

BOOK REVIEW

Lawrence R. Ash, Thomas C. Orihel: Ash & Orihel's Atlas of Human Parasitology. 5th Edition. *American Society for Clinical Pathology Press, Chicago, Illinois, 2007. ISBN 0891891676, hardcover, 540 pp., 856 images, 18 tables, 12 figures. US price: \$200.00, member price: \$180.00.*

I own several books written by the two authors, Lawrence Ash and Thomas Orihel, including previous editions of the *Atlas of Human Parasitology*. However, they are very rarely present on my bookshelf because they are constantly borrowed by students. No wonder, since I recommend them as compulsory literature in all the courses of medical parasitology I teach, even though they were not intended as textbooks on parasitology. Nevertheless, they contain as much information as many pretentious textbooks, including basic information about parasite life cycles, biology and epidemiology. Moreover, each new edition is by all means better than the previous one and, following this trend, the new 5th edition of Ash & Orihel's *Atlas of Human Parasitology* is best thus far. In addition to new illustrations throughout, new components and features have been added: morphologic keys for determination of the stages of parasites found in samples, clinical symptoms of parasitic infections, 12 entirely new plates and extremely useful diagnostic procedures. A whole chapter devoted to parasite-like artifacts and pseudoparasites culled from cases actually submitted to working diagnostic laboratories has been considerably expanded.

Undoubtedly the most crucial components of all atlases are the images. Thanks to the long-term effort of both authors and their co-workers, who contributed 8% of these images, one can enjoy a visual feast that integrates science and the arts. Most micrographs depict parasites found directly in clinical material using routine diagnostic techniques, like stool sample concentration methods. The micrographs of stained blood smears are carefully selected and elaborated into plates, which in some cases (malarial plasmodia) look like a single microscopic field. The staining is so perfect and the effect so impressive that it is necessary to warn inexperienced reader that it is unlikely that all of the parasite stages presented on the plate will be found in a single microscopic field. The highlight of Ash & Orihel's atlases is the micrographs of histological sections of parasitized tissues. It is a pity that most of them are of smaller size than they deserve. However, one must understand the reasons: it is necessary to compromise between extent and complexity on one hand and the explicitness of some histological pictures on the other (this comment concerns some pictures incorporated into the text; the micrographs arranged in plates are explicit more than enough).

It is the practice of Ash and Orihel's atlases not to include the sizes of individual organisms in each illustration. Instead, helminth eggs and microfilariae are claimed to be photographed at low magnification ($\times 10$, $\times 40$) and "Protozoa" under oil immersion, with few exceptions. In fact, I did not even notice this weakness in the beginning. Later, after discussion with students less experienced in microscope diagnostics, I realized that traditional scales in all micrographs would be an extremely useful addition.

In comparison with previous editions, more macrographs of parasitic lesions and clinical symptoms, as well as micro-

graphs taken using fluorescence microscopy and one micrograph from transmission electron microscope, have been included. Some of the most useful features in the *Atlas* are the comparative tables, including those that show the relative sizes of the most common helminth eggs, morphology of rhabditoid larvae of *Strongyloides* versus hookworm, and distinguishing features of microfilariae. Because these tables are composed of actual images and not just line drawings, they are of higher value. Similarly, actual images are used for the composition of the quick keys for determination of human parasites, which is useful especially for beginners in this field.

I have been especially pleased when I found the chapter on arthropods, since we consider so-called "medical entomology" and "medical acarology" to be integral parts of human parasitology. Regrettably it only consists of three plates: 95: Mites, Bedbug and Fly Larvae; 96: Human Myiasis; and 97: Lice, Fleas and Ticks. If I found another one or two plates devoted to vectors of transmissible parasitic diseases, such as mosquitoes, tsetse flies, sand flies, black flies, deer flies and kissing bugs, I would not only be pleased, but even happy!

A balanced review should contain not only praise, but criticism as well. Besides the aforementioned suggestions for improvements, it was almost beyond possibility: it is extremely difficult to find lapses. A minute critical comment can concern some taxonomical and nomenclature details. I do not think that the authors should have to solve some hotly debated taxonomical problems in this book. But I would prefer them to respect the new knowledge already widely accepted by scientific community. The authors of the *Atlas* are well informed, but they use conservative nomenclature and taxonomy in titles and mention new knowledge in comments only. For example, they use *Pneumocystis carinii* instead of *P. jiroveci*, *Giardia duodenalis* instead of *G. intestinalis*, and *Capillaria hepatica* instead of *Calodium hepaticum*. On the basis of molecular analysis of several genes, it is now clear that microsporidia and *Pneumocystis* are related to Fungi and *Cryptosporidium* is more related to gregarines than to coccidian parasites. However, nobody questioned the assignment of cryptosporidia to the phylum Apicomplexa, and thus the question mark is unnecessary in this case. *Naegleria* should be classified as Heterolobosea instead of "Amoeba" and the assemblage "Flagellates" covers several groups of unrelated organisms.

These minor objections do not affect the entirely positive impression that the *Atlas* makes. It should be recommended not only to parasitologists working in diagnostics, but also to teachers, students, and everyone interested in medical parasitology.

In short: Ash & Orihel's *Atlas of Human Parasitology*, 5th edition is an essential microscope-oriented guide to parasite diagnosis for every parasitological laboratory.

Oleg Ditrich