oanesthesia. Each chapter is really a serious essay by the same author who has written extensively in the field of geriatric anesthesia. To fully appreciate this book, the reader should forget speed reading, ignore its Index, and set aside some time. Each chapter is meant to be perused, each conclusion challenged, and each revelation savored. If the standard textbook chapter is viewed as a cup of instant coffee to be drunk on the run, this book is a pot brewed for the evening from the best beans freshly ground.

Chapters 1 and 2 provide overviews of aging, preoperative evaluation, and perioperative management. Chapters 3–8 are organized as follows: physiologic overview of an organ system, specific discussion of how aging affects physiologic function within this system, anesthetic implications, and a case history. All the illustrations are original with the author, and they contributed significantly to my understanding of the author's line of reasoning. The physiologic interpretations in the chapters devoted to the central nervous system, the peripheral and autonomic nervous system, body composition and metabolism, the cardiovascular system, and the respiratory system inspired many "I-didn't-realize-that" and "that's-an-interesting-way-to-present-this" thoughts. But the combination of renal and blood functions in the final chapter seemed awkward and contrived. A separate chapter on blood functions including an extensive discussion of oxygen delivery and transfusion criteria in the elderly population would have been welcome. The bibliography for each chapter averages more than 200 references.

The real strength of each chapter is the physiologic overview and how aging affects function. In the Preface, the author states that ". . . for perhaps the first time, we now have an adequate understanding of general concepts of human aging and sufficient data regarding organ function and functional reserve in older adults to attempt a comprehensive and detailed overview of the implications of aging with regard to the perioperative management of the elderly patient. That is the purpose of this book." I think he has demonstrated that we are not there yet because each chapter consistently becomes less satisfying when anesthetic implications and perioperative management are discussed. The brief clinical histories provided as clinical correlations at the end of each chapter do not really work and could easily have been deleted.

The risk of challenging readers is to invite criticism. I would like to suggest just a few. First, the American Society of Anesthesiologists' physical status is vigorously defended as ". . . influenced neither by the patient age nor by the type of surgery . . .," yet the effect of aging discussed in each chapter could be classified at least as significant as mild systemic disease. Second, the statement is made that ". . . the importance of avoiding arterial hypotension intraoperatively in elderly patients with pre-existing hypertension and cerebrovascular disease would seem to be self-evident . . ." [to avoid a perioperative stroke] despite no definition of hypotension, an acknowledgment of the success of deliberate hypotensive techniques, and the nonacknowledgment that most perioperative strokes are embolic or hemorrhagic in origin. Third, although the body composition and metabolism portion of Chapter 5 is enlightening, the ensuing pharmacokinetic discussion tries too hard to associate mathematical with physiologic compartments. I would also recommend skipping the pharmacokinetic discussions on pages 166–174—the only really significant blemishes in 306 pages.

In summary, *Geroanesthesia* is like a movie that succeeds in the eyes of the critics but does poorly at the box office. The serious in-control-of-his/her-time anesthesiologist will find this introspective effort worth the price and the time commitment. The harried trying-to-catch-up anesthesiologist will be annoyed that the author expects the reader to read whole sections of "why" rather than just one paragraph of "how" to answer a specific clinical question. Sadly there are more of the latter than the former.

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Essays on the History of Anaesthesia. Edited by A. Marshall Barr, Thomas B. Boulton, and David J. Wilkinson. International Congress and Symposium Series 213. London, The Royal Society of Medicine Press, Limited, 1996. Pages: 237. Price: £15.50 (plus £2.50 p&p in Europe, and £5.50 worldwide).

This diverse, stimulating group of essays is a representative cross-section of papers presented at the first four annual meetings of the History of Aenesthesia Society (Reading, England) from 1986 to 1989. The editors have grouped the papers, revised for this publication, under such headings as "Therapeutics and Science before 1846," "Early Days of Aenesthesia in Britain," "Apparatus, Agents and Techniques," and "Complications and Safety." Readers in the history of medicine, and particularly early anesthetic practice in Britain, will find this a valuable collection. The following sampling draws from several essays to suggest the variety and interest of the whole.

Five essays on the evolution of anesthetic practice in Scotland and especially in Edinburgh appear under the heading of "The Scottish Tradition." One of those papers, R. H. Ellis's "Edinburgh Threads in the Tapestry of Early British Anaesthesia," points out a schism that developed between London and Edinburgh clinicians by 1848 "over whether or not chloroform was inherently safe." Edinburgh colleagues believed chloroform to be entirely safe and held that the preferred administration was in a large and rapid dose. Londoner John Snow took exception to that view. He believed chloroform's potency required that it be administered gradually and with knowledge of the concentration being given. Edinburgh practitioners insisted on their position after 1848 when reports of death under chloroform and knowledge of its potency were becoming widely known.

Thomas B. Boulton's "The Development of the Syringe" ably reviews the 23-century story of the device. This saga supposedly began about 280 B.C. in Egyptian barber shops with the discovery of the pneumatic principle of a piston running in a cylinder, found by the invention of an adjustable mirror. One of the most significant applications of the syringe for anesthetic practice came with its first use for subcutaneous injection of medication, apparently in 1839. Dr. Alexander Wood, an Edinburgh physician, injected morphine subcutaneously in 1853, "making parenteral medication a practical and universally applicable technique." Wood was "aiming at local anesthesia of peripheral nerves" by injecting morphine through the skin. He reported the successful results from nine cases in an 1855 paper and in a second paper in the *British Medical Journal* in 1858 "triggered world-wide acceptance of subcutaneous medication." Al-

though aware of the central actions of morphine as a result of its absorption into the blood stream, Wood viewed these actions, says Boulton, as tiresome side effects. Wood, for example, records that he was "a little annoyed" that his first patient was still sleeping 12 h after a subcutaneous injection of apparently 25-mg morphine for cervical brachial neuralgia. Wood went on to improve the syringe, making many changes, "including adding gradations and reducing the size of the needle." From Wood's studies came parenteral medication, intravenous general anesthesia, and local anesthesia.

In "Memories of Early Days of Open Heart Surgery in the UK and India," Ruth Mansfield relates her experiences as an anesthetist at mid-century at the Royal Brompton Hospital, London, and later, after 1969, at the Christian Medical College and Hospital, Vellore, India. Among the anesthetic practices she discusses, Mansfield notes that in the 1950s, moderate hypothermia of 28–30°C allowed up to 10 min of cardiac arrest in open heart procedures. Surface cooling or venovenous cooling made this temperature reduction possible. Surface cooling required immersion of the patient, "complete with IV drips and connected to the anaesthetic apparatus," into a large bath of water and ice. Much less cumbersome and more efficient in terms of timely body temperature adjustment was venovenous cooling, which involved inserting a cannula into the superior vena cava and another into the inferior vena cava.

In the late 1960s and early 1970s in India, clinicians depended on homemade drip sets with rubber tubing and glass; steel needles were sharpened in the sterile department. Later, disposable supplies became available. Mansfield states, "Rheumatic infection was the commonest problem, with stenosis and incompetence even occurring in those under 10 years of age."

J. Alfred Lee gives a finely crafted analysis of a memorable incident in the "The Sad Case of Dr. Axham." From 1906 to 1911, an English anesthesiologist, Dr. Frederick Axham, supplied anesthesia for the patients of Herbert Parker, a famous "manipulative surgeon" or early chiropractor, who treated H. G. Wells, Bernard Shaw, and other notables. The medical community brought a complaint against Dr. Axham, apparently as an indirect attack on Parker for his unorthodox practices. As a result, Axham lost his professional appointment and died in genteel poverty. Barker, his reputation undiminished by the controversy, gave an invited demonstration of his techniques to the British Orthopaedic Association in 1936, with anesthesia provided by a soon-to-be president of the Association of Anaesthetists of Great Britain and Ireland. Orthodox medicine's attitude to chiropractors had shifted, but Axham had not been exonerated. His story provides a peculiar case study of the interaction of "unorthodox manipulative practitioners" with such clinicians as anesthesiologists.

K. G. Lee states, "Extracorporeal circulation is an old idea, but a new science in man" in his essay on "The History of Extracorporeal Circulation." Lee dates the concept's origin to the discovery in Europe in the late eighteenth and early nineteenth centuries that perfusion of organs with fresh blood after apparent death could prolong their function. Brown-Sequard in the mid-nineteenth century showed the "necessity of oxygenating the perfusing blood, by whipping it in air," and the "desirability of anticoagulation in perfusion work." He demonstrated the return of reflex activity in perfused organs in "mammalian heads and even the limbs of freshly guillotined criminals." Von Schroder reported on improvements in oxygenation in 1882 by "the bubbling of air through a bottle of venous blood." One development in laboratory perfusion work at the turn of the century was the use of a "heart-lung preparation of an animal with which to perfuse" an excised organ.

The first successful bypass operation in a human came in 1953. Nonetheless, Lee states, "Cardiac surgery with bypass after 1953 still carried a very high mortality rate, and was not uniformly accepted." With De Wall's introduction of a "safe, simple, disposable bubble oxygenator" in 1955 and subsequent developments, cardiopulmonary bypass gradually became accepted as "the safest and most useful aid to open heart surgery."

These are but a few evidences of the informative reports gathered in this collection. Physicians who enjoy delving into the history of the specialty will find engaging reading here; the essays will also open useful avenues to historians researching the development of modern medicine.

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