**Jack Jewell**

**Bio**

Jack Jewell is an independent consultant. Upon receiving his Ph.D. (U. Arizona, Optical Sciences Center) developing optical logic devices under Hyatt Gibbs in 1984, he worked AT&T Bell Laboratories until 1991, leaving as a Distinguished Member of Technical Staff.

In 1989, Jewell led a Bell Labs / Bellcore team that demonstrated over 1 million vertical-cavity surface-emitting lasers (VCSELs) on a ~5x8mm chip. The extreme number, size and density attracted attention. The underlying innovations sparked worldwide industrial development of VCSELs, and are present in all commercial VCSELs (thin/practical active regions, >99% semiconductor mirror reflectivities, graded interfaces enabling current flow, and the enabled all-semiconductor design). VCSELs are used in fiber communications, laser mice, miniature atomic clocks, lidar sensors, medical diagnostics, and structured-light generation. Volume for VCSEL chips is ~1 billion/year, and many of those chips contain 100’s of VCSELs. Some supercomputers use >1million VCSEL-based fiber interconnections.

Jewell left Bell Labs to co-found Photonics Research Inc. in 1991, committed to commercializing VCSELs (later Vixel Corp., and spinoff Cielo). In 1995 he founded Picolight Inc. Though small, both companies were leaders in VCSEL innovation (e.g. high-efficiency electrical injection, oxide VCSEL embodiments, microoptics) and standards development (e.g. Ethernet which opened the first large markets for VCSEL-based fiber-optic links). Vixel went public in 1999, and Picolight was acquired by JDSU in 2007. Jewell has been an independent consultant since 2008, including contributions to Ethernet standards in the 100-400 Gigabit/sec, outlining a path for VCSEL-based Ethernet links up to 6.4 Terabits/sec.

Jewell has 72 US patents and over 150 publications. Besides the Distinguished Member of Technical Staff from Bell Labs, he received the Distinguished Inventor Award in 1991, was an IEEE LEOS Distinguished Lecturer (1991-92), was awarded the Best Technical Advance in Optical Communications in 2001, and received the Aron Kressel Award from IEEE Photonics Society in 2009. He now spends much time with ultrarunning and photography.