

and current concepts with varying degrees of speculation about cholinergic functions. Speculations are necessary, as our understanding of the function of the brain and its putative neurotransmitters, including acetylcholine, monoamines and amino acids, is far from complete. Because of this, the reader who is not familiar with the subject may find some passages difficult to follow or esoteric with respect to the practice of anesthesia.

Nevertheless, anesthesiologists may find it rewarding to peruse certain chapters. Barrett and Magleby review the physiology of cholinergic transmission exhaustively. The chapters by Browning and Barker provide an up-to-date exposition of the biochemical pathways of synthesis and metabolism of acetylcholine. Further on, Main reviews in detail structures and inhibitors of cholinesterase. He tabulates the potency of neuromuscular blocking agents, anticholinesterases commonly used in anesthesia (such as physostigmine and neostigmine), and organophosphates in inhibiting acetylcholinesterases. This should be a good source of reference for those who study cholinesterase inhibitors.

The turnover rate of acetylcholine in the whole brain or discrete structures of brain is a subject of recent interest. Hanin and Costa presented the basic principles in estimating the turnover rate of acetylcholine *in vivo*. The effects of many drugs, including barbiturates, narcotics, and a number of centrally active compounds, on central acetylcholine turnover rate are summarized here. It seems that we are beginning to gain some understanding of drug action on the central cholinergic mechanisms. As stated in the overview of the current state of the art, much more remains to be explored.

The section on cholinergically linked diseases is informative. This reviewer learned much about the current concepts relating to myasthenia gravis, probably an autoimmune phenomenon with antibodies binding to the neuromuscular junction, explaining the decreased sensitivity of postsynaptic structures to the transmitter. The biochemical basis of Eaton-Lambert syndrome occurring in patients with malignant tumors, usually bronchial carcinoma, is discussed briefly, but it is nevertheless very helpful in explaining why patients with carcinomatosis are abnormally susceptible to neuromuscular blocking drugs. The role of dysfunction of cholinergic neuronal activity in familial dysautonomia is also discussed.

Recent advances in the therapy of Parkinson's disease have called attention to the importance of dopamine as a neurotransmitter in the basal ganglia. The chapter on Parkinson's disease, tardive dyskinesia, and Huntington's chorea by Van Woert discusses not only the role of dopamine and dopaminergic agonists, but also that acetylcholine and GABA in maintaining normal extrapyramidal control of locomotion.

Appendices I and II give brief outlines of methods for chemical assay of choline and acetylcholine, and of distribution of acetylcholine and choline acetyltransferase in brain structures. Appendix III tabulates acetylcholine and choline concentrations in biological tissues. One must be cautious in accepting all the values without considering the way animals were killed and the methods of assay. Choline and acetylcholine concentrations undergo rapid changes after death owing to the presence of extremely active enzymes for synthesis and hydrolysis of acetylcholine. Only by using the freeze-blow technique or microwave irradiation are these enzymes inactivated and can the actual choline and acetylcholine concentrations be reliably assayed. Similarly, the effect of drugs on choline and acetylcholine concentrations should also be taken with caution.

Each chapter has an extensive reference list, including many published in 1975 when the text was prepared. Although not all chapters are strictly relevant to anesthesiology, substantial por-

tions of this monograph should be interesting reading and serve as useful reference.

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**Introduction to Respiratory Care.** Second edition. By S. BELINKOFF. Boston, Little, Brown and Company, 1976. Pages: 253. Price: \$9.95.

This attractive little book provides a brief outline of respiratory anatomy and physiology and of therapeutic and administrative procedures in respiratory therapy. The book is clearly and concisely written and provides an introduction to respiratory therapy that should be useful for students in the allied health professions, particularly respiratory technicians.

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**The Time Of My Death.** By A. J. BRESLAU. New York, E. P. Dutton, 1977. Pages: 301. Price: \$9.95.

If you can tolerate the party bore who wants to tell you all about his operation, you will love this book. For Alan Breslau is determined you shall hear about all of his 46 operations. He was a passenger on a commercial flight that crashed at Rochester Airport on July 2, 1963. Pulled unconscious from the burning plane, he was rushed to hospital with extensive burns of his head and extremities. They thought he would die. But he lived, and in this book he tells his tale.

The text is divided into three sections. First is the prologue, a recounting of the events leading up to the crash, the attempted take-off in stormy weather, and the crash itself. The rest of the book is in two parts, the first titled "Anatomy of a Plane Crash." This is an exercise in investigative reporting. Breslau had personal reasons for learning all about this crash. Why did it happen? What were the weather conditions at the time? Did weather reports reach the right people? Who were the crew, and what factors in their background might have contributed to negligence? What was the service record of this particular aircraft? Many such questions are asked and answered. Breslau did his homework meticulously. But in the book he provides much detail that is of little interest, and often irrelevant to the principal stream of events. Part I reads like a complex interrogatory; to find the essentials one must ignore the redundancies. It will have interest, however, to those with a professional interest in commercial aviation and the safety rules that protect air travelers.

In Part II, "Anatomy of Survival," Breslau turns away from the crash and inward towards himself. He was both observer and participant in the unfolding drama of survival and rehabilitation. From the story there emerges a picture of a keen mind and vigorous spirit determined to prevail over all difficulties. With wife and children giving moral support, he entered into a close, almost worshipful, relationship with his "maestro" surgeon, who painstakingly superintended the rebuilding of his face and body. There is a grisly description of his 45 per cent burns, including the near destruction of face and left hand. For some tastes, the author's description of his injuries and his operations will seem

repetitive. Many will not sustain interest in the technical details of skin flaps, split grafts, delayed pedicles, and other "surgical miracles." To the author's credit, he also discusses fluid replacement and the supportive care so vital to success. We are even told about hemoglobinemia, pulmonary edema, and the biochemical nuances of acidosis and tris buffer.

For the anesthesiologist there are special lessons to be learned from the book. Catastrophe can strike even the most complacent community, and a hospital's disaster plan had better be kept current. Those more interested in people than in pathology will note the human responses of this observant patient. There is praise for a nurse who, sensitive to the feelings of disfigured but awake patients, disapproved of discussing them within earshot. Breslau's most excruciating memory was of repeated dressing changes. Very aware of every step, he relives each detail of these "memories of horror." He could hear himself screaming as though his mind was separate from his body, and each dressing removal was like "the flaying of nonbelievers' flesh during the Spanish Inquisition." Today, few would agree that "anesthesia's peripheral risks" justify the withholding of reasonable analgesia. Breslau was able to accept painful procedures under local or minimal anesthesia more easily, knowing that "10,000 deaths a year are related to the use of general anesthesia."

The story goes on, lapsing into the tedium that so often characterizes the extended care of badly burned patients. Through it all Breslau remains an active participant, sharing in the decisions and enjoying his notoriety. Something can be learned from his own prescription for his preanesthetic care. After a time he gave his own orders, and they were followed. He was to be lying on the transport gurney *before* the injections were given. He was to have no visitors. The shades of his room were to be drawn, and the lights on. His phone was disconnected. No one was to speak to him, nor loudly to each other. And strongly objecting to frigid operating rooms, he demanded that he be kept as warm as possible during surgical procedures. He hoped to be asleep by the time he reached the operating room. He wanted to minimize what he considered the worst part of the operation: worrying about it beforehand. He found little assurance from a foreign-born anesthesiology resident whose language difficulties made him wonder what might happen if emergency instructions had to be rapidly understood.

None of this is new. It simply carries extra weight when brought home to us by an articulate observer. In his epilogue Breslau reveals himself as not just rehabilitated, but "better than before," not just grateful for surviving, but defiant in the face of personal tragedy. For him, writing the book has served as an emotional catharsis. An anesthesiologist reading the book will find only modest entertainment. But he will be reminded that the essence of his contract with a patient goes beyond the delivery of technically safe anesthesia. It includes a commitment to making the patient's visit to the operating room as stress-free as man can make it. Too often we lose sight of our patients' humanness. Concern for the whole man does not come in our genes. It has to be cultivated and assiduously practiced. And the rising generation must learn it, too, by both precept and example. Here is an educational goal that is seldom discussed, but lies at the heart of the anesthesiologist's art.

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**Regional Differences in the Lung.** EDITED BY JOHN B. WEST, with contributions by the editor and five other authors, New York, San Francisco, London, Academic Press, 1977. Pages: 488. Price: \$37.00.

The editor states in the preface that "the chief aim of this book is to collate the results of research of the past fifteen years on the causes and consequences of regional differences of function and morphology in the lung." This it accomplishes in a logical, stepwise and well organized fashion.

The first chapter is a historical review of the early studies of pulmonary function, primarily that done by way of endobronchial catheter techniques. This is followed by a chapter on the radioactive tracer methods of  $\dot{V}_A/\dot{Q}$  measurement. Included are construction and circuitry descriptions of the collimators and counters used for the determinations, as well as some of the mathematics involved and the possible errors in technique.

The individual chapters on blood flow and ventilation are beautifully detailed presentations. The data are presented in a logical progression, adequately amplified by charts and diagrams as well as photomicrographs, and summarize the known facts relating to both normal and diseased states.

The chapter on gas exchange, of necessity, involves more mathematics, but is still easily readable. Considerable data derived from the multiple inert gas infusion and washout technique are presented to emphasize changes of clinical significance occurring in various pathologic states.

The editor states that some of the information in the chapter on transpulmonary pressure is controversial. These data are somewhat more difficult to interpret clinically since the studies are difficult to perform, and very few have been done in man.

The chapters on stress and acceleration forces on pulmonary function make for very interesting reading. Some acquaintance with a few basic engineering terms will be helpful in fully understanding these presentations.

In the areas of pulmonary edema and local control of blood flow and ventilation, the data are incomplete (as noted by the editor) but again logically and clearly presented. An excellent and well referenced chapter on closing volume completes the book. This includes methods of measurement, determining factors, and influences of age, disease states, and atmospheric pollutants.

As a collection of monographs by different contributors, this text is up-to-date, well organized, easily readable, extensively documented and authoritative. For those with even a passing interest in pulmonary physiology, this book would appear to be essential. For the clinical anesthesiologist, it will serve as a ready reference for factual data of more than academic importance.

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