

The History of Eduard Pernkopf's *Topographische Anatomie des Menschen*

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Frequently misunderstood because of the history of the time in which it was produced, Eduard Pernkopf's Topographische Anatomie des Menschen nevertheless represents the pinnacle of color anatomic illustration. The more than 800 magnificent watercolor paintings of human anatomy found in Pernkopf's atlas occupied a number of Viennese artists for three decades. This article closely examines the work and its creators.

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In considering the rich history of anatomic illustration, from the earliest attempts to artistically define the human body, through Vesalius' *Fabrica*, published in Basel in 1543, to today's photographic atlases of anatomy, Eduard Pernkopf's monumental *Topographische Anatomie des Menschen* (*Topographical Anatomy of Man*) remains invaluable. Pernkopf's seven-book masterpiece benefited greatly from several factors that came together in mid-twentieth century Vienna. It was Pernkopf's good fortune to attract a number of gifted Viennese artists, who could render his meticulous dissections in incredible detail. Their collaboration coincided with the development and refinement of four-color separation, a printing technique, which enabled the more than 800 watercolor paintings produced for his work to be reproduced in color with great fidelity to the originals. But it was Pernkopf's relationship with the Vienna-based publisher Urban & Schwarzenberg, a firm renowned for its quality publishing in anatomy, that brought his life's work to fruition. Without the convergence of these three important factors, combined with Pernkopf's vision and dogged determination, it is unlikely that his *Topographische Anatomie des Menschen* would have become the standard by which all other illustrated anatomic works are measured.

Pernkopf's Background

Eduard Pernkopf (Figure 1) was born the youngest of three children on November 24, 1888, in Rappottenstein, a small village in Lower Austria (Niederösterreich). His father was a practicing country physician. Educated at the *Horn Gymnasium* (a secondary school designed to prepare students



Figure 1. Eduard Pernkopf (1888-1955) as a young anatomist at the Anatomy Institute in Vienna. (Photograph courtesy of the *Institut für Geschichte der Medizin der Universität Wien* [Inst. Hist. Med. Univ. Vienna]).

for the university), he demonstrated an early interest in music that would persist throughout his entire life. In 1907 he enrolled in the Vienna Medical School, where, in addition to his studies, he was active in a nationalistic German student fraternity, *Die akademische Burschenschaft Allemania*, founded in 1815. Pernkopf may have been influenced to choose medicine over music by his father's death in 1903, which had left the family in financial straits; a musician had no guarantee of financial success. Pernkopf received his medical degree in 1912 and taught anatomy for the next fourteen years at various posts throughout Austria. He also served as a physician for one year during World War I.

Pernkopf's promise as an anatomist first became apparent during his medical school days, when he attracted the

attention of Ferdinand Hochstetter (1861-1954), director of the Anatomy Institute of Vienna, which had been the world's anatomy center for more than half a century (Pernkopf 1957). As director, Hochstetter was the successor to a long line of great anatomists including Josef Hyrtl (1810-1894), Carl von Langer (1819-1887), Emil Zuckerkandl (1849-1910), Carl Toldt (1840-1920), and Julius Tandler (1869-1936) (Lesky 1976, 456-65). He became a "father figure" to Pernkopf, who referred to him in *Topographische Anatomie des Menschen* as "my revered teacher, the greatest master of anatomy." Pernkopf publicly demonstrated his reverence for Hochstetter in a 1933 ceremony by kneeling and kissing his mentor's hand (Lesky 1982). Pernkopf became an assistant to Hochstetter in 1920, performing such duties as lecturing to first- and second-year medical students on the peripheral nervous and vascular systems (Figure 2).



Figure 2. Pernkopf (second row, third from right) and his mentor, Ferdinand Hochstetter (1861-1954), (center of second row) at the Anatomy Institute in Vienna. (Photograph courtesy of the *Institut für Geschichte der Medizin der Universität Wien*).

Pernkopf had a distinguished academic career, quickly rising through the ranks to eventually assume the highest office at the University of Vienna. In 1926 Pernkopf was named Associate Professor, and in May 1928, he became Professor of Anatomy at the University of Vienna. In April 1933, he succeeded Hochstetter as director of the Anatomy Institute. In March 1938, Pernkopf was made dean of the Medical Faculty in Vienna, and from 1943 to 1945 he was *Rektor Magnificus* (President) of the University of Vienna.

Evolution of *Topographische Anatomie des Menschen*

Several anatomic atlases preceding Pernkopf's work, notable for their outstanding black-and-white illustrations, had been published in Germany and Austria at the end of the

nineteenth and the beginning of the twentieth centuries. These undoubtedly influenced Pernkopf in the early stages of his career (Urban & Schwarzenberg 1977).

In Vienna, Carl Toldt's *Anatomischen Atlas für Studierende und Ärzte (Anatomy for Students and Physicians)* was published by Urban & Schwarzenberg in nine installments between 1896 and 1900. Most of the 1,463 wood engravings found in the work were made from drawings by Fritz Meixner. Wilhelm Braumüller published the first volume of Carl Heitzmann's *Atlas der descriptiven Anatomie des Menschen (Atlas of Descriptive Anatomy of Man)* in 1902. The second volume appeared in 1905. The artist or artists for the over 1,000 wood engravings found in both volumes are unknown. Revised and edited by Emil Zuckerkandl, Heitzmann's work survived nine editions before succumbing to the competition from the more successful Toldt atlas. Between 1895 and 1903, S. Hirzel Verlag in Leipzig published Karl Werner Spalteholz's handsomely illustrated three-volume *Handatlas der Anatomie des Menschen (Handatlas of the Anatomy of Man)*. Medical and anatomy students alike prized it for its high-quality illustrations. In Munich in 1904, J.F. Lehmanns Verlag published Johannes Sobotta's *Atlas der descriptiven Anatomie des Menschen (Atlas of Descriptive Anatomy of Man)*. All of the elegant black-and-white wash drawings for the first edition were made by Karl Hajek. Sobotta's *Atlas*, perhaps the most successful illustrated anatomic work, is still in use today (Urban & Schwarzenberg 1977, 36).

Pernkopf first formed the idea of his atlas as an assistant to Hochstetter. While teaching gross anatomy, Pernkopf started to prepare a small dissection manual for his students' use. However, as the manual's scope grew, the project attracted the attention of the publisher Urban & Schwarzenberg, then based in Vienna. After revising his original plan and organizing the work on a much larger scale, Pernkopf signed a six-page contract with the publisher in October 1933. The contract detailed the production of the first three volumes of *Topographische Anatomie des Menschen*.

Pernkopf's first volume, *Allgemeines, Brust und Brustgliedmasse (General Matters, Chest and Pectoral Limb)*, was begun in 1933 and published in 1937. Two books comprised that segment of the atlas: *Allgemeine, topographische Anatomie (General Topographical Anatomy)*, and *Topographische und stratigraphische Anatomie der Brust und der Brustgliedmasse (Topographical and Stratigraphical Anatomy of the Chest and the Pectoral Limb)*. The second volume, *Bauch, Becken und Beckengliedmasse (Abdomen, Pelvis and Pelvic Limb)*, also published in two books, followed four years later (1941). *Der Hals (The*

Neck), the third volume, was published in 1952 as a single book with 221 color illustrations. Pernkopf died before completing the first book of the fourth volume, *Topographische und stratigraphische Anatomie des Kopfes (Topographical and Stratigraphical Anatomy of the Head)*; it was finished by Werner Platzer during the winter of 1956-57. Alexander Pichler, with assistance from Platzer, completed the second book of the fourth volume, which was published in 1960.

Other than organizing and spearheading its assembly, Pernkopf's major contribution to the atlas was writing the very detailed and somewhat pedantic text that accompanied the beautiful illustrations. A "workaholic," he was obsessed with the atlas for the rest of his professional life. Rising at five a.m. to work on the text, he wrote notes in shorthand for his wife, Ruth, to transcribe and type during the day while he was at the university. There, in addition to his teaching and official duties, he oversaw the preparation of the dissections by his assistants and graduate students in the institute. Many of these dissections have survived and may be seen in the University of Innsbruck's Anatomy Institute, Innsbruck, Austria.

Major Contributing Artists

A generation of distinguished Viennese artists contributed to *Topographische Anatomie des Menschen* during its almost thirty-year gestation: the first and perhaps best known of these was Erich Lepier (Figure 3).

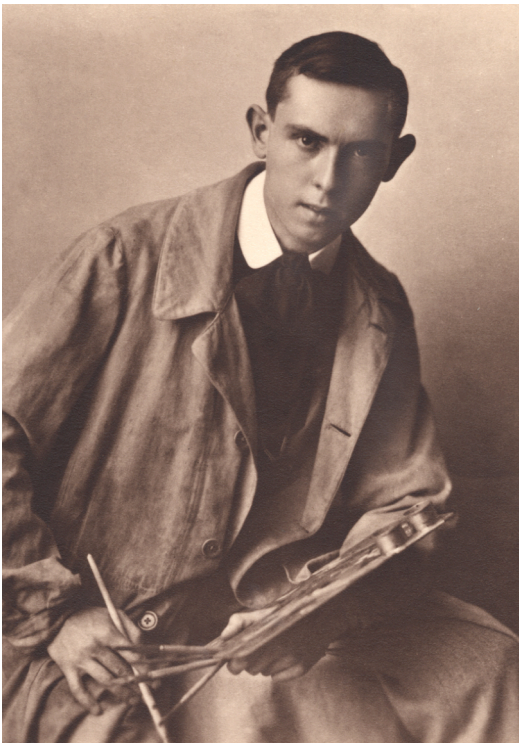


Figure 3. Erich Lepier (1898-1974), the first painter to prepare illustrations for *Topographische Anatomie des Menschen*. (Photograph courtesy of Dr. med. Wilfred Mario Lepier, Vienna).

Lepier was born in Peran, a small village near Villach in Carinthia (Kärnten), on February 7, 1898. He descended from Huguenots driven from France during the late seventeenth century when King Louis XIV revoked the Edict of Nantes, which had protected the Huguenots from religious persecution for the previous 100 years. Lepier's ancestors spent time in Germany, Hungary, Rumania, and what is now Yugoslavia before settling in Austria. The family reached Vienna when Lepier was a small boy and his father, an inspector for the Austrian railroad, received a promotion. The young Lepier was, for the most part, a self-taught artist and studied at the Technical College (*Technisches Hochschule*) on Karlsplatz in hopes of becoming an architect. Those studies ended in 1917 when his father died, leaving the family rather poor.

In 1923 Lepier married Madeleine Iseppi, and for the next 45 years they lived together at 99 Penzingerstrasse in Vienna. Because he was frequently unemployed during the early 1920s, they were supported primarily by Madeleine's work as a teacher of German. However, in 1925 after considerable prodding from his wife, Lepier answered Urban & Schwarzenberg's advertisement in a Viennese newspaper for an artist to illustrate one of their publications. His success with that assignment led to further commissions from the company, and he eventually began working with Pernkopf.

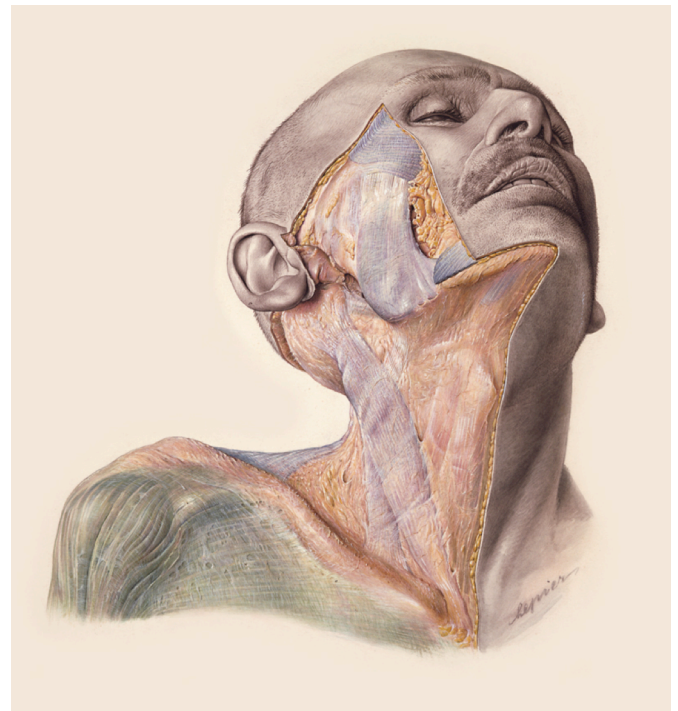


Figure 4. The superficial layer of the cervical fascia. The skin, subcutaneous tissue, and platysma have been removed from the face and neck on the right side. Watercolor illustration by Erich Lepier. (Reproduced from Pernkopf: *Atlas of Topographical and Applied Human Anatomy*, Second Edition © 1980, courtesy of Urban & Schwarzenberg, Baltimore-Munich). Image credit: MUW-Josephinum.

Lepier's paintings were rendered in exacting detail (Figure 4). Working very much like a Dutch miniaturist, he used the dry-brush technique and transparent watercolor, especially the highly pigmented transparent Aquarellfarben cakes manufactured by *Schmincke* of Düsseldorf. He painted on *Schoeller's* "Hammer," a high-quality 100% rag paper with a plate finish; the paper was treated with a mixture of *oxengalle* (bile) and water then mounted on a board to dry. As it dried the oxengalle removed the slickness of the paper, and Lepier was left with a surface well suited to the highly detailed work Pernkopf demanded. All of the Pernkopf painters worked with this medium. In his approach to his work, Lepier normally started at the top of a painting and worked an area to near completion before moving on to another, much like a "window-shade" painter. This approach reflected his lack of formal art training, but did not prevent him from painting very well for reproduction.

As the first painter to begin with Pernkopf, Lepier became the leader of the other artists who followed. Naturally suited to this task, he held himself somewhat aloof from the others. Lepier enjoyed a good working relationship with Pernkopf. In addition to working quickly, he was "accurate and sensitive in rendering form, color and texture, as well as in the aesthetic manner in which he visually interpreted scientific information" (Urban & Schwarzenberg 1977, 9).

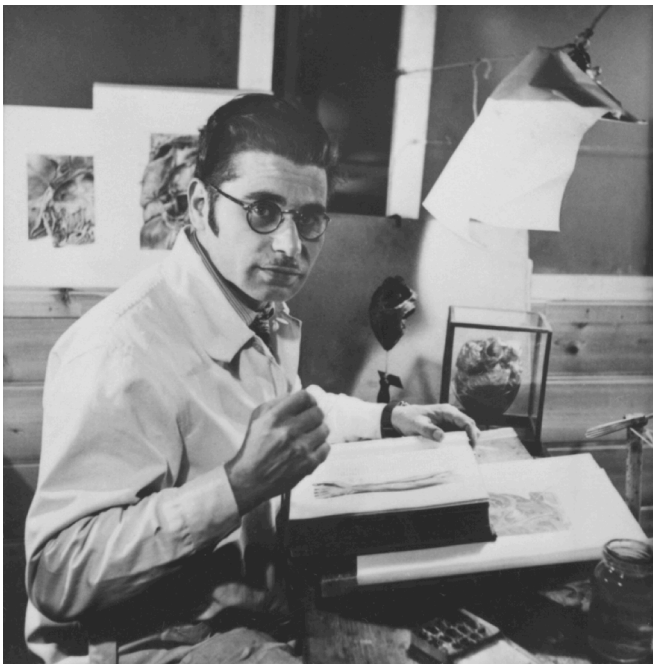


Figure 5. Ludwig Schrott, Jr. (1906-1970), the second painter to work on *Topographische Anatomie des Menschen*. (Photograph courtesy of Franz Batke).

The second painter to join the project was Ludwig Schrott (Figure 5). Born in Vienna on April 29, 1906, Schrott received most of his artistic training from his father, L.F. Schrott, an illustrator for a Viennese newspaper and a portraitist renowned for capturing the "spirit" of his subjects. For two years Ludwig studied the graphic arts at the Technical College in Vienna. He was working as a freelance

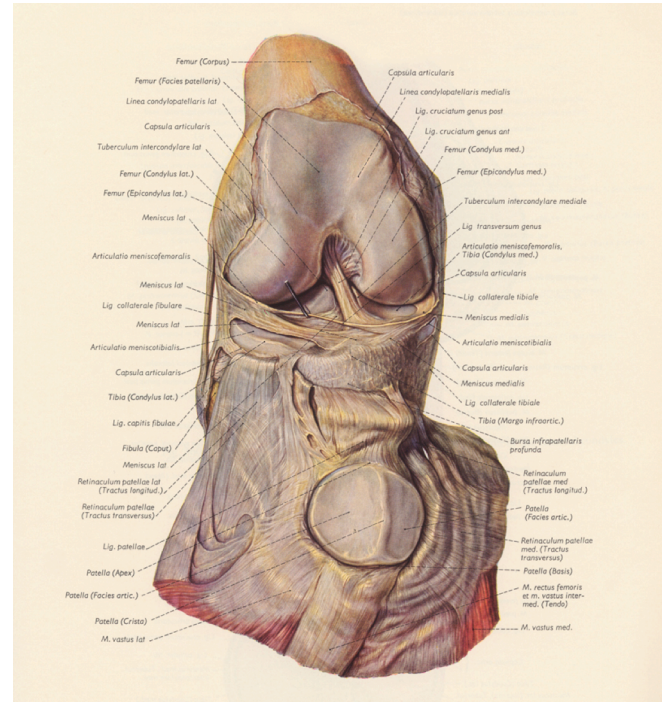


Figure 6. Intra-articular ligaments and menisci of knee joint, from the front. Watercolor illustration by Ludwig Schrott, Jr. (Reproduced from Pernkopf: *Atlas of Topographical and Applied Human Anatomy*, Second Edition © 1980, courtesy of Urban & Schwarzenberg, Baltimore-Munich). Image credit: MUW-Josephinum.

graphic artist in the city when he was attracted to the Pernkopf project. Schrott's paintings for Pernkopf are somewhat stiff and linear, perhaps reflecting his graphic arts background, but they are nevertheless superb examples of anatomic illustration (Figure 6). He did much more than paint what was placed in front of him; he was full of ideas for demonstrating particular anatomic concepts more effectively, a characteristic that led to his ideas being labeled "*Schrott'sche Ideen*" by his colleagues. A good example was his use of an egg to demonstrate the shape of the joint between the head and the vertebral column in figures 165 and 166 of *Der Hals*.



Figure 7. Karl Endresser (1903-1978), academic painter (*akademischer Maler*), the first artist in the Pernkopf group to have had classical training in painting; 1921. (Photograph courtesy of Therese Endresser, Vienna).

Karl Endresser, the third artist to become associated with Pernkopf's work, was the first in the group to have formal training in painting (Figure 7). Born in Vienna on July 28, 1903, Endresser spent eight years at the Academy of Fine Arts (*Akademie der bildenden Künste*), an Italian Renaissance-style structure at Schillerplatz 3 in the city. For four of those years Endresser studied in the Masters Class (*Meisterschule*), which was open only to the best students. Because of this education, Endresser was known as an academic painter (*akademischer Maler*), no small distinction in a title-conscious country like Austria.

Before joining Pernkopf's group in 1934, Endresser had studied for two years at a private painting school and made a name for himself in Vienna with his beautiful portraits, landscapes, and still lifes. In every respect, Endresser was the consummate Viennese, a robust man who lived to the fullest and cultivated vivacity; indeed, he seemed to be a man without problems. He painted easily and felt quite comfortable with his work, although it often lacked the exactness of Lepier's images (Figure 8).

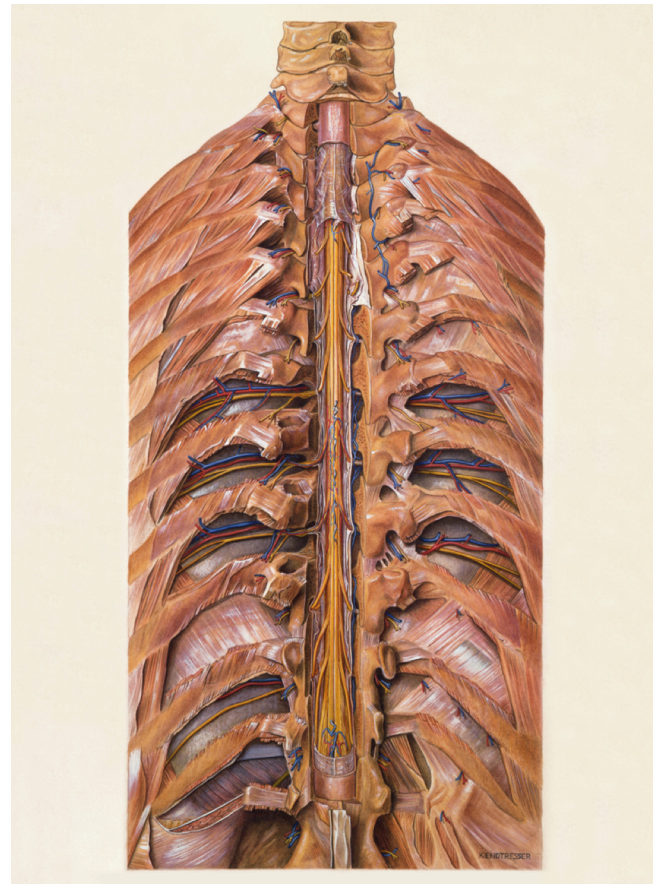


Figure 8. Dissection of structures in the vertebral canal inside the meningeal coverings, the spinal cord, nerve roots, and vessels. Watercolor illustration by Karl Endresser. (Reproduced from Pernkopf: *Atlas of Topographical and Applied Human Anatomy*, Second Edition © 1980, courtesy of Urban & Schwarzenberg, Baltimore-Munich.) Image credit: MUW-Josephinum.

Another member of this select group of artists was Franz Batke (Figure 9). He was born on February 24, 1903, in Höbersbrunn, a village in Lower Austria, so small that it is difficult to find on any map. The youngest of eight children, his father was a skilled village butcher, and his ancestors were all farmers. When Batke was five years old, his family moved to Vienna where, for the next 12 years, he lived in a series of inns (*Gasthäuser*) owned by his father. In spite of Batke's early interest in art, his father, who considered artists "scoundrels and time wasters," encouraged him to pursue a more profitable career such as salesmanship or butchering.

However, when he was seventeen his father died, and he was able to attend the Vienna Academy of Fine Arts. There, as did Endresser, he studied for nine years, the last five in the Masters Class, and earned the title academic painter.

After taking courses at various technical colleges and the university, Batke attempted to pass the teacher certification test (*Lehramtsprüfung*) in Austria. Passing would have



Figure 9. Franz Batke (1903-1983), academic painter and undoubtedly the most gifted artist to contribute to *Topographische Anatomie des Menschen*; 1925. (Self-portrait courtesy of Franz Batke, Innsbruck).

allowed him to teach art at the junior high school (*Mittelschule*) level, but he did poorly in mathematics and failed the test.

In 1930, Batke married Josefine Köller, an academic painter and fine portrait artist; they became neighbors of the Lepiers, living at 104 Penzingerstrasse in Vienna. Batke began his anatomic illustration career in 1932 as an artist for Professor Karl Lender at the II University Eye Clinic. He joined Pernkopf a year later, probably at Lepier's encouragement. Batke painted from his heart, as demonstrated by the exquisite work he produced for *Pernkopf's Topographische Anatomie des Menschen* (Figure 10). Unlike Lepier, Batke prepared a very detailed cartoon for each of his paintings.

He worked loosely at the beginning, and in a "painterly" manner allowed the painting to develop gradually. As soon as one area would begin to dominate he moved on to another, saving the detail work for the end. Batke had no particular formula for his color selection. Each of his paintings is unique, because he believed the colors used for a particular

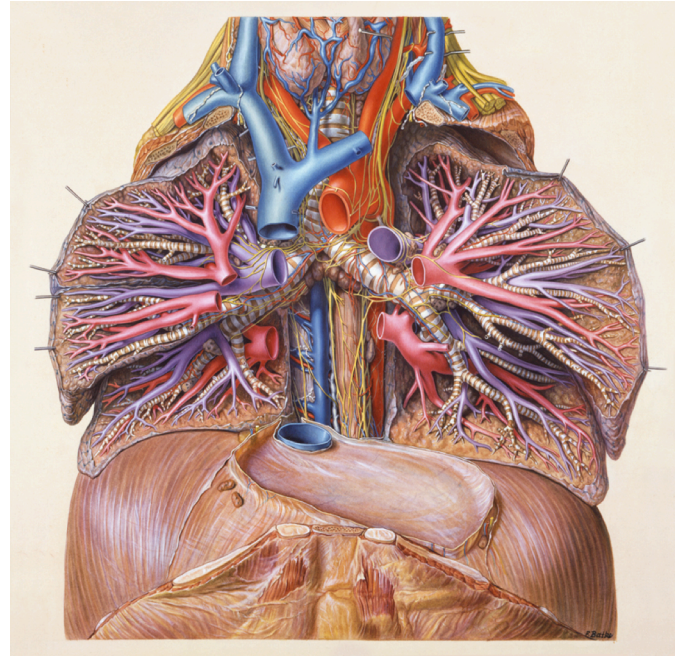


Figure 10. Mediastinal structures after removal of the heart. Demonstration of the bronchial tree and the intrapulmonary blood vessels. A true masterpiece of anatomic illustration. Watercolor illustration by Franz Batke. (Reproduced from Pernkopf: *Atlas of Topographical and Applied Human Anatomy*, Second Edition © 1980, Urban & Schwarzenberg, Baltimore-Munich). Courtesy of Urban & Schwarzenberg Publishers. Josephinum image credit: MUW-AD-003250-5-ABB-90.

area were dictated by the strength of the surrounding colors (Batke interviews 1980). His use of color was so outstanding that few of the high-quality reproductions of his work in *Topographische Anatomie des Menschen* do them full justice. They must be viewed in their original state to be truly appreciated as masterpieces of anatomic art.

Though these four painters - Lepier, Schrott, Endresser, and Batke - formed the nucleus from which Pernkopf's *Topographische Anatomie des Menschen* grew, several other artists made minor contributions prior to World War II. Josefine Köller-Batke made about twenty paintings, all cross-sections, for Pernkopf. Since they appear with her husband's cross-section paintings, and none of the couple's works is signed, it is difficult to say which are hers. Ludwig Schrott's father also made approximately twenty paintings of the extremities. Although nearly all of his paintings are unsigned as well, they are easily identified by his painting style, which was much looser than his son's. Karl Moska, a student at the Anatomy Institute, made a few paintings of the pleural sacs that appeared in the second book of the first volume. The black-and-white paintings of the male and female urogenital tract in volume two were painted by Herr Schlögel, the father of a medical student in Vienna and an assistant at the Anatomy Institute. A. Schusta prepared black-and-white

paintings of anterior rectal wall mucosa and posterior views of the duodenum, pancreas, and spleen.

Several other painters tried to work for Pernkopf but could not meet his exacting standards. His main stipulation was that paintings of the dissections look like living tissue. While Pernkopf assisted the artists somewhat with their color selection, they relied mostly on their own instincts when devising hues. Since dissection specimens are quite colorless, perhaps the genius in the painters' work, and especially in that of Batke and Lepier, was their use of color to make the dissections seem alive.

Politics and World War II

Work on *Topographische Anatomie des Menschen* slowed considerably with the onset of World War II. Largely due to the history of this period, Pernkopf's atlas is a troubled masterpiece. As with many Austrians and German professionals of the time, Pernkopf had been a member of the Nationalsozialistische Deutsche Arbeiterpartei (National Socialist German Worker's Party, NSDAP, or Nazi Party) since 1933. He joined the Sturmabteilung (storm troopers, SA, or the Brown Shirts) less than a year later. An active party member, he fervently believed in National Socialism. His appointment as dean of the Vienna Medical Faculty in March 1938, coincided with the Anschluss, the annexation of Austria by Nazi Germany. From this point on, Pernkopf's academic career was entwined with his political beliefs. His rise to the presidency of the University of Vienna in 1943 could not have happened without the approval of the NSDAP-controlled Ministry of Education in Berlin.

The artists were also active party members. For a while Lepier signed his paintings with a *Hackenkreuz* (swastika). This practice helped to develop the most persistent rumor associated with the work, especially in the United States: were cadavers of concentration camp victims used for dissections during the war years? No evidence has been found to suggest this happened (Krakowski 1977). It is true, however, that many "cadavers used by the Anatomy Institute (during the war) were those of people executed in the *Wiener Landesgericht* (the Vienna district court)" (Weinzierl 1981). During the war this court had the grim power to execute anyone it declared an enemy of the state. According to Simon Wiesenthal, "these were non-Jewish Austrian patriots, communists and other enemies of the Nazis." (Wiesenthal 1982). Whether any of these cadavers were used for *Topographische Anatomie des Menschen* has not been determined.

Batke, a front line soldier in the German Army, participated

in field operations in Russia in 1941, for which he was awarded the Iron Cross, first and second class. Wounded, he returned to Vienna to recuperate. He eventually joined the Home Guard (*Volksturm*), in which he served until the end of the war. Endtresser and Schrott were also in the military, Endtresser seeing action on the Eastern Front and Schrott on the Western Front. Lepier was denied military service because of severe varicose veins, but he did serve as an air raid warden (*Luftschutzwart*) in Vienna. He had volunteered for the military in World War I, but had been rejected for the same reason. As Batke, Lepier finished the war in the Home Guard.

After the War

Although never charged with war crimes, Pernkopf spent three years following the end of the war in Glasenbach, an Allied prison camp near Salzburg. Working there at hard, physical labor for the first time, he was in many ways a broken and dispirited man when released in 1948. He returned to Vienna to find the Anatomy Institute at Währinger Strasse largely destroyed by Allied bombing. Stripped of all titles and appointments but still highly regarded as a scientist by many of his old colleagues, Pernkopf was given two rooms in the Neurology Institute (*Neurologisches Institut der Universität Wien*), one of the few structures in the medical complex still standing. There he continued work on his *Topographische Anatomie des Menschen*.

The first of the painters to return to Pernkopf after the war was Franz Batke. Also imprisoned for his Nazi activities, he was eager to begin painting again. If possible, his work improved, perhaps best exemplified by his consummately prepared paintings of the thyroid region and the cerebrum and meninges done in the late 1940s and early 1950s. Pernkopf and Batke were soon joined by Werner Platzer, a *Demonstrator* at the Anatomy Institute in Vienna. He was instrumental in preparing the dissections for the third volume, *Der Hals*, and assisted in writing the picture legends. The younger Ludwig Schrott, Endtresser, and Lepier also joined Pernkopf at this time (Figure 11).

At the Neurology Institute, Pernkopf, Platzer, and all of the painters except Lepier, worked in the larger of their two rooms. Lepier worked alone in the smaller room. The artists' working arrangement was correct but somewhat strained. Bitterness over the outcome of the war was a factor in their relationships. Lepier had never enjoyed a congenial relationship with the other artists, who viewed his wartime efforts as something less than theirs. Pernkopf continued to live for his work, often working eighteen-hour days, unsympathetic toward those with less stamina.



Figure 11. Karl Endresser, academic painter; Ludwig Schrott, Jr.; Univ. Prof. Dr. med. Eduard Pernkopf; Wener Platzer; Franz Batke, academic painter. Vienna, March 1952. (Photograph courtesy of Univ. Prof. Dr. W. Platzer, Institut für Anatomie der Universität Innsbruck [Anatomy Inst. Univ. Innsbruck]).

Two new painters started working for Pernkopf after the war. Born in Vienna in 1893, Wilhelm Dietz had been an artist at the University Eye Clinic in Vienna with Franz Batke during the 1930s. An accomplished painter, Dietz was later appointed *Professor* for painting. He prepared approximately twenty-five carefully rendered paintings of the neck, pharynx, and larynx. Older than the other painters, and working for Pernkopf only from 1949 to 1951, Dietz never really fit in with the other painters. Elfie von Siber was from Salzburg and joined the group in 1950. She was aristocratic, lived alone, and never married. Von Siber was an academic painter, who had also studied at the Academy of Fine Arts in Vienna. Her paintings of the posterior neck appeared in the third volume, *Der Hals*. Her paintings of the facial musculature, along with her semischematic renderings of the blood supply, nerves, and lymphatics of the head, were reproduced in the first book of the fourth volume.

While working on this first book of the fourth volume, Pernkopf died suddenly of a stroke. Following Pernkopf's death on April 17, 1955, Ludwig Schrott worked on various projects for Wolfgang Zenker at the Anatomy Institute in Vienna until 1964. He also collaborated on several scientific films and publications before his death on April 2, 1970. Endresser, with his background in fine art, worked in Vienna as a landscape painter and graphic artist until he died on April 17, 1978. Lepier continued his significant career in scientific illustration after Pernkopf died by preparing beautiful color illustrations for the Sobotta/Becher *Atlas der beschreibenden Anatomie des Menschen*, along with other illustration assignments, "until a macular hemorrhage

prevented him from executing any further works of art" (Urban & Schwarzenberg 1977, 9). He was conferred the honorary title of *Professor* in 1959. He died of a heart attack in Vienna, on December 22, 1974. For a few years in the mid-1950s, Batke worked for G. Wolf-Heidegger in Basel, Switzerland. His unsigned black-and-white watercolor paintings of the central nervous system in Heidegger's *Atlas der systematischen Anatomie (Atlas of Systematic Anatomy)* are classics. His last major undertaking was illustrating Günther Reiffenstühl and Werner Platzer's two-volume Die vaginalen *Operationen (Vaginal Surgery)*. Franz Batke, the last of the Pernkopf painters, died in Innsbruck on October 26, 1983.

In the early 1960s, Helmut Ferner, at the time professor and director of the Anatomy Institute, University of Heidelberg, reorganized Pernkopf's work into a two-volume atlas, *Eduard Pernkopf, Atlas der topographischen und angewandten Anatomie des Menschen (Eduard Pernkopf, Atlas of Topographical and Applied Anatomy of Man)*. It consisted of plates with brief legends, thus eliminating Pernkopf's highly detailed text found in the original four volumes. The plates were organized by regions and were arranged in order from the superficial to the deep layer. The first volume, *Kopf und Hals (Head and Neck)*, with 332 illustrations, was published by Urban & Schwarzenberg in 1963. The second volume, *Brust, Bauch und Extremitäten (Chest, Abdomen, and extremities)*, with 378 illustrations, followed in 1964. Translated into Italian, Japanese, and English, the work soon was being used worldwide. Urban & Schwarzenberg published a second, revised edition that included a separate index in 1980.

Conclusion

Judged by any standard, Pernkopf's *Topographische Anatomie des Menschen* is a remarkable feat. His perseverance through the war, imprisonment, and frequent bouts of ill health because of a thyroid condition demonstrated his determination to produce the best work possible. He was a perfectionist who demanded and received high-quality work from his artists. Largely unrecognized, the artists were nevertheless very proud of their contributions to the atlas. They knew they had created something special in anatomic illustration. But it was Urban & Schwarzenberg Publishers, who provided the necessary funding for the paintings that allowed the work to continue through nearly thirty years.

This financial backing was especially critical before and after World War II, when the economic conditions were bleak in

Austria, especially for artists. For the publisher it was an investment in what appeared to be an unpromising future.

Nazi science and art of merit, regardless of its contribution to mankind, can be difficult to fully appreciate in light of the incredible cruelties the regime inflicted on Jews and others it considered its enemies. For this reason Pernkopf's *Topographische Anatomie des Menschen* will always be controversial and will, unfortunately, never be acknowledged by some as the masterpiece it truly is. For others it will remain the greatest work yet done in anatomic illustration.

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Prof. Williams derived the information on Eduard Pernkopf and the painters from interviews he conducted with Franz Batke (who, at the time, was the last living artist to be associated with the project), friends, relatives, and former colleagues of the men involved. As the reference list indicates, he also used letters, short autobiographical statements, personal effects, and, in Pernkopf's case, his curriculum vitae and Berlin Document Center record.

The author was able to live, study, and work with Franz Batke in Innsbruck from February through May, 1980, during

a sabbatical year spent with the medical publisher, Urban & Schwarzenberg, Munich. There he studied more than 800 original paintings that make up Pernkopf's *Topographische Anatomie des Menschen*. He returned to Munich, Innsbruck, and Vienna the following summer (1981) and continued his interviews.

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