

Book Review

Title: Blood

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Contents: 20 chapters, 564 pages, 65 figures, 4 charts, glossary, blood tests, 2 appendices

Of all the resources that man has ever harvested, blood remains the most precious, and perhaps, most poorly understood. In a recent publication on the history of transfusion medicine, Douglas Star compared blood to another resource, which, like blood, is also capable of misuse: oil. In a direct, although simplistic, analogy, he compared the cost of crude oil to that of blood. A barrel of oil presently costs about \$13 and when it is separated into its derivatives would fetch a total of \$42. Blood in an equal volume (approximately 42 gallons) would cost approximately \$20,000, and when separated into components, would cost more than \$67,000. Both are derived from living, or once living, organisms, and are used to sustain life; both have played important roles in war and in peace, and both have required a thorough understanding in order to use effectively.

Textbooks on hematology are plentiful in medical libraries and are staples in most curricula in the health and life sciences. One must constantly ask whether or not there is a need for additional published information in this well addressed area. In 1990, John F. Dailey authored a brief and concise text, titled *Dailey's Notes on Blood*, which subsequently was published in two additional editions. This text received excellent reviews and was placed on many reading lists for perfusion education programs. This past year, Dailey introduced a more comprehensive text, *Blood*, for those who require more detail. (*Dailey's Notes on Blood* is still available.) Like the first text, this book provides useful information on the many aspects of blood, in both health and disease.

The first five chapters contain a review of the basic principles of physiology, with particular emphasis on circulation. As with the entire text, the information is presented in a brief, summarized format. As one could readily imagine, the absence of an in-depth review would require the reader pursue other sources for more specific information. Nevertheless, the format serves as a foundation for introductory information that can be supplemented as necessary. Chapters 6 through 9 deal with cellular

and acellular immunity and highlight many of the important mediators of the body's defense systems. Perfusionists will find this information useful and can apply these fundamental concepts towards the review of the pathophysiological consequences of extracorporeal flow. A discussion of the various elements that make up plasma is found in Chapter 10.

Since cardiac surgery, with and without cardiopulmonary bypass, primarily results in defects to the hemostatic and inflammatory mechanisms, Chapters 11 and 12 are of special interest. Here the basic principles of coagulation and primary hemostasis are reviewed. Unfortunately, the style suffers slightly from its brevity. Although this is not a major hindrance to those just beginning study in this area, the fundamental information contained will not add any enlightenment to those already versed in topic. Lacking from this section is a discussion on the importance that the endothelium plays in promoting and maintaining hemostasis.

The remaining chapters of the book deal with transfusion medicine and were found, by this reviewer, to be the most beneficial and rewarding. There is a logical progression from the chapter on blood group and Rh system (13) to the principles of transplantation. Chapters 14 and 15 deal with the processes of blood collection and transfusion medicine. The last section of Chapter 15 contains several charts that list features of the more common adverse events encountered with blood transfusion. The author provides a description of the transfusion reaction, possible cause(s), symptoms and actions, all in a useful bulleted format. Chapter 16 follows with a warning of the risks for disease transmission associated with blood-borne entry.

From a historical perspective, perfusionists can appreciate the progression from the use of whole blood (used to prime oxygenators with large surface areas) to individual component therapy. Dailey provides a useful description of the individual components obtained through further processing of collected blood. He also describes the process of apheresis used to produce isolated components from single donors. These techniques are readily practiced in most blood banks and are utilized in many hospitals to treat patients intolerant of the immune challenge associated with multiple autogeneic transfusions. One of the most useful features found in *Blood* is the inclusion of practice questions at the end of each chapter. The author provides answers to these posits at the end of the book. The final 100 or so pages contain a listing of 78 tests performed by most clinical pathology laboratories. These pages include normal values as well as interpretation of abnormal findings with possible causes.

Although a bibliography is included, it would have been more helpful to provide a list of referred sources at the end of each chapter. This would have enabled the reader to search the

reference list and look at specific citations as additional sources of information. It would also have been helpful to have subheadings into which the chapters could have been subdivided according to subject matter. Despite these minor problems, *Blood* provides an excellent foundation for an understanding of the complexities inherent within this field of medicine.

Those who have used *Dailey's Notes on Blood* as an introduction to hematology will surely accept it. The expanded information and new chapters will provide perfusionists with additional information that will guide them in delivering the appropriate care to a changing and complex patient population.

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