ome is well supported by pertinent references. The references in general are well chosen and, fortunately, are complete with subject titles and thus are valuable extensions of the text. Production schedules doubtless account for the fact that the year 1974 is represented by a single article (in press).

The text itself is well and concisely written and in several segments reflects the authors' efforts at synthesizing concepts based on data from diverse sources. Such formulations may not represent the final word, but they nonetheless serve as useful hypotheses subject to change as new information accrues. A case in point is section 5 dealing with the penetration of the virion into the host cell. The authors handle very deftly a number of controversies related to this topic, which have now been largely dissipated by the exhibition of pertinent biochemical and biophysical data.

One possible shortcoming might be cited. Much of the work represented in the monograph was based on electron microscopic studies, yet only one micrograph appears in the volume. Altogether, however, this is a very useful compendium for the student of molecular virology.

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Psychophysics

Sensation and Measurement. Papers in Honor of S. S. Stevens. HOWARD R. MOSKOWITZ, BERTRAM SCHARF, and JOSEPH C. STEVENS, Eds. Reidel, Boston, 1974. xiv, 470 pp., illus. $39.50.

This book was planned as a festschrift for S. S. Stevens, who died before its completion, in his 66th year. In it 45 of Stevens's colleagues and students present 40 papers (34 published for the first time here) that show his influence and breadth. The contributions range over many disciplines: psychophysics, measurement theory, psychophysiology, sensory mechanisms (vision, warmth, gustation, audition), information processing, physiology, speech, linguistics, and integrative theorizing. The book serves as a fine eulogy.

Its unifying thread is invariance. Stevens consistently taught, by example, that "the scientist's contest with nature has prospered to the degree that simplicities and uniformities [invariances] have been detected amid the complexities that afflict observation and experiment" (Stevens, *Psych. Rev.* **78**, 446 [1971]). Kepler's "incredible and ravishing delight" (G. Holton, *Theories and Concepts in Physical Science*, Addison-Wesley, 1952, p. 148) in the simplicity available from mapping mathematical curves onto physical measurements infected Stevens, and he passed this excitement on to his students.

The book begins with Békésy's argument that the sensory system operates by a single set of principles (invariance) but that different sense organs are adapted to different physical invariances in nature. His theorizing on the relations between inhibition and localization guides Békésy to demonstrate, for example, how taste stimuli can be localized at nonstimulated sites on the tongue. In the absence of an integrative theory, such discoveries are unlikely at best. Békésy's data are not voluminous, but the argument is exciting and persuasive and should stimulate research.

A different pursuit of invariance is taken by Howes. He transforms Zipf 's law from a pervasive curiosity to an argument for a single semantic mechanism for both the production and the perception of speech. His data and analyses further suggest that not all of an individual's permanent vocabulary is available at any one time to produce discourse. Rather, smaller and temporary semantic fields are scanned, and how the individual gains access to these fields should now become the problem of interest. The analysis is compelling, mathematically rigorous, and important to psycholinguists and neurologists.

Galambos presents new findings (Picton's work) showing that P_{300} in the auditory evoked potential reveals perceptions that are independent of the physical stimulus. He also presents a fine-grain analysis of the evoked potential over the first few milliseconds after presentation of the stimulus.

Miller's paper is an intriguing analysis of the semantic relations between the words "listen" and "hear" and the words "look" and "see." Irwin and Mills provide a method of demonstrating the power law in the classroom without apparatus. Luce and Green powerfully suggest the existence of an attention band in loudness, which reminds one of the critical band in frequency and which is important to theories of judgment and attention. Stromeyer, following Stabell's lead, demonstrates the McCollough color aftereffect in scotopic conditions. The psychophysical data show, in agreement with physiological observations, that rod signals are involved in the opponent color system.

There is some overextension in otherwise excellent papers. Land argues correctly that his new data are predicted by his Retinex theory. But he neglects other theories that make the same predictions, such as that of simultaneous contrast and Arend's work (*Psych. Rev.* **80**, 374 [1973]). Marks's data on spatial summation in the warmth sense should become the standard in the field, but his argument that warmth sense-spatial interaction processes are the reverse of those of brightness with the eye may be too strong. His data allow an argument Stevens would prefer, that the functions are of the same form but with a scalar shift. Summation and spatial resolution on the skin look like the same processes in the retina, but the skin area is much larger than the comparable retinal area. Investigation of this psychophysical problem may now move toward concern with the relations between stimulus durations and inhibitory functions. Pollack's measurement of the perception of correlations is slightly marred by careless referencing.

Perhaps the best part of the book is Stevens's 24-page autobiography. It is a revealing and sometimes funny story of a life that failed to conform to what many educators expect of promising scientists. It is a must for students of psychology and for historians of science.

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Brain and Behavior

Limbic and Autonomic Nervous Systems Research. LEO V. DICARA, Ed. Plenum, New York, 1974. xvi, 428 pp., illus. $24.50.

The book under review is based on the implicit assumption of a unique relationship between the limbic and autonomic nervous systems. A similar assumption is encoded in the term "visceral brain" often used to describe the limbic formations. Therefore, in addition to asking whether its chapters are valuable contributions in themselves, one may ask a second question about this volume: Is there any evidence in the chapters of the special relationship between limbic and autonomic functions?

With regard to the individual chapters, they are superb. Each is a major contribution, usually a much-needed review of a particular line of research. Wenzel on the olfactory system, Satinoff on thermoregulation, Malsbury and Pfaff on male mating, Candland and Leshner on agonistic behavior, Pappas on emotionality, Schneiderman *et al.* and Obrist *et al.* on cardiovascular responsivity, and Sterman on sleep cover their fields competently and with considerable imagination, which makes for good reading. And there are in-