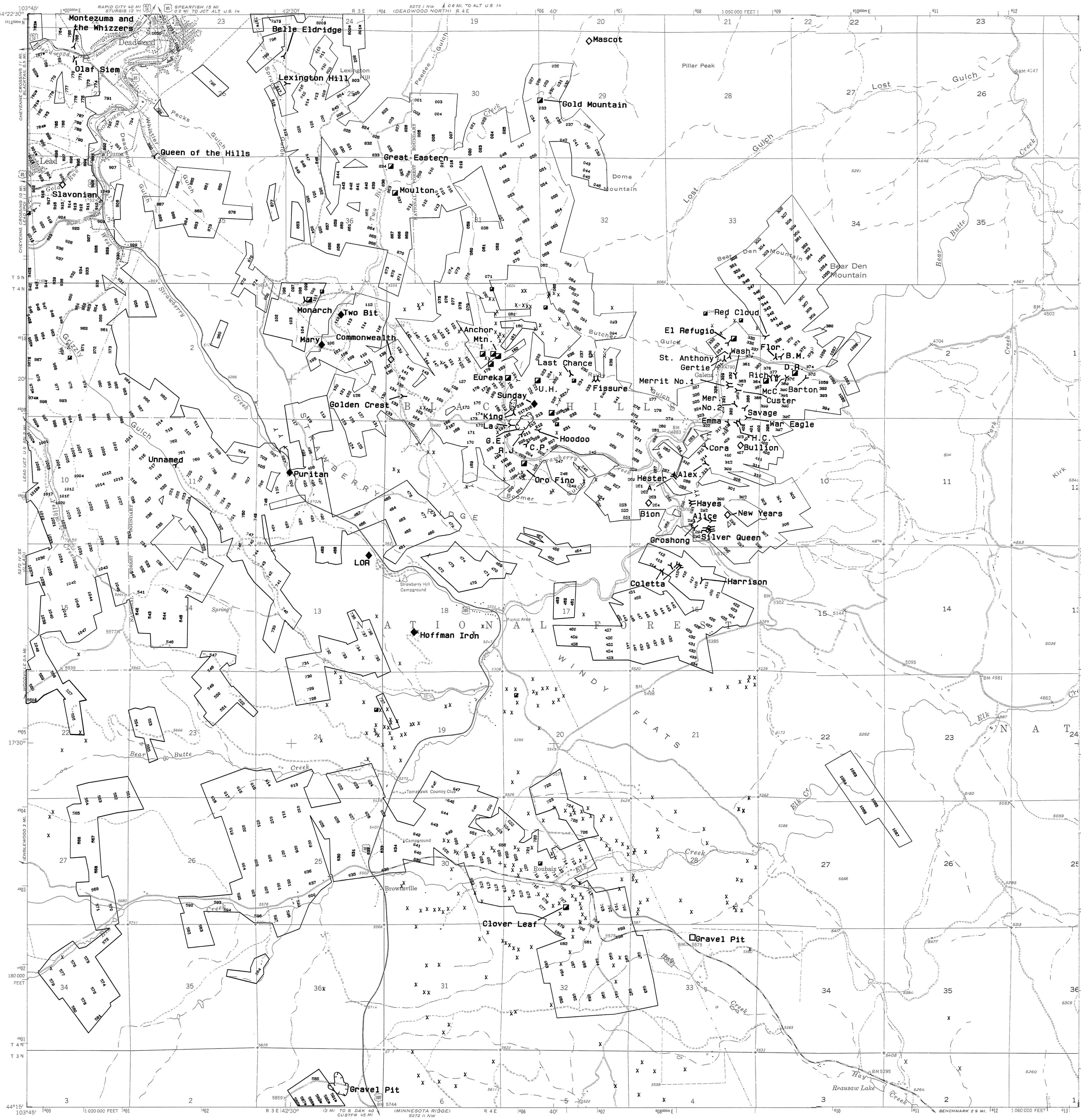
DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

MISCELLANEOUS FIELD STUDIES
MAP MF–1978–F
PAMPHLET ACCOMPANIES MAP

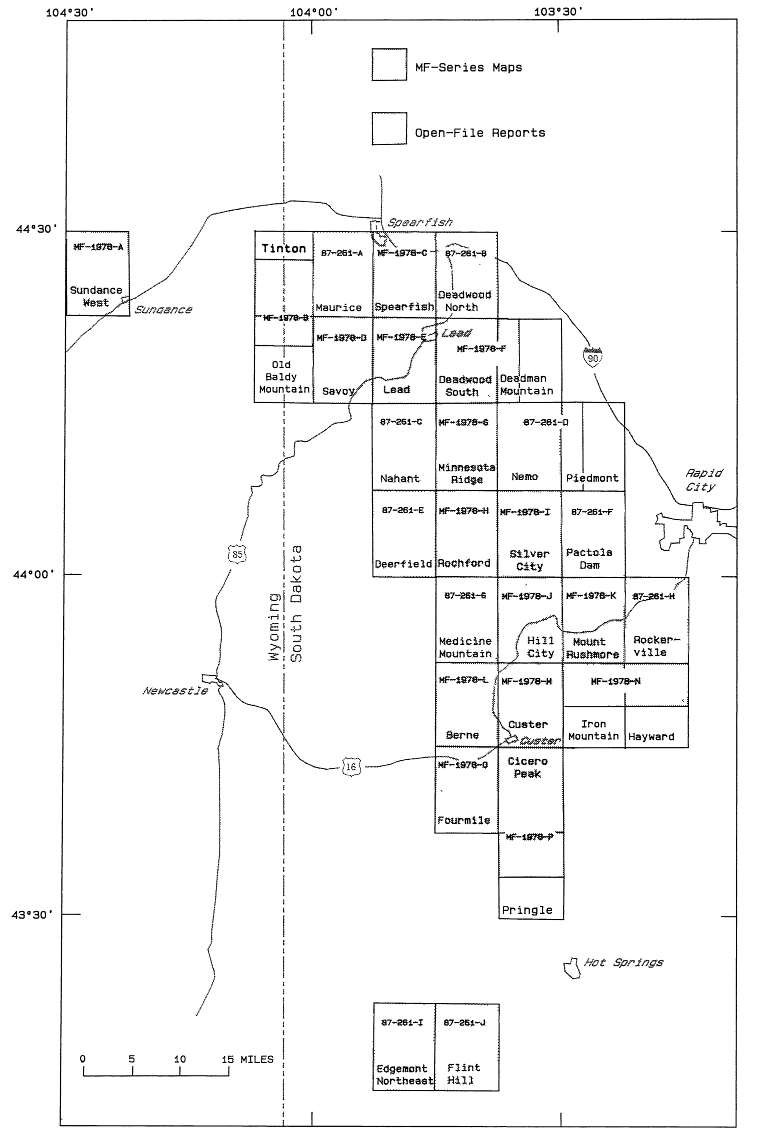


Base modified from U.S. Geological Survey
Deadwood South, 1961, photorevision as of 1971;
Deadman Mountain, 1954, photorevision as of 1971

Compiled in 1986

SCALE 1:24 000

NATIONAL GEODETIC VERTICAL DATUM OF 1929



INDEX MAP SHOWING MINES AND PROSPECTS MAPS (MF-SERIES MAPS AND OPEN-FILE REPORTS) IN THE BLACK HILLS REGION

EXPLANATION

Mine--Location known. Distinguished from prospect by name of mine next to symbol. Alternate names or synonym(s) in parentheses. If there is enough space on the map, the entire mine name and synonym(s) are shown; otherwise, mine name may be abbreviated and synonym(s) deleted from map. Full mine names and all synonyms are shown in the "Alphabetic list of mines"

- **Adit**
- **Shaft**
- **Open pit or other type of opening**
- **Gravel pit**

Mine--Approximate location shown. Open pit, shaft, adit, or other type of opening

Prospect

- **Adit**
- **Shaft**
- **Pit**

Patented claim--See alphabetic and numeric lists of patented claims. Asterisk (*) indicates part of claim extends into adjacent quadrangle. Dollar sign ($) indicates most of claim in adjacent quadrangle. Boundaries between claims not shown

002 **Lode claim**--Orientation of number parallel to long axis of claim

004$ **Placer claim**--Number approximately in center of claim

INTRODUCTION

This map is one in a set of 26 maps (see index map) at 1:24,000 scale of the Black Hills region of South Dakota and Wyoming on which are shown a geologic classification of mines, a bibliography of mineral deposits, and locations of active and inactive mines, prospects, and patented mining claims. Some of these maps are published as U.S. Geological Survey Miscellaneous Field Studies Maps (MF series) and some as U.S. Geological Survey Open-File Reports (OF series); see index map. An earlier unpublished version of this set of maps was the data base from which plate 4 (scale 1:250,000) of DeWitt and others (1986) was compiled. Subsequent to that publication, the set has been revised and updated, and prospects and patented claims have been added. These revised and more detailed 1:24,000-scale maps should be used for the equivalent areas of plate 4 of DeWitt and others (1986).

SOURCES OF INFORMATION

Outlines of patented mining claims were obtained from 1:24,000-scale Forest Service Status Plats, available for inspection at the U.S. Forest Service, Rocky Mountains Region, 11,117 West 8th Avenue, Denver, CO 80225. Names of most patented claims were obtained from Wilhelm and others (1978). Other names were obtained from the Lawrence County Courthouse, Deadwood, South Dakota. Claims have been located as accurately as possible, but this map is not intended to be used for legal nor precise locations of mining claims.

Locations of mines and prospects were compiled from all available published and unpublished data. The locations of active and inactive mines in this quadrangle were taken from Allsman (1940), Bayley (1970, 1972), Connolly (1927, 1933), Grunwald (1970), Hughes (1924), Irving (1899), Mukherjee (1968), O'Harra (1902), Shapiro and Gries (1970), U.S. Bureau of Mines (1954, 1986), U.S. Geological Survey (1986), and Zeitner (1977). Also, in some instances, different sources of information gave conflicting location information for mines with the same name. Where possible, this conflict was resolved by comparing the name of the mine to adjacent patented claims, by comparing the description of the deposit to the known geology and topography of the area, or by communication with past owners of the property. In some instances, a unique location could not be determined using existing information; in that event the most logical location was chosen. The location of some or many mines on this map may differ from those in present data bases such as the U.S. Bureau of Mines Mineral Inventory Location System (MILS) or the U.S. Geological Survey Mineral Resources Data System (MRDS), formerly the Computerized Resources Information Bank (CRIB).

Locations of prospects in this quadrangle were taken from Bayley (1970, 1972), Grunwald (1970), Krahulec (1981), and Mukherjee (1968). Because many quadrangles, or parts of quadrangles, have not been mapped in as much detail as other quadrangles, comparison of the density of prospects from one quadrangle to another, or even within one quadrangle, should not be attempted. As an example, part of a quadrangle may be shown on the map as having more prospects than another part, but the first part may have been mapped in greater detail than the second part. Similarly, a part of a quadrangle may have many prospects that are not shown on this map because the original source of information did not map prospect pits.

Because so many articles have been written concerning mineral deposits in the Deadwood South and Deadman Mountain quadrangles, the references are divided into 1) geologic and mining articles about the Homestake mine, and 2) other geologic papers that deal primarily with Phanerozoic mineral deposits and geology. Geologic and mining references about the Homestake mine include those by Anonymous (1905, 1931a, 1931b), Bayley (1972), Bidgood (1977), Blackstone (1916), P. H. Bond (1970), W. D. Bond (1982), Chinn (1969), Clark and Sharwood (1913), Connolly and O'Harra (1929), Connolly (1974), Darton and Paige (1925), DeWitt and others (1986), Dodge (1942), Fiedler (1970), Gustafson (1933), Hewett (1903), Homestake Mining Company (1976), Hosted and Wright (1923), Irving and Emmons (1904), Irving, Emmons, and Jaggar (1904), Jaggar (1904), Jeffries and Tczap (1978), Kleinkopf and Redden (1975), Koch and Link (1967, 1971), Koschmann and Bergendahl (1968), Kulp and others (1956), Machacha (1982), Mathisrud and Sumner (1967), McCarthy (1976), McConnell (1964), McLaughlin (1931a, 1931b, 1933a, 1933b, 1949a, 1949b), Merrill (1904), Moore (1925), Myron (1928), Nelson (1981), Nicholas (1908), Noble (1939, 1950), Noble and Harder (1948), Noble, Harder, and Slaughter (1949), O'Harra (1916), Paige (1913, 1923, 1924), Pock (1984), Raychaudhuri (1964), Redden and Norton (1975), Rickard (1895), Robie (1926), Rye, Doe, and Delevaux (1974), Rye and Rye (1974), Sawkins and Rye (1974, 1975), Semple (1911), Sharwood (1911a), Simmons (1933), Jesse Simmons (1913b), Sisselman (1976), Slaughter (1968a, 1968b), Tesch (1974), Waterland and Connolly (1966), Wayland (1935, 1936), Wolfgram (1977), Wright (1926, 1937), Wright and Hosted (1921), A. B. Yates (1926), B. C. Yates (1904, 1926), and Zeitner (1964, 1976a, 1976b).

References about Phanerozoic mineral deposits and geology include those by Anna (1973), Bayley (1970, 1972), Beck (1976), Berg (1946), Connolly (1927), Connolly and O'Harra (1929), Darton (1909), Darton and Paige (1925), Davis (1948), Devereux (1882), DeWitt and others (1986), Ferguson and Turgeon (1908), Fillman (1921), Fox (1984), Garske (1968), Gasser (1981), Gries (1974), Grout and Schwartz (1927), Grunwald (1970), Harrer (1966), Hoffer (1958), Honkala (1949), Hughes (1924), Jaggar (1901, 1904), Karner (1981), Kirchner (1971), Kleinkopf and Redden (1975), Kokcharoensup (1979), Koschmann and Bergendahl (1968), Krahulec (1981), Kulik (1965), Lindgard and Roberts (1970), Lisenbee (1981, 1985), Matthews (1979), McCracken and Johnson (1923), Mukherjee (1968), Norton and Redden (1975), Olson (1976), Paige (1924), Papcke (1958), Raychaudhuri (1964), Redden (1975), Roberts and Rapp (1965), Shapiro and Gries (1968, 1970), Sharwood (1911b), Smith (1896, 1897), Stearns (1955), Storms (1899), Tourtelot, Gantier, and Ternes (1970), Usiriprisan (1979), Vogt (1984), and Zeitner (1977).

PRECISION OF LOCATION INFORMATION

All mine symbols except the unfilled diamond (◇) indicate that the location of the deposit is known within a 200-foot radius. The type of opening at a mine (adit, shaft, open pit, trench, and others) is designated by one of ten different symbols. The unfilled diamond symbol indicates that the location is known only to within a 1/4 mile radius and that the type of mine opening is unknown. Mines and prospects whose locations could not be verified to within closer than a 1/4 mile radius were not plotted on the map.

PATENTED CLAIM AND MINE LISTS

In the pamphlet, patented mining claims are listed both numerically and alphabetically. Mines are listed alphabetically. For ease in locating the claim or mine on the map, the legal description (section, township, range) is given.

Each patented claim on the map is represented by a number keyed to the numeric and alphabetic listings in the pamphlet. Where possible, the claim numbers are plotted approximately in the center of the claim and parallel to its long axis. Boundaries between adjacent claims are not shown. An asterisk (*) following a claim number indicates that most of the claim is in this quadrangle, but it extends into the adjacent quadrangle. A dollar sign ($) following a claim number indicates that most of the claim is in the adjacent quadrangle, but part of it is in this quadrangle. Claims outlined with a solid line are patented lode claims; claims outlined with a dotted line are patented placer claims. Many placer workings on unpatented claims have not been plotted on the maps, principally because the workings lacked a name.

On the map, the most common or most used name of a mine is normally next to its mine symbol. If there is space, any alternate names or synonyms are in parentheses following the most common name. On some maps, where space does not permit showing the first name or any alternate names, the names are shown by a single letter, two letters, or an abbreviation of the name; the mines are keyed to that letter or abbreviation in the alphabetic and numeric lists. Mines with more than one name have the alternate name(s) or synonym(s) shown in parentheses in the alphabetic lists. The first alternate name or synonym is also alphabetized in the alphabetic list of mines; second or third alternate names may not be alphabetized. Uncertain alternate names are not alphabetized and are followed by a query (?).

CLASSIFICATION OF MINES AND DEPOSITS

Mines and deposits are categorized according to geologic criteria of age, environment of formation, and contained metals, as in DeWitt and others (1986, p. 52-53). Deposit-type letter designations (C, D, and so on), corresponding to those in DeWitt and others (1986), are used in the alphabetic list of mines (in pamphlet). The criteria used for the deposit types are briefly summarized below and are explained more fully in DeWitt and others (1986).

PRINCIPAL TYPES OF DEPOSITS

C--Early Proterozoic carbonate-, silicate-, and sulfide-facies iron-formations are syngenetic stratiform deposits of gold, silver, and arsenic formed in a submarine environment about 1.8-2.2 Ga. The metals were concentrated in sedimentary and volcaniclastic rocks by biologic, sedimentologic, or hydrothermal processes.

D--Early Proterozoic veins and shear zones are discordant deposits of gold, silver, lead, and minor amounts of zinc, copper, and arsenic formed in a metamorphic and tectonic environment about 1.6-1.9 Ga. Hydrothermal solutions concentrated the metals in metasedimentary rocks.

K--Early Proterozoic pyrite-rich slate is a stratabound deposit of iron and carbon, gold, silver, and minor amounts of vanadium, zinc, and copper formed in a reducing environment about 1.7-2.0 Ga. The metals were concentrated in deep-water mud and silt.

R--Cambrian colluvium is a stratabound deposit of iron formed in a surface weathering environment about 500 Ma. Extensive weathering and minimal transport of the underlying Precambrian rocks resulted in accumulations of iron-rich debris and fine-grained material near the base of the Cambrian strata.

S and T--Paleocene or Eocene vein and replacement deposits are predominantly in Paleozoic strata as discordant to concordant bodies containing base and precious metals. Mineralization took place in an epithermal environment about 50-60 Ma by hydrothermal alteration and metallization of wall rocks near Tertiary intrusive bodies. S, are base-metal-rich deposits containing lead, zinc, and silver, and minor amounts of copper and gold. T, precious-metal-rich deposits containing gold and minor amounts of silver, lead, zinc, and copper.

U and V--Paleocene or Eocene disseminated and porphyry-type deposits are fracture-filling, vein, and disseminated concentrations of base and precious metals formed in a plutonic to subvolcanic environment about 50-60 Ma. Fracturing and hydrothermal alteration of Tertiary quartz-bearing igneous rocks resulted in precipitation of sulfide minerals rich in base and precious metals. U, base-metal-rich deposits containing molybdenum, lead, and minor amounts of silver and copper. V, precious-metal-rich deposits containing gold, copper, and minor amounts of silver and lead.

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REFERENCES CITED

Allsman, P. T., 1940, Reconnaissance of gold-mining districts in the Black Hills, South Dakota: U.S. Bureau of Mines Bulletin 427, 146 p.
Anna, Lawrence, 1973, Geology of the Kirk Hill area, Meade County, South Dakota: Rapid City, South Dakota School of Mines and Technology M.S. thesis, 47 p.
Anonymous, 1905, Discovery and development of the Homestake Mines of South Dakota: The Mining and Scientific Press, v. 90, p. 391-392, 404-405.
Anonymous, 1931a, Gold mining and milling at Lead, South Dakota 1876-1931: Engineering and Mining Journal, v. 132, p. 287-342.
Anonymous, 1931b, Homestake Enterprise: Engineering and Mining Journal, v. 132, p. 287-334.
Bayley, R. W., 1970, Structure and mineralization of Precambrian rocks in the Galena-Roubaix district, Black Hills, South Dakota: U.S. Geological Survey Bulletin 1312-E, 15 p.
______ 1972, Geologic field compilation map of the northern Black Hills, South Dakota: U.S. Geological Survey Open-File Report 72-29, scale 1:48,000.
Beck, J. A., 1976, Geology of the Lexington Hill-Pillar Peak area, Lawrence County, South Dakota: Rapid City, South Dakota School of Mines and Technology M.S. thesis, 102 p.
Berg, J. R., 1946, Pre-Cambrian geology of the Galena-Roubaix district, Black Hills, South Dakota: South Dakota Geological Survey Report of Investigations 52, 53 p.
Bidgood, T. W., 1977, Petrology and trace element distribution across a gold ore body in the Homestake mine, Lead, South Dakota: Rapid City, South Dakota School of Mines and Technology Ph.D. dissertation, 97 p.
Blackstone, Richard, 1916, The Homestake Mine: Pahasapa Quarterly, v. 5, p. 16-30.
Bond, P. H., 1970, The directions and magnitudes of the principal stresses at the 6200 foot level of the Homestake Mine, Lead, South Dakota: Rapid City, South Dakota School of Mines and Technology M.S. thesis.
Bond, W. D., 1982, Preferred orientations of C-axes in quartz grains and their relationship to the tectonite structure of the Homestake gold mine at Lead, South Dakota: Rapid City, South Dakota School of Mines and Technology M.S. thesis.
Chinn, William, 1969, Structural and mineralogical evolution at the Homestake ore deposits, Lead, Lawrence County, South Dakota: Berkeley, University of California Ph.D. dissertation, 197 p.
Clark, A. J., and Sharwood, W. J., 1913, The metallurgy of the Homestake ore: Mining and Metallurgical Institute Transactions, v. 22, p. 68-176, 176-214.
Connolly, J. P., 1927, The Tertiary mineralization of the northern Black Hills: South Dakota School of Mines and Technology Bulletin 15, 130 p.
______ 1933, Geologic history of Black Hills gold placers: South Dakota Geological Survey Report of Investigations 16, 16 p.
Connolly, J. P., and O'Harra, C. C., 1929, The mineral wealth of the Black Hills: South Dakota School of Mines and Technology Bulletin 16, 418 p.
Connolly, Thomas, 1974, Homestake Mine, largest United States gold producer: Mining Engineering, v. 26, p. 24-27.
Darton, N. H., 1909, Geology and water resources of the northern portion of the Black Hills and adjoining regions in South Dakota and Wyoming: U.S. Geological Survey Professional Paper 65, 105 p.
Darton, N. H., and Paige, Sidney, 1925, Central Black Hills [quadrangle], South Dakota: U.S. Geological Survey Geologic Atlas of the United States, Folio 219, 34 p.
Davis, V. C., 1948, Belle-Eldridge lead-zinc deposits, Lawrence County, South Dakota: U.S. Bureau of Mines Report of Investigations 4215, 8 p.
Devereux, W. B., 1882, The occurrence of gold in the Potsdam Formation, Black Hills, Dakota: American Institute of Mining Engineers Transactions, v. 10, p. 465-475.
DeWitt, Ed, Redden, J. A., Wilson, Anna Burack, and Buscher, David, 1986, Mineral resource potential and geology of the Black Hills National Forest, South Dakota and Wyoming, with a section on Salable commodities by J. S. Dersch: U.S. Geological Survey Bulletin 1580, 135 p.
Dodge, T. A., 1942, Amphibolites of the Lead area, northern Black Hills, South Dakota: Geological Society of America Bulletin, v. 53, p. 561-584.
Ferguson, H. G., and Turgeon, F. A., 1908, An occurrence of Harney Granite in the northern Black Hills: Harvard College, Museum of Comparative Zoology Bulletin, v. 49, Geological Series 8, p. 275-282.
Fiedler, Mildred, 1970, The treasure of Homestake Gold: Aberdeen, S. Dak., North Plains Press, 478 p.
Fillman, Louise, 1921, Limestone conglomerates of the Deadwood Formation of the northern Black Hills: Iowa City, University of Iowa M.S. thesis.
Fox, F. D., 1984, Reclamation work reclaims gold tailings in the Black Hills of South Dakota: Mining Engineering, v. 36, p. 1543-1549.
Garske, D. H., 1968, Mineralogy of the lower contact zone of the Double Rainbow mine, Galena, South Dakota, in Black Hills area, South Dakota, Montana, Wyoming: Wyoming Geological Association Guidebook, 20th Annual Field Conference, 1968, p. 177-179.
Gasser, M. M., 1981, The geology of the southeast portion of the Deadman Mountain quadrangle, Black Hills, South Dakota: Rapid City, South Dakota School of Mines and Technology M.S. thesis, 89 p.
Gries, J. P., 1974, Mineral resources of the Black Hills area, South Dakota and Wyoming: U.S. Bureau of Mines Information Circular 8660, 61 p.
Grout, F. F., and Schwartz, G. M., 1927, Alunitic gold ore in the Black Hills: Economic Geology, v. 22, p. 369-373.
Grunwald, R. R., 1970, Geology and mineral deposits of the Galena mining district, Black Hills, South Dakota: Rapid City, South Dakota School of Mines and Technology Ph.D. thesis, 321 p.
Gustafson, J. K., 1933, Metamorphism and hydrothermal alteration of the Homestake gold-bearing formation: Economic Geology, v. 28, p. 123-163.
Harrer, C. M., 1966, Iron resources of South Dakota: U.S. Bureau of Mines Information Circular 8278, 160 p.
Hewett, G. C., 1903, The age of the Homestake lode, South Dakota: Engineering and Mining Journal, v. 75, p. 563-564.
Hoffer, J. M., 1958, The geology and petrography of Deadman Mountain, South Dakota: Iowa City, University of Iowa M.S. thesis.
Homestake Mining Company, 1976, 1876-1976--Homestake Centennial: Homestake Mining Company report prepared for field trip associated with American Institute of Mining and Metallurgical Engineers meeting, Rapid City, South Dakota, 1980.
Honkala, A. U., 1949, A study of Tertiary intrusives and associated mineralization in the Pillar Peak vicinity, Black Hills, South Dakota: Lincoln, University of Nebraska M.S. thesis.
Hosted, J. O., and Wright, L. B., 1923, Geology of the Homestake orebodies and the Lead area of South Dakota: Engineering and Mining Journal, v. 115, p. 793-799, 836-843.
Hughes, R. B., 1924, The story of the placers: Black Hills Engineer, v. 2, p. 18-27.
Irving, J. D., 1899, A contribution to the geology of the northern Black Hills: New York Academy of Sciences Annals, v. 12, no. 9, p. 187-340.
Irving, J. D., and Emmons, S. F., 1904, Mining geology, Part 2 of Irving, J. D., Emmons, S. F., and Jaggar, T. A., Jr., Economic resources of the northern Black Hills: U.S. Geological Survey Professional Paper 26, p. 43-222.
Irving, J. D., Emmons, S. F., and Jaggar, T. A., 1904, Economic resources of the northern Black Hills: U.S. Geological Survey Professional Paper 26, 222 p.
Jaggar, T. A., Jr., 1901, The laccoliths of the Black Hills, with a chapter on Experiments illustrating intrusion and erosion, by Ernest Howe: U.S. Geological Survey Twenty-first Annual Report, Part 3, p. 163-303.
______ 1904, General geology, Part 1 of Irving, J. D., Emmons, S. F., and Jaggar, T. A., Jr., Economic resources of the northern Black Hills: U.S. Geological Survey Professional Paper 26, p. 1-42.
Jeffries, L. F., and Tczap, A., 1978, Homestake's Grizzly Gulch tailings disposal project: Mining Congress Journal, v. 64, p. 23-28.
Karner, F. R., 1981, Geologic relationships in the western centers of the northern Black Hills Cenozoic igneous province (includes Lawrence and Meade Counties), in Geology of the Black Hills, South Dakota and Wyoming: Geological Society of America, Rocky Mountain Section, Field Trip Guidebook, 1981, p. 126-133.
Kirchner, J. G., 1971, The petrography and petrology of the phonolite porphyry intrusions of the northern Black Hills, South Dakota: Des Moines, University of Iowa Ph.D. dissertation, 197 p.
Kleinkopf, M. D., and Redden, J. A., 1975, Bouger gravity, aeromagnetic, and generalized geologic maps of part of the Black Hills of South Dakota and Wyoming: U.S. Geological Survey Geophysical Investigations Map GP-903, scale 1:250,000.
Koch, G. S., Jr., and Link, R. F., 1967, Gold distribution in diamond-drill core from the Homestake Mine, Lead, South Dakota: U.S. Bureau of Mines Report of Investigations 6897, 27 p.
______ 1971, Sampling gold ore by diamond-drilling in the Homestake Mine, Lead, South Dakota: U.S. Bureau of Mines Report of Investigations 7508, 35 p.
Kokcharoensup, Wichai, 1979, The distribution of metals in stream sediments at the Galena-Gilt Edge area, Lawrence County, South Dakota: Rapid City, South Dakota School of Mines and Technology M.S. thesis.
Koschmann, A. H., and Bergendahl, M. H., 1968, Principal gold-producing districts of the United States: U.S. Geological Survey Professional Paper 610.
Krahulec, K. A., 1981, Precambrian geology of the Roubaix district, Black Hills, South Dakota: Rapid City, South Dakota School of Mines and Technology M.S. thesis, 46 p.
Kulik, J. W., 1965, Stratigraphy of the Deadwood Formation, Black Hills, South Dakota and Wyoming: Rapid City, South Dakota School of Mines and Technology M.S. thesis, 263 p.
Kulp, J. L., Eckelmann, W. R., Gast, P. W., and Miller, D. S., 1956, Age of the Black Hills (South Dakota) gold mineralization: Geological Society of America Bulletin, v. 6, p. 1557-1558.
Lindgard, A. L., and Roberts, W. L., 1970, Utilization of mine dumps in the Black Hills, South Dakota, Carbonate Camp, Spokane, and Galena districts: South Dakota Academy of Science Proceedings, v. 49, p. 98-130.
Lisenbee, A. L., 1981, Studies of the Tertiary intrusions of the northern Black Hills Uplift, South Dakota and Wyoming; a historical review, in Rich, F. J., ed., Geology of the Black Hills, South Dakota and Wyoming: American Geological Institute, p. 106-125.
______ 1985, Tectonic map of the Black Hills uplift, Montana, Wyoming, and South Dakota: Geological Survey of Wyoming Map Series 13, scale 1:250,000.
Machacha, T. P., 1982, Mineralogy and geochemistry of the iron dike in the Broken Boot mine area west of Deadwood, Lawrence County, South Dakota: Rapid City, South Dakota School of Mines and Technology M.S. thesis.
Mathisrud, G. D., and Sumner, J. S., 1967, Underground induced polarization at the Homestake Mine: Mining Congress Journal, v. 53, p. 66-69.
Matthews, C. V., 1979, Geology of the central Vanocker laccolith area, Meade County, South Dakota: Rapid City, South Dakota School of Mines and Technology M.S. thesis, 110 p.
McCarthy, T. R., 1976, The metamorphic petrology of the sideroplesite and cummingtonite schist facies of the Homestake Formation, Homestake mine, Lead, South Dakota: Madison, University of Wisconsin M.S. thesis, 72 p.
McConnell, G. W., 1964, Notes on similarities between some Canadian gold deposits and the Homestake deposits of South Dakota: Economic Geology, v. 59, p. 719-720.
McCracken, G. L., and Johnson, A. J., 1923, An investigation of the refractory nature of the blue siliceous ores of the Black Hills: Rapid City, South Dakota School of Mines and Technology, Professional [thesis].
McLaughlin, D. H., 1931a, Geology (of the Homestake Mine, Black Hills, South Dakota): Engineering and Mining Journal, v. 132, p. 324-329.
______ 1931b, The Homestake enterprise, ore genesis and structure: Engineering and Mining Journal, v. 132, p. 324-329.
______ 1933a, Geologic work at the Homestake Mine, Lead, South Dakota, in Ore Deposits of the Western States (Lindgren volume): American Institute of Mining and Metallurgical Engineers, p. 722-729.
______ 1933b, The Homestake ore bodies, Lead, South Dakota, in Ore deposits of the Western States (Lindgren volume): American Institute of Mining and Metallurgical Engineers, p. 563-565.
______ 1949a, The Homestake Mine: Canadian Mining Journal, v. 70, p. 49-53.
______ 1949b, The Homestake Mine (South Dakota): Geological Association of Canada, 1949, Proceedings, v. 2, p. 27-35.
Merrill, C. W., 1904, The metallurgy of the Homestake ore: American Institute of Mining Engineers Transactions, v. 34, p. 585-598.
Moore, E. S., 1925, The geological age of the Homestake ore bodies: Economic Geology, v. 20, p. 604-605.
Mukherjee, N. S., 1968, Geology and mineral deposits of the Galena-Gilt Edge area, northern Black Hills, South Dakota: Golden, Colorado School of Mines Ph.D. dissertation, 288 p.
Myron, E. G., 1928, The history of the Homestake Mine: Vermillion, University of South Dakota, M.A. thesis.
Nelson, G. C., 1981, The Homestake gold mine, in Kim, Y. S., ed., Proceedings: International gold/silver conference, Nevada Institute of Technology, Reno, Nev., [p. 8-9].
Nicholas, F. C., 1908, South extension Homestake mineral formations: Mining World, v. 29, p. 121-124.
Noble, J. A., 1939, Geology of the Homestake Gold Mine: Cambridge, Harvard University Ph.D. dissertation.
______ 1950, Ore mineralization in the Homestake gold mine, Lead, South Dakota: Geological Society of America Bulletin, v. 61, p. 221-252.
Noble, J. A., and Harder, J. O., 1948, Stratigraphy and metamorphism in a part of the northern Black Hills and the Homestake mine, Lead, South Dakota: Geological Society of America Bulletin, v. 59, p. 941-975.
Noble, J. A., Harder, J. O., and Slaughter, A. L., 1949, Structure of a part of the northern Black Hills and the Homestake mine, Lead, South Dakota: Geological Society of America Bulletin, v. 60, p. 321-352.
Norton, J. J., and Redden, J. A., 1975, Gold and gold-silver deposits, in U.S. Congress, Senate Committee on Interior and Insular Affairs, Mineral and water resources of South Dakota: U.S. 94th Congress, 1st session, p. 78-90.
O'Harra, B. M., 1916, Black Hills gold-bearing iron-quartz-tremolite belt: Engineering and Mining Journal, v. 101, p. 770-773.
O'Harra, C. C., 1902, The mineral wealth of the Black Hills: South Dakota School of Mines and Technology Bulletin 6, 88 p.
Olson, K. R., 1976, The isotopic composition of strontium and the origin of igneous intrusive rocks of the northern Black Hills province of western South Dakota: Rapid City, South Dakota School of Mines and Technology M.S. thesis, 52 p.
Paige, Sidney, 1913, Pre-Cambrian structure of the northern Black Hills, South Dakota, and its bearing on the origin of the Homestake ore body: Geological Society of America Bulletin, v. 24, p. 293-300.
______ 1923, The geology of the Homestake Mine: Economic Geology, v. 18, p. 204-237.
______ 1924, Geology of the region around Lead, South Dakota, and its bearing on the Homestake ore body: U.S. Geological Survey Bulletin 765, 58 p.
Papcke, D. E., 1958, Strawberry Hill iron deposits in Lawrence County, South Dakota: Rapid City, South Dakota School of Mines and Technology, B.S. thesis, 31 p.
Pock, K., 1984, Surveying for gold 8,000 feet underground: Professional Surveyor, v. 4, p. 26-31.
Raychaudhuri, Bimalendu, 1964, Relation of atomic constitution to lattice parameters in some hornblendes from the Black Hills, South Dakota: American Mineralogist, v. 49, p. 198-206.
Redden, J. A., 1975, Lead-silver and lead-zinc deposits, in U.S. Congress, Senate Committee on Interior and Insular Affairs, Mineral and water resources of South Dakota: U.S. 94th Congress, 1st session, p. 90-95.
Redden, J.A., and Norton, J. J., 1975, Precambrian geology of the Black Hills, in U.S. Congress, Senate Committee on Interior and Insular Affairs, Mineral and water resources of South Dakota: U.S. 94th Congress, 1st session, p. 21-28.
Rickard, T. A., 1895, Gold milling in the Black Hills, South Dakota, and at Grass Valley, California: American Institute of Mining Engineers Transactions, v. 25, p. 906-928.
Roberts, W. L., and Rapp, George, Jr., 1965, Mineralogy of the Black Hills: Rapid City, South Dakota School of Mines and Technology Bulletin 18, 268 p.
Robie, E. H., 1926, Milling practice at the Homestake Mine: Engineering and Mining Journal, v. 122, p. 564-568.
Rye, D. M., Doe, B. R., and Delevaux, M. H., 1974, Homestake gold mine, South Dakota; [Part] 2, Lead isotopes, mineralization ages, and source of lead in ores of the northern Black Hills: Economic Geology, v. 69, p. 814-822.
Rye, D. M., and Rye, R. O., 1974, Homestake gold mine, South Dakota; [Part] 1, Stable isotope studies: Economic Geology, v. 69, p. 293-317.
Sawkins, F. J., and Rye, D. M., 1974, Relationship of Homestake-type gold deposits to iron-rich Precambrian sedimentary rocks: Institute of Mining and Metallurgy Transactions, Section B, v. 83, no. 810, p. 56-59.
Sawkins, F. J., and Rye, D. M., 1975, Relationship of Homestake-type gold deposits to iron-rich Precambrian sedimentary rocks: Institute of Mining and Metallurgy Transactions, Section B, v. 84, no. 819, p. B37-B38.
Semple, C. C., 1911, The Homestake Mine, South Dakota: Engineering and Mining Journal, v. 91, p. 610-613, 661-663, 719-722.
Shapiro, L. H., and Gries, J. P., 1968, Ore deposits in Paleozoic rocks, northern Black Hills, South Dakota, in Black Hills area, South Dakota, Montana, Wyoming: Wyoming Geological Association Guidebook, 20th Field Conference, p. 179-185.
______ 1970, Ore deposits in rocks of Paleozoic and Tertiary age, northern Black Hills, South Dakota: U.S. Geological Survey Open-File Report 70-300, 235 p.
Sharwood, W. J., 1911a, Analyses of some rocks and minerals from the Homestake mine, Lead, South Dakota: Economic Geology, v. 6, p. 729-789.
______ 1911b, Notes on tellurium bearing gold ores: Economic Geology, v. 6, p. 22-36.
Simmons, J. E., 1933, The Homestake Mine: Canadian Mining Journal, v. 54, p. 299-304.
Simmons, Jesse, 1913b, Homestake and Wasp: Mining Magazine, v. 9, p. 47-49.
Sisselman, R., 1976, New exploration and development at Lead; frosting on Homestake's 100th birthday cake: Engineering and Mining Journal, v. 177, p. 90-96.
Slaughter, A. L., 1968a, Homestake Mine, in Black Hills area, South Dakota, Montana, Wyoming: Wyoming Geological Association Guidebook, 20th Field Conference, p. 157-171.
______ 1968b, The Homestake mine, in Ore deposits of the United States, 1933-1967 (Graton-Sales Volume), Volume 2: American Institute of Mining, Metallurgical, and Petroleum Engineers, p. 1436-1459.
Smith, F. C., 1896, The occurrence and behavior of tellurium in gold ores, more particularly with reference to the Potsdam gold ores of the Black Hills, South Dakota: American Institute of Mining Engineers Transactions, v. 25, p. 485-515.
______ 1897, The Potsdam gold ores of the Black Hills of South Dakota: American Institute of Mining Engineers Transactions, v. 27, p. 404-428.
Stearns, D. W., 1955, Igneous geology of a portion of the Galena district, Lawrence County, South Dakota: Rapid City, South Dakota School of Mines and Technology M.S. thesis, 46 p.
Storms, W. H., 1899, The telluride ores of the Hills of South Dakota: Engineering and Mining Journal, v. 78, p. 377-378.
Tesch, C. L., 1974, Production and development activities at the Homestake Gold Mine, Lead, South Dakota: Annual Mineralogy Symposium Proceedings, no. 17, p. 102-113.
Tourtelot, H. A., Gantier, R. F., and Ternes, E. B., 1970, Gold in sedimentary rocks of Tertiary age and terrace gravels east of the Black Hills and the Rocky Mountain front, South Dakota, Wyoming, and Nebraska [abs.]: Geological Society of America Abstracts, v. 2, no. 5, p. 351-352.
U.S. Bureau of Mines, 1954, Black Hills mineral atlas, South Dakota, Part 1: U.S. Bureau of Mines Information Circular 7688, 123 p.
______ 1986, Mineral Inventory Location System (MILS): U.S. Bureau of Mines, active computer file, data available from U.S. Bureau of Mines, Intermountain Field Operations Center, Building 20, Denver Federal Center, Denver, CO 80225.
U.S. Geological Survey, 1986, Mineral Resources Data System (MRDS, formerly Computer Resources Information Bank, CRIB): U.S. Geological Survey active computer file; data available from U.S. Geological Survey, Branch of Resource Analysis, Building 25, Denver Federal Center, Denver, CO 80225.
Usiriprisan, Chamroon, 1979, Geology of the Woodville Hills intrusive body, Lawrence County, South Dakota: Rapid City, South Dakota School of Mines and Technology M.S. thesis, 74 p.
Vogt, T. J., 1984, The petrology, mineralogy, and chemistry of the Cora mine, a hydrothermal lead-silver deposit, Black Hills, South Dakota: Rapid City, South Dakota School of Mines and Technology M.S. thesis.
Waterland, J. K., and Connolly, T., 1966, Cut-and-fill stoping; Homestake Mining Company: Mining Congress Journal, v. 25, p. 29-34.
Wayland, R. G., 1935, A mineralogical study of Black Hills cummingtonite: Minneapolis, University of Minnesota M.S. thesis.
______ 1936, Cummingtonite from the Black Hills, South Dakota: American Mineralogist, v. 21, p. 607-610.
Wilhelm, A. B., Bowers, J. R., Jones, D. T., and Patel, S. R., 1978, Map of mineral claims of the northern Black Hills, Lawrence County, South Dakota: South Dakota School of Mines and Technology, Mining Engineering Department Map; available for inspection at Lawrence County Courthouse, Deadwood, SD 57732, map nos. 1-4, scale 1:19,200.
Wolfgram, Diane, 1977, Wall rock alteration and the localization of gold in the Homestake mine, Lead, South Dakota: Berkeley, University of California, Ph.D. dissertation, 139 p.
Wright, L. B., 1926, The relation of the Tertiary rhyolites to mineralization in the Homestake Mine: Black Hills Engineer, v. 14, p. 163-167.
______ 1937, Gold deposition in the Black Hills of South Dakota and Wyoming (with discussion): American Institute of Mining Engineers Transactions, v. 126, p. 390-425.
Wright, L. B., and Hosted, J. O., 1921, Geological methods of the Homestake Mining Company, Lead, South Dakota: Engineering and Mining Journal, v. 112, p. 886-889.
Yates, A. B., 1926, The occurrence of quartz in the Homestake Mine: Black Hills Engineer, v. 14, p. 167-171.
Yates, B. C., 1904, Some features of mining operations in the Homestake Mine, Lead, South Dakota: Mining and Scientific Press, v. 88, p. 111, 127-128, 147-148, 165-166, 177-178.
______ 1926, The Homestake Mine: Black Hills Engineer, v. 14, p. 131- 141.
Zeitner, J. C., 1964, The Homestake--South Dakota's big gold mine: Earth Science, v. 17, p. 104-107.
______ 1976a, Homestake, the nation's greatest gold mine; a bicentennial feature, Part I: Lapidary Journal, v. 30, p. 524-531.
______ 1976b, Homestake, the nation's greatest gold mine; a bicentennial feature, Part II: Lapidary Journal, v. 30, p. 676, 678, 680, 682, 684, 686, 688.
______ 1977, Placer gold in the Black Hills: Lapidary Journal, v. 31, p. 1476, 1478, 1480, 1482, 1484, 1486.

MAP SHOWING LOCATIONS OF MINES, PROSPECTS, AND PATENTED MINING CLAIMS, AND CLASSIFICATION OF MINERAL DEPOSITS IN THE DEADWOOD SOUTH 7½–MINUTE QUADRANGLE AND PART OF THE DEADMAN MOUNTAIN 7½–MINUTE QUADRANGLE, BLACK HILLS, SOUTH DAKOTA

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