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BOOK NOTES

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SCIENTIFIC FIELDS AND NEW KNOWLEDGE

Advances in Pain and Therapy, Vol. II: Drug Treatment of Cancer Pain in a Drug-Oriented Society, C. Stratton Hill, Jr. and William S. Fields, eds. 1989. Raven Press, New York. 400 pages. ISBN: 0-88167-519-9. $86.00.

The emergence of substance abuse as a major social problem, the growing awareness of the risks of iatrogenic drug addiction, and the increasing government surveillance of narcotic distribution are affecting physicians' attitudes toward therapeutic use of opiates and inhibiting many clinicians who treat cancer patients from prescribing adequate drugs for pain control. This volume critically examines the cultural, legal, and medical factors that influence physicians' decisions on use of narcotics for cancer pain and establishes objective guidelines for making these decisions. Most of the fundamental issues in the field of pain -- including epistemological questions -- are addressed by a truly multidisciplinary group of contributors, including drug abuse experts, government regulators, lawyers, sociologists, anthropologists, historians, philosophers, and theologians, as well as basic scientists, clinical pharmacologists, pharmacists, anesthesiologists, neurologists, psychiatrists, psychologists, oncologists, internists, and nurses.

The contributors define current concepts of pain, suffering, and addiction and explore the attitudes of both health care providers and cancer patients toward pain control and narcotic use. They also rectify some widely held misconceptions about side effects, drug interactions, euphoria, addiction, and opioid pharmacology that have prevented the optimal use of these drugs. Close attention is given to the impact of governmental regulation on physicians who must prescribe controlled substances. Several leading experts in drug policy, drug enforcement, and pain research formulate drug policies that control abuse while removing barriers to legitimate narcotic use. The contributors also clarify the laws and dispel rumors that create undue concern about the legal consequences of prescribing opiates in sufficient dosage and quantity for cancer patients.

The final section of the book presents research toward improved drug therapies for cancer pain. Topics covered include mediation of analgesia by multiple opioid receptors; spinal modulation of pain input; natural mechanisms of pain inhibition; novel routes of opioid administration; and giving the patient control of opioid analgesic administration.

Does God Play Dice? The Mathematics of Chaos, Ian Stewart. 1989. Basil Blackwell, Cambrdige, MA. 317 pages. ISBN: 0-631-16847-8. $19.95.

Einstein did not believe that 'God plays dice.' He laid the foundations for today's thinking that the universe is governed by the immutable laws of physics -- there is no room for chance. But these foundations may be built on sand. The new science of chaos is forcing scientists to rethink even the most fundamental ideas about the way

in which the universe behaves. Chaos theory has already shown that systems obeying precise laws can nevertheless act in a random manner. Perhaps God does play dice, within a cosmic game of complete law and order.

This book explains the atonishing new theories of systems that obey simple laws but which are neither constant nor predictable. Stewart reveals a strange universe. A universe in which nothing may be as it seems, where familiar geometrical shapes such as circles and ellipses give way to infinitely complex structures known as 'fractals.' He explains how the fluttering of a butterfly's wing can change the weather and how the gravitational attraction of a creature in a distant galaxy can change the fate of the solar system.

The Science of the Mind, Kenneth Klivington. 1990. The MIT Press, Cambridge, MA. 239 pages. ISBN: 0-262-11141-1. $39.95.

The author synthesizes the major new developments from the burgeoning field of neuroscience and makes this information intelligible, accessible and interesting to the general reader. With careful selection and organization of material, he builds the foundation for a thorough understanding of the many issues surrounding the brain and the mind.

Stereotyping and Prejudice: Changing Conceptions, Daniel Bar-Tal, et al., eds. 1989. Springer-Verlag, New York. 273 pages. ISBN: 0-387-96883-0. $40.00.

Definitions and theories of sterotypes and their ramifications, traditionally dictated by the times, are presently taking on a decidedly cognitive emphasis. Representing this trend in social psychological thoughts, this book offers a diversity of perspectives implementing the social cognitive approach, from the rather broad analysis of categorization of individuals to a discussion of group dynamics. The chapters deal with the formation process of stereotypes and prejudice, their structure and meaning, and various processes leading to their change. The contributions offer not only a resource for understanding the metamorphosis in theories of stereotyping, prejudice, and discrimination, but also point toward future directions.

The Sun, Michael Stix. 1989. Springer-Verlag, New York. 390 pages. ISBN: 0-387-508102. $89.00.

As in all other fields of astronomy, progress in instrumentation and observational techniques has in recent years brought a wealth of new information about the Sun. This introduction presents a complete overview of solar physics, of what we know and would like to know. The increasing number of observations of solar phenomena on neighbouring stars makes this book not only valuable for students specializing in solar physics, but also for researchers interested in stellar structure and the solar-stellar connection.

The Wisdom of the Genes: Pathways in Evolution, Christopher Wills. 1989. Basic Books, New York. ISBN: 0-465-09195-4. $19.95.

Wills describes recent findings in the field of molecular biology that are casting fresh light on the operation of Darwinian evolution. These findings are pointing the way to a new evolutionary synthesis, incorporating the idea that genes often become organized in highly specific ways during their long evolutionary history. As a result, evolution can proceed down certain well-worn pathways, a process that is facilitated by the fact that many of the factors that cause mutations reside in the genes themselves, where they bring about remarkably specific and consistent changes.

He explains that this new way of looking at evolution is not Lamarckian; it does not claim that there is some internal force driving evolution to some predetermined goal. Rather, the accumulated "wisdom" of the genes is due to billions of years of evolution that have shaped our genes through constant repetition to make evolution in certain directions easier. Using such homey analogies as tuxedo rental operations and automobile factories, he takes the reader through a number of intriguing examples of facilitated evolution, ranging from the evolution of