

MEDICAL ART — A BRIEF GENERAL OVERVIEW, AND ITS DEVELOPMENT IN SOUTH AFRICA

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Medical art is an amalgamation of science and art and is a descriptive term for the work of artists whose subject is medicine, or a biomedical science. It can be very realistic and anatomically correct, thematical, interpretive or even conceptual. Medical art is often referred to as medical illustration. The latter term is more commonly used than the former, but I prefer the term medical art since it is more descriptive and encompasses objects of art other than sketches.

Most medical artists practise their profession mainly in an academic/teaching environment. Communication experts claim that in addition to hearing, touch, smell and taste, vision comprises approximately 75% of the entire communication process, and therefore images can be recalled more easily than words. Visual representations therefore remain the most important, and often the most suitable, method for conveying information and concepts to students. The medical sciences cover a large field and students are required to assimilate vast quantities of information, often entailing difficult concepts. Consequently, one of the primary purposes of medical art is to make material for medical students lucid and accessible. Complicated images, e.g. micrographs and radiographs, often require transformation to simpler, more interpretable forms by a medical artist.

Medical art also has certain secondary objectives, such as the production of posters for scientists attending congresses, health education of the public by means of colourful posters and video films, as well as documentation, e.g. of anatomical dissections.

HISTORY

There are indications that the Greeks performed dissections for medical reasons as early as 300 BC, particularly those who studied anatomy in Alexandria in Egypt. Illustrations of these dissections exist, but they were often inaccurate, and there was no method of duplication available. Sketches were stored in loose leaf form and were probably only used as aids during lectures and future dissections. During the 15th century



reproduction was mainly by means of wood carvings. The wooden blocks were probably soaked in warm linseed oil for softening, making them more suitable for delicate carving. During the 16th century etching, which enabled a more accurate depiction of detail, came into general use, followed in the 19th century by the process of lithography and colour printing.

The Renaissance in Italy was a turning point in medical art, and the famous artist, Leonardo da Vinci (1452 - 1519), was the first medical artist in a modern sense. He performed extensive anatomical examinations and even made impressions of internal spaces of the body by employing molten wax. He was the first to produce anatomical cross-sections and exploded diagrams, and his anatomical oeuvre of approximately 800 illustrations was first published in the 19th century.

Michelangelo (1475 - 1564) performed dissections over a period of 12 years to improve his anatomical knowledge. The naturalism of his work and his extremely accurate depictions of figures can certainly be attributed to this. In his Manneristic work he overemphasised certain features, e.g. muscles, thereby exhibiting his exceptional anatomical knowledge (Fig. 1).

The Flemish artist, Andreas Vesalius (1514 - 1564), qualified in 1537 as a physician at the University of Padua (Padova) in

Italy, and shortly thereafter accepted a position in surgery at the same university. Under his auspices sketches of human anatomy were made (probably by students of the renowned artist Titian) and it is possible that Titian did some of the illustrations himself. He was the author of one of the most famous anatomy textbooks of all time, *De Corpore Fabrica Humani* (published in 1543 in Basel). This book dominated medical art for almost two centuries. A product of his efforts is shown in Fig. 2.

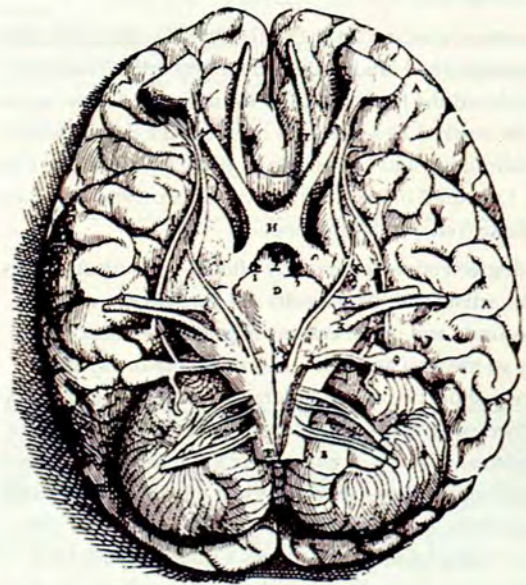


Fig. 2. Inferior aspect of the brain by Andreas Vesalius.

In 1725 a Dutchman, Bernard Siegfried Albinus (1697 - 1770), originally from Leiden but later professor of anatomy at the University of Frankfurt an der Oder, commissioned the artist and engraver Jan Wandelaar to assist him in creating a new, comprehensive anatomical text. The project took 28 years to complete — the pair often worked for days to position a cadaver correctly, and took months to complete each sketch.

William Cheselden (1688 - 1752) was a well-known surgeon at various large hospitals in London. He used a camera obscura to create superlatively accurate anatomical sketches.

The German, Christian Wilhem [sic] Braune (1831 - 1892), developed a new technique to make accurate anatomical sketches. He allowed a thin layer of ice to freeze around all anatomical specimens, tracing the contour lines with a pencil.

A turning point in the history of medical art came with the arrival of Max Brödel in the USA. He was a medical artist at



Fig. 1. Study for the Libyan Sybil by Michelangelo (1511).

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the Institute for Physiology at the University of Leipzig, but took up a position at the Johns Hopkins Medical School in Baltimore, Maryland, in the USA. In 1911 he established the Department of Applied Medical Art at Johns Hopkins (the first of its kind in the world) and became the first director. Training in medical art was now formalised, and degrees were soon offered. At present, various universities in the USA and Canada offer degrees in medical art, and it has developed into a highly specialised field. Most practising medical artists in the USA and Canada have Masters degrees in their field.

In contrast medical art in South Africa is still in its infancy. The distinguished landscape painter and artist Thinus de Jongh is considered the first medical artist in South Africa. In the 1920s he worked as a freelance artist for the departments of Ophthalmology and Gynaecology at the University of Cape Town. Examples of his work are very scarce, and many have been destroyed out of ignorance.

No degree course is currently offered in South Africa for medical artists and the majority are autodidacts with backgrounds and qualifications in graphic art and design. The history of medical art in South Africa therefore spans a relatively short period, and literature on the subject is sparse. Most medical artists are employed by medical faculties of universities, where they share their knowledge and expertise with colleagues. They are dependent on their own initiative and creativity, and often attend anatomy courses of their own volition. Some qualify abroad, e.g. Cynthia Wallis, who founded the Unit for Medical Illustration at the University of Stellenbosch in the 1970s. She obtained her qualifications in the USA. When this unit was formed it included three artists, and under the guidance of the second head, Richard Pedler, as well as his successor, Peter Laponder, this number expanded to seven. Thereafter the unit stagnated as a result of financial constraints and shrank to its current status of one medical artist.

MEDICAL ARTISTS IN SOUTH AFRICA

I conducted interviews with three South African medical artists, namely Elise Fuller, Mariaan Wiles and David Wiles.

Elise Fuller

Born in Cape Town, Elise Fuller always yearned to become an artist. After obtaining a qualification in graphic art at the Cape Technikon, she joined the Department of Anatomy of the University of Cape Town in 1977. She is currently employed by the Medical Graphics Unit at the same university.

Elise has illustrated a number of books, e.g. *Drennan's Human Osteology* by Theunis Coetzee and *Drug Safety in Clinical Practice* by Peter I Folb. She has also done illustrations for veterinary publications and is a talented photographer. She has

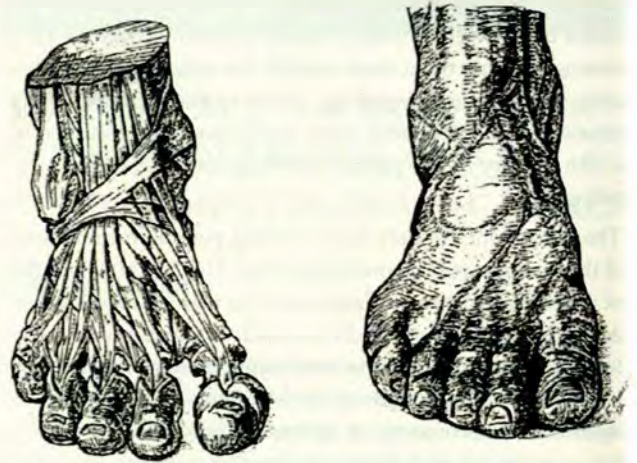


Fig. 3. Illustration of a partially dissected and undissected human foot by Elise Fuller (not previously published — obtained directly from the artist, and reproduced with permission).

received numerous accolades for her work and has also assisted in preparing specimens for the Anatomy Museum of the University. An example of her work is shown in Fig. 3.

Mariaan Wiles

Mariaan Wiles joined the Unit for Medical Illustration, Faculty of Medicine, University of Stellenbosch in 1981. She trained as a graphic artist at the Cape Technikon, and currently works as a freelance graphic artist, specialising in medical art.

She has illustrated a number of books, e.g. *The Development of the Chondrocranium of Gallus gallus* by Willie Vorster, *Resussitatie van die Pasgebore Baba* by P A Henning, and as associate, *Die Ondersoek van die Pasgebore Baba* by P A Henning. Fig. 4 shows an example of her work.

David Wiles

David Wiles is a graphic artist who specialises in medical art. He too worked for the Unit for Medical Illustration at the University of Stellenbosch. Currently he is head of the GERGA computer centre of the Faculty of Health Sciences at the University of Stellenbosch. Nowadays he focuses on the use of computers in medical art. This electronic tool has revolutionised the field in that three-dimensional, interactive, animated multimedia presentations can be produced with relative ease. He also produces medical illustrations in the conventional sense, and has contributed to the artwork for *Resussitatie van die Pasgebore Baba* and *Die Ondersoek van die Pasgebore Baba*, both by P A Henning.

Because I am interested in art and sketching, I have included an example of my work (Fig. 5).

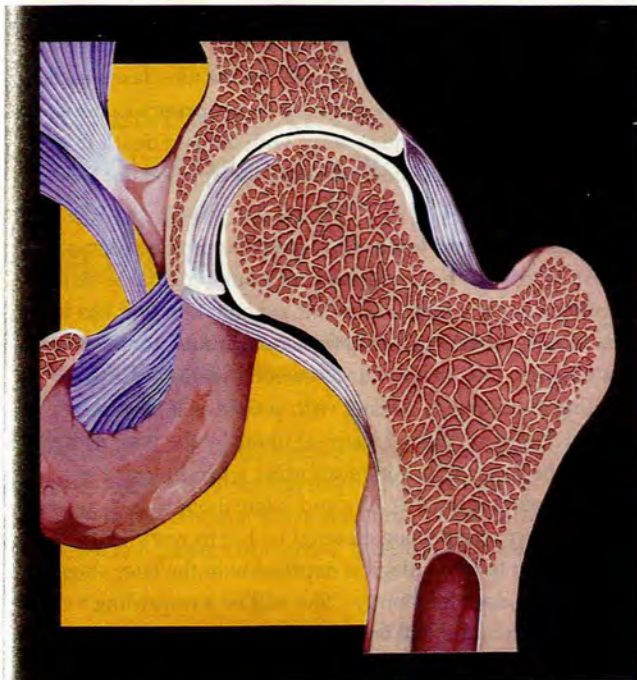


Fig. 4. Illustration of the human hip joint by Mariaan Wiles (not previously published — obtained directly from the artist, and reproduced with permission).

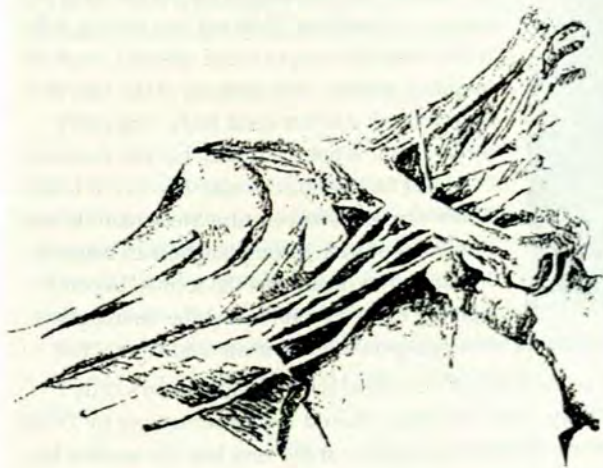


Fig. 5. Illustration of the brachial plexus by Pieter van der Bijl.

CONCLUSION

Currently medical art encompasses far more than the mere production of classical illustrated medical drawings. It is here that hand-drawn illustrations and new digital technology can be combined to produce full-colour realistic images in two and three dimensions. This continuing development of medical art ensures that future generations of health professionals and scientists will be able to benefit from a wide spectrum of high-quality graphic images for study and communication purposes.

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