12 years), and is a testament to the importance to the Nazi regime of this program, especially considering the financial and administrative resources required to operate it. Most sterilizations were done as tubal ligations for women, and vasectomies for men, but up to 12% were done with X-rays (effectively castrating the patient with radiation). The mortality rate for all forms of sterilization was 0.5%, or approximately 2000 dead from these procedures.¹³ Forced sterilization is believed by medical historians to be an “early exercise” for more dramatic

measures such as the Nazi euthanasia murder programs for the neurologically and psychiatrically ill which began in 1939.¹³ The adult and child euthanasia programs against the same patient population with which the sterilization law was directed, deemed “life unworthy of life,” ended with 275 000 overall killed by 1945.^{12,14-16}

Physicians from the Jena *Nervenheil klinik* played a crucial role in implementing the Sterilization Law. Faculty reported patients for forced sterilization and provided expert opinion on the *Erbgesundheitsgerichte* (EGG; Regional Court for Eugenics) and *Erbgesundheitsobergericht* (EGOG; Higher Regional Court for Eugenics), including Hans Berger.¹⁷ We found six EGOG cases with Berger as referee between April and September 1938, dealing with EGG appeals. (Figure 2) All six appeals were rejected based on “earlier mental investigations” and “expert panel opinions,” stating that the subjects were feeble-minded.¹⁸ These six rejected appeals contributed to the overall low 3% rate of sterilization reversals¹³ throughout the Nazi era.

Rudolf Lemke, Berger’s assistant, was an EGOG assessor from 1934-35¹⁹ and 1937-41, and was jointly responsible with Berger for 25 cases of forced sterilization. Lemke participated, for example, at the EGOG meeting on June 16, 1939, when the appeal of a 39-year old man with epilepsy was heard. The appeal was rejected, because “for the sake of the racial future of the entire [German] people, [he] has to make the same sacrifice that the law requires from all people with hereditary diseases (*Erbkranke*).” The topic of Lemke’s 1935 inaugural lecture was “The evaluation of the feeble-minded at the EGG.”¹⁷ Other colleagues went even further; Gerhard Kloos, assistant professor of Neurology and Psychiatry, was head of the hospital in Stadroda, Thuringia, and director of the *Kinderfachabteilung*, (department specialized for children; a Nazi

euphemism for a child euthanasia institution), inaugurated in 1942 for the killing of children with cognitive and physical handicap. Berthold Kihn, neuropsychiatrist and Berger's successor as *Nervenheil klinik* Director, was an SA (*Sturmabteilung*, Nazi brown shirts) member with the senior officer rank of *Obersturmführer*,¹⁷ who in a pre-Nazi era 1932 lecture on "The eradication of the less valuable from society," spoke of the tax burden on impoverished Germans whose resources had been depleted by the Versailles Treaty, and spoke of the counter-selective effects of modern medicine, which was "keeping beings alive whose value to society is at least regarded as very 'debatable.'"²⁰ Despite also stating in 1932, "I believe we are far away from the feasibility of implementing [the killing of chronically mentally ill]" because of the ethical and legal climate,²⁰ under the Nazis from 1939-41, he was one of 10-15 eminent academics and asylum directors who as medical advisers to the Chancellery of the Führer helped plan adult euthanasia ("Aktion T4").²¹ Kihn worked on a bill to legitimate killing patients with chronic mental disorders,¹⁷ and was an expert on the T4 selection committee sent to the Bethel Epilepsy Institution in Bielefeld, Germany in 1941.²²

Berger quit the EGOG following retirement in 1938, but when Karl Astel, University Rector (1939-45) and an influential Nazi and racial hygienist, asked Berger in March 1941 (Figure 3) to resume his position at the EGOG, Berger promptly answered, "I am very happy to continue my work [...] at the EGOG in Jena, and I thank you very much for this."¹⁷ Although Berger and Astel corresponded at least four times,^{17,23} Berger did not resume his EGOG position. He suffered from major depression: "I've written the present letters in bed. The mood is very depressed, but of course I must [endure] everything and be patient." He committed suicide shortly thereafter.

Berger's selection of his Nazi successor

Berger turned 65 in 1938 and was dismissed as required by law. This was not a surprise; he had participated in the committee discussing possible successors. The committee, which included Astel, had excluded candidates with a “typically liberal-passive” attitude towards eugenics, and favored Kihn, who was an “ideologically, professionally and politically reliable man” because of his “hereditary-pathological work” and “commitment to the EGOG.” Berger accepted the decision and wrote, “Of course, I will be happy to introduce Herr Kihn to the department and hand it over on October 1, because obviously, I want to be on friendly terms with my successor.” Also, when Kihn was drafted from 1939-40, Berger deputized for him.²⁴ Back in Jena in 1940, Kihn became deeply involved in the euthanasia murders, as above, but a murder investigation in 1963 was stopped because active contribution to the killings could not be proven.²²

Berger’s support of the SS

During the Third Reich, 81% of the Jena Medical Faculty were Nazi party members, and 31% were members of the SS (*Schutzstaffel*, Nazi black shirts), which was above the national average (45% and 7%, respectively) and is testimony to the significant Nazification of the medical establishment in Jena. Although Berger was not a Nazi party or SS member, he became a “Supporting Member” of the SS (*Förderndes Mitglied*), following the collective call of Heinrich Himmler, *SS-Reichsführer* and German Interior Minister: “It is an honor to be an SS-man, it is an honor to be a Supporting Member, everyone do his duty, we the SS-men, you, the Supporting Members, everyone at his position, and Germany will rise again.” Being a “Supporting Member” did not necessarily mean unconditional acceptance of the SS, especially not after the beginning of World War II. The amount of financial contribution to the SS that Berger made is unknown, but most likely it was a symbolic prize. In 1934, 342 492 “Supporting Members” paid 581 000

Reichsmark; the “Supporting Membership” apparently provided “sufficient protection against Nazi harassment.”¹⁷

Discussion

Berger’s EEG discoveries were groundbreaking, but he collaborated with the Third Reich. Inaccurate biographies on him may be a result of the deliberate attempt in Germany following the war to cover up the Nazi past.²⁵ Lemke’s glowing Berger retrospective,⁶ without any mention of his or his mentor’s active involvement in Nazi programs, is exemplary of such white-washing. Lemke likely did not want to implicate himself in Nazi activities by inculcating Berger in his biography, since Lemke was complicit in even more genetic court decisions than Berger, and was a Nazi party member²⁶ himself. The fall of the Berlin wall in 1989 removed the “iron curtain” from historical research into the Nazi past of German universities, and opened up large archives of material such as the *Stasi* archives to close scrutiny. Simple ignorance, alone or possibly in combination with deliberate white-washing by German historians, also has likely played a role. Neurologist Eli Goldensohn, who wrote the brief Berger biography in Lüders and Comair’s epilepsy surgery text,⁴ was instrumental in publishing his brother Leon’s notes and testimonies from Nazi war criminals²⁷ who Leon interviewed post-war as an army psychiatrist in preparation for the Nuremberg trials. Despite this knowledge of the Nazi crimes of the war, Goldensohn seems to have been completely unaware of Berger’s involvement in the Third Reich. Berger’s motivation to participate in the EGOGs is unclear, especially given that, according to neuropsychiatrist Leo Alexander (1905-1985) (US Army Major and Nazi medical crimes investigator) “...it had been realized since shortly before the war that most insane do not descend from the insane...only 3% of the insane in the next generation could be eliminated by sterilizing

the insane of the present generation...This was exactly the view taken several years before, namely in 1935, by a committee of the American Neurological Association.”²⁸ We could find no direct statements regarding Berger’s motivation, although his personal diaries have not been fully transcribed to allow a thorough analysis. But in general, therapeutic idealism, Nazi indoctrination regarding the “health” of the German nation over individual health, and career opportunism seem to have been the rationale for many neuroscientists who collaborated with the Nazi regime.¹³ Given Berger’s support of Kihn, he may have also supported Nazi ideology, and was possibly influenced by Kloos and Lemke. The ideological influence of Jena’s Nazi Rector Karl Astel cannot be underemphasized as well. Astel, a fanatic eugenicist, as president of the Thuringian Health Office in March 1937, defended a farmer who claimed he shot to death his sleeping mentally ill son on the grounds that the boy had become a financial burden to the family. Because of Astel’s defense, the farmer was sentenced to three years in prison instead of receiving the death penalty.²⁹ Berger’s impending retirement makes career opportunism unlikely; however, Berger may have thought he would be reinstated if he collaborated. Berger’s SS contributions may have been due to ideological support, or to avoid Nazi harassment, especially given the significant Nazification of his university.

Berger’s actions stand in contrast to other pre-eminent German neuropsychiatrists Karl Bonhoeffer (1868-1948), Hans Creutzfeldt (1885-1964), and Karl Kleist (1879-1960), all of whom participated in Nazi genetic health courts, but offered some ambivalent resistance toward the regime. Bonhoeffer originally favored Nazi forced sterilization,^{30,31} but insisted that those with hereditary defects who possessed unusual qualities or talents should not be sterilized.³² He taught a course on sterilization law, which included information on disorders not meeting forced sterilization criteria, and this course was later banned. Bonhoeffer was a consultant to the genetic

courts, similarly to Berger, but only roughly 45% of his cases resulted in forced sterilization, compared to 89% in the courts overall.³³ Bonhoeffer often assigned his trainee Creutzfeldt (co-describer of Creutzfeldt-Jakob disease) as his representative at the genetic courts to decrease the “danger of false judgments by inadequately trained physicians.”³⁴ On retirement, unlike Berger, Bonhoeffer opposed the appointment of Nazi Maximilian de Crinis to replace him as chair of Psychiatry and Neurology at Berlin’s Charité.³² Creutzfeldt made it clear that he disliked Nazi policies, and may have prevented the transfer of some of his patients from being murdered in the Nazi euthanasia centers, though he also put great effort into reversing a diagnosis of schizophrenia in a case of a German sailor who had deserted, which led to an avoidable death sentence. But Creutzfeldt’s wife was imprisoned for remarks against Hitler, and his son deserted the German army and joined the resistance in Holland. Post-war, Creutzfeldt tried to blow the cover on a former infamous Nazi euthanasia doctor, Werner Heyde, who was living under an alias in Munich.³⁴ Kleist stated post-war:

I never thought much of the sterilization law...it was medically unsound because it discredited the patient as a human being and it discredited his whole family. I had an extensive practice as an expert in sterilization cases, especially in cases of appeal to the [EGOGs] and I have always tried to protect the patients from sterilization. The only instances in which I regarded sterilization as justified [were] in Huntington’s chorea, in severe mental deficiency, and in severe cases of epilepsy.

Though Kleist, like Berger, seem to have believed “severe mental deficiency” was clear grounds for sterilization, as an EGOG member, Kleist “always urged caution and reserve,” especially since masses of patients were indiscriminately passed by careless EGG’s in the early years of Nazi forced sterilization. There was never a high incidence of proposed sterilizations at Kleist’s Frankfurt University Neuropsychiatric Clinic, and of the ones proposed, most were not sterilized. For instance, out of 2290 admissions in 1935-36, 148 (6.5%) were “reported as suspects of

hereditary mental or nervous disease,” and of those, only 70 (47.3%) were proposed for sterilization (the highest number of proposals was in 1937-38, 73.4%, but the numbers proposed from 1940-45 were between 0-2 patients, despite a consistent number of reported cases even as of 1943-44).²⁸ Kleist also tried to protect patients from Nazi euthanasia by falsifying diagnoses, for instance by substituting ‘symptomatic, non-hereditary’ for ‘endogenous epilepsy,’ the former not being a death sentence, and by making sure patients from the University of Frankfurt hospital were not transferred to euthanasia centers whenever possible.³⁵ We concede that Kleist was a Nazi Party Member and did not initially protest the Nazification of German medicine or neurology.³⁵ Additionally, he wanted his emigrant neuroscientist trainee Leo Alexander to leave behind his eugenic work (that he knew was of interest to Nazi medicine) “so that either I or an assistant at the clinic...will complete your research.”³⁶

Conclusions

Contrary to previous biographies, we know Hans Berger was not an anti-Nazi and certainly was not at odds with the regime. Though more research is required, we thought it worthwhile to publish information about Berger's involvement during the Nazi era, given the amount of misinformation in the neurology literature. We know he eagerly participated on Nazi genetic health appeals courts, as evidenced from his diary entries and correspondence. We have evidence of six rejected appeals, and that he participated on 25 cases with Lemke, but more research is needed to determine the percentage of appeals accepted or denied. Though forced sterilization did occur elsewhere in the world by the 1930s, including the US,¹³ its unethical involuntary nature, lack of clear cut effectiveness (even if one embraced eugenics), and 0.5% mortality rate

in Nazi Germany do not excuse the active participation of any physician, let alone a reputed university departmental chair like Berger. In addition, forced sterilization was a precursor to the Nazi euthanasia programs, which are largely believed to have been the “stage rehearsal”²⁹ for the Holocaust, in which 11 million were murdered. Thus, forced sterilization can be seen as the first part of a common pathway of Nazi racial purification of “lives not worth living” from the population.²⁹

Berger did not live post-war and cannot defend himself now, and it is uncertain what he would offer in defense of his participation in Nazi affairs. Could he conceivably have wanted to participate, as Bonhoeffer and Creutzfeldt did, to prevent decisions on patients by non-experts? Possibly, but we have seen no record of such thoughts, nor have we seen any evidence that he was against Nazi forced sterilization or euthanasia murder programs in general. It should be noted also that Berger did *not* join the Nazi party, SS, or SA, despite the significant Nazification of the University of Jena, but was a *supporting* SS member, possibly for self-protection. Only the “neurologic court of opinion”³⁷ can judge Berger’s actions, which stand in contrast to other neuropsychiatrists who at least partially resisted the Nazis and protected *some* of their patients. His actions reflect the danger of allowing one’s professional standing to be used for non-Hippocratic purposes by a tyrannical regime.

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they have not been fully analyzed yet, and can only be viewed by appointment. The German therein is very difficult to read, and will hopefully be transcribed soon to intelligible German. [Personal Communication, Susanne Zimmermann and Thomas Bach, Jena, Germany].

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Figure Legend:

Figure 1. Hans Berger, 1927. Permission to reprint from the Archiv der Max-Planck-Gesellschaft, Berlin-Dahlem.

Figure 2. On April 13, 1938, for instance, the EGOG in Jena reviewed the appeal of Werner Barth against the court decision of the EGG in Arnstadt from October 7, 1937, on the eugenic case (*Erbgesundheitsache*) concerning his wife Frieda Barth, age 38. The meeting was “closed to the public,” and Berger was one of only three present. Following a “secret consultation,” the appeal was “rejected on the following grounds, Mrs Barth...initially attended elementary school for two years and had to repeat a year twice. She then attended a school for children with special needs but still had to repeat that year. Her sisters Else and Gertrude, as well as her half-sister Ilse, also...attended a special school. The mental examination performed by the state physician and the EGG shows substantial deficits in all domains of knowledge. [...] Mrs Barth suffers from congenital feeble-mindedness of minor to moderate degree. Her sense of perception is significantly impaired and in addition, there is severe poverty of vocabulary, as well as impaired retention and memory. Her cognitive performance remains behind that of a normally gifted 10-year old [...]. Her mental state cannot be explained by the accident at age 6 months or by the hearing impairment that she developed following dismissal from school. [...] Her ability to perform purely mechanical work does not alter the evaluation. The appeal is unwarranted. Signed; Dr Lorey, Berger, Stengel v. Rutkowski.”¹⁸ Permission to reprint from the archives of the Ministry for State Security (Staatsicherheitsdienst, or Stasi) of the former German Democratic Republic.

Figure 3. Letter from Karl Astel, March 1, 1941, asking Berger to rejoin the Jena EGOG, because “you already previously provided rich experience and rich knowledge, thankfully, to the service of genetic and racial care...” We have Berger's two handwritten response letters, which are hard to decipher, but we can tell that Berger said he could not participate due to health reasons, and Astel replied that he fully understood this and sent his recovery wishes. Permission to reprint from the Thüringisches Hauptstaatsarchiv, Weimar, Germany.