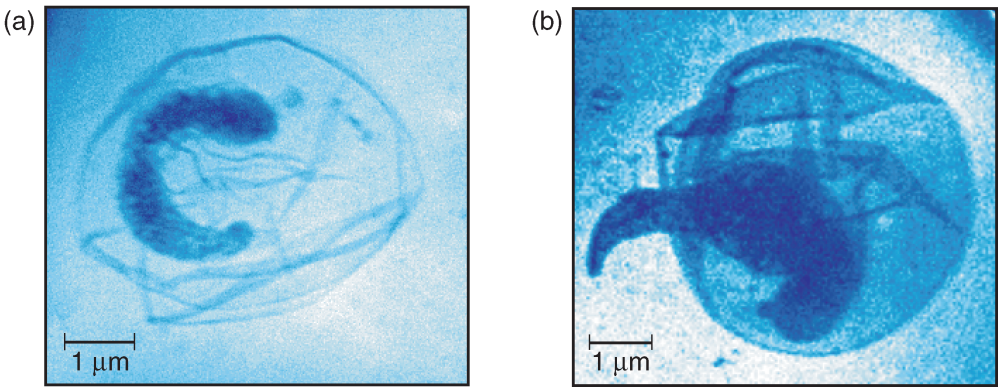
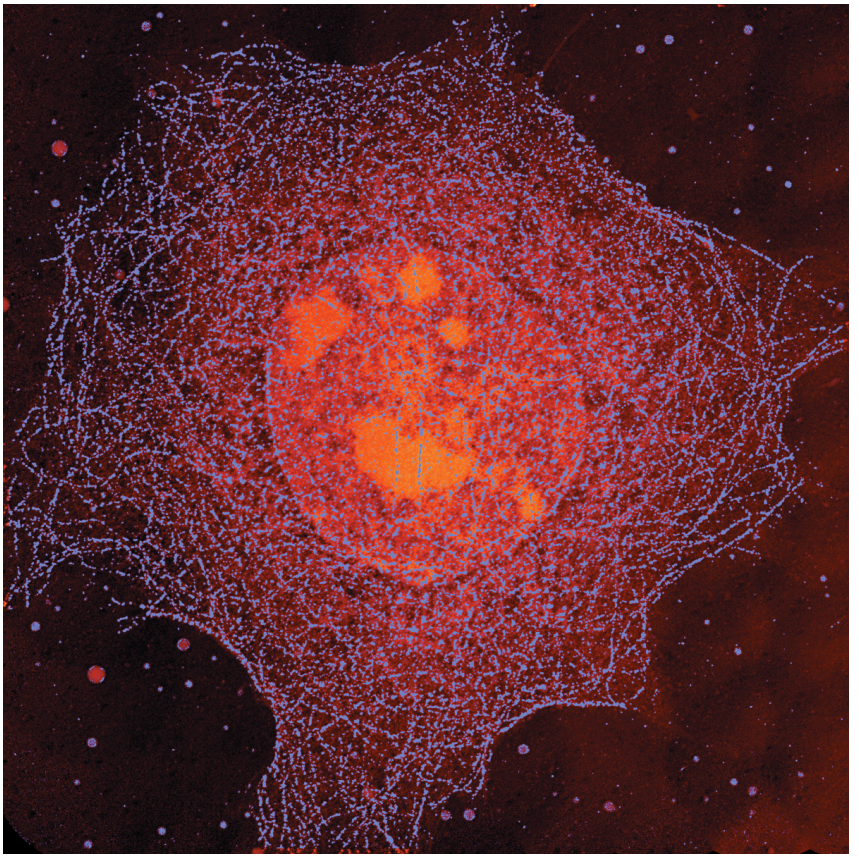
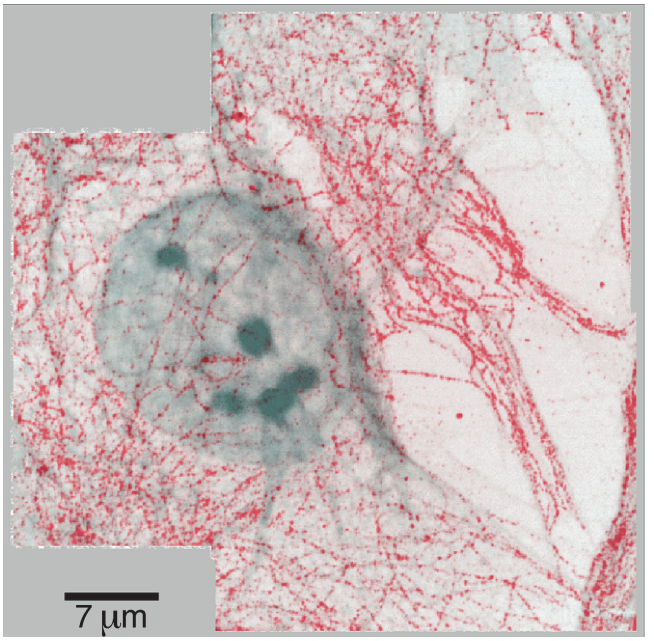


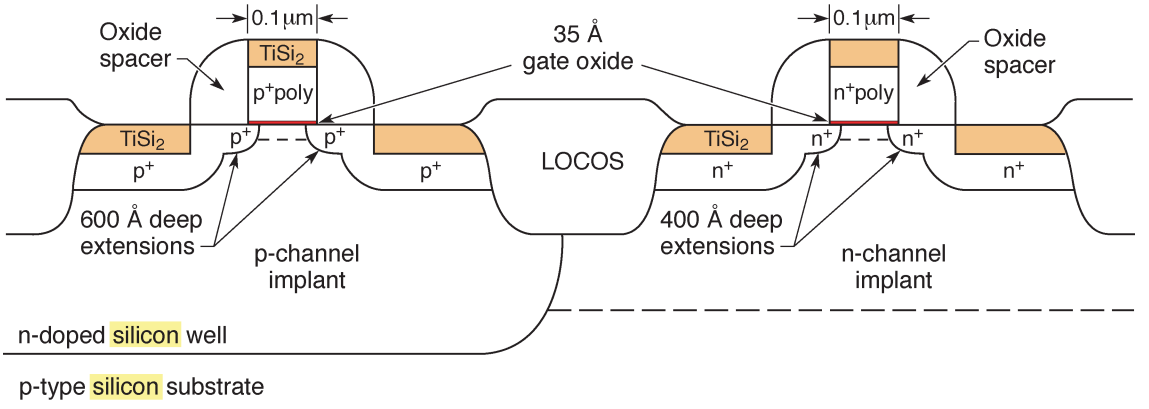
COLORPLATE XV. Soft x-ray images of *Cryptosporidium*, a common parasite found in lakes and rivers, and occasionally in municipal water supplies. Outbreaks of the disease caused by this sporozoite have caused loss of life in the U.S. Image (a) shows the last of four sporozoites still in its protective oocyst. Image (b) shows a sporozoite emerging from the oocyst. Images are at 2.4 nm wavelength. (Courtesy of C. Peterson, UCSF, and W. Meyer-Ilse, LBNL.) See text, p. 373.



COLORPLATE XVI. A soft x-ray micrograph at 520 eV (2.4 nm wavelength) of a whole hydrated mouse epithelial cell (EPH4). The image is 32 μm by 32 μm. The microtubule network, made evident by high absorption due to silver enhanced gold labels, is color coded blue in the image. The cell nucleus and nucleoli, characterized by moderately absorbing proteins, are coded orange. The less absorbing more aqueous regions of the cell are color coded black. The silver enhanced gold is part of a molecular double label, discussed in the text, that permits cross correlation with visible light fluorescence in a confocal microscope. (Courtesy of C. Larabell, W. Meyer-Ilse, and colleagues, Lawrence Berkeley National Laboratory.) See text, p. 374.



COLORPLATE XVII. Dark field soft x-ray scanning microscopy is demonstrated in this image of a human fibroblast, a collagen rich cell that plays an important role in the formation of extracellular matricies of connective tissue. The image obtained at 2.50 nm wavelength with the Stony Brook scanning microscope at Brookhaven National Laboratory, consists of an overlay of the two signals: a transmission signal in gray indicative largely of absorption of x-rays by carbon, and a signal in red due to scattering of x-rays by silver enhanced gold labels attached to microtubules (cytoskeleton fibers of the cell not found in the nucleus). (Courtesy of H. Chapman; LLNL, J Fu and C. Jacobsen, SUNY Stony Brook; and K. Hedberg, University of Oregon.) See text, p. 379.



COLORPLATE XVIII. Cross-sectional view of a 0.1 μm complementary metal oxide semiconductor (CMOS) field effect transistor (FET) with dual n^+–p^+ doped polysilicon gates. The thin gate oxide is 0.1 μm wide and 35 Å deep. The titanium silicide provides a low resistivity interconnect. The oxide spacers and LOCOS are insulator regions. Note the presence of silicon in several chemical forms (crystalline, Si substrate with various dopings, polycrystalline Si, SiO_2, and $TiSi_2$). Concentrations of dopants and impurities in the vicinity of the gate region are critical to the performance of such devices and thus may require diagnostic methods, including soft x-ray microscopy, that are element sensitive with high spatial resolution and reasonable penetration depth. (Following Y. Taur et al., IBM.) See text, p. 380.