A selected bibliography of alkaline igneous rocks and related mineral deposits, with an emphasis on western North America

compiled by

Felix E. Mutschler, D. Chad Johnson, and Thomas C. Mooney

Open-File Report 94-624
1994

This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards and stratigraphic nomenclature. Any use of trade, product, or firm names is for descriptive purposes only and does not imply endorsement by the U.S. Government.
INTRODUCTION

This bibliography contains 3,406 references on alkaline igneous rocks and related mineral deposits compiled in conjunction with ongoing studies of alkaline igneous rocks, metallogeny, and tectonics in western North America. Much of the literature on these topics is not readily recovered by searches of current bibliographies and computerized reference systems. We hope that by making this bibliography available, it will help other workers to access this occasionally hard to find literature.

The bibliography is available in two formats: (1) paper hardcopy and (2) Apple Macintosh computer-readable 3.5 inch double density diskette. The computer-readable version of the bibliography is a 725 KB WORD (version 5.0) document. Individual literature citations are arranged alphabetically by author(s) and the order of items in each citation follows the standard U.S. Geological Survey format.


Arima, Makoto, Nakayama, Kazuhiro, Akaishi, Minoru, Yamaoka, Shinobu, and Kanda, Hisao, 1993, Crystallization of diamond from a silicate melt of kimberlite composition in high-pressure and high-temperature experiments: Geology, v. 21, p. 968-970.


Barrott, Julie, 1984, Petrology and geochronology of an early Miocene, bimodal, volcanic association in the White Rock Mountains, Lincoln County, Nevada [abs.]: Geological Society of America Abstracts with Programs, v. 16, no. 6, p. 438.


Bell, Keith, and Blenkinsop, John. 1980, Grant 42 ages and initial $^{87}\text{Sr}/^{86}\text{Sr}$ ratios from alkalic complexes of Ontario: Ontario Geological Survey Miscellaneous Paper 93, p. 16-23.


Bevier, M. L., 1992, A dominant asthenospheric mantle source for Late Miocene-Quaternary volcanic rocks, Stikine volcanic belt, British Columbia and Yukon Territory, Canada [abs.]: Eos, v. 73, no. 14, Spring Meeting Supplement, p. 334.


Blair, W. N., Page, N. J., and Johnson, M. G. 1977, Map and list of reported occurrences of platinum-group metals in the conterminous United States: U.S. Geological Survey Miscellaneous Field Studies Map MF-861, scale 1:5,000,000.


Blixt, J. E., 1933, Geology and gold deposits of the North Moccasin Mountains, Fergus County, Montana: Montana Bureau of Mines and Geology Memoir 8, 25 p.


Boettcher, A. L., O'Neil, J. R., Windom, K. E., Stewart, D. C., and Wilshire, H. G., 1979, Metaosmatism of the mantle and the genesis of kimberlites and alkali basalts, in Boyd, F. R.,
and Meyer, H. O. A., eds., The mantle sample: Inclusions in kimberlites and other
volcanics—Proceedings of the Second International Kimberlite Conference: Washington,

Böhlke, J. K., 1989. Comparison of metasomatic reactions between a common CO₂-rich vein
fluid and diverse wall rocks: intensive variables, mass transfers, and Au mineralization at

1° x 2° quadrangle, south-central Colorado: U.S. Geological Survey Miscellaneous
Investigations Series Map I-1419-C, scale 1:250,000.

Pueblo 1° x 2° quadrangle, south-central Colorado: U.S. Geological Survey Miscellaneous
Investigations Series Map I-1419-B, scale 1:250,000.

Bolivar, S. L., and Brookins, D. G., 1979, Geophysical and Rb-Sr study of the Prairie Creek,
Arkansas kimberlite, in Boyd, F. R., and Meyer, H. O. A., eds., Kimberlites, diatremes, and
diamonds: their geology, petrology, and geochemistry: Proceedings of the Second
International Kimberlite Conference, v. 1: Washington, D. C., American Geophysical Union,
p. 289-299.

742-746.

Bond, G. C., and Kominz, M. A., 1984, Construction of tectonic subsidence curves for the early
Paleozoic miogeocline, southern Canadian Rocky Mountains: implications for subsidence
95. p. 155-173.

Bond, G. C., and Kominz, M. A., 1991, Disentangling Middle Paleozoic sea level and tectonic
events in cratonic margins and cratonic basins of North America: Journal of Geophysical
Research, v. 96, p. 6619-6639.


Bonham, H. F., Jr., 1988, Models for volcanic-hosted epithermal precious metal deposits, in
Schafer, R. W., Cooper, J. J., and Vikre, P. G., eds., Bulk mineable precious metal deposits

Bonham, H. F., Jr., 1989, Bulk mineable gold deposits of the western United States, in Keays,
R. R., Ramsay, W. R. H., and Groves, D. I., eds., The geology of gold deposits: the

Bonham, H. F., Jr., and Hess, R. H., 1990, Bulk-mineable precious-metal deposits: Nevada

Bonnichsen, Bill, 1983, Epithermal gold and silver deposits, Silver City-DeLamar district, Idaho:


-27-


Case, J. E., 1991, Geologic map of the northwestern part of the Uncompahgre uplift, Grand County, Utah, and Mesa County, Colorado, with emphasis on Proterozoic rocks: U.S. Geological Survey Miscellaneous Investigations Series Map I-2088, scale 1:24,000.


Clemons, R. E., 1985, Geology of South Peak quadrangle, Luna County, New Mexico: New Mexico Bureau of Mines and Mineral Resources Geologic Map 59, scale 1:24,000.


Coffin, M. F., and Eldholm, O., in press, Large igneous provinces: crustal structure, dimensions, and external consequences: Reviews of Geophysics, v. XX, p. XX.


Condie, K. C., Bobrow, D. J., and Card, K. D., 1987, Geochemistry of Precambrian mafic dykes from the southern Superior Province of the Canadian Shield, in Halls, H. C., and


Conrad, J. E., and McKee, E.H., 1992, $^{40}$Ar/$^{39}$Ar dating of vein amphibole from the Bayan Obo iron-rare earth element-niobium deposit, Inner Mongolia, China: constraints on mineralization and deposition of the Bayan Obo Group: Economic Geology, v. 87, p. 185-188.


Cormier, Michel, Gauthier, André, and Muir, J. E., 1984, Geology, geochemistry and mineralization of Falconbridge's Lac Shortt gold deposit, Gand Township, Quebec: Canadian Institute of Mining and Metallurgy Special Volume 34, p. 393-411.


Czamanske, G. K., and Atkin, S. A., 1985, Metasomatism, titaniam acmite, and alkali amphiboles in lithic-wacke inclusions within the Coyote Peak diatreme, Humboldt County, California: American Mineralogist, v. 70, p. 499-516.


Dalziel, I. W. D., 1992, Late Precambrian rifted margins, the origin of the Iapetus and Pacific Ocean basins, and Gondwana amalgamation: time and space considerations [abs.]: Eos, v. 73, no. 14, Spring Meeting Supplement, p. 364.


Davis, L. L., Smith, D., and McDowell, F. W., 1993, Potassic magmatism at Two Buttes as a window to a Proterozoic lithosphere keel [abs.]: Eos, v. 74, no. 43, supplement, p. 634.


Dawson, K. M., compiler, 1984, Mineral deposits and principal mineral occurrences of the Canadian Cordillera and adjacent parts of the United States of America: Canada Geological Survey Map 1513A, scale 1:2,000,000.


De Mark, R. S., 1984, Minerals of Point of Rocks, New Mexico: Mineralogical Record, v. 15, p. 149-156.


Dingwell, D. B., and Brearly, Mark, 1985, Mineral chemistry of igneous melanite garnets from analcite-bearing volcanic rocks, Alberta, Canada: Contributions to Mineralogy and Petrology, v. 90, p. 29-35.


Drummond, K. J., and others, compilers, 1981, Plate tectonic map of the Circum-Pacific region, northeast quadrant: Tulsa, Oklahoma, American Association of Petroleum Geologists, scale 1:10,000,000.


Dudás, F. Ö., 1988, Inferences about the tectonic setting of alkalic rocks in the Crazy Mountains, Montana [abs.]: Geological Society of America Abstracts with Programs, v. 20, no. 6, p. 413.


Edgar, A. D., 1983, Relation of ultrapotassic magmatism in the western USA to the Yellowstone plume: Neues Jahrbuch für Mineralogie Abhandlungen, v. 147, p. 35-46.


Etienne, John, 1990, Lincoln County kimberlites, Troy district, northwestern Montana: Manuscript.


Farmer, G. L., 1988, Isotope geochemistry of Mesozoic and Tertiary igneous rocks in the western United States and implications for the structure and composition of the deep continental


Fleet, M. E., 1992, Experiments on the volatility of Fe, Ni, Cu, and platinum group elements (PGE) in sulfide assemblages at 1000°C [abs.]: Eos, v. 73, no. 14, Spring Meeting Supplement, p. 372.


Galbraith, F. W., 1941, Ore minerals of the La Plata Mountains, Colorado, compared with other telluride districts: Economic Geology, v. 36, p. 325-334.


Gandhi, S. S., and Bell, R. T., in review, Metallogenic concepts to aid exploration for the giant Olympic Dam-type deposits and their possible derivatives: Geological Association of Canada Special Paper XX.


Haggerty, S. E., 1992, Superplumes, superchrons, and superkimberlites [abs.]: Eos, v. 73, no. 14, Spring Meeting Supplement, p. 325-326.


Hagni, R. D., and Brandom, R. T., 1990, Mineral assemblages and paragenetic sequence of the iron-copper-cobalt ores at Boss-Bixby, Missouri and their mineralogical similarities to the ores at Olympic Dam, South Australia [abs.]: International Association on the Genesis of Ore Deposits (IAGOD), 8th Symposium Program with Abstracts, p. A195-A196.


Hahn, Raimund, 1990, Gold and silver districts of Montana: Montana Department of State Lands manuscript.


Hearn, B. C., Jr., 1989, Smoky Butte lamproite, Montana, in Montana high-potassium igneous province, 28th International Geological Congress Field Trip Guidebook T346: Washington, D.C., American Geophysical Union, p. 75-76.


-83-


Hildreth, Wes, and Moorbath, Stephen, 1988, Crustal contributions to arc magmatism in the Andes of central Chile: Contributions to Mineralogy and Petrology, v. 98, p. 455-489.


Himes, M. D., and Petersen, E. U., 1990, Geologic features of the Sheep Creek ores, a Proterozoic Cu-Co sediment-hosted massive sulfide deposit, Meagher County, Montana [abs.]: Society of Economic Geologists Gold '90 Symposium Program, p. 94.


Hodgson, C. J., Bailes, R. J., and Verzosa, R. S., 1976, Cariboo-Bell: Canadian Institute of Mining and Metallurgy Special Volume 15, p. 388-396.

-87-


-88-


Huntsman, J. R., 1988, Structural controls and age of the Caribou Mountain intrusion, southeastern Idaho [abs.]: Geological Society of America Abstracts with Programs, v. 20, no. 6, p. 421.


Hutchinson, R. W., and Young, G. M., 1992, Comment and reply on "Late Proterozoic stratigraphy and the Canada-Australia connection": Geology, v. 20, p. 765-767.


Indest, Stanley, and Carman, Max. 1979, Crystallization history of the Wildhorse Mountain quartz syenite intrusion and its relation to some other Big Bend intrusions, in Walton, A. W., and Henry, C. D., eds., Cenozoic geology of the Trans-Pecos volcanic field of Texas: Bureau of Economic Geology, University of Texas at Austin, Guidebook 19, p. 72-82.


-95-


Ketner, K. B., 1984, Recent studies indicate that major structures in northwestern Nevada and the Golconda thrust in north-central Nevada are of Jurassic or Cretaceous age: Geology, v. 12, p. 483-486.

Ketner, K. B., 1990, Golconda and Roberts Mountains allochthons emplaced over Triassic strata at Mt. Ichabod, Elko County, Nevada [abs.]: Geological Society of America Abstracts with Programs, v. 22, no. 3, p. 34.


-103-


Kurisoo, P., 1991, Geology and recent case history of the Kendall mining district, North Moccasin Mountains, Fergus County, Montana [abs.]: Society for Mining, Metallurgy, and Exploration Annual Meeting Program, Denver, p. 56.


Kyle, P. R., 1981, Mineralogy and geochemistry of a basanite to phonolite sequence at Hut Point Peninsula, Antarctica, based on core from Dry Valley Drilling Project drillholes 1, 2 and 3: Journal of Petrology, v. 22, p. 451-500.


Laznicka, Peter, and Edwards, R. J., 1979, Dolores Creek, Yukon—a disseminated copper mineralization in sodic metasomatites: Economic Geology, v. 74, p. 1352-1370.


Leclair, A. D., Ernst, R. E., and Hattori, K., 1993, Crustal-scale auriferous shear zones in the central Superior province, Canada: Geology, v. 21, p. 399-402.


Loughlin, G. F., 1927, Ore at deep levels in the Cripple Creek district, Colorado: American Institute of Mining and Metallurgical Engineers Technical Publication no. 13, 32 p.


McLemore, V. T., and McKee, Christopher, 1988, Geochemistry of the Burro Mountains syenites and adjacent Proterozoic granite and gneiss and the relationship to a Cambro-Ordovician alkalic


-125-


Mathis, A. C., and Deino, Alan, 1992, Age, stratigraphy, and petrology of a trachybasalt to peralkaline rhyolite suite exposed at Hart Mountain, southern Oregon [abs.]: Geological Society of America Abstracts with Programs, v. 24, no. 5, p. 68.


Meen, J. K., 1988, Production of isotopic disequilibrium in igneous rocks by crustal contamination—an example from a Laramide volcanic center in Montana, U.S.A.: Chemical Geology, v. 72, p. 299-309.


tectonic control of ore deposits and the vertical and horizontal extent of ore systems: Rolla, University of Missouri-Rolla Press, p. 217-235.


Miller, D. M., Wooden, J. L., and Wright, J. E., 1989, Mantle-derived Late Jurassic plutons emplaced during possible regional extension of the crust, northwest Utah and northeast Nevada [abs.]: Geological Society of America Abstracts with Programs, v. 21, no. 5, p. 117.


Mutschler, F. E., Mooney, T. C., and Johnson, D. C., 1991, Precious metal deposits related to alkaline igneous rocks—a space-time trip through the Cordillera: Mining Engineering, v. 43, p. 304-309.

Mutschler, F. E., and Radtke, A. S., 1991, World class gold deposits—the model success story—where is the next Olympic Dam? [abs.]: Association of Exploration Geochemists 15th


Nelson, JoAnne, and MacIntyre, Donald, 1988, Metallogeny of northeastern British Columbia: Geoscience Canada, v. 15, p. 113-116.


Noble, D. C., McCormack, J. K., McKee, E. H., Silberman, M. L., and Wallace, A. B., 1988, Time of mineralization in the evolution of the McDermitt caldera complex, Nevada-Oregon, and


Noble, D. C., Rigot, W. L., and Bowman, H. R., 1979, Rare-earth-element content of some highly differentiated ash-flow tuffs and lavas: Geological Society of America Special Paper 180, p. 77-85.


Noblett, J. B., and Staub, M. W., 1990, Mid-Proterozoic lamprophyre commingled with late-stage granitic dikes in the anorogenic San Isabel batholith, Wet Mountains, Colorado: Geology, v. 18, p. 120-123.


Ogilvie, I. H., 1908, Some igneous rocks from the Ortiz Mountains, New Mexico: Journal of Geology, v. 16, p. 230-238.


-153-


Paterson, C. J., 1990, Magmatic-hydrothermal model for epithermal-mesothermal Au-Ag deposits in the northern Black Hills: Proceedings of the Fourth Western Regional Conference on


Pecceerillo, Angelo, 1992, Potassic and ultrapotassic rocks: compositional characteristics, petrogenesis, and geologic significance: Episodes, v. 15, p. 243-XX.


-157-


Ross, M. L., in press, Influence of pre-existing structures on the location and morphology of the laccolithic centers in the La Sal Mountains, Utah: U.S. Geological Survey XX.


-169-


Ryzak, David, 1990, Gold deposits of active mining areas, Little Rocky Mountains, Montana: Proceedings of the Fourth Western Regional Conference on Precious Metals and the


Sharp, J. E., 1979, Cave Peak, a molybdenum-mineralized breccia pipe complex in Culberson County, Texas: Economic Geology, v. 74, p. 517-534.


Shegelski, R. J., 1980, Archean cratonization, emergence and red bed development, Lake Shebandowan area, Canada: Precambrian Research, v. 12, p. 331-347.


Sims, P. K., Peterman, Z. E., Hildenbrand, T. G., and Mahan, Shannon, 1991, Precambrian basement map of the Trans-Hudson orogen and adjacent terranes, northern Great Plains,


Speed, R. C., 1976, Geologic map of the Humboldt lopolith and surrounding terrane, Nevada: Geological Society of America Map and Chart Series no. 14, scale 1:81,000.


Stewart, J. H., and Carlson, J. E., 1976, Cenozoic rocks of Nevada: Nevada Bureau of Mines and Geology Map 52, scale 1:1,000,000.

Stewart, J. H., and Suczek, C. A., 1977, Cambrian and latest Precambrian paleogeography and
tectonics in western United States, in Stewart, J. H., Stevens, C. H., and Fritsche, A. E.,
eds., Palaeozoic paleogeography of the western United States: Pacific Coast Palaeogeography


Stobbe, H. R., 1949, Petrology of volcanic rocks of northeastern New Mexico: Geological

Stoeser, D. B., 1973, Mafic and ultramafic xenoliths of cumulus origin, San Francisco volcanic

Hannah, J. L., 1989, Detla CUSMAP Project: mineral assessment in the Tintic-Deep Creek

Stoffel, K. L., Joseph, N. L., Waggoner, S. Z., Gulick, C. W., Korosec, M. A., and Bunning,
B. B., 1991, Geologic map of Washington—northeast quadrant: Washington Division of
Geology and Earth Resources Geologic Map GM-39, scale 1:250,000.

Stormer, J. C., Jr., 1972, Ages and nature of volcanic activity on the southern High Plains, New

Stormer, J. C., Jr., 1972, Mineralogy and petrology of the Raton-Clayton volcanic field,

relation to regional deformation patterns, in Colvine, A. C., ed., The geology of gold in

Streckeisen, Albert (chairman, IUGS Subcommission on the Systematics of Igneous Rocks),
1973, Plutonic rocks—classification and nomenclature recommended by the IUGS


Streckeisen, A., 1979, Classification and nomenclature of volcanic rocks, lamprophyres,
carbonatites, and melilitic rocks: recommendations and suggestions of the IUGS

Streckeisen, A., 1980, Classification and nomenclature of volcanic rocks, lamprophyres,
carbonatites and melilitic rocks. IUGS Subcommission on the Systematics of Igneous Rocks:
Geologische Rundschau, v. 69, p. 194-207.

Streckeisen, A., and Le Maitre, R. W., 1979, A chemical approximation to the modal QAPF
169-206.

13, p. 355-367.

Stringham, Bronson, 1953, Granitization and hydrothermal alteration at Bingham, Utah:

-193-


Sun, S. S., and Hanson, G. N., 1975, Origin of Ross Island basanitoids and limitations upon the heterogeneity of mantle sources for alkali basalts and nephelinites: Contributions to Mineralogy and Petrology, v. 52, p. 77-106.

Sun, S. S., and Hanson, G. N., 1976, Rare earth evidence of differentiation of McMurdo Volcanics, Ross Island, Antarctica: Contributions to Mineralogy and Petrology, v. 54, p. 139-155.


Thompson, R. N., 1973, One-atmosphere melting behavior and nomenclature of terrestrial lavas: Contributions to Mineralogy and Petrology, v. 41, p. 197-204.


van der Heyden, P., 1992, A middle Jurassic to Early Tertiary Andean-Sierran arc model for the Coastal belt of British Columbia: Tectonics, v. 11, p. 82-97.


Watson, E. B., 1982, Basalt contamination by continental crust: some experiments and models: Contributions to Mineralogy and Petrology, v. 80, p. 73-87.


Weaver, B. L., Gilbert, M. C. and Lambert, D. D., 1991, Trace element and isotopic geochemistry and petrogenesis of mafic igneous rocks from the southern Oklahoma aulacogen [abs.]: Geological Society of America Abstracts with Programs, v. 23, no. 4, p. 103.


Western Mining Corporation, Ltd., 1988, Olympic Dam Operations—geology and mining—technical handbook: Melbourne, Australia, Western Mining Corporation, Ltd., 47 p.


Wilson, J. T., 1988, Convection tectonics: some possible effects upon the Earth's surface of flow from the deep mantle: Canadian Journal of Earth Sciences, v. 25, p. 1199-1208.


-215-


Young, G. M., 1984, Proterozoic plate tectonics in Canada with emphasis on evidence for a late Proterozoic rifting event: Precambrian Research, v. 25, p. 233-256.


