

[This article was published as a chapter in ‘Golden Prism’ in July 2011]

Art and Science - Two Great Modes of Human Thought: a Philosophical Perspective

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Abstract:

Both art and science are part of a culture: a culture is valued by its art forms and scientific perspectives. While studying about art, one cannot leave out science because both are regarded as two great modes of human thought. This made me shed light on both of them simultaneously in this essay.

The relationship between art and science is considered a mystery; however, there is a definite affinity between the two. They are the two great modes of human thought, both pushing the boundaries of what we know and how we know it; what we can perceive and how we perceive it. The etymological understanding of art and science will reveal their true nature and how they become the modes of human thought.

Key Words: Renowned; Renaissance; Humanism; Technê; Sophia; Epistêmê;

Introduction

The stature to which humanity has arrived cannot be accidental. In all perspectives, whether scientific or philosophic or religious, humanity has reached the present status through a process that can be traced down to millions and millions of years. The growth of man is a process and it can be called as the process of ascension and this became possible with the growth of science and technology down through the centuries.¹ The word ‘technique’ is the modern application for the ancient use of the word ‘art’. The art of social life of our ancestors was expressed by the tools, weapons and pottery used by them and these are regarded as the hallmarks of any culture.² The inferences drawn from such records of civilizations excavated, give material evidence to the way of life led by our ancestors.

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¹ TAD S. CLEMENTS, *Science and Man: The Philosophy of Scientific Humanism*, Charles C. Thomas Publisher, Illinois 2000, 38.

² Cfr., JOSEPH A. GOGUEN, “What Is Art? Editorial Introduction”, in *Journal of Consciousness Studies*, 7, No. 8–9, 2000, 13.

how we perceive it.³ The etymological understanding of art and science will reveal their true nature and how they become the modes of human thought.

Art and Science: *technê* and *epistêmê*

The Greek word *technê* (τέχνη) is often translated as art. Plato used the word *technê* in the sense of art which for him is distinct from *epistêmê*.⁴ The use of the words *epistêmê* and *technê* by Plato shows that they are essentially different. *Epistêmê* is applied to medical knowledge in the sense that it is knowledge of health.⁵ Even the knowledge of carpentry is *epistêmê*.⁶ But for Plato the knowledge needed to rule the city is *technê*; ruling is a kind of *technê* that looks after the welfare of the city.⁷

For Aristotle *technê* is the artistic knowledge of how to do things. Aristotle in his *Nicomachean Ethics* identifies five intellectual virtues: scientific knowledge (*epistêmê*), artistic knowledge (*technê*), intuitive reason (*nous*), practical wisdom (*phronêsis*), and philosophic wisdom (*sophia*). Scientific knowledge is knowledge of what is necessary and universal. Artistic knowledge is knowledge of how to make things, or of how to develop a craft. Intuitive reason is the process that establishes the first principles of knowledge. Practical wisdom is the capacity to act in accordance with the good of humanity. Philosophic wisdom is the combination of intuitive reason and scientific knowledge.⁸

Thus by distinguishing *technê* from *epistêmê* Plato and Aristotle differentiated art from scientific knowledge. From this we can understand *technê* as a disposition to produce something. It is concerned with bringing something into existence and therefore connected with creativity.⁹ Aristotle further says that *technê* is end oriented. It aims at some good.¹⁰ Using Plato and Aristotle, who have provided an earlier clarification on *technê*, it can be said that art is a creative knowledge or a systematic use of knowledge for intelligent human action.

³ Cfr., L. KRAUS, *The Art of Cloning and Eternal Life*, Great Albany Books, New York 1997, 2.

⁴ For Plato *epistêmê* means knowledge which signifies the ability to know the real as it is. Cfr., PLATO, *Republic*, V, 477b. However, it also needs to be considered here that Plato was against the creative artists, saying that the artistic productions are the reproductions of the unreal world and therefore lead the people away from the real world. That is why he considered the creative art as *mimesis* (imitation or representation). Cfr., *Routledge Encyclopedia of Philosophy*, Version 1.0, Routledge London. Therefore he proposed censorship for the artistic productions.

⁵ Cfr., PLATO, *Charmides*, 165c, and 170c.

⁶ Cfr., Idem., *Euthydemus*, 281a.

⁷ Cfr., Idem., *Republic*, I, 342e.

⁸ Cfr., ARISTOTLE, *Nicomachean Ethics*, VI, 1139b15 - 36.

⁹ Cfr., *Ibid.*, VI, 1140a1 - 20.

¹⁰ Cfr., *Ibid.*, VI, 1094a 5 - 10.

In his *Anthropologie in pragmatischer Hinsicht*, Kant spoke of three special gifts of human beings: the artistic gift, the pragmatic gift and the moral gift. The artistic gift is connected to the practical reason. For Kant these qualities distinguish the human being from the rest of creation.¹¹ Therefore art becomes a specific trait of the human being. The use of *technê* as *ars* in Latin and as art in English can be ambiguous. Art can mean both skill and fine arts. For Heidegger *technê* can mean both: “*technê* is the name not only for the activities and skills of the craftsman, but also for the arts of the mind and the fine arts. *Technê* belongs to bringing-forth.”¹²

Art and Science as Tools of Progress for Humanity

Art and science share so many things in common: both have essentially contributed to the growth of humanity. Herder points out that man by nature is a weak and deficient being in comparison to the other animals. At birth man is the weakest and the most dependent of all the animals.¹³ Therefore man must compensate for his lack of natural tools and weapons by the creative use of art and science. The use of the artistic knowledge of man can be traced from a very early stage with the elementary use of sticks and stones which were the first use of tools and weapons. The Stone Age marked the natural beginning for every civilization. The development of the human mind is evident in Stone Age with sharpened and smooth stone implements. From there different types of weapons and tools were developed to control nature and to preserve life.

Homo sapiens marked a significant point in the progress of human civilization where intellectual ascent was obtained. The human being as *homo sapiens* is capable of science and science reflects the status of knowledge. This ascent of mind led human beings to develop art and science and it is in this that human ascent shows its singularity.¹⁴

Art and Science as Efficient Means of Communication

The growth and civilization of mankind gained further impetus with the ability of

¹¹ Cfr., I. KANT, *Anthropology from a Pragmatic Point of View*, (trans.), V. L. Dowell, Carbondale and Edwardsville, Illinois 1996, 238 - 242.

¹² M. HEIDEGGER, *The Question Concerning Technology and Other Essays*, (transl.), W. Lovitt, Harper & Row Publishers, New York 1977, 13.

¹³ Cfr. J. G. HERDER, *Ideen zur Philosophie Geschichte der Menschheit*, Fourier, Wiesbaden 1985⁴, 118. Cfr., in G. I. ONAH, *Self-Transcendence and Human History in Wolfhart Pannenberg*, University Press of America, New York 1999, 5 - 6. Gehlen also agrees with Herder with regard to the constitutional deficiency of the human being in comparison to the animals. Cfr. G. I. ONAH, *Self-Transcendence*, 22.

¹⁴ Cfr., H. DRUMMOND, *The Lowell Lectures on the Ascent of Man*, J. Pott &co., New York 1894, 146.

communication. The language, the external mode of communication, developed in social living. With language humanity not only was able to communicate the skills and knowledge it gained to its peers but also was able to pass on the information down to the ensuing generations. Every successive generation while acquiring the wisdom of the past added to it and improved on it. As J. Carey observes regarding the tremendous development of the art of communication, human beings are now, “outgrowing the nation-state and a new form of world order is emerging, a global village, a universal brotherhood or world government on a shrunken planet.”¹⁵ In this process, art and science played an important role.

There is a difference between art and science; however, the line between them is unclear. Ironically, art and science differ most noticeably in their communication. While both art and science are principally about communication, they differ in the direction in which they are communicating. Science begins with experimentation and with the physical, observable, concrete occurrences in the world. For example, Isaac Newton observed an apple falling from a tree and from this he generated his formulation of the theory of gravity. In other words, in scientific thinking, whatever that were available in nature were observed and made into scientific theories.

The communication in art runs in the opposite direction. Artists begin with their abstract internal understanding, beliefs or feelings, something that exists within them. Artists then work to generate specific, concrete, physical manifestations of these abstractions: paintings, songs, dances, sculptures, etc. “Art is a human activity consisting in this, that one man consciously, by means of certain external signs, hands on to others feelings he has lived through, and that other people are infected by these feelings and also experience them.”¹⁶ In other words, in artistic thinking, what were in the mind of the individuals were communicated to others in the form of music, dance, design, drawing, sculpture, architecture and through other performing arts. Thus the point of departure for science and art differs, but both are involved in creating and transferring some communication to the world.

Conclusion

My principal aim in this essay is to point out art and science as two great modes of human thought and to emphasize the importance of both for the welfare of humanity. There are some tendencies to emphasize one at the expense of the other.

¹⁵ J. CAREY, *Communication as Culture: Essays on Media and Society*, Routledge, New York 1992, 170.

¹⁶ LEO TOLSTOY, *What is art?*, (transl.) Alymer Maude, Julie C. Van Camp, New York 1899, 25.

Leonardo da Vinci (1452 - 1519) is seen as the perfect example who was competent both in art and science. He was a renowned artist of the renaissance. His most famous paintings such as the Mona Lisa and the Last Supper are still appreciated for their lucidity and creativity. However, he provided the first steps for many of the modern scientific inventions and theories. The areas of his scientific study included aeronautics, anatomy, astronomy, botany, geology, geometry, optics, physics and zoology.¹⁷ A healthy combination of art and science will contribute for a wholistic humanism. In a human body, if science is considered as the head (thinking and rationalizing), the art serves as the heart (feeling and emotionalizing).

The method of science calls for precision and universality. There should be objectivity in science that excludes all subjective factors on the part of the one who does the experimentation, whereas in the method of art, the artists directly engage their subjectivity in their work. Objective measurement can also differ greatly from the creative aspect of art. These considerations imply that art and science must play significantly different kinds of role in any relationship that may be forged between them.¹⁸ Both the subjective and objective aspects are necessary to have a valid and integral human knowledge. In this sense there is a complementary aspect played by art and science in their coordinated projects, where subjectivism and objectivism of knowledge are fulfilled.

Science, through advanced technology, has influenced all spheres of human life and has made of technology a necessity. *Homo faber* is the name that is attributed to the human being in the process of technological development and it is also seen as one of the stages of human growth and a product of *homo sapiens*.¹⁹ Advances in science and technology have also influenced art and have obviously been essential enabling factors for many contemporary art forms, such as cinema and electronic music (Karaoke). It would seem wise to expect the unexpected in the future, given how rapidly art, science and technology are all evolving quickly at present. We will surely see much more of digital media and of the digital manipulation of art forms; and probably we will see radical new integrations of media. This will result in the creation of new kinds of art and theories of art. Even then art will remain as a great mode of human thinking apart from science and technology because art reflects the

¹⁷ Leonardo's most famous drawing, the Vitruvian Man, is a study of the proportions of the human body, which links art and science in a single work that has come to represent *Renaissance Humanism*.

¹⁸ Cfr., JOSEPH A. GOGUEN, "What Is Art? Editorial Introduction", in *Journal of Consciousness Studies*, 12.

¹⁹ Cfr., H. JONAS, *The Imperative of Responsibility: In Search of an Ethics for the Technological Age*, The University of Chicago Press, Chicago & London 1984, 9.

humane side of every human endeavour. To apply the conclusions of Blaise Pascal, if science is the 'logic of the mind', art is the 'logic of the heart', and a human being needs to be with the 'logic of the mind' and the 'logic of the heart.' Only a joint project undertaken both by art and science can create an integral and wholistic humanism.