

**EXTENDED
ABSTRACT****Comparative Study of the Twelve Constellations in Illustrated Versions of the Book of Fixed Stars and Nativities**Shadi Taherkhani¹**1.Faculty member, Department of Graphic Design, Faculty of Arts, Shahid Chamran University of Ahvaz, Ahvaz, Iran
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Introduction

Since the time of their appearance on the Earth, humans have been interested in the cosmos and the discovery of the secrets of the sky. The emergence of Islam and the tendency of the Islamic Khalifas towards the science of astronomy and astrology led to the growth and development of this branch of natural sciences, especially between the 3rd and 9th centuries AH. In the present study, astronomical concepts and beliefs in the Islamic era have been identified and extracted in order to compare them with the astronomical motifs of the two illustrated versions of Book of Fixed Stars (820 AH) by Abd al-Rahman al-Sufi, the original version of which belongs to the 4th century AH and Nativities (700 AH) by Abu Ma'shar Balkhi. The present research aimed to find out how the components of astrology and constellations are depicted in the two illustrated versions of Nativities (700 AH) and Book of Fixed Stars (9th century AH) and whether the images of the Nativities were influenced by the reference images of Abd al-Rahman al-Sufi (4th century AH) in Book of Fixed Stars.

Regarding the research carried out in this field of study, Zargari and Yahyaei (2014) in "The effect of astronomical beliefs and attitudes on the social and political conditions of Iran during 4-9th centuries AH" have studied the formation and growth of astronomical beliefs in the Islamic era. Moreover, Hosseini (2017) in his study "Reflections of various constellations in the art of pottery from the Islamic era to the Safavid period and their comparison with the images of Abd al-Rahman al-Sufi " concluded that the artists of the Islamic period have used the astronomical designs and concepts of astronomical books; however, in many cases, they have made changes in these designs according to the spirit of the age and their own taste. Afrough and Nowruzi Talab (2012) have also studied the 12 constellations of the zodiac in the "Decorative nature of the astronomical concepts of a brass water container".

Methodology

This descriptive-analytical research had a comparative approach and the required data were collected from library resources and the study of written documents, especially astronomical books, as well as the objective study of the illustrations. Moreover, the collected data were ana-



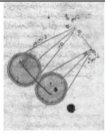




















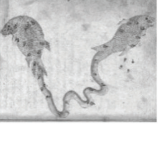
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lyzed using qualitative methods. The statistical population of the study consisted of the images of the 12 constellations in the illustrated versions of the Book of Fixed Stars and Nativities.

Results

The findings of the investigation of the images of the 12 constellations in the Book of Fixed Stars and Nativities are shown in Table 1.

Table 1. Comparison of the Images of the 12 Constellations in the Book of Fixed Stars and Nativities, Source: Author

Constellations in the Book of Fixed Stars	Constellations in the Nativities	Correspondence	Constellations in the Book of Fixed Stars	Constellations in the Nativities	Correspondence
		Yes			Yes
		No			Yes
		No			some extent
		Yes			No
		Yes			Yes
		No			No

A. Due to the scientific nature of the Book of Fixed Stars, the images of this book are free from poetic imagination and the influence of astrology. Moreover, it has been faithful to the original version of this book, which was written and illustrated in 353 AH by the scientist and astronomer of the 4th century AH, Abd al-Rahman al-Sufi. In terms of technique and rendition, the images of this book are very simple and linear, without chiaroscuro or coloring, and are depicted only to visualize the scientific text of the book and clarify the position of the stars.

B. In contrast, since the text of the Nativities book deals with non-empirical subjects, such as

the conjunction of the constellations and the nativity astrology, the illustrations have dynamic compositions and various visual elements. Technically and methodically, most of the images are 2D and in some cases have subtle renditions and imaginative coloring with a relatively wide range of green, red, and yellow. Furthermore, the textures as well as the geometric and plant motifs are generally tailored to the taste of the public. Visualizations of astrology and the conjunction of the planets in the 12 constellations, including the type of clothing, such as hats and shoes, and the facial features of the figures indicate that the illustrator of Nativities was influenced by the beliefs and customs of their time. This characteristic has added to the visual beauty and appeal of these illustrations.

C. Comparison of the two versions indicated that the main structures of the images of the 12 constellations in the Nativities, in most cases, corresponded to the ancient and scientific interpretations of the main visual representation of this constellation in the Book of Fixed Stars. The only difference was that in Nativities, the aesthetic imagination of the illustrator led to a more dynamic and common portrayal of these constellations.

Conclusion

Comparison of the illustrations of the 12 constellations in the Book of Fixed Stars and Nativities showed that the artists who illustrated astronomical books in the Islamic era in addition to full acquaintance with astronomy also had to be creative and have an artistic taste. Investigation of the illustrations of the constellations in the two mentioned versions revealed that the illustrator of the Book of Fixed Stars in 9th century AH, which was completed in the Royal Library of Samarkand, was completely faithful to the original version of this illustrated scientific treatise and did not change the motifs. Moreover, the images of the 12 constellations in the Book of Fixed Stars are simple, linear, and free from any visual ambiguity or coloring with the aim of visual beauty and only try to serve the scientific text of the book. However, in Nativities, the illustrator, who was aware of the astronomical rules, expressed his poetic and artistic imagination with visual subtleties, coloring, composition, delicate brush strokes, and geometric and plant patterns to illustrate the 12 constellations. In most cases, he borrowed the visual knowledge of previous astronomical books, especially the Book of Fixed Stars as the visual reference of that era. However, in many cases also incorporated the representation of constellations and astronomical rules, beliefs, customs, type of clothing, and the visual culture of his age.

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