THE FIBER OPTICAL communication revolution has been fueled by well publicized and relentless improvements of transmission fiber. Since the demonstration of the first low-loss optical fiber in 1972, there has been a continual stream of technology improvements designed to reduce impairments due to propagation loss and pulse dispersion. This steam of fiber technology has led the industry from multimode fiber operated at 800 nm, to standard single-mode fiber used at 1310 nm, then on to transmission fibers that now have attributes tuned for particular applications such as terrestrial or submarine transmission. There is every reason to believe that advances in technology will continue at the accelerating pace we have seen in the past decade, adding to the family of available transmission fibers.

A less well-known, but equally important, technology stream has led to an even greater variety of specialty fibers for the optical components that play an equal role in a transmission system. Unique materials and fiber structures are used for coupling to semiconductor devices, for use in fiber-based couplers and for fiber-based dispersion compensators. New materials and processing techniques allow refractive gratings to be efficiently written into the fibers themselves, thereby creating whole new classes of optical devices. By including rare earth elements in the cores of fibers, fiber technologists have enabled practical optical amplifiers and fiber lasers that have made wavelength-division-multiplexed transmission the long-haul transmission standard, multiplying the capacity of transmission fibers by 100 fold.

The special issue is dedicated to the increasing family of specialty fibers, and includes exciting papers on fibers for gratings and a unique amplification fiber. Fibers for specialized transmission spanning a broad range of applications are also described in three important articles. As is appreciated by all optical scientists, progress can be made only as quickly as one can improve measurement capabilities, so the issue includes two excellent papers dealing with the important measurement of chromatic dispersion. We hope that you enjoy the papers of this issue as much as we the editors have enjoyed reading and reviewing them.

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In 1989, he became a research fellow at the Optoelectronics Research Center (PRC) at Southampton University, where he is currently Deputy Director. He is responsible for fiber-related activities. His current research includes holey fibers, high-power fiber lasers, short pulse lasers, optical fiber communications, all-optical processing and switching, nonlinear optics, and the physics and application of microstructured nonlinear/linear media.

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Dr. Krug is a member of the Optical Society of America (OSA). From 1996 to 1999, he served as the Fiber Optics Topical Editor for Applied Optics, and was an International Liaison on the Technical Program Committee for OFC 1999 and OFC 2000. He is currently a member of the Technical Program Committee for OFC 2002.

Kenneth L. Walker received the B.S. degree in chemical engineering and the M.S. and Ph.D. degrees from Stanford University, Stanford, CA.

From 1989 to 1992, he initiated and led the early research and development of specialty fiber devices, such as optical fiber amplifiers and fiber gratings. In 1992, he established an entrepreneurial business organization within Bell Labs for the manufacturing of specialty fiber. Until 1996, he was the head of the business unit, when it then split off as a separate department in the research organization. In 1999, he returned to specialty fiber devices as a business leader, and was named chief technical officer for OFS. He holds over 45 patents covering optical fiber fabrication, fiber designs, fiber gratings, Raman amplification, and optical systems.

Dr. Walker received the 1999 New Jersey Inventor of the Year award, the Optical Society of America Engineering Excellence Award, and the ASM Engineering Materials Achievement Award. He served as the general chair of the Optical Fiber Communication Conference in 2001.