

its discovery a little over 20 years ago.

Altman's book is a commendable effort to document and bring up to date this fast-moving field. The level is moderately advanced and the references are extensive, so that the book is an essential addition to the library of those working with tRNA; the book can also be used as a starting point for a graduate student making his or her first venture into the field.

B. R. REID

Department of Biochemistry,  
University of California, Riverside 92502

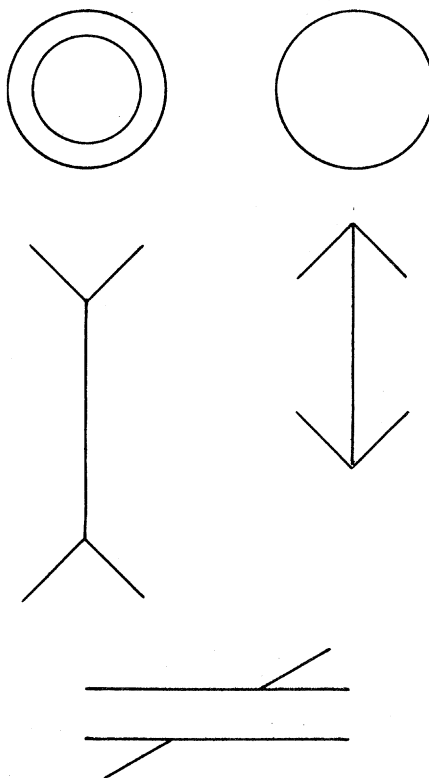
## Perceptual Phenomena

**Seeing Is Deceiving.** The Psychology of Visual Illusions. STANLEY COREN and JOAN STERN GIRGUS. Erlbaum, Hillsdale, N.J., 1978 (distributor, Halsted [Wiley], New York). xvi, 256 pp., illus. \$18.

Our senses do deceive us. The objects of interest are easy-to-draw two-dimensional line drawings whose illusory effects are not at all easy to explain. Venerable examples are the Delboeuf illusion, the Müller-Lyer illusion, and the Poggendorff illusion, producing the misperception of circle size, line length, and transversal collinearity, respectively (see illustration).

*Seeing Is Deceiving* provides comprehensive coverage of the wide array of visual geometrical illusions. With its introductory chapters on relevant historical issues and a systematic presentation in words and drawings of the major illusion families, the book can serve as a primer. The layperson or student will find the exposition interesting and informative. The prose is straightforward and relatively free of extraneous technical jargon.

Be not misled. The study of visual illusions has come of age, and succeeding chapters are meat for the expert. The authors are long-time collaborators in illusion research who have made sustained and significant contributions to data and theory. Having brought the reader's background up to snuff, they forge ahead, conveying in broad strokes what the 1000 or so articles that have been published on visual illusions collectively have to say. In comparison to J. O. Robinson's 1972 book, *The Psychology of Visual Illusion*, *Seeing Is Deceiving* is more readable, contains less detail, presents information in a more coherent fashion, and strongly presses a point of view. The Robinson treatise is closer to a handbook, while the Coren and Girgus



Visual illusions. Top to bottom: Delboeuf illusion, Müller-Lyer illusion, and Poggendorff illusion.

volume sacrifices detail in the cause of conveying the underlying theoretical principles, critically comparing theories, coming to conclusions, and thus providing badly needed structure and integration. One knows where to turn for further details; nearly half the total illusion output is referenced.

For the specialist what is different? First, there is an insistence on multiple causation. The fact that a few simple pen strokes suffice to create an illusion does not imply that simplicity extends to causes. Second, there is an emphasis on a spectrum of causes that begins with the error characteristics of the eye (for example, spherical aberration), considers neurophysiological mechanisms, both peripheral and central, and includes the cognitive factors dear to the hearts of certain psychologists. Third, the study of individual differences is touted as an important approach to the delineation and understanding of causes. Fourth, the diminution in measured perceptual error that results from merely looking at an illusion display is attributed to changes in the judgmental strategy of subjects. Although the book is light on data, the authors do present tables and graphs of their own individual-difference correlation studies and decrement studies.

In summary, the work is a readable, coherent presentation of the state of the art in visual-illusion research and theory.

Coren and Girgus have chosen to define an illusion as "an *apparently inexplicable* discrepancy between the appearance of the stimulus and its physical reality" (p. 23). They go on to say, "Ultimately, when we know exactly how the visual system works, visual illusions should no longer exist" (p. 23). Have they managed to put themselves (and the rest of us) out of business? By no means. They have, however, made significant progress. The book is indispensable for student and specialist. To the specialist: You will not see eye to eye with the authors, but I can promise widened horizons. As in many other fields, progress in illusion research has suffered because investigators are afflicted with tunnel vision.

DANIEL WEINTRAUB

Department of Psychology,  
University of Michigan,  
Ann Arbor 48109

## Archeological Summary

**European Prehistory.** SARUNAS MILISAUSKAS. Academic Press, New York, 1979. xiv, 336 pp., illus. \$18. Studies in Archeology.

Europe has a long history of archeological research, with considerable changes in techniques and aims through time. Moreover, there is tremendous regional variation in the available data owing to differing local or individual research priorities and methods. Much of the European research has been conducted with the primary goal of establishing regional chronologies and distribution patterns. As a result, the literature of European prehistory is often frustrating to archeologists grounded in anthropological theory and concerned with processes of cultural adaptation and evolution.

In writing this much-needed synthesis of European prehistory, consequently, the author has faced the problems not only of a large and heterogeneous data base but also of significant differences in background and research interests between many European archeologists on the one hand and much of the English-speaking audience for the book on the other. Milisauskas has handled the difficulties remarkably well.

It must be emphasized that the book is narrower in scope than the title suggests. It focuses on Central and Eastern Europe from the Neolithic through the Iron Age, and there is only brief discussion of the Paleolithic and Mesolithic and little coverage for any period of Spain, Por-