



Research article

Wolfgang Bargmann (1906–1978) and Heinrich von Hayek (1900–1969): Careers in anatomy continuing through German National Socialism to postwar leadership

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SUMMARY

None of the existing studies on the history of anatomy in National Socialism (NS) has yet explored the careers of those younger anatomists, whose professional development continued through NS times and who attained prominence in postwar German and Austrian anatomy. As they became modern anatomists' teachers and role models, the revelation that men like Wolfgang Bargmann and Heinrich von Hayek had used bodies of the executed for research in their early careers has recently led to some consternation. This study contributes to the analysis of the moral challenges inherent to a science that relies on work with "material" from human bodies and its interaction with its political environment. The results reveal that Bargmann and Hayek behaved like most other anatomists at the time, in that they used bodies of the executed for research and in that they joined the NS party or other NS political groups. As ambitious and successful young anatomists they may have felt that an early joining of NS affiliations was inevitable for the advancement of their careers. They and most of their colleagues became in some measure complicit with the NS regime. The complicated biographical realities of such luminous postwar figures as Bargmann and Hayek should lead modern anatomists to the questioning of their own ethical and political decisions in politically less demanding times.

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I realized [...] that there was a sharp distinction between what was remembered, what was told, and what was true.

Kevin Powers, *The Yellow Birds*, 2012

1. Introduction

Research on the history of anatomy in the Third Reich started late after the second world war due to anatomists' reluctance to acknowledge their own or their teacher's involvement in National Socialist (NS) policies. Meanwhile investigations of the history of several anatomical departments have been published since the late 1980s and some are currently under way (Hildebrandt and Redies, 2012). An overview of existing information shows that anatomists were both, supporters of the new regime as well as its victims, and that all anatomical departments used the bodies of NS-victims, including bodies of the executed, for anatomical purposes (Hildebrandt, 2009a, 2009b, 2009c). None of the existing studies has yet explored the careers of those younger anatomists, whose professional development continued through NS times and who attained prominence in postwar German and Austrian

anatomy. They became modern anatomists' teachers and role models. The revelation that these revered anatomists had used bodies of the executed for research in their early careers has recently led to some consternation among anatomists as well as the public (Aumüller and Grundmann, 2002; Redies and Hildebrandt, 2012). It is important to investigate these persons' careers in order to better understand anatomists' perceptions of their own work and behavior during the Third Reich and the development of postwar anatomy.

The current study focuses on the lives of Wolfgang Bargmann and Heinrich von Hayek, two anatomists whose work continued through and partly profited from the conditions provided by National Socialism, namely the ready availability of bodies of the executed. Both men rose to important positions of leadership after the war. Heinrich von Hayek became director of anatomy in Vienna, and Bargmann was recruited as director of anatomy in Kiel and in this role re-invigorated international relationships for German anatomy. Despite their prominence no accurate accounts of their early careers exist. Bargmann's and Hayek's postwar achievements will here be analyzed on the background of their activities during the Third Reich and in the light of the eyes of their contemporaries (Hildebrandt, 2012a, 2012b). This double portrait will contribute to the analysis of the moral challenges inherent to a science that relies on work with "material" from human bodies and the potential pitfalls waiting not only for active researchers working under criminal and unjust regimes but also for modern anatomy.

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2. Methods

Starting with biographical information from obituaries, the stations of Bargmann's and von Hayek's lives were identified, and archives of the universities at which they had worked were contacted. Archival information on Bargmann was available from the universities of Frankfurt, Kiel, Leipzig and Göttingen, and for Hayek from Munich, Würzburg, Rostock and Vienna. In addition, material on Bargmann was located at the Federal Archives of Germany (*Bundesarchiv*).

Archival material Wolfgang Bargmann:

- *Universitätsarchiv Leipzig, Signatur UAL, PA 1255: Personalakte Wolfgang Bargmann*
- *Universitätsarchiv Frankfurt am Main UAF Abt. 14, Nr. 2237 and Abt. 604, Nr. 521, Personalhauptakte Wolfgang Bargmann, and UAF Abt. 604, Nr. 521 Studentenakte Wolfgang Bargmann*
- *Universitätsarchiv Göttingen, Personalvorgang des Rektors, Brief des Rektors vom 16. Oktober 1945 an den Kurator der Universität*
- Federal archives:
 - membership card NSDAP
Mitgliederkarteikarte der NSDAP-Gaukartei (BArch (ehem. BDC), NSDAP-Gaukartei, Bargmann, Dr. Wolfgang, 27.1.06.)
 - file card physicians' association
Karteikarte der Reichsärztekammer (BArch (ehem. BDC), RÄK, Bargmann, Wolfgang Friedr., Dr. med. habil., 27.1.06.)
 - file card research council
Karteikarte des Reichsforschungsrates (BArch (ehem. BDC), RFR, Bargmann, Dr. habil.)
 - file card ministry of science and education
Karteikarte des Reichsministeriums für Wissenschaft, Erziehung und Volksbildung (BArch (ehem. BDC), REM, Bargmann, Wolfgang, Prof.)
 - file card physicians register for health insurance
Karteikarte des Reichsarztregisters der Kassenärztlichen Vereinigung Deutschlands (BArch, R 9347, Bargmann, Wolfgang F., Prof.)
 - file of the commissioner of the Führer for the observation of all ideological training and education of the NSDAP
Akte des Beauftragten des Führers für die Überwachung der gesamten geistigen und weltanschaulichen Schulung und Erziehung der NSDAP mit 1 Blatt zu Herrn Bargmann (BArch, NS 15/122, Bl. 40)
 - party correspondence
Parteikorrespondenz, 6 Blatt (BArch (ehem. BDC), PK, Bargmann, Wolfgang, Prof., 27.1.06.) UBS1/1000041204
 - files on support by the German research foundation
Beihilfeakte der Notgemeinschaft der Deutschen Wissenschaft bzw. der Deutschen Forschungsgemeinschaft, ca. 10 Blatt (BArch, R 73/10160.)
- *Landesarchiv Schleswig-Holstein (LA Schl-H):*
 - *Abt. 811, Nr. 12388*
 - *Abt. 460, Nr. 4392*
 - *Abt. Acc 59/11, Nr. 265*
 - *Abt. 605, Nr. 14386*
 - *Abt. 811, Nr. 12240*

Archival material Heinrich von Hayek:

- *Archiv der Universität Wien, Signatur PH RA 10184 Hayek, Heinrich, 1929; Signatur MED PA 189 Hayek, Heinrich, 1947–1969*
- *Universitätsarchiv Rostock, Personalakte Heinrich von Hayek, 1929–1938*
- *Bayerisches Hauptstaatsarchiv, Signatur MK 43720: Akten des Staatsministeriums für Unterricht und Kultus, Dr. von Hayek*

- *Archiv der Universität Würzburg, Personalakte Heinrich von Hayek: UWÜ PA272*

In addition to obituaries, autobiographical writings by Bargmann as well as original publications by the anatomists and secondary literature on Hayek and Bargmann were studied for further information. The papers of Alfred Benninghoff, bequeathed to the University Archives of Marburg (*Nachlass Benninghoff, Universitätsarchiv Marburg*), also held information on the anatomists. Communication with Wolfgang Bargmann's family revealed some information on his early life and the fact that no bequest of his papers (*Nachlass*) exists.

Explanations for putting the term 'material' in quotation marks when referring to human "material" as well as a definition of the term 'NS-victim' are given in Hildebrandt (2013c).

3. Wolfgang Bargmann

3.1. Childhood and education (1906–1932)

Wolfgang Bargmann was born as Wolfgang Friedrich Wilhelm Bardel on January 27, 1906 in Nuremberg. According to Bargmann's *Fragebogen* for the university of Leipzig from October 20, 1938 (personal information for the university administration) his parents were Friedrich Bardel (1876–1929), a bookseller, and his wife Henriette, née Eisenbeis (*Universitätsarchiv Leipzig, UAL, PA 1255, Fragebogen f. 3*). A 1958 copy of Bargmann's birth certificate refers to two changes of the original birth document: on February 4, 1913 Wolfgang Bardel received permission to carry the surname "Krauss", and on June 15, 1925 the name was changed to Bargmann. The businessman Wilhelm Fritz Bargmann, resident of Hankow, China, adopted Bargmann on November 2, 1926 (*LA Schl-H, Abt.811, Nr. 12388, Geburtsurkunde*). Kurt Fleischhauer's comprehensive obituary on Bargmann gave the name of Bargmann's father as Ludwig Krauss, also a bookseller, who was killed in action during the First World War, and whose widow then married Fritz Bargmann (Fleischhauer, 1979). Taking all this and corroboration from Bargmann's family into account, his biological father was Friedrich Bardel, his first stepfather Ludwig Krauss, who was killed in WWI, and his second stepfather Fritz Bargmann. As a child he staid with his grandmother in Frankfurt while his mother and Fritz Bargmann lived abroad. Otherwise very little documentation is available concerning Bargmann's early years. He went to school in Kiel, Lübeck, Cologne, and graduated from high school in Frankfurt/Main in 1926 (*UAL, PA 1255, Fragebogen f. 3 and Lebenslauf f. 21*).

Bargmann's fascination with morphology developed as a schoolboy, when he found himself attracted by the esthetics of the structure and function of living organisms. He pursued microscopic studies and experiments in a laboratory that he established in his own bedroom and which he financed by writing articles for journals (Bargmann, 1967, 1975). Bargmann followed his interest in zoology at the university of Frankfurt, but switched to the study of human medicine to learn more about the human body (Bargmann, 1967). He continued his studies in Munich, Vienna and Berlin, and received his medical degree in Frankfurt in 1932 (*UAL, PA 1255, f. 21; Fleischhauer, 1979*). In Frankfurt his foremost teachers were Karl Zeiger, who mentored his doctoral thesis (Fleischhauer, 1979; Bargmann, 1931), Franz Weidenreich and Hans Bluntschli (Bargmann, 1975). Under Zeiger's guidance he studied the histology of the renal glomerulus in animals and humans.

Among Bargmann's publications from this time period is his doctoral thesis on the comparative anatomy of the glomerulus, published in 1931. He described his human "material" as consisting of 14 kidneys, which had been "kindly provided by" Prof. Heidenhain

(anatomy, Tübingen), Prof. Henneberg (anatomy, Giessen), Prof. Peter (anatomy, Greifswald), Prof. Petersen (anatomy, Würzburg), Prof. Volhard (internal medicine, Frankfurt) and Prof. Fischer-Wasels (pathology, Frankfurt), adding that the majority of these kidneys came from executed men (Bargmann, 1931, p. 85). Further on in the text he continued referring to tissues from the executed (Bargmann, 1931, pp. 97–101).

3.2. Early career (1933–1945)

In 1933 Hans Bluntschli, chairman of the anatomical department in Frankfurt, offered Bargmann a position as assistant, which he accepted (Fleischhauer, 1979; Bargmann, 1975). During that year he befriended Ernst and Berta Scharrer, who had recently moved from Munich, bringing their work on secretory nerve cells in the brain of invertebrates and vertebrates with them to the Ludwig Edinger Institute in Frankfurt. Ernst Scharrer had been named as successor of Tilly Edinger, the paleo-neurologist and daughter of the founder of the institute, who had been forced to leave the position of assistant at the institute and emigrate due to her so-called “non-Aryan” descent (Peiffer, 1998). Bargmann and Ernst Scharrer probably first met during the anatomical dissection course in which Ernst was volunteering as a teacher (Doerr and Korf, 1995). The Scharrer’s shared their scientific findings with Bargmann, who was impressed by the quality of their work, even though the concept of neurosecretion was still controversial at the time (Fleischhauer, 1979; Bargmann, 1975). In 1934 Bargmann left Frankfurt to pursue his career as assistant to Wilhelm von Möllendorff, chairman of anatomy in Freiburg.

Möllendorff left Germany, at least in part for political reasons, and accepted a position as chairman of anatomy at the university of Zurich in 1935. Bargmann, who had married Charlotte Hauptfleisch in the same year, followed him (Hildebrandt, 2012a; Fleischhauer, 1979). During this time with Möllendorff Bargmann wrote his thesis (*Habilitation*) for the *Venia legendi* (permission to teach at a German university) on the topic of the kidneys of selachians. The thesis was accepted by the university of Freiburg in 1937 (UAL, PA 1255, f. 12). Among the many other publications from the Frankfurt/Freiburg/Zurich period with their very varied subjects from studies on teeth to those of pulmonary alveoli and the history of medicine, was again a paper on the histology of human kidneys using “material” from the executed (Bargmann, 1938). It is unclear whether this “material” stemmed from Switzerland or had been brought from Germany when Möllendorff and Bargmann moved to Zurich, or came from another source altogether. He also contributed chapters on pulmonary alveoli, the thyroid, the parathyroid and the endocrine pancreas to Möllendorff’s *Handbuch der mikroskopischen Anatomie* (textbook of histology) (Fleischhauer, 1979).

In 1938 Bargmann was offered and accepted the opportunity to advance his career by becoming the prosector (junior faculty position in anatomy) at the university of Leipzig, where Max Clara was director of the anatomical institute (UAL, PA 1255). Clara was at that time one of the leading anatomists in Germany, who was appreciated by some of his colleagues for the excellence of his histological work and resented by others, because they saw his swift career advancement as a result mainly of his National Socialist activism (Winkelmann and Noack, 2010). In September 1940 Clara strongly supported Bargmann’s promotion to *ausserplanmäßiger* professor (professor without tenure), a position he attained in 1941 (UAL, PA 1255, ff 15 and 26). Bargmann served as a physician in the military during the year of 1940 (UAL, PA 1255, f 21). Clara’s working group in Leipzig was among the most productive German anatomical departments during that time period. Much of the research was based on work with “material” from bodies of the executed (Hildebrandt, 2013c). Among the 8 original publications produced by Bargmann during his time in Leipzig, two made use of

“material” from the executed, one focusing on splenic vasculature (Bargmann, 1941a) and the other on the structure of the thymus (Bargmann, 1941b). In addition, he mentored two students who published results of studies that were based on tissues from the executed (Schneider, 1939; Teichmann, 1940).

On January 1, 1942 Bargmann became section chief and tenured professor at the anatomical department of the university of Königsberg, which was directed by Robert Heiss (UAL, PA 1255, ff 27 and 28). Apart from gross anatomy and histology he taught history of medicine and published a paper on the history of anatomy in Königsberg (Bargmann, 1943; Fleischhauer, 1979). He also contributed chapters on the epiphyseal gland and the thymus to Möllendorff’s *Handbuch*. His research interests still spanned a variety of subjects, and three of the four original publications from this time made use of “material” from the executed (Bargmann, 1942; Bargmann and Scheffler, 1943a, 1943b), among them his first study of neurosecretion in the human hypophysis (Bargmann, 1942). In addition, he mentored two students whose studies on tissues from the executed were published in 1945 (Ziesche, 1945; Steege, 1945). According to these articles the anatomical department had collected a great number of tissues from the executed, e.g. “intestines from 18 executed persons aged 17–52, fixated immediately after death” (Bargmann and Scheffler, 1943b, p. 7, translation by author) or “10 hypophyses from executed persons ages 17–44, fixated while still warm from the body” (Bargmann, 1943, p. 395, translation by author). During a longer illness of Robert Heiss, Bargmann became acting director of the anatomical department from January to November 1943 (BArch, PK, Bargmann, Wolfgang, Prof., 27.1.06, UBS1/1000041204). After the summer semester of 1944 regular teaching stopped at the university of Königsberg due to the impending siege by the Soviet army (Bruns, 2009, p. 113). Bargmann examined the last medical students of Königsberg in January 1945 and then fled the city, taking some of the inventory of the institute with him and joined his family in Bavaria (Bargmann, 1975; Sano, 1979).

Of the 30 original publications Bargmann wrote between 1929 and 1945, 7 were based on studies of “material” from executed persons. Most of the others were studies of animal tissues. In addition, he mentored at least 4 students in investigations using “material” from the executed. For a list of these publications see Table 1. In contrast to other anatomists, Bargmann did not publish any further studies from this “material” after the war (Hildebrandt, 2013c).

3.3. Postwar career (1945–1978)

During the months in Bavaria Bargmann started work on his later popular textbook “*Histologie und mikroskopische Anatomie des Menschen*” (histology and microscopic anatomy of the human, Fleischhauer, 1979). In the fall of 1945 he accepted the position of acting director of the anatomical department at the university of Göttingen. He left Göttingen in February 1946 to become director of the department of anatomy at the university of Kiel, where he was to stay for the rest of his life despite several prestigious offers from other universities (Universitätsarchiv Göttingen, *Personalvorgang des Rektors, Brief des Rektors vom 16. Oktober 1945 an den Kurator der Universität*; Bargmann, 1975; Fleischhauer, 1979). Kiel was almost completely destroyed following the bombing raids of WWII, including the buildings of the university. Bargmann spent the first years after the war physically rebuilding the anatomical department and dealing with internal problems of the anatomical institute that developed after the war. Among them were inquiries by relatives of executed political prisoners who were trying to trace the human remains of their loved ones in 1946 (Dr. Ratschko, personal information; Buddecke, 2010, 15 ff). Shortly after the end of the war in 1945 police had ordered the anonymous interment of all bodies left in the ruins of the anatomical institute in Kiel. Enno

Table 1
Original publications mentioning the use of “material” of the executed authored or mentored by Wolfgang Bargmann.

Bargmann, W., 1931. Über Struktur und Speicherungsvermögen des Nierenglomerulus. <i>Z Zellforsch Mikro Anat</i> 14:73–137 - “material”: 14 kidneys, mostly from executed persons (p.85)
Bargmann, W., 1938. Über die Gitterfasern des Nierenglomerulus. <i>Z Zellforsch Mikr Anat</i> 28:99–102 - 2 images with legends mentioning the source of the tissue as an executed man (pp. 100, 101)
Bargmann, W., 1941a. Zur Kenntnis der Hülsenkapillaren der Milz. <i>Zeitschr f Zellforsch</i> 31(4):630–647 - 1 image mentioning the source of the tissue as an executed 30-year-old man (p. 645)
Bargmann, W., 1941b. Neuere morphologische Untersuchungen zum Thymusproblem. Eine kritische Betrachtung. <i>Zbl Inn Med</i> 62:713–720 - 1 image mentioning the source of the tissue as an executed 43-year-old man (p. 717)
Bargmann, W., 1942. Über Kernsekretion in der Neurohypophyse des Menschen. <i>Z Zellforsch</i> 32(3):394–400 - 10 hypophyses from executed persons aged 17–44, fixated immediately after death (p. 395)
Bargmann, W., Scheffler, A., 1944. Über den Saum des menschlichen Darmepithels. <i>Z Zellforsch</i> 33(1–2), 5–13 - intestines from 18 executed persons aged 17–51, fixated immediately after death (p. 7)
Bargmann, W., Scheffler, A., 1944. Zur Frage der parthogenetischen Furchung menschlicher Ovarialeizellen. <i>Anat Anz</i> 94: 97–100 - ovary of a 28-year-old executed woman (p. 98)
supervised by Bargmann:
Schneider, HJ., 1939. Über die Speicherung von Vitalfarbstoffen im Thymusretikulum. (Mit Bemerkungen über die Architektur des Thymus.) <i>Z Anat Entw</i> 113(1):187–203 - several thymus glands from executed persons (p. 639)
Teichmann, W., 1940. Über die Gitterfasern des Thymus. <i>Z Zellforsch</i> 30(5):689–701 - “material” from executed men aged 18, 25 and 40 years (p. 690)
Ziesche, KT., 1945. Zur Histologie des Tuber cinereum des Menschen. <i>Z Zellforsch</i> 33(1–2):143–150 - 8 tubera from decapitated persons aged 19–40 (p. 144)
Steege, H., 1945. Über den histotopochemischen Nachweis von Vitamin C in der menschlichen und tierischen Schilddrüse. <i>Z Zellforsch</i> 33(3):412–423 - thyroid glands from 11 decapitated men aged 18–49 (p. 414)

Freerksen, director of the department since 1941, had the bodies buried in a mass grave at the Eichhof cemetery in June 1945, shortly before his imprisonment by the British occupying forces. All relevant documentation on the identity and disposal of the bodies was lost during the war. Bargmann responded to the relatives' questions by pointing to this lack of information and did not actively support outside efforts to investigate this issue (Buddecke, 2010, p. 17/18). It took an exhumation of the graves in 1947 to identify some of the victims of the NS regime who had ended up in the anatomical department. These remains were subsequently re-interred in a grave of honor in Hamburg.

A critical situation of a different kind arose when Enno Freerksen asked for re-instatement in his position as director of the institute after going through de-nazification proceedings (Buddecke, 2010). Freerksen had been a politically active National Socialist (Oehler-Klein, 2007), who despite his membership in the SS was classified as a “fellow traveler” in his de-nazification process and thus had a legal right to re-claim his former position. However, the university had already recruited Bargmann. The situation was resolved when Freerksen was offered a professional opportunity at the Tuberculosis Research Institute in Borstel (Buddecke, 2010).

Bargmann further had to deal with the problems of re-connecting with the anatomical world community. Looking back on this time he formulated in 1975: “[...] it was still difficult for German research workers to make personal contact with the outside world and to have discussions on an international level.” (Bargmann, 1975, p. 40). However, he was helped in this by starting a correspondence with emigrants like the Scharrers in the US and Paul Gleys in Oxford, England, as well as later with a travel-grant by the Rockefeller Foundation in 1950 (Bargmann, 1967, 1975; Hildebrandt, 2012a). In 1948 Bargmann had been able to expand on the Scharrer findings by applying a new staining technique to the question of the relationship between the hypothalamus and the hypophysis, thus proving the existence of a continuous neuronal system connecting the hypothalamus with the posterior hypophysis in mammals (Bargmann, 1949, 1975). The study was the foundation for his further work and international fame. In the years to come he continued this line of inquiry but, deeply

concerned about the comprehensive education of a new generation of physicians and scientists, also took on various official roles in the rebuilding of German universities and their international contacts, the science of anatomy in Germany and medical education in general (Bargmann, 1951, 1953, 1955, 1957). Wolfgang Bargmann served twice as president of the university of Kiel, helped re-activate the *Anatomische Gesellschaft* in 1946 (anatomical society of Germany, an international organization; Kühnel, 1989; Winkelmann, 2012) and became a leader in German science and university politics and international anatomy (Fleischhauer, 1979). As a man of principle, charm and scientific insight he was much admired by his colleagues nationally and internationally (Scharrer and Bern, 1979), but in his unwillingness to political compromise also incited conflict with a younger generation later in his life (Fleischhauer, 1979). Bargmann, the recipient of many national and international honors, retired from his position at the anatomical department in Kiel in 1974 and died suddenly of a cerebral hemorrhage on June 20, 1978 in Kiel (Scharrer and Bern, 1979; Fleischhauer, 1979; Sano, 1979).

3.4. Evaluation of Bargmann's early work by himself and others

Looking back on his work before 1945, Bargmann remarked that he “followed the endocrine line” of inquiry “but without getting remarkable results.” (Bargmann, 1975, p. 38). He also called his early scientific writings “[...] literary sins I committed as a young man during the 1930s and early 1940s [...]” (Bargmann, 1967, p. 5). There is no indication of what exactly he considered as the “sin” in his early manuscripts: was it only the lack of scientific focus or possibly also the choice of “material” from executed persons, even if it was seen as ethically acceptable at the time? Bargmann firmly attributed his later success in the field of neuroendocrinology to his acquaintance with the Scharrers and their research (Bargmann, 1965, 1975).

However, even at this early stage of his career Bargmann's contemporaries saw him as an accomplished histologist and promising candidate for future leadership in anatomy. In 1932 Bluntschli chose Bargmann, who had just finished his medical studies, as his

new assistant, judging his histological work as excellent (UAF Abt. 14, Nr. 2237, Bl. 1R, copy letter Bluntschli to *Kuratorium der Universität Frankfurt a.M.*). In 1939 the dean of the medical faculty in Leipzig recommended Bargmann as a definite candidate for a chair in anatomy (UAL, PA 1255 f.7). A year later Max Clara agreed with this assessment and called Bargmann one of the most able and ambitious younger anatomists (UAL, PA 1255 f. 16). In 1943 Hermann Stieve praised not only Bargmann's research but also his pedagogical talent. Stieve, Eduard Pernkopf from Vienna and Helmut Becher from Münster recommended him for a chairmanship (*BARCh, PK, Bargmann Wolfgang, Prof., 27.1.06, UBS1/1000041204*). In October 1945 Rudolf Schoen, dean of the medical faculty in Göttingen, endorsed Bargmann as interim chair of anatomy by describing him as an energetic and recognized histologist (Universitätsarchiv Göttingen, *Personalvorgang des Rektors, Brief des Rektors vom 16. Oktober 1945 an den Kurator der Universität*). In November 1945 Professor Netter of the university of Kiel began the search for a successor of the dismissed chair of anatomy Freerksen by soliciting opinions from German anatomists. Most responded by recommending Bargmann as highly competent (LA Schl-H Abt. Acc 59/11, Nr.265). Interestingly, Alfred Benninghoff's 1945 assessment of Bargmann's potential was different from that of his colleagues'. He suggested 6 anatomists who had lost their positions due to political circumstances. Other than Bargmann he listed Arno Nagel (formerly chair Halle and Benninghoff's step-brother), Adolf Dabelow (formerly chair Leipzig), Rudolf Spanner (formerly chair Danzig), Klaus Niessing (assistant Leipzig) and Heinrich von Hayek (formerly Würzburg). Benninghoff ranked Bargmann as the weakest among these candidates. While he considered him as industrious and knowledgeable he found his work not promising. Benninghoff conceded that his judgment might be one-sided in this case but gave no further reason for this one-sidedness (LA Schl-H Abt. Acc 59/11, Nr.265, letter Benninghoff to Professor Netter from November 30, 1945). Benninghoff's 1945 evaluation of Bargmann seemed to have changed from one he had given in 1941 in a letter to Professor Mauz of the university of Königsberg from October 2, 1941. Mauz was looking for a successor to Professor Zeiger and Benninghoff recommended Bargmann as a suitable candidate among a handful of others (*Nachlass Benninghoff, Universitätsarchiv Marburg*).

3.5. Political aspects of Bargmann's life from 1933 to 1945

Bargmann became a member of the NSDAP (National Socialist party of Germany) on May 1, 1933 (*BARCh, NSDAP-Gaukartei, Bargmann, Dr. Wolfgang, 27.1.06*). An entry in Bargmann's Leipzig personnel files written in his own hand on December 1, 1940 gave his NSDAP membership number as 2398533 and the number of his NSDAP *Auslands-Ausweis* (membership of exiles) as 67751 of the local group in Zurich. He was also a member of the NS *Volkswohlfahrt* (NS welfare organization), the NS lecturers' organization (*NS-Dozentenbund, UAL, PA 1255, f. 24*) – a membership that he omitted in his *Fragebogen* in Kiel 1947 (*LA Schl-H, Abt.460, Nr.4392*), the Reich physicians' organization (*BARCh, RÄK, Bargmann, Wolfgang Friedr., Dr. med. habil., 27.1.06.*) and he was registered as a physician working for the general health insurance (*Kassenärztlichen Vereinigung Deutschlands BARCh, R 9347, Bargmann, Wolfgang F., Prof.*). Other than these memberships, there is no evidence that Bargmann was politically active during the Third Reich. Unusual however may be his joining the NSDAP as early as 1933, which can be interpreted as a sign of early consent with the party. It is interesting to note that Bargmann's mentor Karl Zeiger also joined the NSDAP in May 1933, with the member number of 2711560. Zeiger was a member of the NS lecturers' and teachers' organizations and served as a *Gebietsarzt* (regional physician) for the Hitler youth (*Bussche, 1989; Aumüller et al., 2001; Klee,*

2003). Bargmann's NS memberships ensured his employability as a young academic, who depended on personal recommendations by his superiors. Such recommendations included, at least in the higher echelons of academic life, increasingly not only evaluations of professional competence but also of personal politics. Especially the active National Socialist Max Clara was known for his severe political judgment (*Winkelmann and Noack, 2010*) and it is unlikely that he would have supported Bargmann as decisively as he did if the latter had not been at least superficially politically conform with NS party standards. The political memberships may have helped Bargmann in receiving funding of his research through government grants. In summer 1939 he, then in Leipzig, applied to the German research foundation for support of studies in epithelial cell growth in culture (*Beihilfeakte der Notgemeinschaft der Deutschen Wissenschaft bzw. der Deutschen Forschungsgemeinschaft, BARCh, R 73/10160.*) He was granted money to employ a research technician, but the purchase of a centrifuge was denied. In 1944 in Königsberg he still pursued cell culture studies, trying to assess the influence of vitamins on epithelial growth. A grant application to the *Reichsforschungsrat* (Reich research council) was supported by the leading physicians Brandt and Sauerbruch and Bargmann was given a *Wehrmachtsauftrag* (commission by the German armed forces) on January 8, 1945 with the number K So RFR. 0832-3470/10-III/46 (*Karteikarte des Reichsforschungsrates, BARCh, RFR, Bargmann, Dr. habil.*). It is unlikely that any such work was carried out given the impending end of the war and Bargmann's flight from Königsberg.

Throughout his early career Bargmann must have been keenly aware of the changes in his professional field brought about by NS discriminatory policies starting in 1933. Hans Bluntschli, his department chair in Frankfurt and a known pacifist, was dismissed from his position for political reasons in April 1933 and returned as director of anatomy at the university of Bern to his native Switzerland (*Strauss, 1964; Drabek, 1988; Hammerstein, 1989; Kreft, 2008*). Franz Weidenreich, chair of the institute of physical anthropology in Frankfurt, was dismissed because of his so-called "non-Aryan" descent and emigrated to the US in 1934 (*Hertler, 2008*). Wilhelm von Möllendorff had to relinquish his position of president of the university of Freiburg to Martin Heidegger after only a few days of tenure in April 1933 because of his social democratic convictions and emigrated to Switzerland in April 1935 (*Schulze-Baldes, 2002; Seidler and Leven, 2007*). The Scharrers may have tried to adjust to the new regime in the beginning. According to Tilly Edinger, Ernst Scharrer had joined the SA (*Sturmabteilung*, storm troopers) on suggestion by Bernhard Fischer-Wasels, acting director of the neurological institute at Frankfurt – even though Scharrer himself had stated in 1962 that he had been able to avoid any political affiliations (*Kohring and Kreft, 2003; Doerr and Korf, 1995*). However, Berta and Ernst found themselves ultimately unable to conform with life in NS Germany in the long run and seized the opportunity of a Rockefeller scholarship in Chicago to leave Germany for good in 1937 (*Purpura, 1998*).

In the absence of any autobiographical statements by Bargmann concerning the politics of these times, the assessment of his political and professional decisions can only be based on conjecture. Bargmann clearly fulfilled the political necessities in terms of NS membership to enable his career development in NS Germany, and while he worked for a while with the political dissident Möllendorff in a foreign country, he had no scruples to return to Germany and work for the active National Socialist Max Clara. Apparently he saw no need to emigrate like his friends the Scharrers. His political convictions must have been either not particularly strong against the regime, thus enabling him to compromise with the political situation, or he might have been in mild acquiescence. There is no evidence for any overt political activity on his part in the form of pro-NS publications and speeches or official posts in any of the NS

formations. In his denazification trial Bargmann was categorized as “exonerated” despite his early joining of the NSDAP based on a statement by Professor von Mikulicz whom Bargmann cited as witness to his having been in trouble with the NS regime (LA Schl-H, Abt 460, Nr. 4392, *Fragebogen* from January 1, 1947 and German denazification panel-categorization in accordance with Z.E.I. No 54 December 3, 1947). Unfortunately this witness statement is currently not available. No other information on Bargmann’s private or professional life mentioned any such political problems and the statement may have been of the then quite common “white-washing” kind. This conclusion seems likely as the here mentioned Professor von Mikulicz was the Königsberg chair of gynecology, Felix von Mikulicz-Radecki, an active supporter of NS policies and specialist in sterilization by irradiation (Remy, 2003).

After the war Bargmann saw the long separation of German science from international developments as fatal and necessitating tenacious efforts by him and his colleagues to reconnect with their international peers (Bargmann, 1951, p. 15). Bargmann stated that “Following the catastrophe of the Third Reich, it was not easy for German scientists to participate in the development of an entirely new field of research. Germany, and especially her universities, had suffered materially, intellectually and morally.” (Bargmann, 1967, p. 6). It is unclear whether he included his own political and professional activities during the Third Reich as having “suffered morally”.

4. Heinrich von Hayek

4.1. Childhood and education (1900–1929)

Heinrich von Hayek was born on October 29, 1900 in Vienna, Austria, as the grandson of a professor of zoology and the son of a physician and professor of botany (Platzer, 1971). He grew up in an intellectual and science-friendly household with two brothers. The younger was Erich, who became a professor of chemistry, and the older Friedrich August Hayek, a Noble laureate in economy in 1973 (Ebenstein, 2001). The family was of minor nobility, but after 1919 they were not allowed to carry the nobility title “von” within Austria any longer (RIS, 2012). Hayek received his schooling in Vienna and began to study medicine in October 1918, attaining his medical degree in Vienna on March 11, 1924. He had not been drafted as a soldier in WWI because of a diagnosis of malnutrition in 1917 (Universitätsarchiv Rostock, *Personalakte* Heinrich von Hayek, 1929–1938, f. 22). Since September 1923 he worked as a junior assistant at the anatomical department of the university of Vienna under the guidance of Professor Ferdinand Hochstetter. At the same time he started studying zoology, earning an additional doctorate in 1929 (Archiv der Universität Wien, Signatur PH RA 10184 Hayek, Heinrich, 1929, *Curriculum Vitae*). He published 14 papers during this time, mostly on topics of comparative anatomy of the head and neck bones (Platzer, 1971).

4.2. Early career (1929–1945)

In 1929, Hayek was appointed as a ‘second prosecutor’ (senior assistant) at the anatomical institute of the university of Rostock, Germany, which was directed by Curt Elze. Elze, himself a pupil of Hochstetter (Buddrus and Fritzlar, 2007), justified the recruitment of an Austrian scholar with a lack of suitable German candidates (Universitätsarchiv Rostock, *Personalakte* Heinrich von Hayek, 1929–1938, f. 1 Letter Elze to university of Rostock). In 1930 Hayek received the *Venia legendi* for his *Habilitation*-thesis on comparative embryology in vertebrates. During his time in Rostock Hayek met and married his wife, and they later had three children (Platzer, 1971). Apart from his involvement in the teaching of anatomy, Hayek pursued research in diverse areas such as

embryology and angiology and published 15 papers between 1930 and 1935. Among these was his first investigation based on the use of “material” from an executed person. In this he described how he injected “fresh” bodies of the executed with formol-alcohol to cause the musculature to contract, so that he could study possible changes in periarticular arteries (Hayek, 1935).

In 1935 Hayek was recruited as professor of anatomy at the Tongji University in Shanghai, China. This Chinese university had been originally founded as a German medical school in 1907 and came under Chinese governance in the 1920s. The anatomy department had been traditionally directed by German professors (Tongji, 2012). The dean of the medical school in Rostock supported Hayek’s move to China by asking his superiors to grant Hayek the German title of a professor earlier than officially planned, so as to ensure Hayek’s authority in the foreign country (Universitätsarchiv Rostock, *Personalakte* Heinrich von Hayek, 1929–1938, letter *Dekan der Medizinischen Fakultät*, 22 November 1935). Hayek arrived in Shanghai in late 1937 and was able to further expand the department of anatomy while teaching medical students and performing some research. In the summer of 1937 the institute was destroyed during hostilities in the Chinese–Japanese war. Hayek had to flee to inner China with other university members, trying to continue teaching there in primitive circumstances, while his family stayed in Shanghai. In December 1937 the German government offered Hayek a position as senior assistant at the anatomical institute at the university of Würzburg. He answered that he would accept the post gladly, unless the German government wanted him to hold out in his difficult situation in China to ensure a continued German presence at the Tongji University until the end of his contract in the summer of 1938. Ultimately the Chinese authorities did not allow the earlier termination of the 3-year contract and he was not able to return to Germany before the fall of 1938 (Bayerisches Hauptstaatsarchiv, Signatur MK 43720, *Lebenslauf* 26.9.38; *Der Reichs- und Preussische Minister*, 23 Dezember 1937; and letters v. Hayek to Professor Petersen, 28.1.1938 and 4 April 1938). During his time in Shanghai Hayek published 7 papers in Chinese and German journals, the subjects ranging from general anatomical topics like the interaction of thorax, lung and heart, to a racial anthropological study on the frontal lobes of Chinese brains (Platzer, 1971; Hayek, 1937).

Hayek started his work in Würzburg on September 1, 1938 (Bayerisches Hauptstaatsarchiv, Signatur MK 43720, *Dienst-Vertrag*). He was responsible for lectures and laboratory teaching of medical students and pursued his research interests. He also served, at the level of a *ausserplanmässigen Professor* (non-tenured professor), as interim director of the institute during professor Petersen’s illness in 1939/1940 until Curt Elze’s appointment in 1940 (Bayerisches Hauptstaatsarchiv, Signatur MK 43720, letter *Bayerisches Staatsministerium für Unterricht und Kultus*, 21 Februar 1939). In December 1944 a recruitment as associate professor to the anatomical institute at the university of Hamburg was under discussion but never materialized, possibly due to an unfavorable political assessment (Bayerisches Hauptstaatsarchiv, Signatur MK 43720, letter Hayek to president of the university of Würzburg, 28. Dezember 1944; *Abschrift: Die Spruchkammer II Würzburg-Stadt, Ludwigskaai H/a384/46*, 11 Dezember 1946). During a bombing raid on the 16th of March 1945 the city of Würzburg, including its university, was destroyed by 90%. The anatomical institute suffered extensive damage and the medical school remained closed until 1947 (Uni-Wuerzburg, 2012). Hayek, as deputy head of the anatomical department, was in charge of the rebuilding of the institute directly after the war (UWÜ PA272, *Bestätigung Rektorat der Universität Würzburg*, 6 Juni 1945). However, on August 10, 1945 he was dismissed by the occupying military forces from his university position together with other faculty members because of membership in the NSDAP (Bayerisches Hauptstaatsarchiv, Signatur MK

43720, letter Hipp to Hayek, 24 August 1945; UWÜ PA272, *Abschrift von der Abschrift, Nr. V 18445, der Bayer. Staatsminister für Unterricht und Kultus, 24. August 1945*).

Of the 17 papers he published between 1938 and 1945, most of which were focused on pulmonary histology, 9 explicitly referred to “material” from the bodies of executed persons used for the studies (see Table 2). In a manuscript from 1940 Hayek emphasized that for the study of the interlobar septa of the lungs “of course the lungs of younger executed persons are most suitable” of which he had “several at his disposition” (Hayek, 1940, p. 405, translation by the author). Indeed, bodies of executed victims of the NS regime were readily available, as 120 out of 910 bodies received by the anatomical institute in Würzburg between 1935 and 1945 had been delivered from execution sites. In addition, through mediation by Werner Heyde, a leading organizer of the so-called euthanasia action, the institute secretly received the bodies of 80 euthanasia victims from a psychiatric institution. These victims had been killed by carbon monoxide poisoning in 1941 or 1942 (Blessing et al., 2012). In fall 1945 Hayek reported in his *Fragebogen* of the military government of Germany (mandatory questionnaire to be filled out for de-nazification proceedings) that in 1941 or 1942 a higher-ranking SS officer had come to the anatomical institute to take an oath from Hayek and some other institute members in Elze’s presence concerning the secrecy of the bodies received by the department and the proceedings in the basement morgue (UWÜ PA272, *Fragebogen 1945, zu Frage 99*).

4.3. Postwar career (1946–1969)

Documents from his personnel files show that Hayek tried himself and through personal connections to promote his rehabilitation for academic service at the university of Würzburg and also found support through Curt Elze (Bayerisches Hauptstaatsarchiv, *Signatur* MK 43720, letters *Georg Kropp an Staatsminister Dr. Hundhammer 21 Januar 1947, 21 Oktober 1947*; UWÜ PA272, letters *Elze An den Herrn Dekan der Med. Fakultät Würzburg 28 August 1947* and *Hayek An den Herrn Dekan der Med. Fakultät Würzburg 1 September 47*). Hayek called this time period “an externally difficult time, during which practical scientific work was impossible in Germany [...] and in which the distance from individual problems and teaching gave the opportunity to see the greater context [...]” (Hayek, 1953, p. IV, translation by the author). He used these years to write his textbook on the human lung, based in great part on the scientific results he gained from work on “material” from bodies of executed NS victims, as can be seen from quotes of his earlier publications (Hayek, 1953). He also took part in the first German anatomy meetings after the war in 1946 and 1947, presenting studies on neonatal lungs (Hayek, 1946) and on adult pulmonary tissue “fresh as in life” (Hayek, 1948b).

Hayek was finally reinstated as non-tenured professor of anatomy at the university of Würzburg on November 20, 1947 and resumed his teaching and research activities (Bayerisches Hauptstaatsarchiv, *Signatur* MK 43720, letter *Bayerisches Ministerium für Unterricht und Kultus an das Rektorat der Universität Würzburg 20 November 1947*). He also seized opportunities to reconnect with the community of international anatomists after what he called “a time of scientific isolation” (Hayek, 1953, p. IV, translation by the author). In 1951 Hayek was asked by three different universities to become chairman of an anatomical department: Vienna, Rostock and Jena. He was happy to accept the Viennese offer in January 1952 (Bayerisches Hauptstaatsarchiv, *Signatur* MK 43720, letters *Hayek An seine Magnifizenz, den Rektor der Universität Würzburg 2 Mai 1951, Hayek An den Herrn Dekan der Medizinischen Fakultät Würzburg 21.1.52*). Hayek’s employment as full professor of anatomy in Vienna started on March 10, 1952 and he remained

in this position until his death on September 28, 1969. He also served as interim chair of histology and embryology in 1957 and as dean of the medical school in 1960/61 (Platzer, 1971; *Archiv der Universität Wien MED PA 189, ff. 25 and 32, letters Dekan An das Bundesministerium für Unterricht 10 März 1952, and 28.1.1957*). While one of his main tasks in the beginning was the completion of the rebuilding of the anatomical institute, it later became the exploration of new sources for body procurement. After the war a dire shortage of bodies for anatomical dissection had developed in Vienna and, according to Walter Krause – one of Hayek’s colleagues – Hayek focused on the promotion of a voluntary body donation program. He successfully mobilized the mass media in the education of the general population concerning the need for body donation for the training of physicians, so that by the time of his death the body supply was again sufficient (Walter Krause in: *Archiv der Universität Wien MED PA 189, ff 40 and 41, Nachruf Univ. Prof. DDr. Heinrich Hayek*; also: Platzer, 1971). In the first years after the war Hayek continued to publish studies based on “material” from the NS period. However, the wording of the description of the “material” avoided the direct mention of “bodies of the executed” (see Table 2). Instead he referred to “*lebensfrische Fixierung*” (“fixation of tissue as fresh as in life”, Hayek, 1948a, p. 123) and “*Lungen von vier kräftigen jungen Männern*” “in frischem Zustand fixiert” (“lungs of four well-built young men” “fixed in fresh condition” (Hayek, 1950a, p. 88, with reference to Hayek, 1941; similarly Hayek, 1950b). Hayek became well known nationally and internationally for his work and was recognized as the leading authority on the anatomy of the lungs. He was also highly appreciated by the community of foreign students in Vienna whom he actively supported. He received several high honors from Austrian and foreign scientific societies and from the Danish government (Krause, see above; Platzer, 1971). Hayek’s book on the human lung became a standard reference in anatomy. However, the fact that much of his research on the subject was based on work with “material” from executed persons was never publicly discussed.

4.4. Evaluation of Hayek’s early work by others

In Hayek’s case there exist no comments by himself concerning his early work. He received early recognition by Elze in 1929 on his recruitment as 2. *Prosektor* to Rostock, when Elze praised him for his thorough anatomical training in Vienna and his first publications (*Universitätsarchiv Rostock, Personalakte Heinrich von Hayek*, letter Elze to ministry March 8, 1929). Likewise in 1935, the dean of the Rostock medical faculty supported Hayek’s promotion to the position in Shanghai by pointing out his many scientific activities during his time in Rostock (*Universitätsarchiv Rostock, Personalakte Heinrich von Hayek*; letter dean to ministry, November 22, 1935). In 1945 Hayek was considered in the recruitment for a new chair of anatomy in Kiel. He received highly positive evaluations from Benninghoff, Stoehr, Stieve, Hoepke and Elze. While Elze praised Hayek’s versatility in several differing areas of research, Zeiger criticized a lack of focus in Hayek’s work, and Pfuhl felt he could not recommend him at all. Interestingly enough, Hayek’s political situation seems to have been somewhat better known among his colleagues than Bargmann’s at that time (LA Schl-H Abt. Acc 59/11, Nr.265).

4.5. Political aspects of Hayek’s life from 1933 to 1945

Hayek had several political memberships during the NS period (UWÜ PA272, *Fragebogen 1945*; Bayerisches Hauptstaatsarchiv, *Signatur* MK 43720, *Abdruck Überleitung in die neue Besoldungsverordnung 1 September 1938*). In November 1933 he joined the SA and held the rank of *Scharführer* (non-commissioned officer) since 1943. He received the *SA-Sportabzeichen*

Table 2
Original publications mentioning the use of “material” of the executed authored or mentored by Heinrich Hayek until 1951.

Hayek, H. 1935. Das Verhalten der Arterien bei Beugung der Gelenke. <i>Z Anat Entw</i> 105(1):25–36, 1935 - “To additionally understand the influence of the contracted musculature on the run of the vessels I studied two bodies of executed persons (August 1934 and February 1935) whose musculature I caused to contract by injection.” (p. 26) - also: legends of Images 5a–c “executed man” (p. 32)
Hayek, H. 1940. Die Läppchen und Septa interlobaria der menschlichen Lunge. <i>Z Anat Entw.</i> 110(3):405–411 - “of course best suitable” bodies of several younger executed persons (p. 405)
Hayek, H. 1940. Über die Präkapillaren, die Arteriolen und die Teilungsstellen der kleinen Arterien in der menschlichen Lunge. <i>Z Anat Entw</i> 110 (4):587–596 - several lungs from executed persons (p. 588)
Hayek, H. 1941. Über die Verengung der Bronchi und Bronchioli durch die Muskulatur. <i>Wien Klin Wochenschr</i> 54:114–116 - “lungs of executed persons, well fixated within the thorax” (p. 114)
Hayek, H. 1941. Die Muskulatur der Bronchi und Bronchuli und ihre Wirkung. <i>Ber Phys-Med Ges Würzburg</i> 64:82–88 - specimens “fresh as in life” (p. 87)
Hayek, H. 1942. Über arterio-venöse Anastomosen und die postcapillaren Venen der menschlichen Tonsille. <i>Z Anat Entw</i> 111 (1): 533–544 - 5 healthy tonsils from executed persons (p. 534)
Hayek, H. 1942. Kurz- und Nebenschlüsse des menschlichen Lungenkreislaufes in der Pleura. <i>Z Anat Entw</i> 112(1):221–228 - lungs of executed persons (p. 221)
Hayek H. 1942. Über Kurzschlüsse und Nebenschlüsse des Lungenkreislaufes. <i>Anat Anz</i> 93:155–159 - material the same as in Hayek, H. 1940 <i>Z Anat Entw</i> , 110):587–596
Hayek, H. 1942. Über Bau und Funktion der Alveolarepithelzellen. <i>Anat Anz</i> 93:149–155 - “well fixated specimens from lungs of executed persons” (p. 150)
Hayek, H. 1944/45. Die menschliche Lunge und ihre Gefäße, ihr Bau unter besonderer Berücksichtigung der Funktion. <i>Erg Anat Entw</i> 34:151–243 - this review quotes many of Hayek’s previous papers that used material of the executed, uses also images from these older publications, e.g. the papers from 1940 in <i>Z Anat und Entw</i> .
Hayek, H. 1948. Über die Beziehung der Alveolarepithelien zu den Capillaren. <i>Klin Wochenschr</i> 26:123–124 - material “fresh as in life” (p. 123); refers to <i>Anat Anz</i> paper from 1942
Hayek, H., 1948. Über die Alveolarepithelzellen und Alveolarkapillaren. <i>Ärztl Wochenschr</i> 3:381 - material “fresh as in life”
Hayek, H. 1950. Die Muskulatur im Lungenparenchym des Menschen. <i>Z Anat Entw</i> 115(1):88–94 - “lungs from 4 strong young men” “freshly fixated” (p. 88); reference to Hayek, H. 1941: <i>Wien Klin Wochenschr.</i> 6:114–116
Hayek, H. 1950. Zur Frage der Lungenmuskulatur. <i>Klin Wochenschr</i> 28:268–269 - “several healthy lungs of strong young men”, same as <i>Z Anat Entw</i> 1950; reference to Hayek 1944/45
Hayek, H. 1951. Über reaktive Formveränderungen der Alveolarepithelzellen bei verschiedenem Sauerstoffangebot. <i>Z Anat Entw</i> 115:436–442 - uses image from “material” in <i>Anat Anz</i> 93:149–155, 1942 (p. 436)
Hayek H. 1951. Zur Histophysiologie der Epithelzellen der Bronchuli und Alveolen. <i>Verh Anat Ges</i> 49 (Suppl. <i>Anat Anz</i> 98): 134–140 - no explanation of material source, but all human material slides of lung tissue

(sports-badge; Universitätsarchiv Rostock, *Personalakte Heinrich von Hayek*, f.22). His membership in the NSDAP started in March 1938, member number 5518677. He was also a member of the NS *Volkswohlfahrt* (public welfare) and the NS teachers’ association. In 1939 he joined the NS lecturers union and *Reichsdozentenschaft* (teachers union) where he became a *Stützpunktleiter* (local manager), the *NS-Altherrenbund* (NS former students association) and the *Deutsche Akademie München*. The latter was an organization founded in the 1920s to promote German culture in foreign countries, which came under strong NS influence and was seen after the war as a propaganda institution of the NS regime (*Historisches Lexikon Bayerns*, 2012). From 1934 to 1935 he was also a *Führer* (leader) in the *Kampfring der Deutsch-Österreicher im Reich (Hilfsbund)*, an organization of German Austrians living in Germany that included a Swastika in its regalia. All of these memberships and minor positions seem to indicate that Hayek was definitely a national conservative, supporting the NS movement at least pro forma and possibly in mild acquiescence with the regime. However, there are no indications that he actively promoted National Socialism or was a convinced National Socialist like, for example, the anatomist Max Clara (*Winkelmann and Noack*, 2010).

There are no statements by Hayek himself concerning the politics of the time except for the defense statements in his two de-nazification trials in December 1946 and July 1947 (*Bayerisches Hauptstaatsarchiv, Signatur MK 43720, Abschrift: Die Spruchkammer II Würzburg-Stadt, Ludwigskaai Aktenzeichen H/a384/46, 11. Dezember*

1946 and *Aktenzeichen H/a384/46, 29. Juli 1947*). In the first court proceedings of December 11, 1946 he was accused of the above named memberships. Hayek explained that he had to join the NSDAP in 1938 following a challenge by the local party organization in Shanghai; otherwise he would have been unable to continue teaching. His relationship with his prominent liberal brother in London was brought forward in his defense as well as a witness statement attesting to his critical attitude towards the NS regime. Finally an evaluation by the local NS lecturers’ union leader in Hamburg was cited, written on the occasion of Hayek’s possible recruitment, judging him to be politically unreliable and thus unsuitable for the position. Hayek was categorized as a fellow traveler and convicted to a monetary penalty of RM 1000. Apparently this verdict was appealed and a second trial took place on July 29, 1947. Again his party memberships were held against him. Now he explained that in 1933 he had been asked by the leader of the NS lecturers’ union in Rostock to join the NSDAP but had refused to do so at that time. In fall 1933 all Rostock faculty members who were not NSDAP members were requested to join the SA and he did so, otherwise fearing for the progress of his academic career. Hayek said to have only taken part in SA sports but never to have held a political function. He declared that his promotion to the professorship in Shanghai in 1935 had been based on his academic expertise and not on his political connections, and that his joining of the NSDAP only happened after he was threatened with the impossibility of a future career in Germany. He said to have

never been politically active within the party. Hayek supplied written statements attesting failed recruitments to Hamburg and Kiel due to “political unreliability” as proof for his dissent with the NS regime (there is no record of a possible recruitment to Kiel before 1945 in the personnel files). He also provided witness statements that recounted his helping attitude towards foreign students. In the end the court again categorized Hayek as a fellow traveler but he received no further penalty.

5. Discussion

5.1. Previous research on anatomists in NS Germany

Previous research on anatomists working in Germany and Austria during the 1930s and 1940s dealt with NS victims as well as those anatomists who were active in NS politics or made extensive use of the rising numbers of bodies of the executed for their scientific work. A study of scholars of anatomy whose careers were disrupted by NS policies identified 86 German and international anatomists who were discriminated against (Hildebrandt, 2012a). Other investigations focused on anatomists whose behavior during the Third Reich had been criminal or at least highly dubious, either because of the anatomists’ close association with the NS regime and/or their extensive use of bodies of NS victims. Among them were the war criminal August Hirt of Strassburg (Lachman, 1977; Lang, 2004); Eduard Pernkopf of Vienna (Williams, 1988; Malina and Spann, 1999; Angetter, 2000; Hildebrandt, 2006); Hermann Stieve of Berlin (Aly, 1987, 1994; Oleschinski, 1992; Klee, 2004; Schagen, 2005; Noack, 2007; Zimmermann, 2007; Winkelmann, 2008; Winkelmann and Schagen, 2009; Wischmann, 2008, 2011); Hermann Voss of Posen/Poznan (Aly, 1987, 1994) and Max Clara of Leipzig and Munich (Winkelmann and Noack, 2010). Other critical biographies of anatomists can be found in general histories of anatomical departments and universities during NS times, e.g. Robert Wetzel, director of anatomy in Tübingen (Scharer, 2010) and Enno Freerksen, director of anatomy in Kiel (Buddecke, 2010). Notorious National Socialist anatomists like Pernkopf, Clara, Hirt, Wetzel and Ernst Theodor Nauck (Seidler and Leven, 2007) lost their previously held academic positions after the war. This fact may have supported a perception held by many in the medical and anatomical community that ethically questionable activities during the Third Reich had only been committed by a select few who were then dismissed after the war, while other professional colleagues with continued careers after the war had no involvement with NS politics and/or the use of NS victims for anatomical purposes. However, the dispelling of this perception first began with a closer look at Voss’ and Stieve’s biographies that revealed these prominent anatomists of the former GDR as profiteers of the NS regime (Aly, 1987, 1994; Winkelmann and Schagen, 2009).

5.2. General situation of German anatomy in 1945

At this point it is worthwhile taking a closer look at German anatomy at the transition point from the National Socialist to the postwar period. The recruitment process at the University of Kiel for the replacement of the dismissed Enno Freerksen as chair of anatomy gives a detailed insight into the situation in November 1945 (LA Schl-H Abt. Acc 59/11, Nr. 265). Several months after the initial confusion brought about by the end of the war, the anatomical colleagues had received some information about their peers’ whereabouts and the different occupying governments had made decisions about whom to dismiss for political reasons. The universities that were not closed by the occupying military governments were starting to fill positions vacated by their former holders either due to dismissal on political grounds or flight (the latter mostly

from the so-called Russian zone) to other parts of Germany or other countries. Quite a few anatomists found themselves without employment, among them Bargmann and Hayek. The Kiel inquiry sent by Professor Hans Netter, chair of the institute for physiological chemistry (*Deutsche Biographie*, 2013), to all anatomical departments asked for the evaluation of the scientific and pedagogical merits and political stance of Rudolf Spanner, Bargmann, Hayek and Klaus Niessing. In addition, the names of other possible candidates were solicited, especially those who should be considered for reasons of “fairness and justice” (LA Schl-H Abt. Acc 59/11, Nr. 265, *Entwurf* letter Professor Netter, 10 November 1945). Netter received answers from 15 institutes, among whom Leipzig and Rostock had no resident anatomist at all. Before delivering his evaluations, Walter Jacoby of Tübingen made a notable general observation on the political activities of anatomists during the past period. He stated that Frankfurt, Freiburg, Hamburg, Heidelberg, Kiel, Cologne, Munich, Münster and Tübingen all had lost their chairs of anatomy. He explained this fact with NS university politics, which he claimed had especially in anatomy pursued an aggressive policy of recruiting NS conform professors. He also noted that there were many NS lecturers’ union leaders and other party officers among the anatomists. In Jacoby’s opinion this situation had negative effects on the scientific work of these anatomists as well as on the education of a younger generation of scientists, thus making a scientifically adequate and politically correct recruitment for posts of anatomical leadership in postwar Germany difficult (LA Schl-H Abt. Acc 59/11, Nr. 265, letter Walter Jacoby to Netter, 25 November 1945). Jacoby had not joined the NSDAP, while his predecessor in Tübingen had been the active National Socialist Robert Wetzel. Pfuhl of Greifswald deplored a long existing lack of younger anatomists, which necessitated the recruitment of anatomists who were not quite ready for such a promotion (LA Schl-H Abt. Acc 59/11, Nr. 265, letter Pfuhl to Netter, 26 November 1945). Other than Bargmann, Stieve recommended several anatomists, among them Spanner, whose work he valued highly, but who Stieve reported as having been named as a war criminal in the “Russian sector” following rumors surrounding his having supported soap production from human fat in the Danzig anatomy (Neander, 2006; LA Schl-H Abt. Acc 59/11, Nr. 265, letter Stieve to Netter, 19 November 1945). Spanner had had to flee his position in Danzig at the end of the war and worked as interim chair in Kiel, where he was responsible for anatomical teaching.

5.3. Bargmann and Hayek

The early biographies of Wolfgang Bargmann and Heinrich von Hayek show interesting parallels. Both became fascinated with anatomy at an early stage of their lives and worked in anatomical departments as students, where they found decisive support by their superiors. Both published prolifically. Bargmann’s obituary lists 232 items and Hayek’s over 120 original works and handbook contributions (Fleischhauer, 1979; Platzer, 1971). They pursued their careers diligently while definitely compromising with the “political necessities” of the time by acquiescing to NS memberships, if not also possibly by supporting the NS regime.

While Bargmann’s and Hayek’s postwar careers were very successful and both became internationally recognized authorities in their respective fields of expertise, they differed in some aspects. Even though they both had been members of the NSDAP, Bargmann’s period of unemployment after the war was only a few months long, while Hayek’s lasted for more than 2 years. This may have been due to Hayek’s additional other political memberships or to the fact that the de-nazification efforts in the different occupied zones of Germany were not homogeneous or comparable (Vollnhals, 1991). Another difference is that Hayek continued using data based on “material” from executed persons for several years

after the war (see Table 2), while Bargmann started new lines of investigation as soon as 1946/47.

While both Bargmann and Hayek were internationally recognized and have been described as charming and friendly (Scharrer and Bern, 1979; Platzer, 1971), it is interesting to note the polar opposite positions they held in the esteem of Hans Elias, an anatomist who had to leave Germany in 1934 because he was of Jewish descent, and who ultimately emigrated to the US (Hildebrandt, 2012b). Elias first met Bargmann at Möllendorff's anatomical department in Zurich in 1935 and judged him to be one of the most likeable among the German anatomists, of whom he knew many during his lifetime. He also regarded Bargmann as the intellectual leader of anatomy in the Federal Republic of Germany (Elias, 1979, pp. 2–9). With respect to Hayek, on the other hand, Elias saw him – as well as Stieve – as a “murderer”. He believed that Hayek had been expelled from Germany after the war because of “anatomical murders” and that Hayek had been responsible for the killing of individual NS victims (Elias, 1979, pp. 2–11; 2–12). These allegations are as yet not substantiated; however, it can be speculated that the recently discovered agreement between Heyde and Elze concerning the delivery of euthanasia victims to the Würzburg anatomy (see above, Blessing et al., 2012) had become known in anatomical circles and led to rumors about “pre-ordered” victims for anatomical dissection. It can be assumed that Hayek was aware of this arrangement and it is possible that the SS-officer's visit to the institute to enforce an oath of secrecy about the bodies (see above) was in connection with the euthanasia victims, because it fell into the same general time frame as the transaction between Heyde and Elze. Similar rumors as this one about “anatomical murder” surrounded Stieve after the war and were based on a mix of fact and fiction. Elias was one of the anatomists who firmly believed in them (Hildebrandt, 2012b). Elias' strong dislike of Hayek led him to intervene at the international meeting of anatomists in New York in 1960, when Hayek's invitation for a next meeting in Vienna in 1965 was accepted by the American president of the congress. Together with his colleagues Carl-Hermann Hjörtsjö from Sweden and Gerhard Wolf-Heidegger from Switzerland – another German Jewish emigrant – he lodged his protest against Hayek with Bargmann, then president of the *Anatomische Gesellschaft*. Elias reported that Bargmann was also scandalized by this and they successfully pushed for a revision of the president's decision. The next international meeting was then held in Wiesbaden under Bargmann's supervision (Elias, 1979, pp. 2–12; Fleischhauer, 1979).

5.4. Scope of political decisions for anatomists in NS-Germany

Bargmann's and Hayek's political and professional choices in their early careers have to be evaluated in view of the possible scope for alternative behaviors in NS Germany and on the background of their colleagues' decisions. A recent general review of medicine in National Socialism documents the complex and intensive involvement of all branches of medicine, physicians of various disciplines, nurses and administrators in the NS health system (Eckart, 2012). Anatomists in German anatomical departments at the time mostly held medical degrees, and physicians were among the professional groups with the highest membership rates in the NSDAP with 44.8% and even higher in select regions of the country (Kater, 1989; Rüther, 1997). Of the 233 anatomists known so far to have worked at German anatomical departments (including the occupied territories) from 1933 to 1945, political data are currently available for 142. Fifty of these anatomists suffered from a disruption of their careers, mostly because they were dismissed for so-called racial or political reasons or voluntarily emigrated. Forty-four anatomists held memberships and actively supported the politics of the regime, among them the war criminals August

Hirt and Johann Paul Kremer, while 41 held some form of political membership but were not necessarily convinced of NS policies (for a definition of “active support” see Hildebrandt, 2009a). Only 7 of the 142 held no political membership.

So for anatomists who were not dismissed following discriminatory legislation, two principal choices existed: either to remain in the country or to voluntarily emigrate. Those who emigrated did so because they saw themselves unable to politically compromise with the NS regime (Hildebrandt, 2012a). Of the ones who remained only one, Stieve's young assistant Charlotte Pommer, is known to have chosen to change her career because of the use of bodies of NS victims in the Berlin anatomical department (Orth, 2013). All others continued their work in anatomy and, as the data above reveal, most of them held some kind of political membership between 1933 and 1945 either out of conviction or because they felt compelled to do so for professional reasons. However, some of the leading anatomists who were known to be no supporters of the regime became members of the NSDAP rather late, e.g. Alfred Benninghoff, chairman of anatomy in Kiel and Marburg in 1941 (Aumüller et al., 2001), and others, like Ferdinand Wagenseil, chairman of anatomy in Giessen, only joined political sub-organizations, but not the NSDAP itself (Unger, 1998).

Furthermore, among those anatomists who worked in Germany from 1933 to 1945, clear distinctions have to be drawn between the convicted war criminals Kremer and Hirt on the one hand, who were SS officers and committed atrocities (Lachman, 1977; Lang, 2004, in press; Höss et al., 1984), on the other hand the active National Socialists who promoted NS ideology like Max Clara, Robert Wetzler, Eduard Pernkopf, Ernst Theodor Nauck and Enno Freerksen (Winkelmann and Noack, 2010; Williams, 1988; Scharer, 2010; Seidler and Leven, 2007; Buddecke, 2010) and finally those who only joined the National Socialists pro forma (see above).

Taking into account this background of their colleagues' decisions, Bargmann and Hayek behaved like many others in joining the NS party, even though their early joining of NS affiliations in 1933 can be interpreted as a certain acquiescence with the regime. As ambitious and successful young anatomists they may have felt these decisions to be inevitable for the advancement of their careers. However, they were certainly no criminals and there is no evidence that they were politically active or ideologically committed in any way.

5.5. The use of bodies of NS victims for anatomical purposes

Bargmann and Hayek made freely use of the bodies provided by the NS legislation, including the bodies of the executed, and there is no evidence that they ever questioned the source of these bodies. In this respect they were typical anatomists of their time. Anatomists did either not question the righteousness of NS legislation, as we know from an intramural discussion at the university of Würzburg in 1957/59 concerning the anatomist and medical historian Robert Herrlinger (Hildebrandt, 2013b); or they saw it, like Stieve, as their duty to make use of bodies of the executed to elucidate new facts from difficult situations (Schagen, 2005); or they did not or had not learned to “care”, as witnessed by interviews with Walter Krause and Werner Platzer from Vienna (Aharinejad and Carmichael, 2012). All anatomical departments in NS Germany made use of bodies of NS victims, among them bodies of the executed, prisoners of war, forced laborers, victims of Gestapo shootings, euthanasia victims and prisoners from concentration camps (Hildebrandt, 2009b; Blessing et al., 2012). Not many victims have yet been identified (Hildebrandt and Redies, 2012; Hildebrandt, 2013a).

The explicit mentioning of “material” from the executed was not uncommon in German language anatomical journals at the time. “Material” from the executed was seen as ensuring the highest

quality of research results because of its freshness and lack of post-mortem deterioration. There might also have been pressure on anatomists to at least claim the freshness of their “material” to have their studies pass as highly qualified. It was also not unusual that anatomists helped each other out with tissues from the executed, because these were rare before 1933 due to low execution rates in the Weimar Republic (Hildebrandt, 2013c). A systematic study of the majority of German anatomical manuscripts from 1924 to 1951 showed that many of the leading anatomists in postwar Germany had performed research on the bodies of executed NS victims. Among them were scientists who were well regarded. In addition to Wolfgang Bargmann and Heinrich von Hayek there were Kurt Neubert, Wilhelm von Möllendorff, Robert Herrlinger, Philipp Stöhr, Helmut Ferner and others (Hildebrandt, 2013c). While the use of bodies of the executed had been an accepted histological method in German anatomy before 1933, its moral nature, at least from a modern point of view, changed during the Third Reich because of the inhumanity of the NS regime, which provided the bodies, and through the opportunistic and unquestioning use of these bodies by the anatomists.

5.6. Possible consequences

It is not necessary to try to “cleanse” modern anatomy by taking away all memory of anatomists active during the Third Reich through expunging their names associated with anatomical structures, e.g. the Clara-cell (Winkelman and Noack, 2010), or by removing their books from libraries, like the Pernkopf atlas (Williams, 1988; Hildebrandt, 2006) or the books by Bargmann and Hayek. While such measures have been suggested (Cohen, 2010), they are not conducive to the continued teaching of the history of medicine in National Socialism. It is also not necessary or desirable to expunge or deny the important professional contributions that many anatomists like Bargmann and Hayek have made to post-war German and Austrian anatomy. Rather, their names should be connected with the full biographies of these men that now no longer exclude the dark NS chapter of their lives, and thereby offer young scientists the opportunity to learn about this history and to question their own political and professional decisions on a daily basis. Ultimately a full retelling of their history can only be fair to the anatomists Bargmann and Hayek, as the facts have been laid open and rumors of crimes of a far worse nature, e.g. the “anatomical murders” assumed by Hans Elias in Hayek’s case, can be dispelled.

Another question concerns the use of data resulting from studies performed under criminal or – from a modern point of view – unethical circumstances. The discussion is still controversial, even among the victims themselves (see Caplan, 1992). However, it seems feasible to continue using these data (like the Pernkopf atlas or Hayek’s book on the lung) as long as the history of the data acquisition is delivered with the data. This can be achieved through continued discussion, education and research on the history of anatomy in the Third Reich.

An exception may have to be made in the naming of awards like the *Wolfgang Bargmann Preis*, which has been conferred on students for excellent doctoral theses by the *Anatomische Gesellschaft*. Awards are generally meant to be associated with the names of prominent role models of the profession rather than persons under critical discussion. Thus the naming of an award is in so far different from, e.g. the naming of an anatomical structure, as it brings not only the biography of the name giver into the limelight and honors him or her (Winkelman and Noack, 2010), but this name is then linked to recipients who are meant to be paid tribute to and not to be associated with a possibly controversial role model (Heiner Fangerau, personal communication). Other institutions are

undergoing similar controversies, e.g. the NASA with the Strughold-Award (Lagnado, 2012).

6. Conclusion

Given their involvement in NS politics and the anatomical use of bodies of NS victims, most anatomists in NS Germany, among them Bargmann and Hayek, became in some measure complicit with the NS regime and its inhumanities. Some of them were complicit in the strict sense defined by Miller, in that they took part in or aided and abetted NS atrocities, e.g. Hirt and Kremer (Miller, 2012). Most others were complicit in a moral sense in that they profited from the opportunities provided by the NS regime. While they acted within the legal and ethical framework of NS medical ethics (Schmidt, 2009; Bruns, 2009), their behavior was certainly ethically objectionable from a modern point of view. Their actions were also criticized, if not publicly so, by their medical colleagues as early as 1957 in a controversy surrounding Herrlinger’s use of bodies of the executed in anatomical studies (Hildebrandt, 2013b).

After a long time of silence about the period of National Socialism, it is now possible to acknowledge the historical facts concerning anatomy in the Third Reich and make them part of the narrative of the history of anatomy in Germany. The complicated biographical realities of such luminous postwar figures as Bargmann and Hayek should lead modern anatomists to the questioning of their own ethical and political decisions in politically less demanding times. It is not so much necessary to judge the anatomists of the NS era, but to draw lessons for modern anatomy from this history. Among the main lessons are at this point:

1. Scientists cannot pursue their scientific interests detached from the ethics and politics of their societal environment, thus have a duty to critically reflect on these
2. Existing national and international guidelines for the ethical handling of human bodies in anatomical institutions and elsewhere (e.g. Hanwell et al., 2008; Riederer et al., 2012) need to be further developed and monitored
3. Evaluation of the personal balance between clinical detachment and empathy is necessary on a daily basis to humbly work with the bodies of donors.

Much more detailed work on the history of anatomy in the Third Reich is necessary to determine “what was remembered, what was told, and what was true” (Powers, 2012).

Supplementary data

Information about the transparent peer review is available as supplementary material in the database Science Direct. The reviewer comments and the authors reply can be viewed by clicking the link: <http://dx.doi.org/10.1016/j.aanat.2013.04.003>.

Appendix A. Supplementary data

Supplementary data associated with this article can be found, in the online version, at <http://dx.doi.org/10.1016/j.aanat.2013.04.003>.

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