



TRUDY E. BELL, WRITER AND EDITOR

TRUDY E. BELL

Professional Experience

- Present ***Principal and Founder, Trudy E. Bell & Associates***
Freelance science/technology journalist and travel writer. With Dave Dooling, is currently researching and writing a contract historical book for the IEEE Microwave Theory and Techniques Society having the working title of *Radio Dreams: The Half-Century Gold Rush for the Electromagnetic Spectrum*. Also writes journalistic features for science, travel, regional, and parenting magazines on astronomy, atmospheric optics, bicycling, and adventure travel, plus does editorial consulting for organizations.
- 1997 to 2000 ***Communications Specialist, Operational Effectiveness Practice, McKinsey & Company***
Co-authored and ghostwrote published articles for McKinsey partners on topics related to product development, manufacturing, purchasing and supply management, supply chain management, service operations, and business-to-business e-commerce. Also wrote and co-developed a 40-page booklet describing McKinsey's Operational Effectiveness Practice.
- 1983 to 1997 ***Senior Editor, IEEE Spectrum magazine***
Commissioned and edited articles from expert authors (engineers and scientists), and researched and wrote articles under own byline. Also coordinated the annual January technology forecast issue for three years (1993-95) and was the Issue Editor—commissioning freelance writers and expert viewpoints, overseeing illustrations and production—for special issues on telecommunications (1985) and on risk management (1989). The 1985 issue received the 1986 National Magazine Award (the magazine equivalent of a Pulitzer Prize) for special issue. Principal beat was communications technologies (optoelectronics, wireless and cellular, television, satellite) and regulation (AT&T divestiture, Telecommunications Act of 1996, etc.). Secondary beat was civilian space activities (e.g. the space shuttle Challenger disaster and its societal ramifications). Also researched and wrote four biennial special reports on engineering employment, three major multipart special reports on science and technology museums, a special report on optical computing, and several profiles of scientific or engineering institutions. Researched and wrote the bimonthly “Innovations” column for 13 years, and created and edited the quarterly “Law” column for three years. Supervised the summer intern program.
- 1982 to 1983 ***Senior Editor, Personal Computing magazine***
Researched and wrote articles on uses of personal computers; created and ghostwrote the bimonthly “Computers and the Law” column.
- 1980 to 1982 ***Technical Editor, Teleprompter Corporation***
Wrote the engineering sections of cable television franchise proposals.

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- 1979 to 1980 **Full-time freelance science writer**
Wrote feature articles on science and technology for numerous popular magazines and book compilations, including AAAS's *Science 80*, *Analog*, Grolier's *Popular Science Annual*, Hearst's *Science Digest*, *Omni*, *Travel & Leisure*, the New York Academy of Science's *The Sciences*, *Space World*, and many others. Also began writing on contract for government clients, notably the National Aeronautics and Space Administration (NASA) and the U.S. Congress's Office of Technology Assessment (OTA).
- 1978 to 1979 **Founding Senior Editor, Omni magazine**
Commissioned and edited articles by outside authors (scientists and freelance writers) and researched and wrote articles under her own byline on topics related to science, technology, society, and the future. Created the monthly "Explorations" column on science travel, and commissioned and edited its guest authors.
- 1971 to 1978 **Member of the Board of Editors, Scientific American magazine**
Edited articles written by scientists on topics in astronomy, physics, history of science, and other physical sciences or technology (including optics, meteorology, and engineering). Also wrote short monthly pieces for the "Science and the Citizen" department and researched historical material for the monthly "50 and 100 Years Ago" department. As a special project, researched and wrote the entries for the 1979 Scientific American calendar.
- 1971 **Mission Controller for Pioneer spacecraft, NASA – Ames Research Center**
Weekend graveyard shift during college senior year, sending manual commands to Pioneers 6, 7, 8, 9 to turn on different experiments and collect data on teletypes; during Apollo moon missions, relayed information about space weather and solar activity to NORAD and ESSA.
- 1970 **Public Tour Guide, Lick Observatory – Mount Hamilton**
Summer position between college junior and senior years; conducted the public through the historical facility every afternoon with historical narration; also collected daily temperature and meteorological data, monitored the seismographs, and volunteered time as an observing assistant to astronomers using the 120-inch reflector and 36-inch Crossley reflector.
- 1968 to 1970 **Laboratory Technician, Lick Observatory – University of California, Santa Cruz**
Part-time position during college sophomore and junior years, and fulltime in the summers between; supervised the semiautomatic measuring engines for measuring star positions on photographic plates for determining stellar parallaxes and proper motions. Also was an assistant in the Lick Observatory photography laboratories, summer 1967, drying photographic prints and assembling slides of astronomical subjects offered for public sale.

Formal Teaching Experience

(does not include one-week technical-writing seminars for corporations, nor one-day or one-evening guest lectures or panel discussions on eclipse cruises or at engineering, space, or journalism conferences)

- 1980 to 1991 **Adjunct Instructor, "Reporting on Science, Technology, and Medicine," Polytechnic Institute of New York, Brooklyn**
One-semester hands-on practical graduate course taught as part of the Graduate Program in Specialized Journalism.
- 1989 **Guest Instructor, coaching on technical writing, Contel Technology Center**
One-week intensive course for software engineers on effective presentation of their technical material to their business managers. Mornings were devoted to principles of effective organization, writing, and editing, with an emphasis on easily-remembered techniques. Afternoons were spent consulting and coaching individuals on their specific writing tasks.

CV of Trudy E. Bell, page 3

- 1982 **Regents' Lecturer, Science Communications, University of California, Santa Cruz**
Two-week Lectureship as part of John Wilkes' graduate and undergraduate program in Science Communications. Spoke to undergraduate and graduate classes, gave several public lectures, and ran a film/discussion mini-series on "Journalism in the Movies"
- 1979 to 1980 **Adjunct Instructor, History of Science, Fordham University**
One-semester undergraduate survey course.
- 1978 to 1980 **Member of the Writing Workshops Faculty, "Scientific and Technical Writing," New School for Social Research**
One-semester hands-on practical undergraduate course.
- 1974 to 1979 **Guest Lecturer, "History of Astronomy," American Museum – Hayden Planetarium**
One-quarter continuing education course.

Education

New York University, New York City

Master of Arts, American intellectual history, history of science May, 1978

University of California, Santa Cruz

Bachelor of Arts, history major, physics minor (honors on senior thesis on history of lunar occultations observations) June, 1971

Top Journalism Prizes (does not list half a dozen lower prizes also received, including in 2000))

- Outstanding Academic Book designation awarded by *Choice* magazine (journal of academic librarians) to *Engineering Tomorrow* 2001
- IEEE John D. Ryder Communicator of the Year ("U.S. Science and Technology Museums") 1996
- First Prize – Survey/Roundup, New York Business Press Editors ("Jobs at Risk") 1994
- First Prize – Profile, New York Business Press Editors ("Doc' Edgerton: an EE for all Seasons") 1990
- Aviation/Space Writers Assn. Journalism Award of Excellence ("The Space Shuttle: A Case of Subjective Engineering") 1990
- IEEE John D. Ryder Communicator of the Year (The Fatal Flaw in Flight 51-L") 1988
- First Award, Society of National Association Publications ("The Fatal Flaw in Flight 51-L") 1988
- Aviation/Space Writers Assn. Journalism Award of Excellence ("The Fatal Flaw in Flight 51-L") 1988
- First Prize – Survey/Roundup, New York Business Press Editors ("Optical Computing: A Field in Flux") 1987
- National Magazine Award for Special Issue (for "Hello Again?" & "The Decision to Divest") 1986
- First Prize, Griffith Observatory–Hughes Aircraft Essay Contest "In the Shadow of Giants") 1986
- First Prize, New York Business Press Editors (for "The New Television") 1985
- Aviation/Space Writers Assn. Journalism Award of Excellence ("Space: Is It Worth It?") 1981
- Aviation/Space Writers Assn. Journalism Award of Excellence ("America's Other Space Program") 1980
- First Prize, Griffith Observatory–Hughes Aircraft Essay Contest ("The Grand Analogy") 1978
- First Prize, Griffith Observatory–Hughes Aircraft Essay Contest ("From the Jaws of Victory") 1976

Invited Lectures

- 2000 Invited keynote banquet speaker giving talk "Engineering: Creativity, Fun, and Empowerment," Binney Society luncheon, Binney & Smith, Easton, Penna.

CV of Trudy E. Bell, page 4

- 2000 Invited keynote (banquet) panelist, speaking on the history of American space interest groups, International Space Development Conference, Tucson, Ariz. (with Sandy L. Adamson, Jim Bennett, Keith Henson, Peter Vajk, Bill Weigle)
- 1996 Invited panelist in session “How to Increase the Half-Life of Your Career Continuously,” 1996 IEEE Professional Development Conference, IEEE Fox Valley (Chicago) Section, Lisle, Ill.
- 1995 Invited panelist, plenary session on “Power Engineering Careers—The Impact of Corporate Restructuring,” 1995 Winter Meeting of the IEEE Power Engineering Society, New York City
- 1994 Invited speaker “Panasonic Bicycles: A Case Study in Flexible Manufacturing,” 1994 SAE Aerospace Atlantic Conference & Exposition, Dayton, Ohio
- 1993 Invited lecturer “Writing for Semi-Technical and Popular Magazines,” JPL Writers Club, Jet Propulsion Laboratory, Pasadena, Calif.
- 1987 Invited lecturer “Writing About Controversial Issues in Science and Technology,” at Technological Literacy: Second National Science, Technology, Society Conference, Washington, D.C.
- 1986 Invited lecturer on “Schmaltz, Sex, and Science: The Inside Story of Getting (or Not Getting” Astronomy Articles into Print,” East Bay Astronomical Society, Oakland, Calif.
- 1985 Speaker on “The Evolution of American Space Interest Groups 1980-85,” and “The Fallacy of Viewing Space as a Frontier,” Seventh Princeton/American Institute of Aeronautics and Astronautics/Space Studies Institute Conference, Princeton University, Princeton, N.J.
- 1984 Invited lecturer on “Pro-Space Citizens’ Groups” in symposium U.S. Space Policy: Foreign and Domestic Influences, George Washington University, Washington, D.C.
- 1983 Invited lecturer on “Editorial Strategy” at conference Technicom ’83, sponsored by Society for Technical Communication, Northern Ohio Chapter, Cuyahoga Community College, Parma, Ohio
- 1982 Regents Lecturer in Science Communications (two-week lectureship), University of California, Santa Cruz, Calif., included three public lectures “The Case for Space: Advocacy Journalism vs. Reportage,” “Editing *Scientific American*,” and “Cable Television: Some Future Trends” plus talks at undergraduate and graduate classes on science journalism
- 1981 Guest lecturer on “Sensitive Topics; the Writer’s Credibility and Responsibility” in graduate proseminar on television science journalism, MIT, Cambridge, Mas
- 1981 Invited lecturer “A Journalist’s Look at Space,” Antioch College, Yellow Spring, Ohio
- 1981 Invited lecturer “Editorial Strategy,” at seminar “Communicating Technical Information,” MIT, Cambridge, Mass.
- 1981 Panelist on space industrialization, New York County Lawyers Association, New York City (other panelists were Randall Kraft, Edward Finch, Richard Givens, Raymond J. DeRise, Jr.)
- 1981 Panelist speaking on American space interest groups (with Mark R. Chartrand III, James French, James Ransom, James Muncy, David Webb), Museum of Science and Industry, Chicago
- 1980 Invited lecturer on “Dead Certain: The Risk of the Path Not Taken” (history of risk assessment) at the Institute on Man and Science, Rensselaerville, N.Y. (faculty included Isaac Asimov, Isidore Adler, and Mark R. Chartrand III)
- 1980 Invited lecturer on “Journalism in the Birth of Space Commerce,” Greater New York Section of the American Institute of Aeronautics and Astronautics
- 1979 Panelist on “Communications” in forum “Science and Technology in the Business World: Opportunities for Women,” Radcliffe College, Mass.
- 1979 Invited speaker on “The Grand Analogy: History of the Idea of Extraterrestrial Life,” at the Institute on Man and Science, Rensselaerville, N.Y., (faculty included Isaac Asimov, Isidore Adler, and Mark R. Chartrand III)
- 1977 Invited lecturer and member of the Science at Sea staff aboard Sitmar’s T.S.S. *Fairwind* total solar eclipse cruise to the South Pacific, speaking on “Yankee Stargazers” and “Chasing the Moon’s Shadow” (faculty included Margaret Mead)

Miscellaneous

Avid book collector on 19th-century American astronomy (750 volumes) and on the history of exploration and of scientific expeditions (1000 volumes – mostly early 20th century and late 19th century), with a special interest in women

Observed five total eclipses of the sun (Montana, 1979; on lecturing faculty on board T.S.S. *Fairwind* in the south Pacific, 1977; Akjoujt, Mauritania, in the Sahara Desert, 1973; Tuktoyaktuk, N.W.T., in the Arctic, 1972; Oaxaca, Mexico, 1970); have led more than 20 amateur astronomical expeditions to observe grazing lunar occultations

Tandem-bicycled 650 miles across four states with 9-year-old daughter (2000); author of six books on bicycling (1994 to 1999); adopted daughter from El Salvador as a single mom (1991); became certified bicycle mechanic (East Coast Bicycle Academy, Harrisonburg, Va., 1989); trekked to Everest base camp (1987); bicycled the length of Baja California (1986); co-won 240-mile hitchhiking contest (1970)



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SCIENCE/TECHNOLOGY PUBLICATIONS SINCE 1970

(does not include another five books and 60 articles on bicycling and non-science travel)

Scientific / Technical Books

- Lead writer for *Engineering Tomorrow: Today's Technology Experts Envision the Next Century* 2000
(with Dave Dooling; edited by Janie Fouke; IEEE Press [the IEEE's millennium book])
[was named an Outstanding Academic Book by *Choice* magazine, journal of academic librarians, 2001]
- Manuscript editor for *Air Warfare in the Missile Age* (by Lon O. Nordeen, Smithsonian Institution Press) 1985
- Consulting Editor, *A Reader/Study Guide for Carl Sagan's Cosmos* telecourse (prepared by Ann Elwood and Linda Wood, Random House) 1980
- Co-Editor, *Close Up: New Worlds* (with Ben Bova, St. Martin's Press) 1977

Government and Corporate Writing

Wrote text for 40-page booklet "Intersections: Operational Effectiveness," McKinsey & Company, North American Operational Effectiveness Practice, September 1999. [This booklet was also printed as a family of six separate brochures.]

Contributed to *Access to Space: The Future of U.S. Space Transportation Systems*; U.S. Congress's Office of Technology Assessment, OTA-ISC-415 (Washington D.C., Government Printing Office), April 1990.

Drafted base text for internal "Strategic Technology Forecast 1990-2000 [Company Private]" for Contel Technology Center, CTC-TR-90-005-P, summarizing the status and outlook of the communications technology projects in the Contel Technology Center, Chantilly, Virginia, March 5, 1990. (Contel was subsequently acquired by GTE.)

Drafted "Operations Procedures" (Chapter 3) plus the base text (summarizing workshop results) for *Reducing Launch Operations Costs: New Technologies and Practices*, Office of Technology Assessment, U.S. Congress, Technical Memorandum, September 1988.

Wrote "Our Dependence on Space," in *Civilian Space Policy and Applications*; U.S. Congress's Office of Technology Assessment, OTA-STI-177 (Washington D.C., Government Printing Office), June 1982.

Wrote *Technologies for the Handicapped and Aged*, a report (40-page highly-illustrated booklet/brochure) for special hearings of the Select Committee on Aging and the Committee on Science and Technology, U.S. House of Representatives; National Aeronautics Administration, Office of Space and Terrestrial Applications, Technology Transfer Division, July 1979, 42 pages.

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Scientific / Technical, Popular Science, and Business Articles

[Note: Articles are given in reverse chronological order from the present back to 1970. This list does *not* include numerous monthly "Science and the Citizen" articles written for *Scientific American* 1971-78, nor the bimonthly "Innovations" columns written for *IEEE Spectrum* 1983-97, nor does it list the 200+ expert-author articles edited for those and other magazines over the same time. It also does *not* include numerous travel articles or books unrelated to science and technology. Top journalism awards are shown in boldface; lesser ones are shown in regular type]

2000.

"Proven skills: the new yardstick for schools," [about ABET's new EC 2000 criteria for engineering programs] *IEEE Spectrum* 37 (9): 63-67 (September).

Engineering Tomorrow: Today's Technology Experts Envision the Next Century; with Dave Dooling; edited by Janie Fouke; IEEE Press (January). [The IEEE's millennium book.] **(Book was named Outstanding Academic Book by Choice magazine, journal of academic librarians, January 2001.)**

1999.

"Ingenuity in the Moon's Shadow," *The Sciences*, 39 (6): 14-17, November/December.

"Electronic Purchasing and Supply Management: Shifting power from sellers to buyers," (with Glenn Ramsdell, Timothy L. Chapman, Shirish Pareek, and Kristina Roegner), *McKinsey Letter*, [fall].

"Leonid Showers," *Muse*, 3 (9): 32-34, November.

"Threshold of the New Millennium," (with Dave Dooling and Janie Fouke), *IEEE Spectrum*, 36 (10): 59-64, October. [condensation of first chapter of *Engineering Tomorrow*]

"Creating a capital productivity culture," (with Steven B. Schwarzwaelder, Jack Barker, and Kalervo Turtola), *McKinsey Letter*, [spring].

"I Was a Teenaged Eclipse-Chaser," *Muse*, 3 (1): 29-35, January.

1998.

"Why Should a Venture Capitalist Give You a Dime?" *Today's Engineer*, 1 (4): 8-13, Fall.

"working@home.com: Clearing the Psychological Underbrush," *Today's Engineer*, 1 (3): 10-15, Summer.

"Lean Production: A System, Not a Menu," (with Steven B. Schwarzwaelder and Gary S. Smith), *McKinsey Letter*, [summer].

book review of *Engineering Ethics: Balancing Cost, Schedule and Risk—Lessons Learned from the Space Shuttle*, by Rosa Lynn B. Pinkus et al., *IEEE Spectrum*, 35 (6), p. [WHAT?], June.

"Purchasing's Big Moment: After a Merger," (with Timothy L. Chapman, Jack Dempsey, Glenn Ramsdell), *McKinsey Quarterly*, Issue 1, 1998): 56-65.

1997.

"Outward Bound for Operations," *Month by Month* (McKinsey & Co.), pp. 2-11, September/October.

"Communications," [with Michael J. Riezenman], *IEEE Spectrum*, 34 (1): 27-37, January.

1996.

"The Beckman Institute for Advanced Science and Technology," *Spectrum*, 33 (11): 54-60, November.

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"International science and technology museums - III," *Spectrum*, 33 (7): 83-92, July.

"International science and technology museums - II," *Spectrum*, 33 (6): 74-83, June.

book review of *The Challenger Launch Decision*, by Diane Vaughan, *Spectrum*, 33 (5): 10-11, May.

"International science and technology museums - I," *Spectrum*, 33 (4): 39-62, April.

"Employment roundtable: Survival calls for more than technical fitness," *Spectrum*, 33 (3): 20-31, March.

Two articles in Technology 1996 special issue of *Spectrum*, 33 (1), January.

"Main event: spectrum auctions," p. 28

"Communications," (with John A. Adam and Sue J. Lowe): 30-41

1995.

"U.S. science and technology museums - II," *Spectrum*, 32 (10): 48-71, October. **(Series won the 1996 IEEE John D. Ryder Communicator of the Year Award.)**

"U.S. science and technology museums - I," *Spectrum*, 32 (9): 50-71, September.

Entries in The Encyclopedia of New York City, edited by Kenneth T. Jackson, Yale University Press and The New-York Historical Society (September): "bicycling," pp. 106-107; plus a dozen short ones on individual engineering societies, the United Engineering Center, and the Engineering Societies Library

"Electronics and the stars," (real-time astronomical instrumentation), *Spectrum*, 32 (8): 16-24, August.

"Surviving in the Reengineered Corporate Environment: the Freelance Engineer," (text of invited talk at the opening plenary session of the Winter Power Meeting of the IEEE Power Engineering Society, January 30), *IEEE Power Engineering Review*, 15 (5): 7-11, May.

"Spectrum visits... The HDTV 'test kitchens'," (profile of the Advanced Television Test Center), *Spectrum*, 32 (4): 46-49, April.

"Remote sensing," (special report), *Spectrum*, 32 (3): 24-31, March.

Issue editor for special Technology 1995 issue of *Spectrum*, 32 (1), January. Wrote one article:

"Technology 1995," (introduction), pp. 24-25.

1994.

"Engineering layoffs: facts and myths," *Spectrum*, 31 (11): 16-25, November.

"Alfred Yi Cho," (profile), *Spectrum*, 31 (10): 70-73, October.

"Rapid prototyping halves development time," *The Institute*, 18 (4): 5, July.

Issue editor for special Technology 1994 issue of *Spectrum*, 31 (1), January. Wrote three articles:

"Technology 1994," (introduction), pp. 20-21

"Telecommunications," pp. 22-25

"The specialties," p. 78

1993.

"Bicycles on a personalized basis," (case study in flexible manufacturing) *Spectrum*, 30 (9): 32-35, September.

"Jobs at risk," (special report) *Spectrum*, 30 (8): 18-31, 34-35, August. **(Won 1994 First Prize from New York Business Press Editors in category 'Reporting on a General Issue')**

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"Engineering library under siege," *The Institute*, 17 (2): 2-3, March-April.

Issue editor for special Technology 1993 issue of *Spectrum*, 30 (1), January. Wrote five articles:

- "Technology 1993," (introduction) pp. 24-25
- "The Main Event," (near-field scanning optical microscopy): 24-25
- "Telecommunications," pp. 38-41
- "The specialties," p. 80
- "New technology directions," p. 81

1992.

"A Traveling Science Laboratory: The Physics of Gears, Wheels and Wind" (the science of bicycling), *Science Probe!*, vol. 2 (4): 101-108, November.

"Beyond today's supercomputers," (in special issue Teraflops Galore), *Spectrum*, 29 (9): 72-75, September.

"New frequencies are allocated by WARC-92," *The Institute*, 16 (3): 1, 4, May-June.

"Telecommunications," *Spectrum*, v, 29 (1): 36-38, January.

1991.

"Hits and misses of industry history," *The Institute*, 15 (8): 1-2, November-December.

book review of *In the Stream of Stars: The Soviet/American Space Art Book*, *Spectrum*, 28 (10): 11-12, October.

"Technical usefulness versus political dreams: Debating Freedom's purpose" (space station), *The Institute*, 15 (7): 1-2, September.

"Telecommunications: attracting players to a global market," *Spectrum* (special issue on Asia), 28 (6): 37-38, June.

"Incredible shrinking computers," (notebook technology), *Spectrum*, 28 (5): 37-41, May.

"Chasing the Moon's Shadow: Personal Recommendations for Watching—not Observing—a Total Solar Eclipse," *Science Probe!* 1 (2): 80-90, 121, April.

"Phone cable cut slashes airline, finance activity," (with Glenn Zorpette), *The Institute*, 15 (3): 1, 6, March.

Two articles in *Spectrum*, 28 (3), March.

- "When bust is best," (destructive testing), pp. 56-59,
- book review of *Women of Science: Righting the Record*, p. 11.

"More Hubble trouble: blind oversight--NASA under scrutiny," *The Institute*, 15 (2): 1, 9, February.

Two articles in Technology 1991 special issue of *Spectrum*, 28 (1), January.

- "The media event: Hubble Space Telescope," p. 31
- "Telecommunications '91," pp. 44-47

1990.

"'90s employment: some bad news, but some good," *Spectrum*, 27 (12): 32-43, December.

"Hubble's promise undimmed," *The Institute*, 14 (11): 1, 6, December.

photograph of C.L. "Red" Stong, *Science Probe!* 1 (1): 85, November.

"Patented 20 years later: the microprocessor's true father," *The Institute*, 14 (10): 1, 3, November.

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"Buying Your First Business Computer," (as Julian Daye) *PhotoPro*, 1 (3): 64-71, Fall.

Two articles in special issue on R&D, *Spectrum*, 27 (10) October.

"From monopoly to competition: long-term research is vulnerable," pp. 46-50

"Just keeping current entails ingenuity, resourcefulness, and improvisation," pp. 69-73

"Technical challenges to a decentralized phone system," *Spectrum*, 27 (9): 32-37, September.

Two articles in *The Institute*, 14 (8), September.

"Hubble trouble: Space telescope probe focuses on fuzzy optics," p. 1, 11

"Global cellular system planned," p. 11.

"Light that acts like 'natural bits,'" (solitons) *Spectrum*, 27 (8): 56-57, August.

"Hubble trouble: Antenna pair tied to be fit," *The Institute*, 14 (6): 1, 6, July.

"Untangling the Wires: Choosing the Right Telephone System for Your Photo Studio," (as Julian Daye): *hotoPro*, 1 (2): 56-60, Summer.

contractor for *Access to Space: The Future of U.S. Space Transportation Systems*, U.S. Congress's Office of Technology Assessment, OTA-ISC-415 (Washington, D.C.: U.S. Government Printing Office), April.

"U.S. experts assess Japan's aerospace promise: A new world leader in propulsion?" *The Institute*, 14 (2): 1, 6, February.

"Telecommunications 1990," *Spectrum*, 27 (2): 31-33, February.

"The main event," (Voyager Neptune), *Spectrum*, 27 (1): 28-29, January.

1989.

"Next-generation spacecraft control," *Spectrum*, 26 (12): 34-38, December.

Two articles in *The Institute*, 13 (12) December.

"Rising above controversy: Jupiter probe launched," pp. 1-2

"Eastman Kodak reorganizes to emphasize electronic imaging," P. 3.

"Back to the future: a perspective," (on military spending) *Spectrum*, 26 (11): 42-44, November.

"Master's in networking," *The Institute*, 13 (11): 1, 3, November.

"Voyager postmortem: Earth engineering versus space law," *The Institute*, 13 (10): 1, 6, October.

book review of *Effective Writing for Engineers, Managers, Scientists* (second edition), by H.J. Tichy, *Spectrum*, 26 (10): 10-11, October.

"Doc' Edgerton: an EE for all seasons," *Spectrum*, 13 (9): 52-57, September. **(Won 1990 First Prize from New York Business Press Editors in the category 'Profile')**

Issue editor for special issue of *Spectrum* on risk management, 26 (6), June. Wrote four articles:

"Managing risk in large, complex systems," pp. 22-23

"Managing Murphy's law: engineering a minimum-risk system," pp. 24-27

"The space shuttle: a case of subjective engineering," (with Karl Esch), pp. 42-46 **(Won 1990 Journalism Award of Excellence, Aviation/Space Writers Association)**

"The limits of risk analysis," p. 51.

"Jettisoned shuttle fuel tanks to harbor atmospheric and space science experiments," *The Institute*, 13 (5): 4, May.

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"SPOTlight on Landsat: United States and France talk marriage for money," *The Institute*, 13 (4): 5, April.

"Home, home on the road; Steve Roberts: technobiker," (profile), *The Institute*, 13 (3): 1, 9, March.

"Money troubles could shut down satellites," *The Institute*, 13 (2): 8, February.

Two articles in *Spectrum*, 26 (1), January.

"Technology '89: Telecommunications," pp. 41-43

"Aerospace and Military," (with John A. Adam), pp. 64-66

"Monitoring global warming trend becomes top priority for NASA," *The Institute*, 13 (1): 3, January.

1988.

"Bell breakup plus five: mixed reviews," *Spectrum*, 25 (12): 26-31, December.

"Fiber optics," (history), *Spectrum*, 25th anniversary issue, 25 (11, fall): 97-102.

Three articles in *The Institute*, 12 (10), October.

"Societies urge renewal of commitment to space," p. 2

"Patent dispute may hit makers of flexible assembly lines," p. 7

"Nontraditional agency funds basic research in Japan," p. 9.

"Piloting the IEEE through a critical first year," [profile of Ernst Weber], *Spectrum*, 25 (10): 42-44, October.

"Operations Procedures" (Chapter 3) plus base text (summarizing workshop results) for *Reducing Launch Operations Costs: New Technologies and Practices*, a technical memorandum from the U.S. Congress's Office of Technology Assessment, OTA-TM-ISC-28 (Washington, D.C.: I.S. Government Printing Office), September.

"Lick Observatory's First Century," (book review of *Eye on the Sky* by Donald E. Osterbrock, John R. Gustavson, and W. J. Shiloh Unruh), *Sky & Telescope*, 76 (3): 260-262, September.

"Controversial standards legislated for VDTs," *The Institute*, 12 (8): 1, 7, August.

Three articles in *The Institute*, 12 (7), July.

"GSA ordered to cancel switch pacts; \$5B national switch contract pending," p. 2

"At AT&T, a month = an eternity: succession, regulation, competition," p. 7

"Possible escape for astronauts," p. 8.

"Noiseless light signals sent in experiment," *The Institute*, 12 (6): 9, June.

"Earthquake prediction: keeping an ear to the ground," *Spectrum*, 25 (5): 47-52, May.

Two articles in *The Institute*, 12 (5), May.

"Space shuttle risk analysis is ill defined, NRC charges," p. 1, 8

"Feynman dead at 69; worked on atom bomb," p. 7.

"Space station gets boost in new NASA budget," *The Institute*, 12 (4): 2, April.

"Space university to be launched from Boston," *The Institute*, 12 (3): 7, March.

"NASA space-station contracts awarded," *The Institute*, 12 (2): 1, 9, February.

"Technology '88: Communications," *Spectrum*, 35 (1): 41-43, January.

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1987.

"DOD veto sanctioned over image satellites: First Amendment freedoms violated?" *The Institute*, 11, no. 10): 9, October.

"Quitting to start your own company," (trade secret issues), *Spectrum*, 24 (9): 52-55, September.

"Shuttle booster to be test-fired; Engineers fear new nozzle joint is more dangerous than original design," *The Institute*, 11 (9): 11, September.

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