BOOK REVIEW

Pharmacological Effects of Ethanol on the Nervous System, by Richard A. Deitrich and V. Gene Erwin (Eds.). Boca Raton, Fla.: CRC Press, Inc., 1996, 459 + xviii pages, $99.95 (cloth).

In this volume, the 28th of the CRC *Pharmacology and Toxicology: Basic and Clinical Aspects* series, Deitrich and Erwin have assembled 22 review chapters. The book updates recent developments concerning ethanol's actions on the central nervous system. However, few chapters cite works published after early 1995.

The book is divided into four parts. The first part, by Koob, is an overview of the neuropharmacology of ethanol's behavioral actions. It serves as a good introduction to new advances in the neuropharmacology of ethanol, particularly at the interface of molecular biology and behavior. This chapter makes for exciting reading, although it could have been more closely edited since it makes reference to a nonexistent section of the chapter and has a number of poorly written sentences.

The second part of the book deals with the effects of ethanol at the molecular/cellular level. There are 11 chapters that cover membranes; voltage-gated calcium channels; $GABA_A$ receptor/chloride channels; glutamate receptors; nicotinic cholinergic receptors; ligand-gated ion channels; guanine nucleotide binding proteins; adenosine, its transporters and receptors; neurotensin; opioids and somatostatins; and, finally, thyrotropin-releasing hormone. Noteworthy among these chapters is Tabakoff and Hoffman's chapter on glutamate receptors which covers the role of glutamic actions at non-NMDA receptors. Also worth noting is Dunwiddie's review of adenosine's neuromodulary interaction with ethanol. Erwin's chapter on neuropeptides, and that of Siggins et al., who cover opioids and somatostatins, and tease us with the possibility of a role for corticotropin-releasing factor, provide potentially fruitful areas for ethanol researchers to consider.

The chapters in this section are full of good information that is presented in a straightforward manner. The authors provide details of the relevant literature and do an excellent job of pointing out conflicting results. For the most part, seasoned ethanol researchers will find these chapters useful as they assess their own work and perhaps even think of new dimensions for their research. The uninitiated, however, will need more details than are provided here to make much sense of this group of chapters.

The third part, comprising five chapters, considers the behavioral effects of ethanol. There are chapters on the regulation of ethanol intake, initial CNS effects of ethanol, alcohol tolerance, dependence and withdrawal, and thermoregulation. Alkana et al. provide an elaborate review of the effects that ethanol has on thermoregulation. Little mention is made, however, of the role of thyrotropin-releasing factor (which is discussed by McCown and Breese in the second part of this book, although not in its neuroendocrine role but in analepsis). Much of the material in these chapters focuses on animal studies, although, where appropriate, references to humans are made. It is clear that in many cases researchers must be careful in extrapolating from animal studies to the human condition and this is judiciously pointed out where warranted. Of course, animal models remain critical to ethanol research.

The final section of the book details the influence that ethanol has on CNS pathology in both fetal and adult brains. The five chapters cover free radicals, the fetal brain, neuropathology in alcoholism, stroke, and fetal damage/neurobehavioral effects. These chapters are especially engaging and should probably be read first by those new to the field of ethanol studies. Becker's review of the role of ethanol in fetal damage is particularly important because much of what is discussed may "contribute to the development of therapeutic interventions or prevention strategies" (p. 430).

This is an exciting, useful and affordable book. It suffers from a few minor problems that, fortunately, detract little from its overall value. For instance, there is inconsistency in the formatting of the references at the end of each chapter, the index misses some important coverage and most of the chapters have some grammatical errors. A glossary would be helpful to those readers who are new to the field. There are very few tables and charts throughout the book, the addition of which would have made comparing the effects of ethanol in a variety of situations on a wide range of receptors, channels, transporters, second messengers, etc. a bit easier to follow. The few photographs in the book are of poor quality.

We all know that studying the effects of ethanol on living systems is both difficult and complicated. There are many intersecting effects, all of which are complicated by issues of timing and experience, and beyond this is the fact that ethanol is lipid soluble so that no cell in the body is immune to some of its influence. If this book does nothing else but remind alcohol researchers of the importance of controlling for all these variables, it has served a useful purpose. The book does this and much more. Indeed, just the reference sections for the chapters are useful as a bibliography of the significant literature in the neuropharmacology of ethanol through the

mid-90s. Also notable is the fact that most chapters point out areas in need of more research.

This is a valuable book for anyone interested in ethanol research. The editors have done a remarkable job of assembling much of the molecular/cellular, behavioral and chemical aspects of ethanol into some 450 pages. The chapters are useful individually, but collectively the book would make a valuable addition to the library of anyone interested in studying ethanol and its effects at any level.

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