



Symbol, Pattern & Symmetry

**The Cultural Significance
of Structure**

Michael Hann

BLOOMSBURY

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& symmetry**

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To Nell and Peter Hann

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preface

This book explores and analyses the origins, development and diffusion of symbols, motifs and patterns in visual art forms across a selection of (predominantly non-European) cultures and historical periods. The focus is on explaining and illustrating the nature of various visual art forms and how they may be classified, analysed and compared, particularly with reference to their underlying structural characteristics, though, where appropriate, commentary relating to thematic content is also included. The universal importance of visual symbolism is recognized and the role played by geometric structure as a means of encoding meaning is discussed.

The book embraces a number of academic traditions, develops insights proposed by various eminent observers and suggests methodologies of value to modern scholars concerned with structural analysis in the visual arts. An emphasis is placed on showing how the visual arts are underpinned invariably by strict geometric structure and on explaining how reference to such structures can allow classification and comparison of data from different cultural or historical sources. The topics selected for the series of case studies reflect some of the research interests of the author and his research students over the past few decades. Research data and information from past reviews, student projects, conference presentations, exhibition booklets and catalogues have been developed, updated or supplemented and associated with new material. In a 2012

publication entitled *Structure and Form in Design*, the present author reviewed and discussed a range of geometric concepts and principles which are summarized also in this present publication. In the former case the focus was largely (though not entirely) on the needs of student design practitioners, and in this present case the focus is on analysis in the visual arts, with a coverage which deals with a wide range of cultural and historical material, including textiles, ceramics and other designed and crafted objects as well as notable buildings and monuments. The intention is to encourage student readers to create a connection between basic geometric structures (including symmetry arrangements) and the visual arts design and architecture. A series of 37 case studies (denoted by initials cs) is presented in chapters 3 to 14.

It should be noted that often in general texts concerned with developments in the visual arts and design the immense contributions made by Egyptians, Greeks and Romans are an early focus, and sometimes the starting point for discussion. This book steps outside this well-worn convention and focuses attention on developments to the east of the Mediterranean. The choice of subject matter has been influenced by a number of factors. Cultures and countries located along the trade routes from west to east, from the Mediterranean to China, Korea and Japan, offer ideal platforms from which to consider diffusion in the visual arts. Relevant objects are well represented

in museums and galleries and are often well displayed on museum websites. The British Museum and the Victoria and Albert Museum (both in London) were inspirational jointly in the development of lecture material to service the lecture course from which this publication springs. It is hoped that students will be inspired to visit both of these great institutions, or provincial or other national museums which may be more accessible. Many of the geographical zones covered are of course accessible (in the physical sense) to modern-day students. Another factor in the selection of case-study material was the ready access to large quantities of unpublished material held at the University of Leeds International Textiles Archive (ULITA), a resource largely unknown to scholars worldwide. It is also worth remarking that the selection of topics covered has been very much geared to the preferences and interests expressed by students over the past decade.

It should be noted that assigning dates and giving precise geographical boundaries to events or developments in the ancient world is problematic and is a source of controversy among scholars. To ensure a degree of consistency (and, it is hoped, dependability), reference is made throughout to dates, periods and geographical boundaries as specified, at the time of writing, by the British Museum (scholarly and exhibition publications and website pages).

The organization of this book is as follows. Chapter 1 reviews the nature of stylistic adoption and diffusion, and Chapter 2 presents an appraisal of concepts relating to structure and form in the visual arts with a particular focus on the nature of geometric symmetry and the value of this and related concepts to the classification of visual art forms. Each subsequent chapter (Chapters 3 to 14 inclusive) consists of an introductory

section and this is followed by a series of case studies which relate to the theme of the chapter. Each of these case studies focuses on one particular object, a group of related objects or a monument of some kind. Each case study offers scope for development as a student dissertation (especially at undergraduate level). Where appropriate, key literature is listed and relevant objects and monuments are identified. A series of topics or questions, suited for discussion or as a basis to guide the development of student assignments, is included at the end of chapters. These can be adjusted, developed, edited, lengthened or shortened, depending on the requirements of a particular class.

Selections of well-known symbols are identified, their thematic or symbolic content explained and, where appropriate, underlying geometric structures recognized. Geometrical concepts and principles are illustrated by simple line drawings and by reference to various classes of designed object, comprising ceramics, textiles and carpets, metal and wood work, architectural motifs, symbols and other figures, patterns, tilings and other forms of regularly-repeating structures, as well as floor plans, sections and façades of a selection of notable buildings or building complexes. Consideration is given to symbols, motifs, patterns and signs from a range of cultures including Babylonian, Neo-Assyrian, Persian, Moorish, Turkish, Indian and Pakistani, Southeast Asian, Japanese, Korean and Chinese. Common characteristics are highlighted and accounted for, and the apparent relationship between geometry and culture is debated.

A particularly important characteristic of this book is the emphasis on geometric analysis. Consideration is given to forms of visual art, motifs, symbols and patterns, and their apparent

diffusion from one cultural context or historical period to another. The book demonstrates how the consideration of underlying structure, particularly geometric symmetry, can be used to analyse, classify and compare data from different historical and cultural contexts. A small contribution is made also to the debate on how geometric structure has been used to encode meaning in various cultural settings.

The objectives are, first, to explain and illustrate how simple and complex motifs, surface designs, regular patterns, product and architectural forms, cross-sections and other constructions are underpinned by a strict geometric structure and, second, to show that identification of this underlying geometric structure can act as a basis for classification, analysis and comparison. The aim of the book is to introduce a simple and readily usable means of classification, appropriate to structural analysis in the visual arts and design, and to show how such a system of classification subject to the availability of suitable and representative data can be used to develop unique methodological perspectives allowing (for example) intercultural comparisons, identification of origins, or the pinpointing of periods of cultural adherence, continuity and change. Classification in the visual arts, based on consideration of symmetry characteristics, using categories formulated by mathematicians, is well established. However, despite the efforts of scholars from a range of disciplines, this means of classification has not been readily picked up by the wider population of art and design analysts and historians, anthropologists and

archaeologists. The means of classification presented in this book does indeed rely on symmetry identification, and is based on a simple square template which can be used as an aid to detect the presence of reflection symmetry in nonrepeating compositions. Formal mathematical content is thus kept to an absolute minimum and appropriate literature is identified throughout.

It should be noted also at this stage that the term *decorative art* is avoided in this book; rather the term *visual art* is used instead. This is due to the fact that in the popular mind motifs, symbols, patterns and visual compositions of one kind or another, all lumped under the title *decorative arts*, are deemed purely decorative or ornamental in function and somehow not worthy of serious scholarly attention. Washburn (2004: 49) observed that the titles of the renowned works by Owen Jones (*The Grammar of Ornament*, 1987[1856]) and Flinders Petrie (*Decorative Patterns of the Ancient World*, 1974 [1930]) implied that surface patterns served the purpose of embellishment and decoration rather than communication. Further to this she commented that ‘non-representational patterns not only decorate, but also act as visual voices that, in conjunction with verbalized speech and song, communicate important cultural information’ (Washburn 2004: 49). This perspective that underlying structure encodes information is a theme which occurs several times in the present book. Each case study (cs) gives an introduction to the subject, and is designed to act as a starting point for students interested in developing expertise in the relevant area.

MAH, Leeds, 2013

stylistic diffusion, adoption and adaptation

The image presented in Figure 1.1 was taken in 2009 in Seoul, Korea, a city located at the far east of Asia, and the photograph shown in Figure 1.2 was taken in 2007 in Cordoba (Spain), a city located in the south-west of continental Europe. Figure 1.1 depicts modern ornamental brickwork which reproduces a key pattern (also known as a fret pattern), considered by Koreans to be traditional to Korea. Meanwhile, Figure 1.2 portrays Arab-influenced brickwork showing a number of key patterns (located in the arches shown in the

image), regarded by Western architectural historians as characteristic of southern Spain. Clear similarities are evident in the two images. It is the contention here that some form of diffusion of ideas, maybe operating in a time frame extending over several centuries and also involving several intermediary locations, ensured the similarities of the designs.

Similar designs depicted in different contexts and created at different times may result from one of two causes and, on occasion, from a combination



Figure 1.1 Detail of traditional brickwork, entrance to National Museum, Seoul



Figure 1.2 Detail of an exterior portal of the Great Mosque of Cordoba, Spain

of the two: (1) a process of diffusion which may be followed by a degree of independent development or (2) processes of independent discovery, construction, evolution and development. The author's position is that a vast range of designs resulted at least in part from a process of cultural diffusion, though, at the same time, in many instances something local and familiar also was imposed to allow the new to sit comfortably with the old. *Cultural diffusion* is the process by which cultural traits, material objects, ideas, artistic styles, inventions, innovations or patterns of behaviour are spread from one social or geographical context to another. Such a process is a key aspect of *globalization*, a term coined in modern times to refer to the increased interconnectivity between countries, generally expressed through trade and facilitated through developments in technology and communication. Many examples of visual art forms from different cultural or historical domains exhibit similarities in terms of structure, form and

thematic content, and are attributable to a common identifiable source. A process of diffusion seems clearly at work in such instances. However, it may well be the case that key-type motifs and patterns such as those illustrated are examples from a class of designs developed largely on an independent basis across many cultures, time zones and geographical locations.

In cases where it is clear that diffusion has occurred and that motifs, symbols, designs, patterns or visual compositions of one kind or another have been transmitted from one culture to others, the great challenge for the analyst is to identify the road of transmission; this, when considering historical material, is exceedingly difficult. Wittkower, in his renowned work *Allegory and the Migration of Symbols*, recognized the challenge: 'In considering the transplantation of forms, designs and styles, we are faced with a triple challenge, from the simplest cases—the trading of objects and the migration of artisans—to the assimilation and

adaptation of imported material, and then to its complete transformation' (1977: 14).¹

Wittkower observed that there was a substantial quantity of symbols and motifs, from many time periods and produced across a wide geographical area, which had origins 'lost in the early dawn of history' (1977: 14). Examples of such symbols include: key-type motifs, the tree of life, eagles or other birds of prey, mythical heroes taming or hunting wild beasts, circular devices seemingly associated with the sun, various dragon motifs and a wide range of mythical beasts often created from a mixture of physical attributes of various animals. Of particular note are certain basic geometric figures: the circle, the square, various types of triangle and rectangle, the hexagon and the pentagon. Selections of symbols are identified in various parts of this book and, where possible, an account of their significance is given. Such commentary relies largely on examining the thematic content of relevant symbols and making comparisons between different geographical zones. Also of importance in this book are the identification and explanation of various underlying structures which can be associated with forms of visual art; these structures and their classification are explained in Chapter 2.

The objectives of this chapter are to review aspects of diffusion and adoption in the visual arts by identifying the main literature and by proposing a framework which will assist in the classification of the illustrative material and case studies that follow.

the process of diffusion

Prior to discussing the process of diffusion, it is worth remarking that there is a substantial

quantity of literature which focuses on the nature of independent discovery, invention and innovation. These important issues, and their associated concepts and explanations, may be of some use when considering changes in the visual arts; relevant literature and perspectives were considered previously by the author in the context of technological change (Hann 1982: 3–8). The consideration of the processes by which a particular idea or physical object can transfer from individuals, groups, production units or centres of power of one type or another (physically located in place A or culture A) and be introduced, accepted, adopted, adapted, applied or used by other individuals or groups (located in place B or culture B) has intrigued scholars from various disciplines since the nineteenth century.

Anthropologists were early participants in the diffusion debate, and several of the relevant theoretical perspectives are associated with eminent scholars from this academic discipline. The word *diffusion* has been used to refer to the spread of ideas or innovations of various kinds, and has become associated with a school of anthropology which (in its early years) proposed that civilization spread from one culture to others and that human beings largely lacked the inventiveness to stimulate independent development. At the extreme end of this perspective were those scholars who considered Egypt the source for all other ancient civilizations. This type of diffusion, which focussed on one source only, became known as *heliocentric diffusionism*. Wider-ranging diffusion perspectives were forthcoming, and these included cultural circles or cultural areas.

Cultural diffusion is best considered as the process by which cultural traits, material objects, artistic ideas, techniques, styles, motifs and symbols are spread between individuals or groups