
Book Reviews

The Genesis of Surgical Anesthesia

Norman A. Bergman. Wood Library-Museum of Anesthesiology, 1998. 448 pages. ISBN 0-9614932-0-0

Who really discovered anaesthesia? Who has the claim of priority? These questions have been addressed so often that they have obscured ideas and events in the 17th and 18th centuries that made the introduction of anaesthesia possible in the 1840s. Keys, in *The History of Surgical Anesthesia*, discusses this aspect briefly, and Duncum, in *The Development of Inhalational Anaesthesia*, does refer to some of the key figures in that period, but no one has discussed this "prehistory" of anaesthesia at book-length so comprehensively as has Norman Bergman in *The Genesis of Surgical Anesthesia*.

Bergman's great contribution is to recount and discuss the "pattern of stepwise and incremental gathering of information which in its totality resulted in the use of clinical anesthesia." His book will now set a new standard for studies in its field — in this case, the cumulative work and ideas of countless individuals that set the stage for the advent of anaesthesia. Although by no means a quick read (or review!) or a short synopsis, it is so informative that it changes one's perspective on the history of anaesthesia. Both the advances in respiratory physiology and medical-gas chemistry made between 1600 and 1800, and the events of the 1840s, can now be seen in a new light; anaesthetists' forbears go back further than most of us realize.

Although the names of Robert Boyle, Robert Hooke, Richard Lower and John Mayow will be familiar to many anaesthetists, and those of Joseph Black, Joseph Priestley, Antoine Lavoisier, Thomas Beddoes, Humphry Davy and Michael Faraday to still more, few anaesthetists could accurately say how their work, and that of many other lesser known scientists, paved the way for the advent of clinical anaesthesia. By discussing in great detail the ideas and research and clinical experiences of these scientists, Bergman enables us to understand this development. Much of his attention centres on Beddoes' work on pneumatic medicine and Davy's research on nitrous oxide. Of great interest is Bergman's explanation of Davy's famous suggestion that the gas might be used "during surgical operations in which no great effusion of blood

takes place." Davy's suggestion, he explains, must be viewed in the light of the ideas of John Brown, the 18th-century Edinburgh physician, on excitability of the organism an important factor in the maintenance of health, disease being either "sthenic" or "asthenic" according to the level of excitability. The pain of surgery would produce inordinate degrees of excitement, which would diminish excitability and so produce a state of "sthenic" disease; such a state might be prevented by the inhalation of nitrous oxide, which, because it was thought to act as a unique diffusible stimulus, might prevent an excessive decrease in excitability; however, in cases of haemorrhage, the gas might act synergistically with blood loss to increase excitability and so produce a state of "asthenic" disease. As far as I am aware, this explanation has not been proposed before.

Bergman also gives good accounts of the work of Priestley and Lavoisier, but he brings to our attention the work of lesser known figures who, in their own way, have a great deal of interest for us as well. Late in the 18th century Christoph Girtanner, for example, suggested that oxygen, discovered not long earlier by Priestley, was absorbed into and transported by the blood; Edmund Goodwyn, as early as 1788, reported measurements of resting and tidal lung volumes; Robert Thornton, about the same time, recommended the inhalation of ether for the treatment of catarrh, and he may have been the first to report an explosion due to ether; and Samuel Mitchill, who was greatly interested in nitrous oxide, also discovered by Priestley, influenced the thinking of both Beddoes and Davy. There are many other "nuggets" of information that were new to me. In 1795, for example, Davies Giddy asked Beddoes, "May not (carbon monoxide) be used before painful operations?" According to J.E. Stock, his biographer, Beddoes at about the same time seems to have suggested using this agent to produce unconsciousness in a case of strangulated hernia. And in 1800 Davy reported his experiences with animals made unconscious by nitrous oxide. Thus as the 19th century dawned the idea of using gases to produce surgical anaesthesia seems to have been very nearly realized. Yet another four decades had to elapse.

This book is essentially a history of the genesis of anaesthesia but, because anaesthesia was nonexistent

in the 17th and 18th centuries, it is also a history of medicine in that period. The chapters on physiology and chemistry in the period from 1600 to 1800 and on medicine in the 18th century I found valuable, for Bergman brings out relationships that were previously not well worked out. The influence of Brown's ideas is an example of this. Having a particular interest in Brown in other respects I was gratified to find so many references to Brown that I had not come across before. Indeed, the extensive list of references, to many others besides Brown, is itself, quite apart from the content of the text, worth the price of the book.

Bergman also discusses factors other than the medical and scientific. He rightly reminds us of the significance of the maturation in social attitudes that made it possible and desirable to redirect the concept of using gases and vapours from treating respiratory diseases and subserving pleasure derived from "ether frolics" at parties to preventing the pain of surgical operations. To exemplify this quantum leap Bergman describes the ideas and activities of the Lunar Society of Birmingham, which included the physician Erasmus Darwin and the inventor James Watt as well as Priestley. In Bergman's opinion — though here he seems to speculate — it was the thinking and activities of the Lunar Society's members that facilitated the change in the climate of society that eventually led to the all-important acceptance of the concept that surgery should be free of pain.

In so all-embracing and lengthy a book, flaws are perhaps inevitable. One is the inclusion of material that, as Bergman himself terms it in one place, are digressions. Three examples are the sections in one chapter on 18th-century medical practitioners and on "a history of hospitals," and much of the chapter on Beddoes' writings, not all of which are directly pertinent. These lengthen the book, as do many parts of the text that could be more rigorously edited. Dates of birth and death are given for some individuals but not for others; some of the nonmedical quotes are too lengthy and other parts of the text could be pared down; and there is some repetition of incidents about individuals. More irritating are the many simple errors in typography and punctuation and the inconsistencies in spelling of individuals' names. Such flaws indicate that the publisher has failed to make use of an expert copy editor — a point that this reviewer has made before!

In general, however, Dr. Bergman is to be congratulated on his scholarly and comprehensive addition to the literature on the history of anaesthesia. Individual anaesthetists will learn much from this book, but for academic departments of anaesthesia, medical schools

and historians of medicine Bergman's study must surely be regarded as an essential volume in their libraries.

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Anesthésiologie Pédiatrique.

Claude Ecoffey, Jamil Hamza, Claude Meistelman (Eds.). Médecine-Sciences, Flammarion, 1997. 374 pages. ISBN 2-257-15542-4

In his preface, Dr Ecoffey mentions that a French textbook about pediatric anaesthesia was long awaited, and this treatise, which is a collaborative work of 47 authors, is a first try to remedy this situation. The chapters are about the same as these of Smith's, the gold standard in paediatric anaesthesia. Several chapters are worth mentioning: locoregional by Bernard Dalens, which is clear, with good anatomical descriptions and very useful clinically, neonatal emergencies, cardiovascular, neurosurgery, neonatal and pediatric cardiopulmonary resuscitation. A chapter about safety and outcome is lacking and should be added. Smith's format is more generous and allows for more extensive coverage and utilization of photos and graphs. For example, Bruno Bissonnette gets 20 pages instead of 10 for his chapter on temperature regulation; PG Chassot has produced a superb cardiovascular chapter but illustrations are lacking. One annoying feature is the index, which is too scanty: looking for air embolism in the sitting position for posterior fossa surgery can only be found under neurosurgery: this is an easily correctable deficiency.

In summary, an interesting text book for anaesthesiologists in francophone countries. It is a first edition which should be completed and expanded and made more attractive with the increased utilization of photos and graphs.

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Atlas of Interventional Pain Management

Steven D. Waldman. W.B. Saunders Company, 1998. 564 pages. \$263.00. ISBN 0-7216-7577-8

This is the comprehensive quick reference "how-to-do-the-block" book that clinicians will find very useful to keep in the operating room or Pain Clinic.

In clear concise text virtually every interventional technique is described in the same order: Title block;

Indications; Clinically Relevant Anatomy; Technique; Side effects and Complications; Clinical Pearls and a clear colour illustration. Each block is described in 3 to 10 pages.

The inclusion of AMA codes and relative value units emphasizes that the book is aimed at American practitioners. However, this does not detract from material useful to non-Americans.

The "Atlas" is well organized anatomically and provides for rapid reference by searching either anatomically, the contents page or the detailed index. Rather than allow a fearless practitioner to follow the instructions, each section details precautions, contraindications, side effects and complications. All details are included, such that the clinician can easily revise the technique of a nerve block in about five minutes - not too much to absorb between cases in the operating room or pain clinic.

This is not a comprehensive review such as that of Cousins and Bridenbaugh and should not replace such a reference text. Rather, this is an easy-to-use atlas providing quick answers to the questions "Is this block indicated?", "Is it contra-indicated?", "How do I do it?".

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