

worked best and future editors in this series might consider undertaking some market research before arranging their editorial conference with the contributing authors.

My final criticism is that I expected some kind of organizing structure to have determined the sequence of chapters and yet they seem to have been collected together in a rather haphazard way. Is it significant, I wonder, that all but the last three chapters have the authors in alphabetical order?

That said, this volume is a convenient way of being brought up against aspects of psychology with which one is less familiar. This series will make a valuable contribution to the task of keeping up with psychology.

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The Perception of Pictures. Vol. 1: Alberti's Window, The Projective Model of Pictorial Information.

Edited by M. A. Hagen. London: Academic Press, 1980. Pp. 293. \$27.00.

In 1435 Leone Battista Alberti presented his original method of perspective construction in pictures: 'First of all, about where I draw, I inscribe a quadrangle of right angles, as large as I wish, which is considered to be an open window through which I see what I want to paint.' Much of the present volume concerns itself with the hypothesis that when perceiving a picture painted through 'Alberti's window' we use the reverse transformations, and thereby reconstruct the original three-dimensional image.

In ch. 1, R. N. Haber provides an initially rather pedantic, but nevertheless useful, introduction to the theoretical problems of perceiving pictures. By means of a closely argued analysis he says that there is *no* special problem of picture perception *per se*: it is simply a special case of ordinary spatial perception. He achieves this position by considering why pictures look flat, and then suggesting that it is the perception of this flatness which gives pictures what he calls a 'dual reality' - representations of depth in veridically flat objects. If the perception of flatness is impaired then even adults perceive pictures as having a better sense of depth. He also suggests that children learn the perception of depth prior to the perception of flatness. Almost paradoxically he then argues that it is the very perception of the *flatness* of pictures which allows us to compensate for the problem of the 'station-point'. A picture will give us a true perspective only if viewed from one station-point; but in general this is not a problem and we may perceive depth correctly in a picture viewed from any point in a room or gallery. Haber suggests that if cues to the flatness of the picture are removed then this compensation is impaired. The artist is thus potentially caught in a perceptual trap.

In ch. 2, H. A. Sedgewick provides a detailed and technical account of the geometry of perspective 're-presentations' (his useful hyphenation). The chapter is not of much direct interest to psychologists, but will provide useful background material for anyone wishing to do research in this area, particularly if they wish to produce computer-generated stimuli.

Chapter 3 by E. A. Lumsden contains an extension of the methods of ch. 2 to explain those distortions, both static and dynamic, induced by the use of lens systems such as telescopes and wide-angle lenses, which enlarge or reduce an image. These systems all produce a transformation of the image: that is, all visual angles are multiplied by a constant. This mathematically simple linear transformation results in several non-linear transformations of object shape as a function of distance. Lumsden shows clearly, although without concision, that effects such as the distortion of relative object size and the distortion of surface slant in static displays, and 'paradoxical skidding' and 'zoom-loom' in dynamic displays, can all be predicted with accuracy.

Chapters 2 and 3 consider primarily the nature of the geometric transformations involved in the projection of images onto a plane. In ch. 4, R. R. Rosinski & J. Farber take this analysis one step further by asking how it is that given an image in 'virtual space' (i.e. the non-linear transform of environmental space) we may reconstruct a 'perceived space' which corresponds more closely to environmental space than does virtual space. Firstly, however, they analyse the logical problems implicit in this process, asking whether we can indeed be sure that virtual space is as geometry would predict, and how, if we do not know what environmental space *should* be like, we can ever reconstruct it from virtual space. By a series of elegant experiments they demonstrate that virtual space *may* be perceived, but that frequently there will be total compensation for its distortions, so that perceived space will tend to correspond with environmental space.

Part I of this volume is a detailed and comprehensive analysis of the projective model of pictorial perception. Part II is far less satisfactory and consists of a *pot-pourri* of contributions, all of which seem less than satisfactory and poorly integrated one with another.

Chapter 5 by S. Y. Edgerton considers the manner in which the Renaissance use of perspective

reflected the quantitative, mathematical thought of the time, and itself was partly responsible for that mode of thought. Using examples from the (previously unknown to me) early 15th-century engineering drawings of Mariano Taccola (the Sienese Archimedes), Edgerton illustrates how the perspective drawing could be used, perhaps for the first time, as a surrogate for building the actual object itself. But Edgerton also shows clearly that there is nothing simple or necessary about the perception of such perspective engineering drawings, since 17th-century Chinese copies of European engineering drawings simply fail to record the essential mechanical features, rendering instead just the artistic form of the image.

D. N. Perkins & M. A. Hagen contribute a useful chapter on the problems of the cartoonist's caricature. They reject, on the basis of empirical evidence, both Gombrich's 'tag theory' and Ryan & Schwartz's 'superportrait theory', and then go on to consider several other theories. But the most important point of this chapter, in the context of the volume as a whole, is to emphasize that a caricature is recognizable at all, despite the distortions of the original image.

A chapter by W. R. Machavey considers the problems posed by close viewing, far viewing and *trompe l'oeil* and concludes that they may probably be explained by the projective model.

S. L. Friedman & M. B. Stevenson contribute a chapter in which they consider the problems of representing movement in static pictures. However their conclusions seem to be weak and of little general interest.

To review just the present volume is difficult, since one has only half of the work. The experience is perhaps akin to seeing just the first couple of acts of *Hamlet*; one is fairly sure that something is wrong in Elsinore, and that simple reconciliation of the various elements is possible but unlikely. Furthermore one hopes, but is not completely convinced, that the author has a grand plan for his work, and that we will not be let down by an inadequate resolution of the various and conflicting themes and interests. As the curtain closes half way through the play we hear Hamlet reiterating the fundamental problem: 'Look here, upon this picture, and this...'