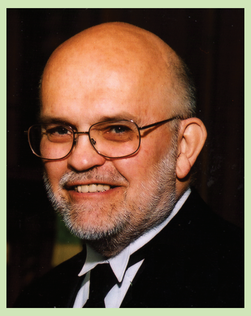


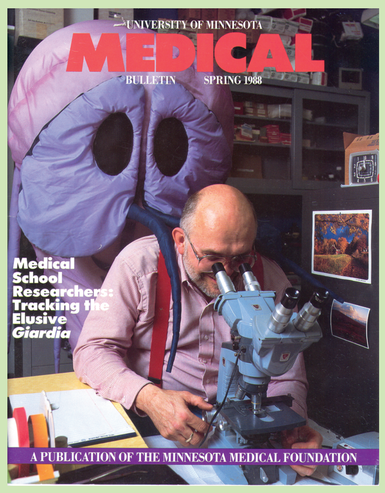
Stanley L. Erlandsen
1941-2005

Stan was known to most microscopists as an expert in high-resolution biological SEM and cryo-techniques, and as MSA President in 2002. However he was internationally recognized for research on the intestinal parasite *Giardia*, and for his expertise in immuno-EM techniques. He was an enthusiastic promoter of the value of microscopy, and was always eager to establish collaborations where he knew that imaging would bring important new insights. As a Professor in the Medical School at the University of Minnesota, he loved teaching medical students, who consistently rated him #1. His dedication to teaching is also reflected in his textbook on histology (Erlandsen and Magney 1992). In 1991, Stan married Carol Wells, Professor of Laboratory Medicine & Pathology at UMN, who often collaborated with him, and who is carrying on some of his work.

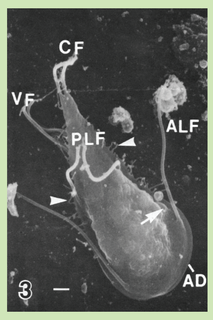
Stan's involvement with MSA included work with the Local Arrangements Committee for the Minneapolis meeting, Chairmanship of the Program Sponsoring Committee in 1998 and 1999, Director (Council) 1996-1998, and President in 2002. As MSA President, Stan facilitated purchase of *Microscopy Today*, a magazine which serves as the main means of printed communication with our members, and which will generate revenue for MSA for years to come.

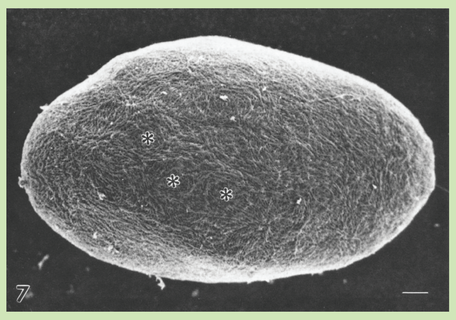
He had an even longer relationship with the Histochemical Society, organizing many workshops and symposia, serving as Councilor, and then President in 1987. Parallel to his later work with MSA, he guided the Society to self-publishing of the Journal of Histochemistry and Cytochemistry, where he for many years published numerous papers, and served on the Editorial Board, ultimately as Associate Editor.

Stan grew up in Chicago, IL earned his BS at Dana College (on a football scholarship!), and his Ph.D. (1967) at the University of Minnesota. He was a post-doc at the University of Washington in Seattle, where did his first EM work, and where he first stumbled on *Giardia*, which he would study for the rest of his career. He started his work on EM immunocytochemistry while on the faculty of at Iowa State (1969-1974), a technique on which he published many papers, especially in the Journal of Histochemistry and Cytochemistry. In 1975 he joined the University of Minnesota, where he remained for the rest of his career.

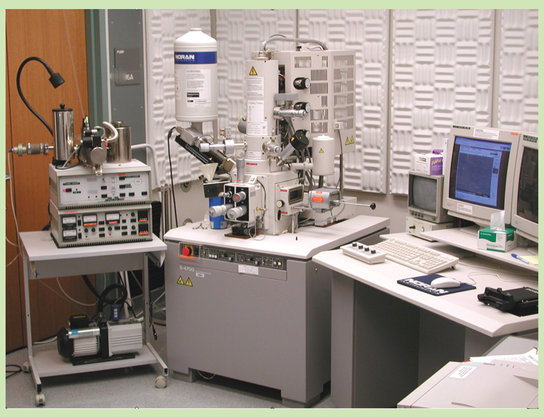


In early 1985 Stan published a book recognizing the tricentennial of the discovery of Giardia by van Leeuwenhoek in 1681 (Erlandsen and Meyer, 1985), and his early work with SEM resulted in identification of a new species, *Giardia psittaci* (Erlandsen and Bemrick, 1987; left-hand figure). Collaboration with Jim Pawley at Madison led Stan to LVSEM, with which he found that cyst wall is composed of a complex arrangement of filaments (Erlandsen et al., 1989; right-hand figure).

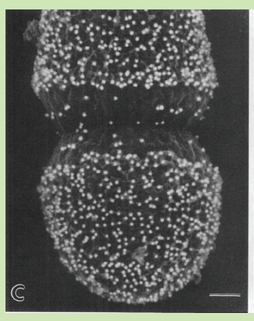


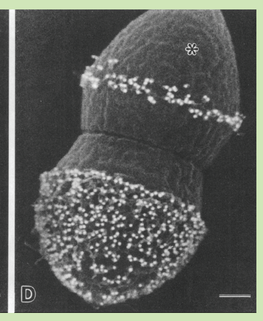


Stan then set up his own SEM lab (right-hand figure), and started the work for which he is best known at M&M meetings. As director of the departmental EM facility since 1989, he acquired one of the first in-lens Hitachi S-900 SEMs, having a field-emission gun, and providing state-of-the art resolution. To this, he added a new highly-efficient YAG BSE detector by Rudolph Autrata of the Czech Academy of Sciences in Brno (shown with Stan in left-hand figure), and showed that nanometer-size immuno-gold could be detected even in the presence of a thin platinum coating (Erlandsen et al. 1990). Subsequently, he added cryo-preparation and cryo-EM capability, allowing high-resolution immumolabelling of the cell surface in the frozen-hydrated state. Stan's SEM facility was second to none, and has attracted over one hundred projects.

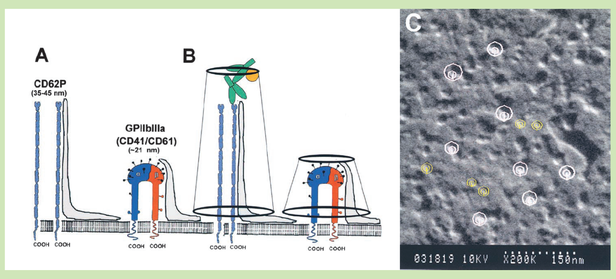


Stan combined high-resolution cryo-SEM with his long experience in immunolabeling to solve many problems. Among these was a study of the distribution of specific proteins on cell surface of the bacterium *Enterococcus faecalis* (Olmsted et al., 1993; left-hand figure showing different labelling patterns for proteins Sec 10 and Asc 10), one of the first of many papers he published in collaboration with Carol Wells. Other projects included such specimens as human neutrophils (Erlandsen et al., 1993; Gray et al., 1997) and the dentin-enamel junction of teeth (Lin et al., 1993). He refined his earlier work, and established the mechanism of Giardia cyst formation (Erlandsen et al. 1996; right-hand figure showing label for nascent filament proteins).

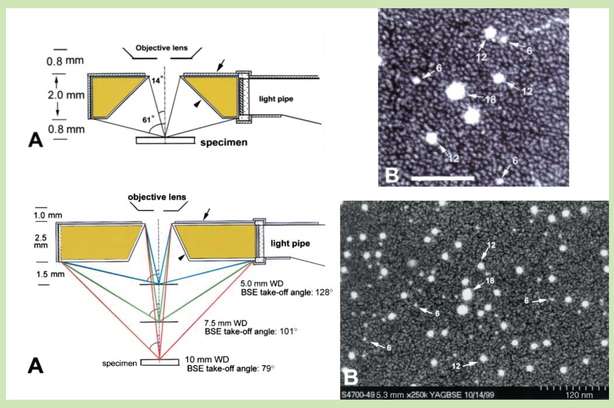




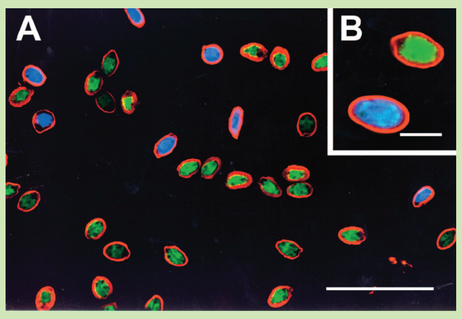
The high-resolution cryo-SEM techniques perfected by Stan were promoted by his organization of a symposium on FESEM at the 1997 Scanning meeting (Erlandsen et al., 1997), and several applications of cell-surface labeling followed. Particularly interesting was a study of cell adhesion molecules on platelets, where he was able to identify specific proteins and measure their heights, which agreed with biochemical estimates (Erlandsen et al., 2001).



As new high-resolution below-the-lens FESEMs became available, Stan described optimal detectors for this work, using both types of FESEM (Erlandsen et al. 2003).



In some of his latest work, Stan took advantage of the latest developments in LM fluorescent labeling by developing specific fluorescent oligonucleotide probes three different species of *Giardia*, thus allowing rapid identification of *Giardia* (*G. lambila* – green; *G. muris* -- blue) of either human or avian origin in dirking water (Erlandsen et al., 2005).



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