
Preface

Musing about the nature of art can be amusing as well as instructive. It can also be illusory. The musings usually take place in the province of art history and one eminent art historian, Ernst Gombrich, wrote a seminal survey under the title *Art and Illusion*. His proposal was that art could best be considered from the viewpoint of psychology. Indeed, the subtitle of his book is *A Study in the Psychology of Pictorial Representation*. Gombrich was a professional art historian and an amateur psychologist. In contrast, *Art and Illusionists* is a survey of pictorial art by a visual psychologist who is an amateur artist. Rather than art looking at science this is science looking at art. Also unlike Gombrich's book, attention is devoted to the artists as well as their art so that the illusionists are featured in addition to their illusions. I agree with his statement that "When we deal with masters of the past who were great artists and great 'illusionists', the study of art and the study of illusions cannot always be kept apart". The same sentiment applies to the present, too. Gombrich was arguing that perception has not changed over human history but styles of art have and he maintained that this 'riddle of style' should be addressed by psychology. That is, human perception of the three-dimensional world has not changed over time but the ways two-dimensional pictures are produced and perceived has.

Art is a strange endeavour which is engaged in by our species alone. It reflects our evolutionary success in allocating time to activities that are not directly devoted to sustenance and survival. The production and perception of art reflects the importance of nurturing our intellects for sustaining our survival. From the dawning of depiction the illusory nature of representation was not only appreciated but also altered and amplified. A picture of a charging bull presents less imminent danger than a charging bull and the appearance of depth in a painting does not entice us to enter it. This delight in pictorial deceit continues to this day and it is celebrated in *Art and Illusionists*. With the emergence of abstract art, illusions assumed a more central role in pictures, both of the painted and printed varieties. In modern art there is less concern with producing images that refer to objects; the flat picture plane suffices to provide a platform for pictorial performances in both art and science. Painters plumb the art of observation whereas scientists peer into the processes of perception. Both produce patterns that perplex our perceptions and present us with puzzles to peruse and images from art and science can be found in the chapters that follow.

Dr Johnson's jaundiced view of writing was that "No man but a blockhead ever wrote, except for money". The fashion for books presenting paradoxes of perception has grown in recent years and many excellent examples are available. According to Dr Johnson this suggests that either there is money to be made in this genre or there are a lot of blockheads! On the other hand, the fascination with pictorial perception provides its own rewards. Moreover, an increasing number of websites presenting a plethora of visual puzzles is available. Whether another addition to this armoury is required remains to be seen. My hope is that *Art and Illusionists* presents a little more context to the illustrations presented, both in terms of their history and of their originators. The latter is provided by the vehicle of what I call 'perceptual portraits'; these represent people in an unconventional way by combining their appearance with some allusion to the work they carry out. It is not always easy to see the faces in the perceptual portraits but they can be discerned with persistence. When we wish to extract detail from a picture we usually examine it carefully and closely; the opposite is often the case with perceptual portraits where the low contrast facial features become visible when the sharp details are more poorly resolved. Thus, illusions are presented in the art and the portraits of the illusionists themselves pose perceptual puzzles.

Illusions and art have long been a fascination for me. Indeed, my first book was entitled *The Art and Science of Visual Illusions*. It was principally concerned with surveying the genre called op art with the eye of a visual scientist. In the process of preparing the book I taught myself how to produce op art designs. In fact, the book was drawn before the words were added. Essentially the same strategy has been employed for *Art and Illusionists* except that the works of others are presented too and the purview is broader. Where no credits for a picture are given then it is an image of my making. A variety of techniques has been employed in producing them; some involve graphics alone, others are relatively straightforward photographs and yet others combine graphical and photographic images, usually portraits.

The survey of artistic illusions commences with cave painting and concludes with computer generated stereoscopic art works. Between these poles the topics extend from mosaics to moiré patterns, from da Vinci to Vasarely, and they are arranged in terms of the common features the pictures possess or the general phenomena that they exploit. The distinctions between the chapter titles are somewhat arbitrary and some of the illustrations could have found a home in several of them. Illusions of science are included, too; that is, the geometrical optical illusions that are dissected in laboratories in order to determine the processes involved in generating them. The artistic and scientific explorations of illusions are intentionally intertwined so that the arbitrary distinctions between them dissolve. There are some features of *Art and Illusionists* that are not shared by other sources of illusions. One is the inclusion of a transparent overlay, so that readers can use it for generating dynamic moiré patterns (Chapter 15). Moreover, the overlay can be used with patterns that display depth from moiré disparities. Stereoscopic depth is dependent upon slight differences in the images presented to each eye. Such presentation can be achieved in several ways, and the anaglyph method (with coloured filters and similarly coloured printing) is the technique employed for the images in the final chapter. Thus, *Art and Illusionists* is intended to blend the art and science of vision in novel ways.

The book itself has changed in the process of preparation. The initial aim was to find and reproduce examples of startling illusions and to provide some account of how they produce such striking visual impact. It was immediately evident that the usual boundaries that are erected to separate art from science were themselves illusory and required dismantling. The common concern is with the surprises that can be delivered by vision when looking at relatively simple marks on a surface. My interests moved to the makers of the illusions and to accord them more prominence than they are normally accorded – hence the perceptual portraits. The latter seemed to take on lives of their own, in large part because of the graphical puzzles they posed in combining visages and visions.

I would like to thank the generosity of all the artists and scientists who have given permission for their works to be used; they are listed in the Image Credits. The works of some significant artists, like Magritte, Dalí, Duchamp, Escher and Vasarely, are so well known that illustrative representations of their works was deemed unnecessary; all have excellent books illustrating their works as well as dedicated websites and these are listed in the Bibliography and an appendix, respectively, so that readers can consult them. Citations to relevant books by artists are given in the text and some additional references can be found in the Bibliography. Some contemporary artists proved difficult to locate and it was not possible to seek permission to use their work; in these cases, books containing examples of their art and their websites are again listed. For both categories, the artists make appearances in perceptual portraits.

It is impossible to thank all those who have helped in preparing and producing *Art and Illusionists* but I would like to acknowledge the enthusiastic encouragement provided by Springer, and by Tom Ditzinger in particular; in addition, Armin Stasch has applied his sensitivity and skills in the layout of the text and images so that the reader can navigate through the labyrinth of illusions displayed. It is, however, to my growing family circle that the book is dedicated; they have provided unseen support in a myriad of ways and some of them make further appearances in the pages that follow.

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