macology and pathology. His chapter ends with a long discussion on somatomedins.

The thyroid gland is dealt with by Woeber and Braverman who use the same format as in the earlier volume. Considerable emphasis is placed on synthesis and secretion of T3 and T4, and on the mechanism of their action. Calcium homostasis is very competently discussed by a father–daughter team (Kleeman and Kleeman), mainly with reference to parathyrin. This chapter proceeds to some speculations about the mechanism by which parathyroid cells respond, usually, to low calcium levels and the reasons for their failure to store their product in endocrine type granules.

John Gwynne and Robert Ney together survey the adrenal cortex, beginning with a discussion on "big" ACTH and ending with sections on Cushing's disease and Nelson's syndrome. Edward Biglieri outlines the renin-angiotensin system with a most useful diagram or flow chart as a starter, ending with a survey of various aldosteronisms. Gary L. Robertson then describes the physiology of vasopressin, with reference to osmoregulation, baroregulation, hormone regulation and other stimuli. He considers also diabetes insipidus and inappropriate antidiuresis.

The various amenorrhoeas are the province of Lipsett and Ross, whose survey includes the post-pill variety of that symptom and also the HCG-connected disorders. Next comes Federman's exposition of the testis which begins with the problem of sex differentiation in the embryo, embracing the Mullerian regression factor and the dynamics of pituitary gonadotropin function. Proceeding by way of childhood and puberty he presents a thorough discussion of the regulation of the hypothalamic–pituitary axis by testicular products including the long-postulated FSH-releasing inhibitor "inhibitin".

Lewis Landsberg deals with the sympathoadrenal system and provides simplified schemes for the regulation of central sympathetic outflow and for the effects of catecholamines on (the integration of) peptide hormone secretion. Several sections are devoted to the role of the system in essential hypertension, and the final lucid chapter, by Silverberg and Volpé, presents a general model of autoimmune disease as it affects the gonads and the thyroid, adrenal, parathyroid and pituitary glands.

The essays which comprise this volume are of uniformly high standard in terms of style, presentation and content of factual information. This is an unusual feature in multiauthor handouts, for which I am by no means an enthusiast. But works of this calibre almost effect a conversion. There is inevitably a considerable degree of overlap in the subjects dealt with in the various chapters, but considering the essential unity, at least of the peptide hormone-producing cell systems, this is hardly surprising.

This second volume of *The Year in Endocrinology* contains something for every clinician with even a trace of endocrine feeling (surely 100% of those on the register) and something also for most like-minded biologists.

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One view of the brain's energy metabolism

Brain Energy Metabolism. By B. K. Siesjö. Pp.606. (Wiley: Chichester, New York, Brisbane and Toronto, 1978.) £17.50.

WRITERS have recently furnished neurochemistry with many volumes of multi-author publications but with few monographs in which an author explored his chosen subject critically, systematically and at length. Dr Siesjö's book is greatly to be welcomed for being such a review and for its detailed compilation of data. No other volume carries such a wealth of information on the major energy-yielding processes of the brain, and in appraisal of cerebral energy status, in terms mainly of phosphocreatine, adenosine triphosphate, less phosphorylated nucleotides, and reactions which interconvert those compounds.

The book commences with data, definitions and principles concerning metabolism, free energy and work. Thereafter, it is concerned mainly with the brain of a few mammalian species, including man; data on the brain of other animals is admittedly less complete, though they had and still have significance in pioneering and comparative studies of the book's main theme. Of particular note are those findings concerning cerebral blood supply and substrate and oxygen utilisation, specifically in man. Regional studies of cerebral blood flow and respiration in the brain are especially impressive for the correlations which they are now offering with localised changes in cerebral functioning, as examined by concomitant psychological testing in man. These findings may merit description at a greater length than that given by Dr Siesjö, especially as results continue to be accumulated from computer-assisted interpretation of data obtained by scanning methods.

The preponderantly mitochondrial source of the metabolically derived energy of the brain is described, though it is not always clear from the text which investigations of those quoted have been carried out with mitochondrial preparations from the brain. Information on cerebral systems intermediate in complexity between subcellular entities and the whole brain is not well presented, and is occasionally incorrect. No description is given of the isolated cerebral subsystems, prepared and maintained with due consideration of metabolic supplies and anatomical integrity, in which both energy metabolism and the concomitant electrophysiological activity can be observed. These subsystems, and indeed simple tissue slices from several cerebral regions, frequently display spontaneous action potentials and thus raise the question of what endogenous cerebral processes may correspond to the endogenous generation of electrical activity in these undoubtedly deafferented preparations.

The book's main trend, however, is away from questions of the brain as an initiator of energy-use. Most of the information quoted on cerebral energy metabolism is derived from changes imposed by external variables: induced seizures, hypoglycaemia, ischaemia, anaesthesia, sedation and the increase or decrease in carbon dioxide or in temperature. Judging the brain from the point of view of these variables understandably contributes to a particular outlook on its activities, in which response to imposed states dominates over recognition of it as a source of thought and self expression.

The book's format is not consistently helpful to the reader. Units are well systematised in a preface but abbreviations are not listed, which is particularly unfortunate in a multidisciplinary subject. Three-letter abbreviations are ubiquitous; a summary paragraph of a few lines includes RAS, CMR and CBF, which do not have index entries; RAS has been specified as reticular activating system some six pages previously but even under its full name does not appear in the index. Running titles or chapter numbers at the heads of pages are lacking. Tables and Figures are well presented and the bibliography is extensive.

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