

BOOKS RECEIVED

HUMAN SEXUALITY. THIRD EDITION. 2009. By Simon LeVay, Janice Baldwin. Published by Sinauer Associates, Inc. 646 pages. C\$120 approx.

FUNCTIONAL MAGNETIC RESONANCE IMAGING. SECOND EDITION. 2009. By Scott A. Huettel, Allen W. Song, Gregory McCarthy. Published by Sinauer Associates, Inc. 542 pages. C\$100 approx.

OPERATIVE TECHNIQUES IN EPILEPSY SURGERY. 2009. By Gordon H. Baltuch, Jean-Guy Villemure. Published by Thieme Medical Publishers, Inc. 206 pages. C\$170 approx.

NEUROSCIENCE IN MEDICINE. THIRD EDITION. 2008. Edited by P. Michael Conn. Published by Humana Press. 816 pages. C\$170 approx.

DISCOVERING HUMAN SEXUALITY. 2009. By Simon LeVay, Janice Baldwin, John Baldwin. Published by Sinauer Associates, Inc. 560 pages. C\$95 approx.

POST-TRAUMATIC STRESS DISORDER. BASIC SCIENCE AND CLINICAL PRACTICE. 2009. Edited by Priyattam J. Shiromani, Terence M. Keane, Joseph E. LeDoux. Published by Humana Press. 409 pages. C\$100 approx.

FOUNDATIONS IN EVOLUTIONARY COGNITIVE NEUROSCIENCE. 2009. Edited by Steven M. Platek, Todd K. Shackelford. Published by Cambridge University Press. 224 pages. C\$65 approx.

HIV AND THE BRAIN. NEW CHALLENGES IN THE MODERN ERA. 2009. Edited by Robert H. Paul, Ned Charlton Sacktor, Victor Valcour, Karen Tokie Tashima. Published by Humana Press. 400 pages. C\$160 approx.

PINEAL REGION TUMORS DIAGNOSIS AND TREATMENT OPTIONS. PROGRESS IN NEUROLOGICAL SURGERY. VOLUME 23. 2009. Edited by Tatsuya Kobayashi, L. Dada Lunsford. Published by Karger. 144 pages. C\$170 approx.

ASTROCYTES IN (PATHO) PHYSIOLOGY OF THE NERVOUS SYSTEM. 2009. Edited by Vladimir Parpura, Philip G. Haydon. Published by Springer. 698 pages. C\$170 approx.

CLINICAL TRIALS IN THE NEUROSCIENCES. FRONTIERS OF NEUROLOGY AND NEUROSCIENCE. VOLUME 25. 2009. Edited by K.M. Woodbury-Harris, B.M. Coull. Published by Karger. 213 pages. C\$260 approx.

SPINAL INJECTION TECHNIQUES. 2009. By Theodoros Theodoridis, Juergen Kraemer. Published by Thieme. 241 pages. C\$215 approx.

CORTICO-SUBCORTICAL DYNAMICS IN PARKINSON'S DISEASE. 2009. Edited by Kuei-Yuan Tseng. Published by Humana Press. 449 pages. C\$215 approx.

ANATOMIC BASIS OF NEUROLOGIC DIAGNOSIS. 2009. By Cary D. Alberstone, Edward C. Benzel, Imad M. Najm, Michael P. Steinmetz. Published by Thieme Medical Publishers, Inc. 580 pages. C\$140 approx.

BOOKS REVIEWED

NEUROSURGICAL OPERATIVE ATLAS: FUNCTIONAL NEUROSURGERY. SECOND EDITION. 2009. Edited by Philip Star, Nicholas Barbaro, Paul Larson. Published by Thieme. 284 pages. Price C\$315 approx.

The American Association of Neurological Surgeons published the first edition of the Neurosurgical Operative Atlas in 1991. The second edition was published in 2009 and is comprised of five volumes. One of these volumes, devoted to functional neurosurgery, is the subject of this review.

The concept of the Neurosurgical Operative Atlas is 'to be a ready reference for well-established neurosurgical procedures for trainees and practitioners of neurosurgery worldwide.' Each chapter is designed to teach a specific surgical technique and covers 'case selection, operative indications and contraindications, special points in the anesthetic technique, and postoperative

complications.' No attempt is made (deliberately) to review the associated diagnostic techniques, disease mechanisms or medical management.

This Volume on Functional Neurosurgery is divided into four sections covering i) Epilepsy with eleven chapters, ii) Pain with fifteen chapters, iii) Movement Disorders with eleven chapters and iv) Other Disorders with three chapters.

This is a succinct compendium of the operative techniques used by Functional Neurosurgeons. It would be ideal reading for a Fellow training in this specialty. Each chapter is written by an expert in the field and gives their version of how a specific operation is performed. Unfortunately there are no references for further study. The reader should not assume this is the correct or only way to perform these procedures. In fact, some of the chapters show an uncomfortable bias towards historical techniques (e.g. sitting craniotomy) and corporate interest (e.g. proprietary

devices). The selection of authors, however, ensures that the material presented would be well respected amongst our peers. The amalgamation of work from many different authors inherently creates a discrepancy in the detail of presentation. The editors have crafted each chapter to follow a similar pattern highlighting patient selection, preoperative preparation, operative procedure and postoperative management. This makes reading the entire volume easier. The details of the operative procedure, however, are quite variable. Intraoperative monitoring, for example, is discussed superficially or in great depth – presumably reflecting the authors' use or avoidance of this essential adjunct technology.

This volume is advertised to be a 'comprehensive coverage of the latest techniques in functional neurosurgery' and to provide 'concise descriptions of indications and surgical approaches'. I would lean towards concise. There are a number of techniques that might be unknown to the general neurosurgeon that are well described in this volume (e.g. microelectrode recording).

This volume provides an overview of the operations performed in functional neurosurgery. Written by experts in the field, it offers an excellent description of 'how they do it'.

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HISTORY OF COGNITIVE NEUROSCIENCE. 2009. By M.R. Bennett, P.M.S. Hacker. Published by Wiley-Blackwell. 288 pages. Price C\$150 approx.

This is a volume of critical summaries of key articles and comments along with illustrative reproductions of modern neuroscience with a touch of history especially in the last chapters, where some of ancient and renaissance philosophy and science is brought in for demonstrating the oddity, yet the relevance of their thoughts. The target of the repetitive critique is the idea that the synaptic networks of the brain have psychological properties.

The book starts somewhat arbitrarily with Helmholtz. Visual perception, a favorite of philosophers is a good place to start discussing psychophilosophical issues such as what we see is not always what there is, or what is there when we don't see them. Illusions, the staples of all popular books on psychology, such as the converging lines, Rubin's vase-faces, the blind spot completion, appear to make a point that we indeed perceive things that are not there. The authors on the other hand make the point that it is not our brain, it is us that are taken in.

Helmholtz takes his deserved place, but he is not exempted from the criticism of using arbitrary language explaining that the brain creates the images according to previous experience. The authors claim the brain does no such things, only the human being does, but they do not offer an obvious alternative explanations to the problem of the duality of brain and mind. Getting down to even more basic brain functions such as the columnar organization of cells responding to certain visual stimuli even the Nobel prize winners Hubel and Wiesel are scolded for using the convenient shorthand of visual maps. The "who is who" in cognitive science and their interpretation of physiological phenomena in psychological terms follows. Mental rotation, computational representation, the binding theory and mental imagery are lined up and their interpretation is demolished as fiction. The reader gets the message quickly and begins to anticipate what is coming next.

Complex paradigms of attention, dichotic listening, arousal physiology, spatial representation underlying attentional dominance and hemineglect and blindsight are separated from their psychological interpretations and reinterpreted in a quasi nihilistic factual terminology that leaves more questions, than answers.

Language and cortical function are extensively reviewed but concepts of functional and linguistic modules in the brain such as semantic processing or cortical lexicon as brain function are declared faulty and mistaken interpretations. Wernicke's model is "confused" and "introduces the venerable empiricist confusion that ideas and concepts, indeed thoughts, are formed by linking different sense impressions"

The brunt of criticism is aimed at reductionistic, engineering concepts such as neural networks and attributing them to psychological phenomena observed in humans or animals. Particularly, terms such as processing models and cortical representations framed in engineering and computer jargon, the lingua franca of cognitive neuroscience are targeted. No wonder that the author's previous books came under attack by other neurophilosophers such as Churchland, Denett and Searle.

The authors clearly appear to be dualists, reasserting the separation of brain and mind throughout, even though they claim not to be taking sides with philosophers of the spiritual or religious sort vs the materialistic monists who claim that the mind and the brain is one without the added spirit to do its magic of perceiving, attending, thinking, deciding, planning, solving problems and speaking. According to the author's argument it is human beings who do all those things not their brains or parts of their brains. "Abilities depend on neural structures, but these structures need not and in these cases could not, contain copies of that which the abilities are abilities (sic) to do." This of course runs contrary to most materialistic interpretation of psychological phenomena. Yet paradoxically, in my opinion, they claim to be the followers of Aristotle's monism in Chapter 7. The reader will have to see for himself and decide.

If you the reader are expecting a work of history tracing the personal, professional and societal circumstances of discoveries you will be disappointed. It is not explored for instance why Wernicke drew his diagrams of human speech modules on the right side of a monkey brain (even though several historians chronicled his short, but distinguished life). The book is not so much historical at the start, but rather a compendium of research selected by the authors for reinterpretation or the taking apart of these interpretations. Chapter 6 is an exception as it covers dualism of the body and soul, one of the basic questions of philosophy beginning with the argument between Plato and Aristotle and motor function from Galen to Sherrington. Galen was of course the first who has associated the brain with sensation, perception, imagination and thought, even though he focused on the ventricles as the locus of these functions as every first year student knows (the millennium long error in interpretation of brain function). They perceive this basic error to attribute the function of the whole animal or human (such as perception or thinking to a subordinate part of the animal (the brain or ventricles or the pineal gland or the amygdala or its soul) as the original error (or is it sin?) that "runs like canker through the history of neuroscience to this day".

Attacking some of the targets, such as the computational models and processing diagrams will be received with more favor in some quarters, because the obvious use of computer jargon has not endeared this kind of model making to everyone. At times the authors' polemic appears to be too strong: "There is no such a thing as mental lexicon" (most people agree to this in a literal