

*family*

A D V O C A C Y

PO Box 502  
Epping NSW 1710

305/16-18 Cambridge St  
Epping NSW 2121

Phone: (02) 9869 0866  
Facsimile: (02) 9869 0722

Record

331

File Number

10216

Author: Shevell, Michael

Title: Racial hygiene, active euthanasia and Julius Hallervorden

Original source: Neurology Number 42

Resource type: Written

Publication Date: 01/11/92

Publisher Info: -

### Abstract

This article describes a euthanasia programme which took place in Germany in the 1930s. This article serves as a timely reminder of how easily such a situation can be put in place with the tacit agreement of quite ordinary people of seemingly moderate persuasion. The author astutely points out that the involvement of a highly respected scientist, Hallervorden, indicates that science cannot proceed in a vacuum - a point that has extreme relevance in this day and age. **Keyword: Ethics**

# Racial hygiene, active euthanasia, and Julius Hallervorden

Michael Shevell, MD, CM, FRCP(C)

"Hallervorden-Spatz disease" represents a distinctive and readily recognizable eponym to neurologists and paediatricians; it denotes a rare, inherited, autosomal recessive disorder that is perhaps a neuraxonal dystrophy, characterized by the childhood onset of unrelenting progressive gait disturbance, spasticity, and dementia associated with prominent extrapyramidal signs such as dystonia, chorea, and athetosis.<sup>1,2</sup> Pathologic examination reveals iron deposition in the basal ganglia and widely disseminated axonal spheroids.<sup>3</sup>

The eponym recalls Julius Hallervorden and Hugo Spatz, the prominent German neuropathologists who jointly delineated both the clinical and pathologic features of this disorder in two siblings.<sup>4,5</sup> The definitive German<sup>6</sup> and English<sup>7</sup> language biographies of Julius Hallervorden focus on his prodigious scientific talents and either ignore or gloss over his activities during World War II. His active involvement in the child and "T4" euthanasia program (detailed below) raises troubling questions regarding the moral obligations and limitations of medical science.

**Pre- and postwar biography.** The son of a psychiatrist, Julius Hallervorden was born in 1882 in Allenberg, East Prussia. The family moved further east to Königsberg (now Kaliningrad, Russian Republic) where Hallervorden received his secondary and university education, graduating with a medical degree in 1909. Following graduation, he pursued further training in Berlin, and in 1913 was appointed a staff psychiatrist at Landsberg, northwest of present-day Poznań, Poland. It was here that he developed an interest in the pathologic study of the diseased nervous system. He stayed at Landsberg until the mid-1930s; however, beginning in 1921, he had extended stays at the Munich-based German Research Institute for Psychiatry (Deutsche Forschungsanstalt für Psychiatrie), where he was sponsored by Walther Spielmeier and made the acquaintance of his lifelong mentor and colleague, Hugo Spatz. It was here, during the early phase of their friendship, that the original description of

the disease that bears their names was made on material brought to the Institute by Hallervorden.

Appointed Senior Physician and Prosector (pathologist) of the Brandenburg State Hospitals, Hallervorden performed this official duty and also occupied the chair of neuropathology at the Kaiser Wilhelm Institute in Berlin-Buch (appointed 1938) throughout the war years.<sup>6,7</sup>

Following the end of the war, Hallervorden was able to continue pursuit of his research interests in the relocated Institute, first in temporary quarters in Dillenburg and then in Giessen. Finally, in 1962, more permanent quarters were established at the Max Planck Institute in Frankfurt. Following his death in 1966 at age 84, Hallervorden's extensive pathologic collection was loaned to the Eidinger Institute. During his eminent career, Hallervorden published 120 papers on a broad range of disorders. He received many honors, including chairmanship of the Association of German Neuropathologists and an honorary doctorate from the Giessen Medical Faculty.<sup>6</sup>

Reading the words of those who knew him, it becomes clear that Hallervorden was a dedicated, fastidious pioneer neuroscientist. Richardson, who was for 6 months Hallervorden's pathology fellow in postwar Germany, recalls<sup>7</sup> "a quiet, reserved nature, wholly devoted to science and to neuropathology, and at the same time, warm, friendly, and an inspiring teacher." Krucke notes<sup>6</sup> that Hallervorden had "a burning desire to follow the morphological basics," "worked quietly and withdrawn ... and lectured willingly." Krucke also comments on his "detailed and moderate lifestyle," that he was "good-natured, personally modest and possessing a dry humour."<sup>6</sup> Hallervorden's medical technician describes him as "a small cheerful man".<sup>8</sup>

What is missing is a careful review and analysis of Hallervorden's knowing participation in a selective euthanasia program that commenced in 1939, and his use of materials that were derived from the active elimination of what were known as "lives not worth living".<sup>9</sup> This program served

as a miniature testing laboratory for killing techniques that were later applied on a horrifyingly wide scale. A review of the "science" of racial hygiene, its political implications, and the programs it spawned is a necessary prerequisite to properly understand the context of Hallervorden's wartime activities.

**Racial hygiene: theory and practice.** Racial hygiene (*Rassenhygiene*) can best be conceptualized as the determination of the optimal conditions for the maintenance and betterment of a race, and has its roots in the writings of the German Social Darwinists led by Alfred Ploetz in the latter years of the 19th century.<sup>10</sup> These theorists linked national fitness/efficiency with racial fitness, and noted that social factors were at work in modern society to "counterselect" and lead to irretrievable degeneration of racial quality. One of the chief social factors identified was the medical (institutional and supportive) care of the weak and "marginal" members of society. These theorists minimized the role of environmental influences in shaping the health of the individual and emphasized the primacy of genetic factors even in the most complex of human behaviors. Biologic determinism reigned supreme, and the application of biologic principles was viewed as the instrument for the solution of social problems.<sup>11</sup>

Within this framework, the mentally ill and mental defectives (however defined) were viewed in purely economic terms as a national burden that was quantifiable. According to Alfred Hoche and Rudolf Binding<sup>9</sup> the right to life did not exist intrinsically but must be earned and justified, and Eugen Fischer, Director of Anthropology at the Kaiser Wilhelm Institute, pointed out<sup>12</sup> that "sick genetic lines" exist. Racial hygiene as biologic theory was a handy tool for the doctrine of National Socialism, providing both scientific foundations and biologic values to an ideology and political rationale that emphasized racial reform as the centerpiece of social policy.<sup>13</sup>

Racial hygiene was not a purely German phenomenon but was international in scope. Distinguished American medical scientists such as W.G. Lennox<sup>14</sup> and Foster Kennedy<sup>15</sup> advocated euthanasia for retarded children as late as 1942. However, this doctrine reached its apex within German medical society, especially after 1933. Racial hygiene became an obligatory course of study at all university and state medical faculties. In addition, professorships of racial hygiene were established at all German universities. Physicians were viewed during this era as the "guardians of the nation's genetic constitution".<sup>13</sup>

In May of 1934, an Office of Racial Policy (*Rassenpolitisches Amt*) was established to coordinate population and racial policy in the nascent Third Reich and to enlighten the public on the benefits of applied racial hygiene.<sup>16</sup> The first action of this office was an attempt to control and rationalize reproduction by systematic application of the Law for the Prevention of Genetically Diseased Offspring (*Gesetz zur Verhütung erbkranken Nachwuchses*), promulgated the previous summer and widely known as the "Sterilization Law".<sup>17</sup> This law was administered by an elaborate system of nationwide genetic health courts (*Erbgesundheitsgericht*) featuring prominent medical involvement. Physicians were obliged to register all cases of genetic illness of which they were aware, and estimates of the total number of individuals sterilized without prior consent ranged up to 400,000. The three principal reasons for sterilization, accounting for 80% to 96% of decisions, were congenital feeble-mindedness, schizophrenia, and hereditary epilepsy.<sup>17</sup>

The Sterilization Law sought to eliminate future generations of genetic defectives; however, it did not relieve the current national burden perceived by racial hygienists and National Socialist bureaucrats. With war approaching, the economic benefits of the destruction of "lives not worth living",<sup>9</sup> resulting in both the redirection of scarce resources and financial savings, were emphasized. It was within this context that the imperative for an active euthanasia program was formulated.

In their seminal work, *Release and Destruction of Lives Not Worth Living*,<sup>9</sup> Hoche and Binding, professors of medicine and law respectively, focused their attention on what they perceived as the "ballast lives" and "empty husks" (mental patients) that filled psychiatric institutions, creating "a national burden". According to these authors, these individuals were without a sense of the value of life and thus their active elimination was an allowable, indeed a humane, gesture.<sup>9</sup> At the Nuremberg Congress of 1935, Gerhard Wagner, leader of the National Socialists Physicians' League (of which more than 50% of German physicians were members),<sup>13</sup> assailed the doctrine of the inherent equality of individuals since it "values the sick, the dying and the unfit on par with the healthy and strong".<sup>18</sup> Government funding of health programs benefitting the physically, intellectually, and mentally disabled were drastically cut,<sup>19</sup> since from "time immemorial the nation had always eliminated the weak to make way for the healthy", and institutional support ran counter to

the natural selection process of "inner genetic potential".<sup>20</sup>

As the German nation assumed a war footing, an ethic of individual productivity began to dominate. In a memo first written in October 1939 and back dated to September 1939, Adolf Hitler commissioned Reichsleiter Phillip Bouhler, Chief of the Chancellery, to allow certain specified doctors to grant a "mercy death to patients judged incurably sick by critical medical examination".<sup>21</sup> An advisory group, the Committee for the Scientific Treatment of Severe Genetically Determined Illness (*Reichsausschuss zur wissenschaftlichen Erfassung von erbund anlagebedingter schwerer Leiden*), was already in place, having been established in May 1939 under the direction of Hitler's Chancellery.<sup>22</sup> The original mandate for this committee was the destruction of retarded and malformed children. Among its charter members was Hans Heinze, director of the psychiatric hospital at Gorden in Brandenburg.

Under this committee's direction, questionnaires were sent out to physicians throughout Germany to register children with congenital/crippling deformities or mental retardation. The questionnaires were reviewed by committee members, and children elected for death were transported to one of 28 institutions now equipped with extermination facilities, among them the hospital at Brandenburg-Gorden. At these institutions, basic care (food, heat) was either withheld or the children were actively eliminated by a variety of means (gassing with cyanide, injections of morphine). Standardized fabricated letters were sent to parents informing them of both their child's transport (for reasons of advanced care) and sudden unexpected death (appendicitis, pneumonia, septicemia, etc). An estimated 5,000 children were killed in this program.<sup>23</sup>

In addition to the child euthanasia program, Hitler verbally authorized an adult euthanasia program, under the overall direction of Victor Brack, which targeted the elimination of institutionalized mental patients. This program was code-named "T4", and was administered by the previously mentioned Committee for the Scientific Treatment of Severe Genetically Determined Illness. A theoretic goal of eliminating 20% of patients requiring continuous institutionalized psychiatric care (approximately 65,000 to 75,000 individuals) was established. Applications for euthanasia were widely distributed to psychiatric institutions, and special gas chambers were established at six institutions: Brandenburg,

Bernburg, Grafeneck, Hadamar, Hartheim, and Sonnenstein.<sup>23</sup> The gas chambers were disguised as shower facilities and used carbon monoxide as the gassing agent, with the prototype first put into operation at Brandenburg.<sup>24</sup> This program was run by the Chancellery until August 1941, and a total of 70,273 individuals (meticulous records were kept) were executed.<sup>25</sup> Due to mounting public outcry, the gassing of psychiatric patients was then stopped, and the gas chambers were disassembled and shipped eastward behind the German advance.

As pointed out emphatically by Robert Proctor,<sup>23</sup> no euthanasia law was ever formally enacted in the Third Reich. Rather, physicians were empowered to carry out "mercy killings" but never obligated to do so. There was never a direct order to participate, and refusal to cooperate did not result in legal action or professional setback.<sup>23</sup> Active opponents were many and included such prominent physicians as Creutzfeldt and Karl Kleist.<sup>26</sup> The absence of a legal obligation to participate is important as we consider the actions of Julius Hallervorden.

**Hallervorden's role.** As Prosecutor for the Brandenburg State Hospitals, Julius Hallervorden could not be ignorant of the sudden surge in institutional deaths. In 1938, the year prior to commencement of the euthanasia program, only four autopsies were performed at Brandenburg-Gorden. From 1939 to 1945, which includes the period until August 1941 during which the extermination center at the adjacent vacated Brandenburg jail was in place, 1,260 autopsies were performed.<sup>27</sup> Werner-Joachim Eicke, Hallervorden's assistant at Gorden, confirmed in a postwar interview that Hallervorden was aware of the details of euthanasia.

Evidence for his active participation in the euthanasia program is provided from several sources. In a classified report entitled *Neuro pathology and Neurophysiology, Including Electroencephalography, in Wartime Germany*, prepared for the Combined Intelligence Objectives Subcommittee (CIOS) by Major Leo Alexander<sup>29</sup> (an American neurologist and psychiatrist and consultant to the American Chief Counsel for War Crimes), Alexander summarizes the results of his interrogation of Hallervorden in June 1945. He notes that Hallervorden "had obtained 500 brains from the killing centers for the insane. These patients have been killed in various institutions with carbon monoxide gas".<sup>29</sup> This is confirmed in the text of a progress report - prepared by Hallervorden for the Deutsche Forschungsgemeinschaft (German Association for Scientific

for Scientific Research) in December 1942: "The material is constantly being added to by the post-mortem department of the mental hospital in Gorden, which is directed by Dr. Eicke, who is also an assistant at this institute. All the cases examined there are investigated further by me and a written report is deposited. In addition, during the course of this summer, I have been able to dissect 500 brains from feeble-minded individuals".<sup>30</sup>

Hallervorden was remarkably frank in his discussion with Alexander and he is quoted at length. Parts of this interrogation were also quoted by the French prosecutor Mounier during the February 1946 proceedings of the Nuremberg War Crimes Trial of Karl Brandt, the Reich Commissioner of Medicine and Public Health, among others.<sup>31</sup> It is clear that Hallervorden himself initiated the collaboration with those operating the euthanasia centers: "I heard that they were going to do that, and so I went up to them and told them, 'Look here now, boys, if you are going to kill all those people, at least take the brains out so that the material could be utilized'".<sup>29</sup> He expresses a rapture for the scientific potential for the material provided: "There was wonderful material among those brains, beautiful mental defectives, malformations and early infantile disease".<sup>29</sup> He provided encouragement to those carrying out the killings: "They asked me: 'How many can you examine?' and so I told them an unlimited number - *the more the better* [author's italics]."<sup>29</sup> He acknowledges receipt of autopsy material from the euthanasia centers; "They came bringing them in like the delivery van from the furniture company. The Public Ambulance Society brought the brains in batches of 150-250 at a time".<sup>29</sup>

Participation was not limited to mere receipt of autopsy material: "I gave them the fixatives, jars and boxes, and instructions for removing and fixing the brains".<sup>29</sup> Heinrich Bunke, the physician with on-site responsibility for selecting and killing mentally disabled patients at Brandenburg-Gorden, spent 6 weeks in the spring of 1941 with Hallervorden, at the neuropathologist's invitation, at his Berlin-Buch laboratory, learning techniques of correct brain removal and preparation.<sup>27</sup> Bunke was convicted in 1987 of war crimes for his activities at Brandenburg-Gorden. Hallervorden also provided a technician from his laboratory to assist those at the extermination centers.<sup>32</sup>

Confirmation of *personal* participation is provided in a letter written by Hallervorden to Professor Nitsche (executed in 1948), the euthanasia

program chief assessor and organizer, dated March 8 1944: "I have received 697 brains in all, including those which I took out myself in Brandenburg".<sup>33</sup> The scope of this Brandenburg participation was discovered by Gotz Aly in his review of documents of the Eidinger Institute, where Hallervorden's wartime collection has been kept. On one day, Hallervorden arrived at Brandenburg and personally examined 33 children prior to death. He subsequently requested these brains for a research project entitled "Inherited Feeble-mindedness".<sup>34</sup> Hallervorden is known to have visited some of the extermination centers and on at least one occasion, as noted above, removed the brains from selected victims immediately after they were killed.<sup>32</sup>

While Hallervorden was a willing participant in the utilization of these materials, a medical technician notes that he felt a "great pity for these children"<sup>27</sup> and Bunke, at his trial, noted that Hallervorden felt that these killings were "unlawful".<sup>27</sup> Alexander also comments<sup>29</sup> that Hallervorden "always felt *slightly* nauseated when another batch (of brains) arrived." However, his moral judgment regarding his participation in the euthanasia program is best summarized by the following statement made to Alexander: "I accepted the brains, of course. Where they came from and how they came to me was really none of my business".<sup>29</sup>

Hallervorden observed the means of patient selection and its effects on medical personnel and commented chillingly<sup>29</sup>: "Most institutions did not have enough physicians, and what physicians there were were either too busy or did not care and they delegated the selection to the nurses and attendants. Whoever looked sick or was otherwise a problem patient from the nurses' or attendants' point of view was put on a list and was transported to the killing center. The worst thing about this business was that it produced a certain brutalization of the nursing personnel. They got to simply picking out those whom they did not like". Hallervorden never did comment, on the record, on the effects his involvement had on his own character.

**Commentary.** There can be no doubt from the foregoing that Julius Hallervorden had extensive awareness of, and personal involvement in, the euthanasia program carried out at the Brandenburg State Hospitals. Richardson,<sup>7</sup> in his biographic article, alludes to the questionable provenance of some of Hallervorden's neuropathologic material. Little remorse was expressed during Alexander's interrogation, the

only written record of Hallervorden's own postwar recollection of his participation.<sup>29,34</sup> However, Hallervorden was not a jack-booted Nazi, nor was he a known member of the National Socialist Physicians' League. His German biographer Krucke, in his only reference to the war years, describes Hallervorden as a "highly sensitive" man for whom the war was a "deep shock which brought him burdensome additional duties".<sup>6</sup> In the absence of any obligation on his part to participate and with his expressed doubts about the program's legality, we are left asking why Hallervorden participated with enthusiasm.

Perhaps it was an ingrained Prussian sense of duty to the office he held. Perhaps it was a belief in the eugenic promise of the racial hygiene theory. Jurgen Peiffer, Emeritus Professor of Neuropathology at the University of Tübingen and a contemporary of Hallervorden, feels that his colleague's primary motivation was that of scientific discovery: "an abiding interest in clarifying the pathogenesis of disease" that could lead "to improvement in diagnosis, treatment and genetic counselling".<sup>27</sup> The opportunity for "wonderful material" exerted a blinding effect and outweighed any perceived moral obligations or personal hesitations. The quest for scientific discovery had become an all-consuming passion. This sentiment was expressed by Hallervorden's mentor and Institute director, Hugo Spatz, during Spatz' questioning by Major Lee Alexander.<sup>29</sup>

However, the participation of respected scientists such as Hallervorden gave a veneer of scientific justification to the actions of those responsible for actually carrying out the euthanasia program.<sup>34</sup> Thinking that they might actually be contributing to the progress of mankind by providing pathologic material conferred a rationalization of moral legitimacy. Hallervorden's chilling comment, "the more the better", must be considered an incitement and pretext for further extermination. The children he examined prior to death were killed because their "lives were not worth living"<sup>9</sup> and their brains were worth dissecting.

Scientific objectivity bred detachment and distance from the object of study. This distance minimized any perceived intrinsic humanity or dignity for the victims, robbing them of the respect they deserved. Furthermore, the compartmentalization of labor (selection, transport, extermination, autopsy, etc) involved in euthanasia allowed participants the freedom from guilt, since overall responsibility could be rationalized to rest with the Fuhrer's original

memo to his Reichsleiter Bouhler.<sup>35</sup> There was, as Professor Von Weizsacker observed, "sacrifice by common consent".<sup>36</sup> But by becoming part of this killing machine, the participants dehumanized themselves as well as their victims, and *all* were essential links in a chain of death.

The opportunity of which Hallervorden availed himself provided material for several postwar publications. Perhaps the most disturbing is his description of the brain of a child who, at 5 months' gestation, suffered carbon monoxide poisoning when his mentally ill mother was gassed at Brandenburg.<sup>37</sup> This article is still cited as an example of environmentally induced polymicrogyria, invariably without consideration for the context in which the exposure occurred.<sup>38</sup> It is also an example of unethical research obtained without consent only through exploitation of a society's weakest members.<sup>35</sup> As stated in an editorial by Angell,<sup>39</sup> originally written in reference to the Dachau hypothermia experiments, "knowledge, although important, may be less important to a decent society than the way it is obtained". When the Hallervorden collection at the Eidinger Institute was laid to rest in 1990 because of the dubious origin of some of the specimens, Professor Kreutzberg eloquently said the following<sup>40</sup>: "The value of scientific discovery which could be gained from the histological preparations is of less importance to us. Of much greater value is the respect which we wish to show towards the victims". It is indeed tragic that this first attempt at respect was accorded almost 50 years after these wrongful deaths.

Hallervorden's tale is a poignant illustration that science does not exist in a vacuum. We live in an imperfect world where it occurs within a political and moral context, most often under political direction and funding that can easily subjugate moral obligations. If Rudolf Virchow is correct and "science has only one aim: to serve humanity", then scientists and physicians must firmly reject Hallervorden's contention that the way information is obtained is "really none of my business". Furthermore, with recent calls for the liberalization of euthanasia, physicians must ask themselves precisely whose burden (individual, familial, societal, or professional) they are alleviating, and be ever mindful of the possible effects professional involvement may have on personal integrity, as Hallervorden observed through first-hand experience.

## Acknowledgments

This article would not have been possible without the translation assistance of Mr. Abraham Pilcer. I would also like to thank the staff of the National Archives, Washington, DC, for their retrieval of key documents, and Dr. William Seidelman of Hamilton, Ontario, for his insights.

## References

1. Dooling EL, Schoene WC, Richardson EP. Hallervorden-Spatz syndrome. *Arch Neurol* 1974;30:70-83.
2. Gilman S, Barrett RE. Hallervorden-Spatz disease and neuroaxonal dystrophy: clinical characteristics and nosological considerations. *J Neurol Sci* 1973;19:189-205.
3. Park BE, Netsky MG, Betsill WL Jr. Pathogenesis of pigment and spheroid formation in Hallervorden-Spatz Syndrome and related disorders. *Neurology* 1975;25:1172-1178.
4. Hallervorden J, Spatz H. Eigenartige Erkrankung im extrapyramidalen System mit besonderer Beteiligung des Globus pallidus und der Substantia nigra. *Neurol Psychol* 1922;79:254-302.
5. Hallervorden J. Über eine familiäre Erkrankung im extrapyramidalen System. *Dtsch Zeit Nervenheilk* 1924;81:204-210.
6. Krucke W. Julius Hallervorden 1882-1965. *Acta Neuropathol (Berl)* 1966;6:113-116.
7. Richardson EP. Julius Hallervorden. In: Ashwal S, ed. *Founders of child neurology*. San Francisco: Norman Publishing, 1990:506-512.
8. Muller-Hill B. Interview with Susanne Liudicke. In: *Murderous science*. Oxford, UK: Oxford University Press, 1988:124-125.
9. Hoche A, Binding R. *Die Freigabe der Vernichtung lebens-unwerten Lebens*. Leipzig: F. Meiner, 1920.
10. Ploetz A. *Grundlinie einer Rassenhygiene, vol 1. Die Tüchtigkeit unserer Rasse und der Schutz der Schwachen*. Berlin: J F Lehmann, 1895.
11. Proctor RN. Origins of racial hygiene. In: *Racial hygiene - medicine under the Nazis*. Cambridge, MA: Harvard University Press, 1988:10-45.
12. Fischer E. Die Fortschritte der menschlichen Erblehre als Grundlage eugenischer Bevölkerungspolitik. *Dtsch Med Wochenschr* 1933;59:1069-1070.
13. Proctor RN. Political biology: doctors in the Nazi cause. In: *Racial hygiene - medicine under the Nazis*. Cambridge, MA: Harvard University Press, 1988:64-94.
14. Lennox WG. Should they live? Certain economic aspects of medicine. *American Scholar* 1938;7:454-466.
15. Kennedy F. The problem of social control of the congenitally defective: education, sterilization and euthanasia. *Am J Psychiatry* 1942;99:13-16.
16. Ramm R. *Arztliche Rechts- und Standeskunde, der Arzt als Gesundheitserzieher*. 2nd ed. Berlin: W de Gruyter, 1943.
17. Proctor RN. The sterilization law. In: *Racial hygiene - medicine under the Nazis*. Cambridge, MA: Harvard University Press, 1988:95-117.
18. Wagner G. Unser Reichsarztchef spricht. *Ziel und Weg*, 1935;5:431-437.
19. Klee E. *Euthanasie im NS-Staat, Die Vernichtung lebensunwerten Lebens*. Frankfurt: Fischer Taschenbuch-Verlag, 1983:46.
20. von Verschuer OF. *Erbpathologie: Ein Lehrbuch für Ärzte und Medizinstudierende*. 2nd ed. Leipzig, 1937.
21. Bundesarchiv, Koblenz, R22-4209.
22. Klee E. *Euthanasie im NS-Staat, Die Vernichtung lebensunwerten Lebens*, Frankfurt: Fischer Taschenbuch-Verlag, 1983:79.
23. Proctor RN. The destruction of "lives not worth living". In: *Racial hygiene—medicine under the Nazis*. Cambridge, MA: Harvard University Press, 1988:177-222.
24. Kaul F. *Nazimordaktion T4*. Berlin (East), 1973.
25. National Archives, Washington DC, Roll 18, T-1021.
26. Muller-Hill B. From the killing of mental patients to the killing of Jews and gypsies. In: *Murderous science*. Oxford, UK: Oxford University Press, 1988:39-65.
27. Peiffer J. *Neuropathology in the Third Reich*. *Brain Pathology*, 1991;1:125-131.
28. Muller-Hill B. Interview with Werner-Joachim Eicke. In: *Murderous science*. Oxford, UK: Oxford University Press, 1988:159-162.
29. *Neuropathology and Neurophysiology, Including Electroencephalography, in Wartime Germany*. Prepared for the Combined Intelligence Objectives Subcommittee (CIOS) by Major Leo Alexander. National Archives, Washington DC, Document L-170.
30. Bundesarchiv, Koblenz, R73-11449.
31. *Trials of war criminals before the Nuremberg military tribunals, 15 vols*. Washington DC, 1949-1952. Vol. VII: 96-97.