

Art and Reproductive Science: Celebrating a Glorious Marriage

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For many years, both of us have worked in science and expressed ourselves through art.¹⁻⁴ We are therefore delighted to introduce a new JOGC series entitled *The Art of Reproduction*, beginning on the back page of the current issue. The series will illustrate the evolving relationship between these two disciplines.

Science is relatively easy to define: it is the systematic study of how we, and the universe, function. Art, on the other hand, is much harder to define using words, but is perhaps an expression of our souls, of our inner beings. Put more simply, art is “who we are” and science is “how we are.” One of the more profound questions that we can ask is “how do these two cultures—medical sciences and arts—speak to each other?”^{5,6} In the coming months, we want to remind readers of some wonderful answers to that question by sharing some fascinating images and captions that reflect and highlight our evolving scientific understanding. It is a visual counterpoint to the idea that art illuminates life. We think it is possible to move beyond the great doctor narratives (stories of some moment of medical discovery or analysis of progress) to our current stage of fundamental understanding of many biological processes.

Although we rarely consider the connections between these two entities, art and science have been tightly bound for centuries. This bond became especially clear during the Renaissance, when Leonardo da Vinci (and others) began to study anatomy and science, while making some of the world’s most memorable images. Imaging, in the medical sense of the word, describes the processes with which we visualize the anatomic structures that make up the body. For millennia, we have looked at the outside of the body and tried to imagine what was going on inside. The drawings of Fabricius, Vesalius, Leonardo da Vinci and deGraaf represented the standard of anatomical knowledge across

ages. The illustrations of the early anatomists in many cases are so accurate that they could be used for teaching current medical students; and yet they also still serve as departure points for our own inspiration.

Human reproduction has been a powerful source of inspiration for artists before and since Leonardo. From prehistoric to modern times, they have produced images that reflect all aspects of fertility. “Venus” figures carved between 10 000 and 25 000 years ago have been found across the globe, from the valleys of Austria to the caves of India. The Egyptians, Greeks, and Romans also left behind their own fertility myths and icons. Renaissance, contemporary, and modern artists have continued to explore sex and fertility. One only has to read the historical writings of Hippocrates or Soranus to realize the deep mysteries that reproduction holds. However, even the most detailed studies of anatomical specimens cannot illustrate the fundamental processes of life and the inner workings of the systems we wish to understand. Much physiologically important information is not readily appreciated by the human eye, but is available through analysis of the exquisite detail contained within the images created by ultrasonography, MRI, CT, PET and other imaging instruments. Similarly, there is much cultural information related to human reproduction contained in the historical images we will explore in the coming issues of the *Journal*.

The intellectual and cultural differences between the medical sciences and arts are broad. However, communication between them offers a great deal, and will guide future inquiry into the realms of scientific, medical, cultural, and social policy. Very few scientists or physicians working today have any sort of background in classical literature,

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philosophy, or the humanities. Many of the lessons of medicine and art are lost to us as we struggle to learn the basics of fundamental sciences such as physics, chemistry, and biology. Yet the expression of our knowledge in art may frequently inspire our desire to learn more of the lives and lessons of our predecessors.

In all of the sciences, information is increasing at a rate that makes it challenging for specialists to stay current; it can be difficult even for diligent and motivated non-experts to understand the most basic of issues arising in each subspecialty area of science and medicine. Nowhere is the knowledge gap more pronounced than in reproductive biology. In a superficial way, we have known the basics of reproduction since the beginning of time, but our arrival at an accurate and true understanding is very recent. We have known for centuries that sexual intercourse leads to pregnancy, and pregnancy leads to the delivery of a new generation of “us.” However, the discovery of gametes and our understanding of how the genetic information in them combines to create a new individual have initiated an entirely new level of insights that have a profound effect on what it means to be human. We are now 34 years past the birth of the world’s first baby conceived via in vitro fertilization.⁷ In those 34 years, we have learned more about the reproductive biology of our species than we had known since the beginning of time.

Childbirth, when all goes well, is a beautiful process. Delivery of a healthy infant is the source of some of our greatest joys, whether as parents or as practitioners of the medical arts. At the same time, complications in obstetrics embody some of our most profound apprehensions and terrors. The fundamental biologic realities of how our species propagates itself has created gender roles that have been embodied in different cultures in different ways.

While art and science may seem to be poles apart, they are in fact inextricably linked. They are both forms of understanding, communication and “knowledge.” As Marcel Proust said: “Thanks to art, instead of seeing a

single world, our own, we see it multiply until we have before us as many worlds as there are original artists.”⁸

This JOGC series on art and reproductive science begins in the middle of the journey from darkness to light, with an image used by Dr William Harvey, physician to King Charles I, as the frontispiece for his treatise on the physiology of reproduction *Exercitationes de Generatione Animalium (On the Generation of Animals)*. This seminal work provided a platform from which other academics such as Steno, De Graff, Swammerdam, and Leeuwenhoek climbed towards our current understanding of how mammalian reproduction works.

The images we will present in future issues represent some of the earliest enlightened visualizations of the reproductive organs, embryogenesis, fetal development, and delivery of infants. We hope that readers will enjoy this coming series of arresting images, not just for the pleasure they give as works of art, but for their value in reminding us of how recently we have arrived at our current level of scientific understanding in the field of reproduction.

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