

watercolour, as appropriate for the subject. The original drawings include traces of instructions and communications from the printing processes of successive editions and various publications. *Illustrating Medicine* includes rare examples of these stages of production.

Grant continued editing the *Atlas* through the 6th edition in 1972. Anne Agur (University of Toronto, Division of Anatomy) began editing the *Atlas* with the 9th edition (1991 with Ming J. Lee) through the latest (13th) edition of the *Atlas* which was edited with Arthur F. Dalley in 2012.

The Illustrations

Although photographs were used in the creation of these drawings, the skill of the illustrators is essential to the production of an effective scientific illustration. Photography produces too much information; scientific illustration selectively isolates information, focusing on what is to be communicated. *Illustrating Medicine* demonstrates this relationship of photograph to drawing.

The illustrators used tonal drawing to create a “better than photorealistic” quality in each image so the image communicated to physicians is what they might see, or need to see, when performing a surgery or a dissection. Line drawings work well to indicate the schematic outlines of a region, and were used to draw venous systems or bones. Carbon dust drawings utilize a technique that is excellent for depicting soft tissues (muscles and fatty tissues). The exhibition shows the different ways line drawings and drawing with tonal gradation were used to depict regional anatomy. Grant used colour in the initial *Atlas* to highlight different areas he wanted students to notice, and to clearly separate different regions within these systems. In the 1970s most of the drawings were scanned and later colorized by the publishers. However, colour is not always essential to scientific communication; colorization was largely a marketing decision.

These original working drawings survived fifty years of heavy use in the publishing house before they were returned to the care of the community of medical illustrators at the University of Toronto from which they emanated. Owned by the University of Toronto’s Division of Anatomy, they

are currently housed at the University of Toronto Mississauga in the Department of Biomedical Communication. Copyright is still owned by the publishing company Wolters Kluwer, who bought the firm of Williams & Wilkins in 1998. In 2011 a grant from the Social Sciences and Humanities Research Council (SSHRC) allowed a team of researchers who collaborated with the illustrators to research the drawings, organize the materials into an archive, and scan the images (back and front to capture all the information) at high resolution, and create a digital database of the illustrations with metadata.

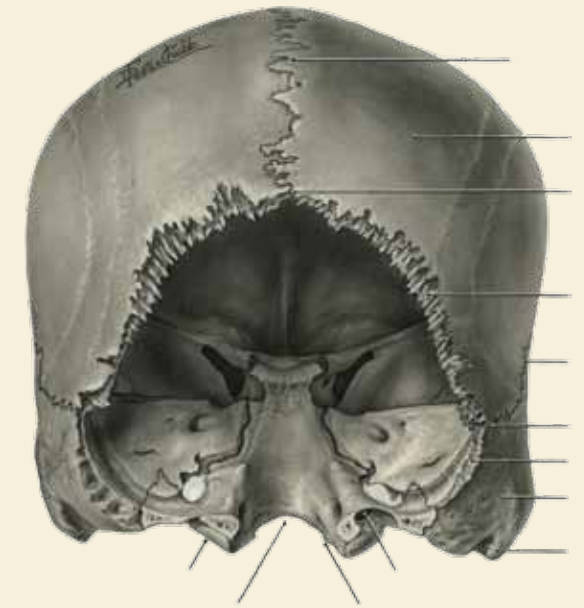
Credits

The Illustrators: Dorothy Foster Chubb and Nancy Joy with Elizabeth Blackstock and Marguerite Drummond
Curators: Kim Sawchuk and Nancy Marrelli
Exhibition fabrication and consultation: Robert Prenovault
Graphic design: Antonia Hernández
Curatorial assistant: Brietta O’Leary

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The Illustrating Medicine SSHRC team includes Kim Sawchuk, Nicholas Woolridge, Nina Czegledy, Nancy Marrelli and Brian Sutherland. Mél Hogan, Margot Mackay and Dave Mazierski also contributed greatly to this project.



ILLUSTRATING MEDICINE

features original artworks created for *Grant's Atlas of Anatomy* first published in 1943.

The exhibition displays outstanding examples of the artistry and representational skills of medical illustration including carbon dust drawings, line drawings, and watercolours by **Dorothy Foster Chubb** and **Nancy Joy** of the Department of Medical Art Service, University of Toronto.

Exhibition curated by **Kim Sawchuk** and **Nancy Marrelli**

ILLUSTRATING MEDICINE runs from

March 13, 2014 to May 1, 2014

in the **Media Gallery**,

CJ Building 1.419, located at Concordia University’s Loyola campus 7141 Sherbrooke S. West, Montreal.

Gallery hours are Monday-Thursday 9-4:45 pm and Friday 9-12:45 pm.

Illustrating Medicine is a showcase for the drawings created for early editions of *J.C.B Grant's An Atlas of Anatomy*, first published in 1943. It highlights the skill and artistry of the women illustrators who contributed to the *Atlas*. These beautiful works demonstrate the illustrators' abilities in the art of visual communication, their collaboration with Dr. Grant, their drawing techniques and the technical processes used to make accurate scientific images for this landmark atlas.

To make the book an affordable single volume, the publisher could not publish the reproductions with the same level of detail as the beautifully-rendered originals.

Illustrating Medicine is a unique opportunity to see a significant collection of these beautiful original works.

The exhibition is organized into the eight sections of the body that were the organizing structure used in the first editions of the *Atlas*: **upper limbs, abdomen, pelvis and perineum, lower limbs, vertebrae, thorax, head and neck, and cranial nerves.**

The exhibition highlights not only the intrinsic artistry of these talented women illustrators, but also the inner workings of how this pioneering *Atlas* was put together. The skill of the artists in their use of tonal gradations to create dimensionality and their impressive ability to create line drawings to present information schematically are immediately obvious. But this body of work shows us more. We appreciate the logic of Grant's regional anatomy approach to understanding the human body. The drawings show the inter-relationship between different internal structural features. Grant presented progressions from a global view to close-ups into or around an area, and from different angles. The X-rays, photographs and tracings on view were used to create the drawings, an innovative process Grant developed to ensure the illustrations were depictions of actual human bodies. The drawings include tools and techniques used by the illustrators to effectively communicate information about their subjects. Since the drawings were used for many decades to create publications, the materials and markings used by the publisher document their journey through the publication process. After more

than seventy years of heavy use we recognize the challenges of maintaining and preserving this fragile and unique collection.

The Illustrators

In 1941 Grant commissioned **Dorothy Chubb** to create the entire corpus of original works for the first edition of his *Atlas of Anatomy*. She completed most of the works in one year and they consequently show great visual and representational consistency. Chubb was born in Hamilton Ontario in 1908. She worked with Maria Torrence Wishart (1893-1983) who had established the Department of Medical Art Service, a University of Toronto medical service department. Chubb then went to Baltimore where she was a student of Max Brödel in the Department of Art as Applied to Medicine at the Johns Hopkins University Medical School, the first program to formally train medical illustrators, where Wishart had also been a student. Chubb returned to Toronto as Wishart's assistant. After her marriage she worked as a freelance artist for many outstanding surgeons of the era, and was well known for her accomplished carbon dust drawings.

Nancy Grahame Joy (1920-2013) was a renowned Canadian medical illustrator and educator. She became a student at the Ontario College of Art in 1939 and later attended classes with the medical students at the University of Toronto. She also studied at the University of Illinois at Chicago Department of Medical and Dental Illustration. She went on to study and work in the Art as Applied to Medicine program at the University of Toronto, where she worked with Maria Wishart. Between 1962 and 1985 Joy was Chair of the University of Toronto Department of Art as Applied to Medicine (established by Wishart in 1945); the program is now called Biomedical Communications. Under Joy's tenure the diploma program evolved to become a Bachelor of Science program (later a Master's program in 1994). Joy was an esteemed artist who used pen and ink and half-tone watercolour techniques to achieve tonal gradation. She made significant contributions to Grant's *Method of Anatomy* and *Atlas of Anatomy*.

Medical illustrators **Elizabeth Blackstock, Eila Hopper Ross** and **Marguerite Drummond** were accomplished

medical illustrators who were associated with the University of Toronto Department of Medical Art Service and who also contributed to early editions of Grant's *Atlas of Anatomy*.

J. C. B. Grant

Dr. John Charles Boileau Grant (1896-1973) was born and educated in Scotland. He served in World War I as a battlefield surgeon, then became Professor and Head of Anatomy at the University of Manitoba Medical School. He was named Chair of Anatomy at the University of Toronto in 1930, where he and his assistants prepared dissections for the Medical Museum. The first edition of his *Atlas of Anatomy* appeared in 1943, published by Baltimore publisher Williams & Wilkins during World War II when the supply of European-based textbooks was threatened. It was one of the first atlases of anatomy published in North America with illustrations done by North Americans. The book was organized along the lines of regional anatomy and introduced realistic illustrations based on dissections. Grant retired from the University of Toronto in 1956 to become Curator of the Anatomy Museum, now called Grant's Museum.

Grant's Atlas of Anatomy

Medical atlases are used to familiarize medical personnel with the human body. *Grant's Atlas* is a brilliant example of "regional anatomy." By the early twentieth century, in medical atlases regional anatomy displaced "systems anatomy", based upon examination of the human body system by system. Regional anatomy divides the body into discrete areas or regions, exploring a specific region of the body from different angles and perspectives, highlighting the depths of our corporeal substrata, and showing the inter-relationship of different sections in each region.. Grant's approach was to offer an affordable and portable single-volume text, and vernacular rather than Latin captions in place of lengthy textual descriptions. The early *Atlas* introduced other innovations such as realistic illustrations; most of the images were based on dissections that were photographed. From these photographs a tracing was produced and from the tracing a drawing. The drawing could be a line drawing, a carbon dust drawing, or a