known in the Moina Mining District, Tasmania, Australia, which is largely known for its Sn-W skarn and greisen deposits (Collins and Williams, 1986). Lithophile-element skarn is associated with numerous Late Cretaceous, peraluminous, two-mica granitoids across a broad region in the eastern Great Basin of the United States (Barton, 1987; Barton and others, 1988). Significant concentrations of gold have not been reported from this lithophile-element-skarn environment. However, silver is present in many of these lithophile-element skarns in apparently genetically associated silver-base-metal, quartz-carbonate veins (Barton, 1987).

REFERENCES CITED


Atkinson, W.W., Jr., and Einaudi, M.T., 1978, Skarn formation and mineralization in the contact aureole at Carr Fork, Bingham, Utah: Economic Geology, v. 73, p. 1326-1365.


Bergeat, Alfred, 1910, La granadierita de Concepcion del Oro en el Estado de Zacatecas y sus formaciones de contactos: Instituto Geologico Mexico, Bulletin 27.


Bin, Zhao, and Barton, M.D., 1988, Compositional characteristics of garnets and pyroxenes in contact-metasomatic skarn deposits and their relationships with metasomatism: Chinese Journal of Geochemistry, v. 7, no. 4, p. 329-335.

Blake, D.W., Wotruba, P.R., and Theodore, T.G., 1984, Zonation in the skarn environment at the Minnie-Tomboy gold depos-

Figure 14. Gold grade compared with copper grade and silver grade. A, Gold grade compared with copper grade for Au-skarns and byproduct Au-skarns; B, Gold grade compared with silver grade for Au-skarns and byproduct Au-skarns.


Carson, D.J.T., 1969, Tertiary mineral deposits of Vancouver Island: Canadian Institute of Mining and Metallurgy Transactions, v. 72, p. 116-125.


Clark, W.B., and Carlson, D.W., 1956, Mines and mineral resources, El Dorado County, California: California Journal of Mines and Geology, v. 52, no. 4, p. 397-398; 482.


Creeelman, R.A., Lipton, I.T., and Stagg, R.N., 1988, Skarn hosted


—1976b, Geokhimisheskiye kriterii zolotonosnosti kon-


Laznicka, Peter, 1973. MANIFILE—The University of Manitoba file of nonferrous metal deposits of the world: Winnipeg, Department of Earth Sciences, University of Manitoba.


—1989. Gold skarn deposits—Geology and exploration criteria,

References Cited 27
in Keays, Reid, Ramsay, Ross, and Groves, David, eds., The
geology of gold deposits: The perspective in 1988: New Ha-
ven, Conn., Economic Geology Publishing Co., Economic
Geology Monograph 6, p. 537-552.
Mining Activity Digest, 1987, Africa—South Africa: v. 14, no. 6,
p. 8.
Mining Journal (London), 1989, Exploration—Buckhorn assess-
ment continues: v. 313, no. 8037, p. 208.
523.
of western Canada and southeastern Alaska: U.S. Geological
Survey Map Miscellaneous Field Studies MF-1874-B, scale
1:2,500,000.
of the Canadian Cordillera: A plate-tectonic model: Ameri-
Morozov, S.A., 1976, Main factors of mineral formation [abs.], in
Abstracts of Fifth All-Union Conference on Thermobaroge-
chemistry, Ufa, U.S.S.R., 20-23 September, 1976: Ufa,
Bashkir Section, Academy of Sciences, U.S.S.R., Institute
of Geology, p. 24-25 (in Russian).
chemical conditions of origin of rare metal deposits in Tadzhikistan [abs.], in Abstracts of papers at Fourth Re-
gional Conference of Thermobarogeochemistry of Mineral-
Forming Processes, 24-30 September, 1973: Rostov, Rostov
Morozov, S.A., Mogrovskiy, V.V., Aver'yanov, G.S., and Fayziev,
A.R., 1974, Thermobarogeochemical studies of Alpine age
mineralization of Panir', Afgano-Tadzhikskaya depression and
S. Tyan' Shan' (Tadzhikistan) [abs.]: International Associa-
tion of the Genesis of Ore Deposits, Symposium, 4th, Varna,
Mosier, D.L., 1986, Grade and tonnage model of Zn-Pb skarn
deposits, in Cox, D.P., and Singer, D.A., eds., Mineral de-
posit models: U.S. Geological Survey Bulletin 1693, p. 90-
93.
Mosier, D.L., and Menzie, W.D., 1986, Grade and tonnage model
of Fe skarn deposits, in Cox, D.P., and Singer, D.A., eds.,
1693, p. 94-97.
Mueller, A.G., 1988, Archean gold-silver deposits with prominent
calc-silicate alteration in the Southern Cross greenstone belt,
western Australia: Analogues of Phanerozoic skarn deposits:
in Ho, S.E. and Groves, D.T., eds., Advances in understanding
Precambrian gold deposits, volume II: Geology Depart-
ment and University Extension, University of Western Aus-
tralia, Publication No. 12, p. 141-163.
Muller, J.E., Cameron, B.E.B., and Northcote, K.E., 1981, Ge-
ology and mineral deposits of Nooka Sound Map Arca (92 E),
Vancouver, British Columbia: Geological Survey of Canada
Paper 80-16, 53 p.
Murray, C.G., 1986, Metatamophyne and tectonic development of
the Tasman Fold Belt System in Queensland: Ore Geology Re-
views, v. 1, no. 2-4, p. 315-400.
Myers, G.L., 1985, Geology and geochemistry of the iron-copper-
gold skarns of the Kasaan Peninsula, Alaska: Fairbanks, Uni-
versity of Alaska, M.S. thesis.
Myers, G.L., and Meinert, L.D., 1988, Zonation of the Copper
Canyon-Fortitude gold skarn system [abs.]: Geological Soci-
Newberry, R.J., 1986, Compilation of data on Alaskan skarns: Al-
ska Division of Geological and Geophysical Surveys PDF
86-21, 835 p.
Newberry, R.J., Burns, L.E., and Smith, T.E., 1987, Contrast be-
tween W-related and Sn greisen/skarn-related granites in the
Fairbanks-Circle area, Alaska [abs.]: Geological Society of
America Abstracts with Programs, v. 19, no. 7, p. 787.
Newberry, R.J., Dillon, J.T., and Adams, D.D., 1986, Regionally
metamorphosed, calc-silicate-hosted deposits of the Brooks
1728-1752.
Nokleberg, W.J., Bundzen, T.K., Berg, H.C., Brew, D.A., Grybeck,
Donald, Robinson, M.S., Smith, T.E., and Yeend, Warren,
1987, Significant metalliferous lode deposits and placer dis-
Northern Miner, 1986, Loan and environmental OK firm Mascot's
start-up plan: v. 72, no. 19, p. 1-2.
———1987, Mascot's Nickel Plate may move underground: v. 73,
no. 38, p. 1, 6.
———1989a, Corona/Golden Nevada drilling near Nickel Plate
gold mine: v. 74, no. 51, p. 16.
———1989b, Corona write-down of Nickel Plate: v. 75, no. 4, p.
21.
Orris, G.J., Bliss, J.D., Hammarstrom, J.M., and Theodore, T.G.,
1987, Descriptions and grades of tonnelages for gold-bearing
p.
Pardee, J.T., 1918. Ore deposits of the northwestern part of the
Garnet Range, Montana: U.S. Geological Survey Bulletin 660,
p. 159-239.
Pardee, J.T., and Schrader, F.C., 1933, Metalliferous deposits of
the greater Helena mining region, Montana: U.S. Geological
Pavlova, L.K., 1983, Zoologoe orudenienie v skarnakh
Kuznetskogo Alatau i Gornogo Altaya [Gold mineralization
in skarns of Kuznetsk Alatau and Altai Mountains], in Shch-
erbakov, Y.G., Roslyakov, N.A., Nesterecnen, G.V., and
Roslyakova, N.V., eds., Usloviya obrazovaniy, printsipy
prozviva i poiskov zolotorudnykh mestorozhdenii [For-
matiion conditions, principles for prediction and exploration
for gold ore deposits]: Trudy Instituta Geologii i Geofiziki
(Novosibirsk), v. 533, p. 80-94 (in Russian).
Pearson, R.C., Trautwein, C.M., Moll, S.H., and others (in press),
Map showing mineral resource assessment for copper and
molybdenum in porphyry and stockwork deposits and for
tungsten, iron, gold, copper, and silver in skarn deposits, Dillon
1° x 2° quadrangle, Idaho and Montana: U.S. Geological
Survey Miscellaneous Investigations Series Map I-1803G.
Peatfield, G.R., 1978, Geologic history and metatamophyne of the
Boundary District, Southern British Columbia and Northern
Washington: Kingston, Ontario, Queens University, Ph.D.
Perez Segura, E., 1985, Carta metatamophyne de Sonora 1:250,000
una interpretacion de la metatamophyne de Sonora [Metatamophyne
map of Sonora 1:250,000, an interpretation of the metatamophyne
of Sonora]: Gobierno del Estado de Sonora, Direccion de

28 Gold-Bearing Skarns
Mineria Geología y Energetico Publicacion 7, 64 p., scale 1:500,000.


Rau-Figueroa, A., Loredo, J., and Iglesias, J.G., 1985, Fluid inclusions in quartz from gold mineralized granodioritic intrusion at "Carles" (Asturias, Spain) [abs.]: Symposium on Current Research on Fluid Inclusions, 8th, University of Gottingen, 10-12 April, 1985, Abstracts, p. 108.


Reid, J.E., 1978, Skarn alteration of the Commercial Limestone, Carr Fork area, Bingham, Utah: Economic Geology, v. 73, p. 1315-1325.


Salas, G.P., 1975 Carta y provincias metalogeneticas de la Republica Mexicana [Metallogenic map and provinces of the Mexican Republic]: Consejos Recursos Minerales Publicacion 21E, p. 188.

Sang, Jianhua, and Ho, S.E., 1987, A review of gold deposits in China, in Ho, S.E., and Groves, D.I., eds., Recent advances in understanding Precambrian gold deposits [papers presented at a seminar organized by the Department of Geology and University Extension, University of Western Australia]: Department of Geology and University Extension, University of Western Australia Publication 11, p. 307-320.

Schafer, R.W., and Bufta, R.H., eds., 1988, Precious metal deposits of the Carlin Trend: International meeting on gold exploration: Techniques, concepts and problems, Field Trip Guidebook No. 4, October 10-12, 1988 (sponsored by Society of
Mining Engineers.


———, 1947, Carson sink area, Nevada: U.S. Geological Survey Open-File Report; may be consulted at Mackay School of Mines, University of Nevada, Reno. [unpaginated]


Shoji, Tetsuya, 1978, Skarn formation, in Imai, Hideki, ed., Geological studies of the mineral deposits in Japan and East Asia: Tokyo, University of Tokyo Press, p. 201-212.


Sociedad Nacional de Minería y Petroleo (Peru), 1969, Peru—Mapa metalogenetico y guida para mapa metalogenetico Peru: Lima, Sociedad Nacional de Minería y Petroleo (Peru).


Theodore, T.G., Blake, D.W., Loucks, T.A., and Johnson, C.A., 1989, Geology of the Buckingham stockwork molybdenum deposit and surrounding area, Lander County, Nevada, with a section on Potassium-argon and $^{40}K/^{40}Ar$ geochronology of selected plutons in the Buckingham area, by E.H. McKee, and a section on Economic geology, by T.A. Loucks and C.A. Johnson, and a section on Supergene copper deposits at Cop-


TRM Engineering Ltd., 1986, Resource assessment for coastal and western British Columbia and the development of a portable modular mill design: Trader Resources Corporation-


Watanabe, Takeo, 1943, Geology and mineralization of the Suian district, Yuosen (Korea): Journal of the Faculty of Science, Hokkaido Imperial University, Series IV, Geology and Mineralogy, v. 6, no. 3-4, p. 205-303.


Wilson, S.R., 1959, Mining history and mineralogy of ores of the Clifton district, Gold Hill, Tooele County, Utah: Mineralogical Society of Utah Bulletin, v. 9, no. 1, p. 5-11.


—1987a, Geology of the Fortitude gold-silver skarn deposit, Copper Canyon, Lander County, Nevada [abs.]: Geological Society of Nevada, Bulk Mineable Precious Metal Deposits


BIBLIOGRAPHY OF ADDITIONAL GOLD-BEARING SKARN REFERENCES


Baker, J.H., and Hellingwerf, R.H., 1988, Rare-earth element geochemistry of W-Mo-(Au) skarns and granites from Western Bergolagen, Central Sweden: Mineralogy and Petrology, v. 39, p. 231-244.


Bean, R.E., Bloom, M.S., and Jaramillo, L., 1974, Skarn and disseminated mineralization in the Jarilla Mountains, Otero County [abs.], in Silver anniversary guidebook: Ghost Ranch, central-northern New Mexico; base-metal and fluorospar districts of New Mexico; a symposium: New Mexico Geological Society Annual Field Conference Guidebook, no. 25, p. 383.


Burdokov, G.P., Popov, V.Y., and Tarnovskiy, Y.V., 1975, Geologiya skarnovo-mednykh mestorozhdeniy Sayakhskogo graben-sinklinoriya [The geology of skarn copper deposits of