tion of critical exponents and a good summary of the experimental situation in fluids, as well as a number of pedagogical introductions to particular topics. It cannot be regarded as an up-to-date review of the whole field, however, since the choice of papers is conditioned by the usual limitations of a conference report. The reader is primarily struck by the wealth of good physics, both experimental and theoretical, spanning many different fields, that has come out of the work of the last two decades. The field of phase transitions can truly be regarded as a paradigm for a successful assault on a deep and challenging problem in physics.

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Neurobiology

Glial-Neurone Interactions. Papers from a meeting, Titisee, Germany, April 1981. J. E. TREHERNE, Ed. Cambridge University Press, New York, 1982. iv, 246 pp., illus., + plates. $60. *Journal of Experimental Biology*, vol. 95.

This book is the result of the third Company of Biologists Ltd. discussion meeting. The papers in the book cover most of the current ideas about glial-neuron interactions and help to clarify some of the important remaining questions about this difficult subject.

Papers by Lane and by Landis and Reese that describe anatomical studies in which freeze-fracture and electron microscopy were used to investigate cell-cell interactions in the nervous system give a good synopsis of what is known about cell membrane specializations. The papers emphasize the possible relations of such specializations to cell adhesion or coupling, ions and metabolic exchanges, axonal guidance, and trophic support.

Since Kuffler's work in the 1960's, glial cells have been thought to be involved in the ionic control of the fluid environment of the nervous system. Using *Necturus* as a model, Orkand *et al.* present an extensive study of membrane properties of neuroglia and relate ionic changes to control of glial metabolism. Similarly, Treherne and Schofield explain the mechanism of ionic homeostasis in an insect by an interesting model in which active and passive processes involving the neuroglia and an extracellular matrix are required for cation regulation. With a very useful preparation, the retina of the honeybee drone, Coles and Tsacopoulos investigate the possible relations between ionic and metabolic control and suggest interesting correlations between K^+ movements and glycogen metabolism. Extending the physiological approach, Sykova reports that K^+ modulates neuronal transmission by modifying glial cell function and some of its metabolic pathways.

Glial cells are also thought to be involved in more specific interactions with nerve cells and axons. Villegas reports an extensive study of the relation of axons and Schwann cells in the giant nerve fiber of the squid, presents evidence for the synthesis, storage, and release of acetylcholine by Schwann cells, and suggests a feedback mechanism acting on the Schwann cell that regulates its membrane potential and ionic permeabilities following axonal excitation. Lasek and Tytell describe a particular protein (traversin) synthesized by the glial cell and transferred to the axon. They also discuss the role of other macromolecules in such transfers and suggest different mechanisms that may be involved in other, similar transfers. Following the same general idea, Currie and Kelly report specific uptake of different amino acids and demonstrate a high-affinity glutamate uptake property of glial cells. In a very clear paper, Mudge reports that the peptide content of cultured sensory neurons may vary depending on whether nonneurons are present or absent. Such properties are viewed as vitally important in cell-cell interactions within the nervous system.

Roots and Brockes *et al.* discuss the use of glial markers, the limitations of their specificity, and, most important, the changes in them during development and in tissue culture. The paper is an excellent summary of changing glial cell performance in vivo and in vitro, and the reader is well advised to be careful when using glial "markers" as tools to define cell types.

The last three papers in the book deal with more general ideas about the role and importance of glial-neuron interactions during growth, differentiation, myelination, and regeneration in the nervous system. Schacher reviews the role of support cells in growth and differentiation of neurons and suggests that granules are released from the glia at different steps during development and may play a role in the general performances of neurons. In a very concise paper Brockes *et al.* report an extensive study of the immunological properties of Schwann cells and summarize some current ideas about the involvement of Schwann cells in myelination and regeneration. They also summarize the present work on the purification of a glial growth factor. In the last paper, Aguayo *et al.* summarize the evidence concerning the putative role of glial cells in the regeneration of central axons after injury. They suggest that influences arising from the nerve cell environment may play an important role in the success or failure of regeneration.

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Geology of a Passive Margin

Geology of the Northwest African Continental Margin. U. VON RAD, K. HINZ, M. SARNTHEIN, and E. SEIBOLD, Eds. Springer-Verlag, New York, 1982. xii, 704 pp., illus. $49.

Because of their importance to our understanding of the origins of oceans and the building of mountains, modern continental margins are of great interest to a broad spectrum of earth scientists. And in these times of dwindling energy supplies the petroleum potential of continental margins is well recognized.

Although many major scientific questions about the northwest African margin remain unanswered, so much has been learned recently via six legs of the Deep Sea Drilling Project and many modern geophysical studies done by the University of Hamburg and the Bundesanstalt für Geowissenschaften und Rohstoffe that it is timely to synthesize this work. The volume is a tribute to the German institutions that have aggressively researched this area and greatly expanded our knowledge of this margin, especially over the last decade.

The quality of the production is satisfactory, even with the variety of typefaces used in the 28 papers. Only a few typographical errors are apparent, and the English is of high quality. (It should be noted that the 50 contributors represent a broad spectrum of the international community, including the United States, Canada, United Kingdom, Norway, France, and Switzerland.) Maps and cross-sections are used effectively to communicate massive amounts of information and to illustrate interpretations. Historical block diagrams of various parts of the margin are extremely well done in many of the papers. Even the front and back inside covers have well-