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ITALY'S CONTRIBUTION TO THE SOLAR SYSTEM MODEL. WAS GIORGIONE A WITNESS TO THE BEGINNINGS OF HELIOCENTRISM?

Abstract

The construction of the physical model of the solar system is emblematic of the capacity of the human mind to embrace facts that are out of all proportion to its sensory experience. It took three civilisations over more than a millennium to move from premises in which, given the means of observation and calculation, hypotheses and imagination played a predominant role, to a physical model that was fully equated and recognised by the entire scientific community. After ancient Greece and the Islamic Golden Age, it was Western Europe that laid the foundations of modern science, and Italy played a remarkable pioneering role. This study begins by reviewing the basics of what constitutes a scientific fact in the eyes of theorists in the history of technology, which highlights the importance of the intellectual climate of the societies in which ideas are produced. We then briefly review the achievements of Greece, the Islamic Golden Age and the late Middle Ages in terms of solar system models, not only to clarify the starting point, but also to evoke the various complex physical issues involved in the problem. By recalling the many personalities who contributed to the development of the now universally accepted model, including Copernicus, who forged his idea of heliocentrism during his studies in Bologna (with the astronomer Novara) and Padua, Galileo and Lagrange, we can highlight the progress made in the various aspects of the model. It also reveals the characteristics of Italy that enabled it to be a pioneer in the development of universities and academies, and in the emergence of these prolific polymaths. Italy was at the origin of the European Renaissance, rooted in the radiant Quattrocento, and played a leading role in the history of ideas right up to the Age of Enlightenment. Neoplatonism was revived there, contact with ancient texts and Arabic works was easy, and many travellers went there to spread new ideas. All these factors were important in the production of the new science. This ferment involved science and technology, but also and above all the arts, literature and sociology, with interactions between the different fields. We propose that two of Giorgione's mysterious paintings could be interpreted as inspired by the emergence of new ideas in Astronomy.