

NASA JOHNSON SPACE CENTER ORAL HISTORY PROJECT

BIOGRAPHICAL DATA SHEET

NAME: Leon "Lee" Theodore Silver

ORAL HISTORY: 5 May 2002

EDUCATIONAL BACKGROUND:

BS in Civil Engineering, University of Colorado, Boulder, Colorado, 1945

MS in Geology, University of New Mexico, Albuquerque, New Mexico, 1948

Ph.D. in Geology and Geochemistry, California Institute of Technology, Pasadena, California, 1955

PRE-NASA & ACADEMIC CAREER:

United States Navy (1943-1946)

- Lieutenant Junior Grade, Naval Civil Engineer Corps (Public Works Officer), (1945-1946)

United States Geological Survey, Mineral Deposits Branch, Colorado and Arizona (1947-1954, Field Seasons only)

- Field Assistant (1947-1954, field seasons)
- Junior Geologist (1947-1954, field seasons)
- Assistant Geologist (1947-1954, field seasons)

California Institute of Technology, Pasadena, California (1952-Present)

- Research Geologist in Geochemistry of Uranium, Atomic Energy Commission (AEC) Contract Research, Division of Geological Sciences (1952-1955)
- Assistant Professor of Geology (1955-1962)
- Associate Professor of Geology (1962-1965)
- Professor of Geology (1965-1983)
- W. M. Keck Foundation Professor for Resource Geology (1983-Present)

NASA INVOLVEMENT:

United States Geological Survey, Menlo Park, California (1970-1976)

- Geologist, Astrogeology Branch, (1970-1976, part-time)
- Geology Lecturer to NASA Scientist-Astronaut Classes, Manned Spacecraft Center, Houston, Texas (Part Time 1968-1993)
- Lunar Surface Geology Experiment Team (Apollo 13-17)
- Lunar Sample Preliminary Examination Team (Apollo 15-17)
- Lunar Surface Traverse Planning Team (Apollo 15-17)
- Lunar Science Working Panel (Apollo 15-17)
- Lunar Sample Analysis Planning Team, Manned Spacecraft Center, Houston, Texas (1972-1974)

- Space Program Advisory Council Ad Hoc Subcommittee on Scientist-Astronauts (1974-1975)

Presidential Advisory Committee on the Redesign of the Space Station (1993-1994)

COMMITTEES:

- Chairman, Program Committee, Geochemical Society of America (1964-1966)
- International Union of Geological Sciences Committee on Establishment of a Worldwide Geologic Time Scale (1968-1976)
- Universities Space Research Association Advisory Committee for the Lunar Science Institute (1972-1973; 1979-1981)
- Chairman, Uranium Resources Panel, National Research Council Committee on Nuclear and Alternative Energy Systems (1975-1978)
- Board on Mineral and Energy Resources of the National Research Council Commission on Natural Resources (1975-1978)
- National Air and Space Museum, Visiting Committee, Smithsonian Institution (1975-1980)
- U. S. Delegation, International Geological Congress, Sydney, Australia (1976)
- Vice-Chairman, Board on Mineral and Energy Resources of the National Research Council Commission on Natural Resources (1976-1977)
- Chairman, Working Group for Southwestern U. S. and Mexico, Subcommittee on the Precambrian, Commission on Stratiography, International Union of Geological Sciences (1976-1978)
- Chairman, Workshop on Concepts of Uranium Resources and Productibility, National Research Council Board on Mineral and Energy Resources (1978)
- Panel on Continental Tectonics, National Research Council, Geophysics Research Board (1979-1980)
- Committee on Science and Public Policy, National Academy of Sciences (1979-1980)
- Executive Committee, Geological Society of America (1980)
- U. S. Delegation, International Geological Congress, Paris, France (1980)
- First Chair, Steering Committee, The Decade of North American Geology (1980-1981)
- Committee on Science, Engineering, and Public Policy – National Academy of Sciences, National Academy of Engineering, Institute of Medicine (1980-1987)
- Board of Directors, Caswell Silver Foundation for the University of New Mexico (1981-)
- Science Advisory Committee to the President, Auxiliary Resources Control Office (1981-1986)
- Founding Chairman, Division of Planetary Geology, Geological Society of America (1982)
- Chairman, Committee on Science, Engineering, and Public Policy – National Academy of Sciences, National Academy of Engineering, Institute of Medicine (1984-1985)
- Science Advisory Council, Office of Basic Energy Sciences, Department of Energy (1986-)

- Advisory Panel, Science and Technology Centers Selection, National Science Foundation (1987-1988)
- Panel on Science and Technology Centers, National Academy of Sciences (1987)
- Science Advisory Committee, Auxiliary Resources Control Office Research Library, Plano, Texas (1987-1989)
- Member, Board of Directors for Drilling, Observation and Sampling of the Earth's Continental Crust, Inc., (1987-1990)
- Vice Chair, Science Advisory Council, Office of Basic Energy Sciences, Department of Energy (1988-1990)
- Vice President, 28th International Geological Congress, Washington, DC (1989)
- Member, Advisory Committee, Earth and Environmental Sciences Division, Los Alamos National Laboratory (1989-)
- Councilor, National Academy of Sciences (1989-1992)
- Governing Board, National Research Council (1989-1992)
- President, Caswell Silver Foundation for the University of New Mexico (1989-)
- Chair, National Research Council, Committee on International Organizations and Programs (1990-1992)
- Steering Committee, Senior Synthesis Group, America's Space Exploration Initiative (1990-1991)
- National Research Council Committee on Natural Hazard Reduction (1990-1992)
- National Research Council Committee for the Pacific Science Association (1990-1992)
- International Council of Scientific Unions Special Scientific Committee for the Decade of Natural Hazard Reduction (1990-1992)
- National Science Foundation Advisory Council for Continental Scientific Drilling (1990-1993)
- Chair, Science Advisory Council, Office of Basic Energy Sciences, Department of Energy (1991-1993)
- Advisory Panel to Federal Interagency Coordinating Group for Continental Scientific Drilling (1991-1993)
- Visiting Committee, French Bureau of Research in Geology and Mines (1993)
- Commission on Physical and Mathematical Sciences and Applications, National Research Council, National Research Council Committee for the Pacific Science Association (1993-1996)
- Liaison to Space Science Board and Board on Chemical Sciences and Technology, National Research Council Committee for the Pacific Science Association (1994-1996)
- Chair, Cordilleran Section Second Century Fund, Geological Society of America Foundation (1996-)
- National Research Council Committee on Building an Environmental Management Science Program (1996-)

PROFESSIONAL & HONORARY SOCIETIES:

- Fellow, Geological Society of America

- Fellow, Mineralogical Society of America
- Fellow, American Association for the Advancement of Science
- Member, American Geophysical Union
- Member, Geochemical Society
- Member, Meteoritical Society
- Member, Society of Economic Geologists
- Member, Society of Economic Mineralogists and Paleontologists
- Member, Sigma Xi (Scientific Research Honor Society)
- Member, Tau Beta Pi (Engineering Honor Society)
- Member, Phi Kappa Phi (University Honor Society)
- Member, Sigma Tau
- Member, Chi Epsilon
- Member, National Academy of Sciences (Election 1974)
- Councilor, Geological Society of America (1974-1976)
- Vice-President, Geological Society of America (1978)
- President, Geological Society of America (1979)
- Member, American Academy of Arts and Sciences (Election 1979)

AWARDS & CITATIONS:

- Research Grant Recipient, National Science Foundation
- Research Grant Recipient, NASA
- Research Grant Recipient, Atomic Energy Commission
- Research Grant Recipient, Energy Research and Development Agency
- Research Grant Recipient, Department of Energy
- Research Grant Recipient, U. S. Geological Survey
- Guggenheim Fellowship, 1964
- NASA Exceptional Scientific Achievement Medal, 1971
- NASA Group Achievement Award, Lunar Traverse Planning Team, 1971
- NASA Group Achievement Award, Crew Training and Simulation Team, 1971
- American Institute of Professional Geologists Award for Professional Excellence, 1972
- NASA Group Achievement Award, Lunar Landing Team, 1973
- NASA Group Achievement Award, Earth Resources Experiment Team, 1974
- NASA Group Achievement Award, Lyndon B. Johnson Space Center, 1974
- Centennial Distinguished Alumnus Award, University of New Mexico, 1989

SELECT PUBLICATIONS:

Allen, Clarence R., Leon T. Silver, and Francis Greenough Stehli. Agua Blanca Fault : A Major Transverse Structure Of Northern Baja California, Mexico. New York: The Society, 1960.

- California Institute of Technology. Division of Geological and Planetary Sciences. Leon T. Silver 70th Birthday Symposium and Celebration : April 9, 10, and 11, 1995. Pasadena, CA: The Institute, 1995.
- Cooper, John Roberts, and Leon T. Silver. Geology And Ore Deposits Of The Dragoon Quadrangle, Cochise County, Arizona. Washington, DC: U.S. Government Printing Office, 1964.
- Kanamori, H. (Hiroo), Robert W. Clayton, and Leon T. Silver. Earthquake and Seismicity Research Using SCARLET And CEDAR: Final Technical Report, 1 December 1990 - 30 November 1992. Pasadena, CA: Seismological Laboratory, California Institute of Technology, 1993.
- Li, Y.-G., T. L. Henyey, and L. T. Silver. "Aspects of the Crustal Structure of the Western Mojave Desert, California, From Seismic Reflection and Gravity Data." Journal of Geologic Research 97, B6 (1992): 8805-8816.
- Manduca, C. A., L. T. Silver, and H. P. Taylor. "87Sr/86Sr and 18O/16O Isotopic Systematics and Geochemistry of Granitoid Plutons Across a Steeply Dipping Boundary Between Contrasting Lithologic Blocks in Western Idaho." Contributions in Mineralogical Petrology 109 (1992): 355-372.
- Pratson, E. L., R. N. Anderson, R. E. Dove, M. Lyle, L. T. Silver, E. W. James and B. W. Chappell. "Geochemical Logging in the Cajon Pass Drillhole and its Application to a New Oxide, Igneous Rock Classification Scheme." Journal of Geologic Research 97 B4 (1992): 5167-5180.
- Silver, Leon T., and Peter H. Schultz, eds. Geological Implications Of Impacts Of Large Asteroids And Comets On The Earth: Conference On Large Body Impacts And Terrestrial Evolution: Geological, Climatological, And Biological Implications. Boulder, CO: Geological Society of America, 1982.
- Silver, L. T. and B. W. Chappell. "The Peninsular Ranges Batholith: An Insight into the Evolution of the Cordilleran Batholiths of Southwestern North America." Transnational Royal Society of Edinburgh 79 (1988): 105-121.
- Silver, L. T. "Daughter-parent Isotope Systematics in U-Th-bearing Ingeous Accessory Mineral Assemblages as Potential Indices of Metamorphic History: A Discussion of the Concept." The Geochemical Society, Special Publication 3 (1991): 391-407.
- Silver, L. T., I.S. Williams and J.A. Woodhead, eds. Uranium In Granites From the Southwestern United States: Actinide Parent-Daughter Systems, Sites and Mobilization: Second Year Report. Grand Junction, CO: U.S. Dept. of Energy, Assistant Secretary for Resource Applications, Grand Junction Office, 1984.

Silver, L. T. "Observations on the Extended Tectonic History of the Southern Sierra Nevada." Geological Society of America Joint Cordilleran and Rocky Mountain Section Meeting, Reno, Nevada. Geological Society of America, 1993.

Woodhead, J. A., G. R. Rossman, and L. T. Silver. "The Metamictization of Zircon: Radiation Dose-Dependent Structural Characteristics." Mineralogical Society of America 76 (1991): 74-82.

BIOGRAPHICAL REFERENCES:

Leon T. Silver, Curriculum Vita. Provided to JSC Oral History Project by California Institute of Technology, Pasadena, California.

Leon T. Silver. Geological Planetary Sciences, California Institute of Technology Homepage. Online. Available: <http://www.gps.caltech.edu/faculty/silver/> (Last Updated n.d; Accessed 8 July 1999).

Who's Who in America. 40th Edition. (New Providence, NJ: Marquis Who's Who, 1978-79): s.v. Silver, Leon Theodore.

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