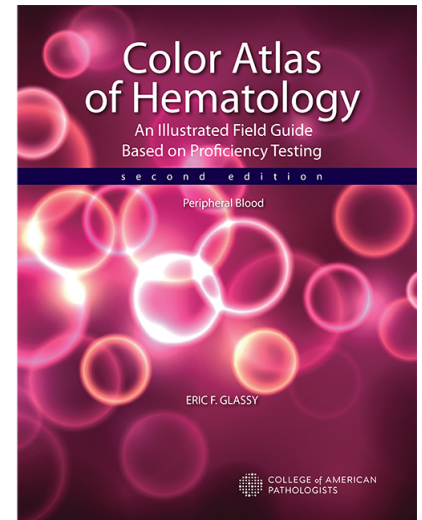


New Color Atlas of Hematology to be used 'in the wild'

January 2018—New this month from CAP Press is the second edition of the *Color Atlas of Hematology: An Illustrated Field Guide Based on Proficiency Testing*. “More and better are the watchwords,” senior editor Eric F. Glassy, MD, told CAP TODAY when we asked what the reader can expect. The second edition (the first was published in 1998) is the fourth CAP Color Atlas Dr. Glassy has worked on in the past 20 years, and it is the “most ambitious yet,” he says, “and the next logical progression in the continuous effort to provide access to the remarkably rich data in the CAP’s proficiency testing archive.” David Blomberg, MD, and Katherine Galagan, MD, are associate editors.

Dr. Glassy, medical director of Affiliated Pathologists Medical Group in Rancho Dominguez, Calif., answered CAP TODAY’s questions about the new atlas. Here is more of what he told us.



The atlas is called a field guide and you write in the preface that the atlas is unique. Can you explain both?

A field guide is an illustrated book designed to help the reader identify objects in the wild, such as plants, birds, and minerals. It is generally designed to be brought into a local area where such objects exist to help distinguish between similar objects.

[Color Atlas excerpt: Monocyte, Immature](#)

Morphologic differences are key and they can be minor, like the distinctive but subtle shape of a bird beak. Likewise, this atlas focuses on morphologic differences between cells and other objects in the peripheral blood. And it is meant to be used “in the wild,” which is the laboratory or at a desk where blood smears are examined.

The field guide analogy can be extended to a survival guide for laboratories because the atlas can be used to help pass proficiency testing. That was the emphasis of the first edition, in which only CAP proficiency testing photographs were included along with proficiency testing scores for each image. But that really limited what images could be used. In the second edition, we’ve vastly expanded the number of images by using material from the authors’ own personal collections. The lymphocyte chapter in the first edition, for example, is 40 pages in length and now in the second edition there are 70 pages. The lymphoma section alone is 20 pages and includes several “Closer Look” discussions.

The uniqueness is in the design and layout in which each identification is surrounded by vital statistics, illustrations, photomicrographs, and in many cases links to virtual smears that show the cell or object in context.

Here is a quote from the preface to the first edition:

We call it a field guide because it is an in-the-trenches, real-world look at cell identification—the important

morphologic clues, the key features of differentiation, the look-alikes and the associated disease states. As laboratorians, we rely on microscopes instead of binoculars to identify our quarry. But it's still a jungle out there in CLIA-land. A good guidebook will focus your thinking and sharpen your diagnostic acumen. The world may not need another hematology atlas, but a field guide is another niche altogether. Consider it a signpost in the regulatory wilderness.

What information can the reader expect to find in this second edition that was not in the first edition?

Everything in the second edition is updated and expanded: more illustrations, more discussions, more tables, and more "Closer Looks." Terminology is updated with the latest from the WHO. There is an introduction to microscopy, a timeline of hematology (with videos), an overview of flow cytometry, pediatric pathology, and automated hematology, including the newest machines used for digital cell morphology. In fact, we had to divide the book into two volumes. The first to press covers peripheral blood. The second volume will be devoted to bone marrow morphology.

Can you tell us about the whole slide image links the reader will find throughout the book and about the video clips?

In 2011, the CAP Hematology and Clinical Microscopy Resource Committee instituted virtual slides. This was an attempt to more closely mimic the real world where peripheral blood cellular morphology is directly assessed using stained glass slides. The program has proved to be quite successful and the CAP has now leveraged its excellent whole slide image viewer—DigitalScope—in many proficiency testing programs: hematology, bone marrow, body fluids, medical microscopy, parasitology, bacteriology, and sperm morphology.

The virtual smears have the advantage of allowing cells to be viewed in context—the entire feather edge of a glass slide is available for examination. White cell differential counts can now be performed virtually as can red blood cell morphology assessments. The images can be viewed by scanning the QR code using a tablet or smartphone. The CAP's DigitalScope browser-based software is one of the best whole slide image viewers on the market and provides a very fluid visual experience. It allows the user to closely mimic a traditional microscope.

In this book, we included more than 100 virtual image links to select fields of view used to identify an object on the virtual blood smear. Keep in mind that these are not links to a static image; rather, the user can zoom out and navigate to an entirely new region of interest. Sometimes context is key to making a correct diagnosis. The use of virtual peripheral blood smears is unique to hematology/medical textbooks and we predict other pathology texts will follow this lead. It is already being used by the *Archives of Pathology & Laboratory Medicine* in several surgical pathology articles. Virtual microscopy using whole slide image scans is absolutely the best way to engage the reader and create a memorable learning experience, aside from using a real double-headed microscope.

Regarding the video clips of the atlas authors, it has always been a desire of mine to add as much interactivity as possible to a textbook. Besides the virtual peripheral blood smears, creating videos of authors discussing topics of interest from the atlas seemed like another way to do that. Keep in mind that these are not Hollywood videos. The authors shot them on their smartphones or other low-end video cameras. I just added an opening and closing sequence. None of the authors had experience doing this, and as you view the different clips, you will find a variety of styles—some are voice-over PowerPoint slides, others are more like interviews or talking heads. I did this on purpose to make the project more interesting and enlightening in terms of what can be done when you don't have a budget. Maybe we'll use a real studio for the next atlas but, for now, I am happy the authors were willing to create them and contribute their own personal touch to the book.

What can you tell us about the organization of the book and the pages throughout that are titled "A Closer Look At . . ." ? How were the topics for those "Closer Look" pages selected?

The topics were selected by the section authors who identified specific points of morphology or disease that needed a broader discussion. These "Closer Looks" combine tables, drawings, photos, and text into an exposition that reinforces learning.

I can't say it better than Dr. [Steven] Kroft did in the foreword:

Effective blood smear interpretation requires an additional step: taking that morphologic landscape and putting it into yet larger contexts, biologic and clinical. It is in these domains that this text transcends its origins in proficiency testing. The robust supplementary information provided in the numerous A Closer Look At . . . sections of the book takes readers beyond an explanation of what they are seeing to an understanding of what it means. While these Closer Look pieces were a feature of the first edition of this book, the depth and breadth of this contextual material in this second edition really distinguishes it from the first. The second edition has moved beyond being a simple atlas to being an enormous repository of hematology information, both routine and obscure.

Why would anyone working in hematology laboratories want to have this edition?

In some laboratories and residency programs, the first edition is required reading. It is a unique blend of images and didactic illustrations that key in on important features of morphology. Images are the cornerstone of hematology and that has not changed, even with the advent of flow cytometry, molecular studies, and cytogenetics. Morphology is foundational. This book embraced that origin, building the case for proper identification, which leads to the right diagnosis and eventual treatment.

One example would be teardrop cells. Why are they shaped that way? How do you distinguish artefactual from real ones? The book has drawings, photos, didactic text, a "Closer Look" discussion, and virtual microscopy examples that create a nexus of learning opportunities. To add a bit more icing, there is a video of the author, Parul Bhargava, discussing these cells. The same sequence is used throughout the book: Dr. [William] Finn discusses the cells of MAHA, Dr. [Carla] Wilson on myelodysplasia, Dr. [Sherrie] Perkins on hairy cell leukemia, Dr. [Patrick] Ward on micromegakaryocytes, Dr. [Kyle] Bradley on blast identification, etc., etc. They are all terrific vignettes. This is totally unique in the field of medical textbooks in general and hematology atlases in particular.

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