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VITA

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**Education**

B.A., (Geology) Lafayette College, 1959  
B.S., (Civil Engineering) Lafayette College, 1959  
Ph.D., (Geology) Pennsylvania State University, 1965

**Professional Organizations and Honors**

1. Fellow, Geological Society of America (Engr. Geol. Div.), 1965 to present.
2. Member, Association of Engineering Geologists, 1965 to present.
3. Member, American Institute of Professional Geologists, 1977 to present (Cert. Prof. Geol. Sci. #3724).
4. Member, South Dakota Academy of Science, 1969 to present.
5. Member, National Society of Professional Engineers, 1980 to present (President, Black Hills Chapter, 1993). [Registered Professional Engineer, #SD 4513]
6. Recipient of Assoc. Engr. Geologists "Claire P. Holdredge Award" for book "Engineering Geology, an Environmental Approach", 1987.
7. Member, Restoration Advisory Board, Ellsworth AFB Superfund Site, 1990-present.
8. Recipient of Eng. Geol. Div., Geol. Soc. Am. "E.B. Burwell, Jr." award for book "Engineering Geology, an Environmental Approach", 1990.
9. "Engineer of the Year" by Black Hills Chapter of S.D. Engr. Soc., 1995.
10. Editorial Board for "Engineering Geology" (% Elsevier Publ. Co., Netherlands), 1995 to present.
11. "Drinking Water Protection" committee, City of Rapid City, 2000 to present.
12. Richard H. Jahns Lecturer, Eng. Geol. Div., Geological Society of America and Association of Engineering Geologists, 2002.
13. Distinguished Practice Award, Association of Engineering Geologists, 2003.

**Work Experience**

1. Engineering Geologist, Calif. Dept. of Water Resources, Oroville, CA, 1959-61.
2. Assistant Professor, University of Connecticut, Storrs, CT, 1965-68
3. Assistant Professor, S.D. School of Mines and Tech., Rapid City, SD, 1968-70
4. Associate Professor, S.D. School of Mines and Tech., 1970-79

5. Professor, S.D. School of Mines and Tech., 1979-1997.
6. Professor Emeritus, S.D. School of Mines and Tech., 1997-present.
7. Visiting Scientist, Division of Environmental Impact Studies, Argonne National Laboratory, Argonne, Illinois, 1977-78 (15 months)
8. Hydrologist, U.S. Geological Survey, Phoenix, AZ, Summer 1963
9. Visiting Professor, Pennsylvania State University Geology Field Camp, Red Lodge, Montana, Summer 1965
10. Glacial Geologist, Conn. Geological Survey, Middletown, CT, Summer 1967
11. Hydrogeologist, S.D. Geological Survey, Vermillion, SD, Summers 1968-72
12. Geomorphologist, S.D. Remote Sensing Institute, Summers 1973-74
13. Hydrogeologist, S.D. School of Mines & Technology research projects, Summers 1975, 1976, 1979, 1980, 1981, 1984-1993
13. Visiting Professor, Bucknell U., Lewisburg, PA., Spring Semester, 1989
14. Director, Black Hills Nat. Science Field Station, 1995 to 1999.

### **Publications**

- 1965, The inselbergs of Southwestern Arizona: Ph.D. Thesis, Pennsylvania State University, 149 p.
- 1965, Inselbergs of Southwestern Arizona: (Abs.), Geol. Soc. Am., Annual Meeting, Kansas City, MO, p. 130-131.
- 1966, Inselbergs and nickpoints in Southwestern Arizona: *Zeit fur Geomorph.*, v. 10, n. 3, p. 217-225.
- 1966, Field observations of desert thunderstorm runoff: (Abs.), Geol. Soc. Am., Annual Meeting, San Francisco, CA, p. 172.
- 1967, Sheetfloods, streamfloods, and the formation of pediments: *Annals, Assoc. Am. Geog.*, v. 57, n. 3, p. 593-604.
- 1967, (with M.T. Giddings), Constructing a temporary stream gaging station: *Civil Engr.*, v. 37, n. 12, p. 46-47.
- 1967, Field study of induced infiltration, Eastern Connecticut: (Abs.), Geol. Soc. Am., Annual Meeting, New Orleans, LA, p. 181.
- 1968, The hydrogeology of an induced streambed infiltration area: *Ground Water*, v. 6, n. 3, p. 21-32.
- 1968, A comparison of natural forest slopes and angles of repose of sand and gravel: (Abs.), Geol. Soc. Am., Annual Meeting, Mexico City, p. 245.
- 1968, Movement of dissolved salts in ground water systems, In: Carpenter, E.D. (ed.), "proceedings, symposium on pollutants in the roadside environment," Connecticut Highway dept., Feb. 1968, p. 36-45.
- 1968, Future ground water supplies for Providence, Rhode Island: *Proceedings, 4th Am. Water Resources Assoc. Conference, Annual Meeting, New York City, NY*, p. 380-391.
- 1969, The relationship between natural forested slopes and angles of repose for sand and gravel, *Bull.: Geol. Soc. Am.*, v. 80, n. 10, p. 2123-2128.
- 1970, (with A.M. Johnson), Mobilization of debris flows: *Zeit. fur Geomorph.*, Supplement Vol. 9, p. 168-186.

- 1970, The weathering of tombstones and its relationship to the topography of New England: (Abs.), Geol. Soc. Am., Northeast Section Annual Meeting, Pittsburgh, PA, p. 32.
- 1970, Road log for the engineering geology field trip: in Gries, J.P., ed., Guidebook and Road Logs for the 23rd Annual Meeting of Rocky Mountain Section: Geol. Soc. Am., Rapid City, SD, p. 23-36.
- 1970, (with Earl R. Hoskins and Donald W. Hammerquist), The use of aerial photography to delineate areas of highway distress in Western South Dakota: (Abs.), Geol. Soc. Am., Annual Meeting, Milwaukee, WI, p. 581.
- 1971, The surficial geology of the Spring Hill Quadrangle, Connecticut: Conn. Geol. and Nat. Hist. Surv., Bull. 26, 31 p. and map.
- 1971, The weathering of tombstones and its relationship to the topography of New England: Jour. Geol. Ed., v. 19, n. 3, p. 112-118.
- 1971, (with E.R. Hoskins and D.W. Hammerquist), A preliminary investigation of terrestrial and low altitude aerial infrared photography as an aid in determining water table depths and buried geologic structures in the Pierre Shale in Western South Dakota: Final Rept. to Fed. Highway Adm., #HP 5806 (5115)P, 56 p.
- 1971, Discussion: Lunar wrinkle ridges indicative of strike-slip faulting: Geol. Soc. Am., Bull., v. 82, p. 2365-2366.
- 1971, The hydrologic significance of the November, 1968, dye test on Boxelder Creek, Black Hills, South Dakota: South Dakota Acad. Sci., v. 50, p. 52-56.
- 1971, (with J.P. Gries), Estimating recharge to limestone aquifers based on spring discharge: (Abs.), Geol. Soc. Am., Annual Meeting, Washington, DC, p. 677.
- 1972, (with Richard A. Bell), Rock glaciers in the Rocky Mountains of Wyoming and Colorado: (Abs.), Geol. Soc. Am., Rocky Mountain Sec. Annual Meeting, Laramie, WY, p. 365.
- 1973, (with J.P. Gries), Large springs in the Black Hills, South Dakota and Wyoming: South Dakota Geol. Surv., Rept. of Invest. No. 107, 46 p.
- 1973, Effect of the June 9 1972, floods on dams in the Black Hills, South Dakota: (Abs.), Geol. Soc. Am., Rocky Mt. Sec. Annual Meeting, Boulder, CO, p. 504-505.
- 1973, Effect of urbanization on stream runoff in Rapid City: South Dakota Acad. Science, v. 52, p. 179-188.
- 1973, Comparison of terrestrial and lunar mass-wasting processes: Project Completion Rept. to NASA Lunar Programs Office, Grant No. NGR 42-001-006, 121 p.
- 1974, (with Richard H. Miller), Recharge to the Dakota Sandstone from outcrops in the Black Hills, South Dakota: Bull., Assoc. Engr. Geol., v. 11, n. 3, p. 221-234.
- 1974, (with C.J. Frazee, F.C. Westin, and V.I. Myers), Use of ERTS-1 imagery for land evaluation in Pennington County, South Dakota: Proceedings, 9th International Symposium on Remote Sensing of the Environment, Ann Arbor, p. 549-568.
- 1974, (with C.J. Frazee), Drainage alignment in Eastern Pennington County, South Dakota: S.D. Acad. Sci., v. 53, p. 61-68.
1975. (with Robert Gjere), Glacial geology of the Meadowlark Lake area, Bighorn Mountains, Wyoming: (Abs.), Geol. Soc. Am., Rocky Mt. Sec. Annual Meeting, Boise, ID, p. 637-638.

- 1975, With L.S. Iyer, V. Ramakrishnan, and J.E. Russell), Durability tests on some aggregates for concrete: *Constr. Div., Am. Soc. Civ. Engr., v. 101, n. CO3, Proc. Paper 11574, p. 593-605.*
- 1975, Lessons learned from the June 9, 1972, flood in Rapid City, South Dakota; *Bull., Assoc. Engineering Geologists, v. 12, p. 83-97.*
- 1975, (with Howard A. Paul), Hydrogeology of a portion of the Sand Hills and Ogallala aquifer, South Dakota and Nebraska: *Ground Water, v. 13, p. 428-437.*
- 1975, Environmental effects of mineral and water development in South Dakota: *Mineral and Water Resources of South Dakota, U.S. Geol. Survey, U.S. Senate Committee on Interior and Insular Affairs, p. 71-76.*
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- 1976, Coulee alignment and the wind in Southern Alberta, Canada: *Discussion: Geol. Soc. Am., Bull., v. 87, p. 157.*
- 1976, Discussion of "Hydrogeology of a portion of the Sand Hills and Ogallala Aquifer, South Dakota and Nebraska": *Ground Water, v. 14, p. 108, p. 481.*
- 1976, (with J.P. Gries and Richard K. Baker), A pump test in the Dakota Sandstone at Wall, South Dakota: *South Dakota Geological Survey, Circular 43, 9 p.*
- 1976, Potential of coal strip-mine spoils as aquifers in the Powder River Basin: *Project Completion Report to Old West Regional Commission, Billings, Montana, Grant No. 10470025, 108 p. plus appendices.*
- 1976, Erosion below dams on the Missouri River: (Abs.) *Assoc. Engr. Geol., Annual Meeting, Philadelphia, PA, p. 28.*
- 1976, (with William Back, Bruce B. Hanshaw, and Craig T. Rightmire), Flow pattern and chemical character of water in the Pahasapa aquifer near the Black Hills, South Dakota and Wyoming: (Abs.), *Geol. Soc. Am., Annual Meeting, Denver, p. 1056-1057.*
- 1976, Recharge, Geochemistry, and potential of the Madison aquifer in western South Dakota, invited paper at 21st Annual Midwest Ground Water Conference, Sioux Falls, South Dakota.
- 1976, Erosion below Mainstem dams on the Missouri River, South Dakota: (Abs.), *S.D. Acad. Sci., v. 55, p. 180-181.*
- 1977, (with K.J. Dolsted, R.G. Best, J.R. Smith, J.C. Eidenshink, F.A. Schmer, and A.S. Andrawis), Application of remote sensing in South Dakota to provide accurate inventories of agricultural crops, enhance contrast in photographic products, monitor rangeland habitat loss, map aspen, and prepare hydrogeologic surveys: *S.D. Remote Sensing Institute, SDSU-RSI-77-08, 88 p.*
- 1977, (with Vernon L. Bump and Fred V. Steece), Road log, engineering geology of Central and Northern Black Hills, South Dakota: *28th Annual Highway Geology Symposium, South Dakota Dept. of Transportation, 31 p.*
- 1977, The origin of the Prairie Coteau, Northeastern South Dakota; *S.D. Academy of Science, v. 56, p. 28-33.*
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- 1979, Effect of the ETSI coal slurry pipeline on water resources in Wyoming, South Dakota, and Nebraska: (Abs.), Proc., North Dakota Academy of Science, v. 33, p. 76.
- 1978, Landsat-1 Photo-interpretation of forest fire hazards in the Black Hills: S.D. Academy of Science, v. 57, p. 132-138.
- 1979, Hydrogeology of a glacial plain: in Heilman, James L. and Donald G. Moore, ed., Remote sensing of hydrology in eastern South Dakota: South Dakota State University, Remote Sensing Institute, #79-07.
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- 1979, (with J.H. Opelka, P.C. Chee, R.J. Flynn, S.W. Hong, M.R. Nathanson, B.L. Reider, R.O. Buchanan, and Y.C. Yuan), Environmental impacts of a safeguards system at a back-end fuel cycle facility: *Inst. Nuclear Materials Management, Journal*, Fall, 1979.
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- 1980, Floods and flood plain management in the north-central United States: (Abs.), Geol. Soc. Am., Annual Meeting, Atlanta, GA, p. 505.
- 1981, Ground Water Resources of Western South Dakota: Final Report to U.S. Army Corps of Engineers, Omaha District, January 10, 1981.
- 1981, Aquifer evaluation elements of the western Dakotas Region of South Dakota: Final Report to the U.S. Army Corps of Engineers, Omaha District, February 28, 1981.
- 1981, (with Hilary James Brook), Potential dam site selection for artificial recharge to Paleozoic aquifers, Black Hills: (Abs.), Geol. Soc. Am., Rocky Mt. Sec., Annual Meeting, Rapid City, SD, p. 192.

- 1981, Surface and ground water relationships in the Madison Limestone aquifer area of the Black Hills: (Abs.), Proceedings, 10th Annual Rocky Mt. Ground Water Conference, Laramie, WY, p. 69.
- 1981, 1985, (with Vernon L. Bump and Fred V. Steece), Engineering geology of the Central and Northern Black Hills, South Dakota: in Rich, Fredrick J., Geology of the Black Hills, South Dakota: Am. Geol. Inst., Field Trip Guidebook for Geol. Soc. Am. Rocky Mt. Sect. Annual Meeting, p. 135-153.
- 1981, 1985, Ground water stored in the rocks of Western South Dakota: in Rich, Fredrick J., Geology of the Black Hills, South Dakota: Am. Geol. Inst., Field Trip guidebook for Geol. Soc. Am. Rocky Mt. Sect. Annual Meeting, p. 154-173.
- 1981, Pedestrian's guide to building stones and general geology of Rapid City, South Dakota: Museum of Geology, S.D. School of Mines and Tech., 10 p.
- 1981, (with Donald G. Moore), Landsat data for locating shallow glacial aqifers in eastern South Dakota: in Deutsch, Morris, Donald G. Wiesnet and Alberto Rango, ed., Satellite hydrology: Am. Water Resources Assoc., 5th Annual William T. Pecora Symposium on Remote Sensing, Sioux Falls, South Dakota, p. 398-406.
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- 1983, Base flow of Slate Creek, central Black Hills: Proceedings, S.D. Acad. Science, v. 62, p. 80-88.
- 1984, Flood plain management program in Rapid City, South Dakota: Geological Society of America Bulletin, v. 95, p. 838-843.
- 1985, Landsat view of the Black Hills: in Rich, Fredrick J., ed., Geology of the Black Hills, South Dakota and Wyoming: American Geological Institute, Field Trip Guidebook for Geological Society of America Rocky Mountain Section 1981 Annual Meeting, Second edition, p. 222-224.
- 1985, (with William Back, Bruce B. Hanshaw, L. Niel Plummer, Craig T. Rightmire, and Meyer Rubin), Reply: Process and rate of dedolomitization: mass transfer and <sup>14</sup>C dating in a regional carbonate aquifer: Geological Society of America Bulletin, v. 96, p. 1098-99.
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- 1986, Engineering geology, an environmental approach: Elsevier Science Publ. Co., New York, NY, 589 p. 233-246.
- 1986, (Ground-water contamination by radioactive waste: in Fang, Hsai-Yang, ed., International Symposium on Environmental Geotechnology, Allentown, PA, April 21-24, 1986, p. 233-246.
- 1986, (with William C.B. Gates), Ancient quartzite boulders in the Red Valley area of the northern Black Hills, South Dakota and Wyoming: *Mountain Geologist*, v. 23, p. 95-97.
- 1987, Geologic map and measured stratigraphic section for the Rockerville Quadrangle, Pennington County, South Dakota: Geological Society of America, Map and Chart Series, MCH062, 16 p.
- 1988, Application of geothermal resources in western South Dakota: Final report to the Governor's Office of Economic Development, South Dakota School of Mines and Technology, Rapid City, South Dakota, 145 p.
- 1988, (with Arden D. Davis), Hydrologic budget for Black Hills watersheds: 17th Annual Rocky Mountain Ground Water Association Conference, Rapid City, South Dakota.
- 1989, Recharge to the Pahasapa Limestone: Proceedings, South Dakota Academy of Science, v. 68, p. 59-66.
- 1989, Erosion of hydraulicking debris in the Yuba River, California (Abs.): Association of Engineering Geologists, Annual Meeting, Vail, CO., p. 104.
- 1989, Units of hydraulic conductivity: Readers' Forum, *Ground Water*, v. 27, p. 411.
- 1990, (with Abdullah A. Sabtan), Longitudinal and lateral sediment distribution in a reservoir: Proceedings, International Association of Engineering Geology, 6th International Congress, Amsterdam, p. 1227-1233.
- 1990, Ground-water recharge at Mount Rushmore: Proceedings, South Dakota Academy of Science, v. 69, p. 129-138.
- 1990, Flood plains (Abs.): Association of Engineering Geologists, 33rd Annual Meeting, Pittsburgh, PA.
- 1990, Proposed solution to the acid-mine drainage problem at Shamokin, Pennsylvania (Abs.): Assoc. of Engineering Geologists, 33rd Ann. Meeting, Pittsburgh, PA.
- 1991, Surface water and flooding: in Kiersch, George A., *The heritage of engineering geology the first hundred years*: Geological Society of America, Centennial Spe. Volume 3, p. 149-167.
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- 1992, (with M.D. Kent), Engineering geology: Geotimes, v. 37, n. 2, p. 20-22.
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- 1994, Flood plains: Bull. of the Assoc. Engr. Geologists, v. 31, p. 171-181.
- 1994, (with Jihad Ghannam), Ground water recharge to the Madison aquifer in the Black Hills area: Proc., S.D. Acad. Sci., v. 73, p. 195-204.
- 1994, Hydraulic fracturing of a water well in the Precambrian rocks of the Black Hills: Proc., S.D. Acad. Sci., v. 73, p. 205-210.
- 1994, Davis, Arden D., Cathleen J. Webb and Perry H. Rahn, Abandoned mines and reclamation in the Black Hills of South Dakota; Proc., 16th Annual Meeting of the Association of Abandoned Mines Land Programs, Park City, UT, p. 266-277.
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- 1997, (with Charles Michael Ray), The origin of waterfalls in the Black Hills, South Dakota: Proceedings, South Dakota Academy of Science, v. 76, p. 125-136.
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- 2000, Book review: "Roadside geology of South Dakota" by J. P. Gries, 1996, Mountain Press Publ. Co.: Environmental and Engineering Geoscience, v. 6, n 3, p.
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2. Frankfort, Donald, 1968, Factors affecting talus slopes in central Connecticut: M.S. thesis, 41 p.
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6. Bell, Richard A., 1972, Comparison of terrestrial rock glaciers and other flow types with similar appearing lunar features: M.S. thesis, 120 p.
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### **Funded Research**

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6. SDSM&T Faculty Research Committee, "Relationship of Boxelder Creek to Cleghorn Springs," \$500.00, 1969-70.
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