Book Review:

Dykstra, Michael J., 1992, *Biological Electron Microscopy: Theory, Techniques, and Troubleshooting.* 360 + XVII pages, New York: Plenum Press. $49.50.

Dykstra, Michael J., 1993, *A manual of Applied Techniques for Biological Electron Microscopy.* 257 + XII pages. New York: Plenum Press. $35.00.

The author of these two excellent books has for several years directed the central EM facility in the College of Veterinary Medicine at North Carolina State University. The hardcover text, which appeared in 1992, is carefully and handsomely produced, well written, and nicely illustrated. In it, Dykstra covers fixation, embedding and sectioning for transmission EM. There are separate chapters on support films and vacuum systems, as well as a detailed 40 page explanation of how a TEM works. It also covers staining, photography, replicas, negative staining, and shadowing. A separate chapter on scanning EM covers preparation and operation of that instrument. Additional chapters cover cryotechniques, high voltage EM, microanalysis, cytochemistry, immunocytochemistry, autoradiography, computer-assisted imaging and scanning tunneling microscopy. There are appendices on laboratory safety, literature sources and equipment and supplies.

In the 1992 volume, the author reviews the available methods of specimen preparation and illustrates the different results as obtained with different fixatives and buffers. Only a minimum of detailed formulas are included, with relevant references at the end of each chapter. In the companion 1993 lab manual, the author dwells in detail on the techniques introduced in the 1992 text. The manual is well illustrated, both with photographs and line drawings by the author. It is spiral bound for convenient use on the lab bench and has covers of moisture resistant heavy paper. Here the references are interspersed with the chapter sections, arranged just after the techniques which they describe, for ease of location. Illustrations of the results of applying the various techniques are included and are quite helpful. There is an extremely useful chapter on film and photographic methods which discusses advantages and disadvantages of different film types, including Kodak, Ilford, and Polaroid.

It is clear from these two books that Dr. Dykstra has retained every detail of every technique he has ever used or seen. Both contain a wealth of useful hints and suggestions. The lab manual would be useful with other currently available EM texts as well, such as Bozzola and Russell's *Electron Microscopy* from Jones and Bartlett Publishing and *Scanning and Transmission Electron Microscopy: An Introduction* by Flegler, Heckman, and Klomparens, published by W.H. Freeman. Dykstra's books together comprise an excellent set of reference works for the working EM laboratory. They would be appropriate as texts for an introductory EM techniques course. My copies have been so popular that I have had difficultly keeping them in my possession long enough to complete this review.

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An exiled Russian scientist was strolling across the Siberian tundra when he found a tiny bird nearly frozen to death. He picked up the bird and carried it until he found a large pile of still-smoking yak dung. He stuck the bird into the pile to warm it.

Well, the heat revived the bird and it began to sing. A wolf, hearing the sound, came along and ate the bird.

This tiny story has three separate morals that scientists in particular should bear in mind:

1) The one who puts you in yak dung is not necessarily your enemy.
2) The one who gets you out again is not necessarily your friend.
3) And, if you find yourself in yak dung up to your neck - keep your mouth shut!