




Perception à la Mode

A Review of

[Contemporary Theory and Research in Visual Perception.](#)

Ralph Norman Haber (Ed.)

New York: Holt, Rinehart & Winston, 1968. Pp. xi + 814. \$14.95.

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Reviewed by

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IN a market rapidly filling with books of readings, a new one makes its appearance. Yet the resemblance of this work to those that sacrifice rigor in an attempt to make psychology 'interesting' or 'relevant' to the beginning student is small. In its scope, it examines in considerable depth certain issues in visual perception; in its audience, it aims at the professional, the graduate student, and some sophisticated undergraduates. That is not to say that the book is uninteresting or irrelevant. Quite the contrary. In many ways this is a marvelous collection that could serve as a model to others desiring to assemble similar volumes. It should be made clear, however, that this is not a book to give your grandmother (or your dean) to communicate the excitement of present-day perceptual research.

Haber's interest in the area leans towards the cognitive rather than the sensory issues, and the selections reflect this slant. The criteria he used to choose the papers are well summarized by the title. There is no doubt that the papers are contemporary: 76 of the 80 articles originally appeared in the 1960's. A good balance exists between theory and research: 29 papers are primarily theoretical or review articles, while 51 present research findings. This leaves the final term of the title, visual perception. Haber has interpreted this expression broadly, and herein lies the great attraction of the collection. The authors range from Bruner to Lindsley, the sources from the *Journal of Physiology* to the *Journal of the American Academy of Child Psychiatry*.

Because he sees the papers covering "the traditional topics of a course in visual perception," Haber has subdivided the book into seven chapters. Their breadth of coverage is wide, and generally there are several cohesive packages in each section rather than one neatly tied bundle. Naturally, some of them are more attractive than

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others, depending on personal interests, but I found both the items selected and the way they were presented very appealing.

THE PAPERS in the first chapter introduce the reader to visual psycho-physics, including both threshold and signal detection theory concepts. The discussion of such matters is not very extensive here, but it serves to lay a foundation for the last chapter, which is largely devoted to perceptual defense and the effects of set and prior knowledge on perception. Both are good chapters because they look at a problem from a number of theoretical viewpoints, but they are not as successful as some others that draw on a wider literature.

An ideal integration of experimental approaches is achieved in the chapter on perception of movement. The introduction from Spigel's book presents some of the problems and basic facts. Kolers's experiments delineate some differences between real and apparent movement. Matin and MacKinnon use stabilized images to study autokinesis. McFarland describes the effects of eye movements on a new type of apparent movement, and Mackworth and Kaplan study acuity during ocular pursuit. Then follow two neurophysiological milestones: the Barlow and Hill study of directionally sensitive ganglion cells in the rabbit retina, and the Hubel and Wiesel treatise on the complex receptive fields in the visual cortex of the cat. The latter, incidentally, is the one paper in the collection not reprinted in its entirety. The chapter ends with a paper by Sekuler and Ganz investigating movement aftereffects with a stabilized image technique. Thus in the course of 65 pages the reader of the book becomes familiar with some recent developments in visual research and has the opportunity to see how widely disparate disciplines contribute to the understanding of complex perceptual effects.

The other sections are similar. A chapter on form and pattern perception includes stabilized images, the Ganzfeld, figure-ground relations, eidetic imagery, illusions, contrast, perceptual grouping, and figural aftereffects. The chapter on perception of objects in space has papers on such traditional questions as depth perception and the relation of perceived size and distance, but the former is also covered by Julesz's work with random-dot stereo patterns and the latter by tactual measures rather than visual ones. A large portion is devoted to studies of adaptation to displaced or inverted visual images produced by distorting goggles. Perhaps these papers should have been included in the chapter on perceptual learning and development where related animal experiments are placed. That chapter also features a series of very interesting investigations of form perception by human infants.

A SECTION on information processing is worthy of special note, partly because this is an area where a book on contemporary research can make a special contribution, and partly because Haber stresses the tie between sensory processes and memory in determining perceptual behavior and has made an effort to find papers demonstrating this relation. Thus we are treated to George Miller's "Magical Number Seven" paper and Averbach and Sperling's study of visual storage, plus other papers on short-term

memory, visual and memory scanning, and selective attention. As in the chapter on motion, contributions from other disciplines are also aptly noted. The paradigms of some memory studies strongly resemble those used in studies of visual masking, and Haber has included papers by Boynton and Fraisse. Other aspects of temporal processes in vision also appear: successiveness in a paper by Schmidt and Kristofferson, temporal summation in a psy-chophysical report by Raab and Fehrer, paired with an evoked potential experiment by Wicke, Donchin, and Lindsley. Finally, Harter and White relate perceived numerosity to components of the evoked cortical response.

Most chapters fail to draw as well on the physiological literature, and Haber has bypassed a number of important and currently popular areas where psy-chophysical and physiological examination of the same problem could be presented—masking, color vision, contrast, Mach bands, etc. The literature from the sensory as opposed to the perceptual approach to vision is often largely ignored. This is witnessed by the fact that none of the papers Haber includes is drawn from the *Journal of the Optical Society of America*, probably the primary outlet for those doing research on visual psychophysics and thus the repository of an enormous visual literature. Such a gap is understandable in view of the traditional dichotomy between researchers in vision and in perception, but an opportunity for a greater confluence of the two has been missed here.

It is most unfortunate also that in all these chapters a host of outstanding papers are compiled, but no attempt is made to relate them to each other except by simple juxtaposition. Since there is no introduction or summary with each section, the didactic potential of the collection is greatly reduced. Haber must have labored hard in choosing these papers and putting them in the order he did, but the lessons to be learned from comparing diverse approaches in theory or method will be lost on many readers. There is a brief introduction at the front of the book and what is there is excellent. There is a great need, however, for more of the same—at the beginning, where it would be wonderful to see Haber's discussion of the mind-body problem, the nature of an objective reality, and the place of introspection, and in each section, where an integrative summary is sorely missed.

Is the book better suited as a reference source or as a teaching aid? Clearly this decision will hinge on the interests and desires of the individual. For a first course in perception, the absence of any history, the failure to include more than passing reference to such key areas as constancies, illusions, color, adaptation, or applied research, and the lack of critical comments by the editor severely limit its effectiveness. For an advanced class, where the groundwork has already been established and a number of modern problems are to be studied in depth, the book is nearly ideal.

There is a great need for this work, to bring together in one place much that has happened in the past decade. Books with adequate coverage in this area are almost nonexistent. Haber's volume devotes 800 pages to material a recent book on vision

and visual perception entirely ignored. A psychologist long out of graduate school would be wise to add these readings to his shelf. Haber has steered well between the Scylla of insufficient breadth and the Charybdis of superficial treatment—both those in and out of the field will find much to interest them.

Ralph Norman Haber, the editor, is Professor of Psychology and Chairman of the Department, University of Rochester. He received a Stanford PhD and has taught at Yale and at the New School for Social Research. He has published on visual perception, information processing, and human motivation. He is also editor of *Current Research in Motivation*.

The reviewer, Gary B. Rollman, received his PhD under Burton Rosner at the University of Pennsylvania, doing research on the somatosensory system. He is an NIMH Postdoctoral Research Fellow in the Cutaneous Communication Laboratory at Princeton University where he is engaged in psychophysical studies of the skin senses within the framework of both classical psycho-physics and signal detection theory, employing electrocutaneous, tactile, and vibratory stimuli.