WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES
DIVISION OF GEOLOGY AND EARTH RESOURCES

Bibliography of Snohomish County geology, with an index to geologic mapping

by

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Olympia

September, 1979

Anderson, A. C., and others, 1947, Soil survey of Snohomish county, Washington: U.S. Bureau of Plant Industry, Soil Survey Series 1937, no. 19, 76 p.

Describes soils found in Snohomish County; their properties and uses. Includes a generalization of nature of the county and its climate. Also has a soils map of all but the mountainous area of Eastern Snohomish County. The scale is 1:63,360.

Anderson, Roy A., 1936 Fusulinids of the Granite Falls limestone and their stratigraphic significance: State College of Washington M.S. thesis, 24 p.

Gives a brief summary of previous studies, lithology, methods used, and description and significance of the fusulinids.

Artim, Ernest R., 1973, Geology in land use planning—Some guidelines for the Puget Lowland: Washington Division of Mines and Geology, Information circular 47, 18 p.

An easy to read description of terms and the geologic setting. Encompasses geologic hazards such as landslides, earthquakes, land subsidence, and description of critical resources. There are also maps and diagrams.

Awoki, Monroe T., 1912, Geology of the Darrington district, Stillaquamish quadrangle, Washington: University of Washington B.S. thesis, 29 p.

A basic overview of the Stillaquamish quadrangle, including physiography, descriptive geology, geologic history, and economic geology. Also contains a tographic map of the area. The scale is 1:31,680.

Axelrod, Joseph M.; Grimaldi, Frank S., 1949, Muscovite with small optic acial angle: American Mineralogist, v. 34, Nos. 7-8, p. 559-572. Abstract: Mineralogical Abstracts, v. 11, no. 2, p. 102-103, June 1950.

The concerned muscovite is found near the Sunrise Copper prospect, Sultan Basin, Snohomish County, Goes into unusual optical and structual characteristics, also chemical composition and thermal analysis.

Baum, Lawrence F., 1968, Geology and mineral deposits, Vesper Peak stock area: University of Washington M.S thesis, 75 p.

A comprehensive study of the area, covering the different occurences of rock units and their location and age. Also includes description of contact metanorphism, structure, and economic geology. There are many color pictures and a geologic map of Vesper Peak stock area with a scale of 1:960.

Beach, Willis K., 1962, A geological investigation of the Bonanza Queen mine: University of Washington B.S. thesis, 85 p.

A detailed study of Bonanza Queen mine, Snohomish County, in-

cluding maps, history, physiography, climate, geology, and petrology. Also contains many color photos of the area and rock samples, and geologic maps of scales 1:15,320, 1:4800, and 1:600.

Beikman, Helen M.; Gower, Howard D.; and Sana, Toni A. M., 1961, Coal reserves of Washington: Washington Division of Mines and Geology Bulletin, 47, 155 p.

Abstract: Chemical Abstracts, v. 56, no. 11, p. 12576, May 28, 1962; GeoScience Abstracts, v. 4, no. 11, p. 58-59, November 1962.

A detailed report on coal in Washington, explaining methods of estimating reserves, history, physical and chemical properties, and location by county. Snohomish County has little coal therefore only a half page is devoted to it. Also contains a coal deposit location with a scale of 1:21,125,000.

Bennett, William A. G.; Thorsen, Gerald W., 1960, Mode of depostition of ludwigite, kotoite, and cubanite in dunite on Jumbo Mountain: Geological Society of America Bulletin, b. 71, no. 12, pt. 2, p. 2049-2050.

Gives a brief geologic description of the area. Also explains occurences of the ores mentioned.

Bethune, George A., 1891, Mines and minerals of Washington: Washington State Geological Survey Annual Report, 122 p.

Gives a brief history of mining in Washington, Has six pages describing mines in Snohomish County. Also has descriptions of some

minerals.

Bethune, George A., 1892, Mines and minerals of Washington: Washington State Geological Survey Second Annual Report, 1891., 187 p.

Covers Washington coals, irons, limestones, clays, and soils. Several mines in Snohomish County are described.

Birks, Laverne S., Jr.; Brooks, E. J.; Adler, Isidore; Milton, Charles, 1959, Electron probe analysis of minute inclusions of a copper-iron mineral: American Mineralogist, v. 44, nos. 9-10, p. 974-978 September-October, 1959.

Abstract: Mineralogical Abstracts, v. 14, no. 7, p. 501, September 1960.

The electron probe analysis is done on specimens from the Mackinaw mine, Snohomish County. Describes the instrumentation, specimen preparation, and results of the analysis.

Blinman, Eric, 1978, Pollen analysis of Glacier Peak and Mazama volcanic ashes: Washington State University M.S. thesis, 49 p.

Contains a location map of the area, graphs showing estimated dates and relative size of ash deposits. Also has a four-page discussion and analysis of the ash deposits.

Boyd, Robert J., 1927, The Little Copper King and Red Devil veins of the Sunset Copper mine: University of Washington B.S. thesis, 52 p.

Describes history, location, mineralogy, petrology, and mining methods used. Also gives analysis of specimens form the area, and geologic map.

Boyle, James E., 1948, The Silverton Mine: University of Washington B.S. thesis, 31 p.

A study of the Silverton mine located near Silverton on the Stillaguamish River. Gives a brief history and description of field work, physiography, geology, and mining.

Bravinder, Kenneth M., 1932, Stratigraphy and paleontology of the Oligocene in the eastern portion of the Puget Sound basin: University of Washton M.S. thesis, 36, p.

Includes a stratigraphic description of the Fiddle's Bluff, Cathcart area, Snohomish County.

Fretz, Harlen J., 1913, Glaciation of the Puget Sound region: Washington Geological Survey Bulletin 8, 244 p.

A detailed study of glacial deposits and erosion in different parts of Puget Sound. Gives a Peistocene history. It has many photographs and maps showing geology and area of the study.

Broughton, W. A., 1942, Inventory of mineral properties in Snohomish County, Washington: Washington Division of Geology Report of Investigations 6, 64 p.

Abstract: Annotated Bibliography of Economic Geology 1942, v. 13, no. 2, p. 171, December 1943.

Gives an inventory of all mining operations at that time. Includes location, type of minerals mined, name, and brief description of deposit.

Bryant, Bruce, 1954, Metamorphism in the Snowking area, northern Cascades, Washington: Geological Society of American Bulletin, v. 65, no. 12, prt. 2, p. 334, December 1954.

A concise geologic evaluation of the Snowking area.

Bryant, Bruce H., 1955, Petrology and reconnaissance geology of the Snowking area, northern Cascades, Washington: University of Washington, Ph.D thesis, 321 p.

A comprehensive thesis of an area that is comprised of a complex plytonic body of granitic rocks, which is surrounded by metamorphosed, geosynclinal sedimentary and volcanic rocks on three sides. Includes description of regional and local geology, petrology, structure, geologic history, and galciation.

Bryant, Vicki Y., 1975, A study of the occurrence of garnet in siliceous igneous rocks of the Mount Pilchuck area: University of Washington M.S. thesis, 31 p.

Gives a description of the setting, previous work, petrography.

Also has discussion and data on microprobe and whole rock analyses.

Burmeister, Harry L., 1921, The geology, petrography, and mineralogy of the Sunset mine: University of Washington B.S. thesis, 40 p.

A description of location, history, and general geology. Goes into detailed geology of the ore body and mentions mining methods used.

Butler, Arthur P., Jr.; Finch, Warren I.; Twenhofl, William S., 1962, Epigenetic uranium in the United States (exclusive of Alaska and Hawaii): U.S. Geological Survey Mineral Inventory Resource Map MR-21, 1 sheet accompanied by 42 pages of text.

Mention of two uranium claims in Snohomish County.

Campbell, Roy E., 1921, A geological sutdy of the ore bodies of the Copper Bell mine: University of Washington B.S. thesis, 32 p.

A brief mention of location, history and historical geology. Description of structure, geologic bodies, ore deposits, and their genesis are also covered.

Capps, Gerald, and others, 1973, Geology of Southern Snohomish County for land-use planning: Western Washington State College, Department of Geology, 43 p.

Discusses rock types, their age, structure, weathering char-

racteristics; and describes each rock unit. Also covers slope stability, earthquake hazards and frequency, a location map and cross sections.

Carithers, Ward, 1945, Geology and ore deposits of the Sultan Basin: Washington Division of Mines and Geology, Bulletin 36, 90 p.

Detailed study covering location, field work, source map, physiography, geologic formations, ore deposits, mines and prospects of the Sultan Basin.

Carithers, Ward, 1946, Pumice and pumicite occurrences of Washington: Washington Division of Mines and Geology Report of Investigation 15, 78 p., 1946.

Abstract: Annotated Bibliography of Ecomonic Geology, v. 19, no. 7, p. 1960, April 10, 1947.

Describes field work, location, physiography, geology, and occurrences of pumice from Mount St. Helens and Glacier Peak.

Carithers, Ward; Guard, Alton K., 1945, Geology and ore deposits of the Sultan Basin: Washington Division of Mines and Geology Bulletin 36, 90 p.

Gives a concise description of physiography, geologic formations, ore deposits and covers mines and prospects of the area in more detail.

Cary, Allen S., 1950, Glaciation in the Skykomish River Valley, Washington: Geological Society of America Bulletin, v. 61, no. 12, pt. 2, p. 1521, December 1950.

A brief description of Pleistocene glacial events.

Cater, Fred W., 1969, The Cloudy Pass epizonal batholith and associated subvolcanic rocks: Geological Society of American Special Paper no. 116, 54 p.

Includes description of geologic setting, Cloudy Pass batholith structure and contact relations, and history of intrusion and cooling. Also geologic map and plates of rock samples included.

Cater, Fred W.; Crowder, D.F., 1956, Geologic map of the Holden quadrangle, Washington: U.S. Geological Survey Open-file Report, 1 sheet with explanation. Scale 1:62,500.

A geologic map of the Holden 15 minute quadrangle.

Cater, Fred, W. Jr., 1960, Chilled contacts and volcanic phenomena associated with the Cloudy Pass batholith, Washington. In short papers in the geological sciences; Geological Survey Research 1960; U.S. Geological Survey Professional Paper 400-B, pl 471-473. Abstracts: GeoScience Abstracts, v. 2, no. 12, p. 45, December 1960 (abstract by J. Phemister): Mineralogical Abstracts, v. 15, no. 3, p. 225, September 1960.

A short description of the geology of the area including a mineral content breakdown and morphology.

Cater, Fred W.; Crowder, Dwight F., 1967, Geologic map of the Holden quadrangle, Snohomish and Chelan Counties, Washington : U.S. Geological Survey Geologic Quadrangle Map GQ-646.

A geologic map including description of map units. Scale 1:62,500

Chew, Randall T., III; Boyd, Glen A., 1960, A preliminary investigation of clay deposits in Minnesota, North Dakota, Montana, Northern Idaho, and Washington : Northern Pacific Railway Co., Properties and Industries Development Department, Geology Division, unpublished report, 161, p.

Lists main industries and industrial uses of clays in different regions including western Washington and the Everett-Sumas District.

Chidester, Alfred H.; Shride, Andrew R., 1962, Asbestos in the United States (exclusive of Alaska and Hawaii): U.S. Geological Survey Mineral Investigations Resource Map MR-17, 1 sheet accompanied by 9 pages of text.

A map showing occurrences of asbestos in the United States, four of which are in Snohomish County. Supplement gives location and mineral which the asbestos in associated with.

Christie, Norman K., 1960, A geologic reconnaissance of a project in the Monte Cristo mining district, Snohomish County, Washington: University of Washington B.S. thesis, 28 p.

Includes a description of location, history, water and timber resources, geology, major and minor minerals, and petrographic analyses.

Cooper, John R., 1962, Bismuth in the United States (exclusive of Alaska and Hawaii): U.S. Geological Survey Mineral Investigation Resource Map MR-22, 1 sheet accompanied by 19 pages of text.

Location map with a scale of 1:3,168,000 and supplement giving name of mine and principle minerals mined. One occurrence in Snohomish County.

Crandell, Dwight R.; Mullineaux, Donal R.; Waldron, Howard H., 1965, Age and origin of the Puget Sound Trough in western Washington: U.S. Geological Survey Professional Paper 525-B, p. B132-136.

Description and interpretation of glacial and nonglacial sediments in the Puget Sound Trough. Includes map of area.

Crandell, Dwight R., 1965, The glacial history of western Washington and Oregon. In Wright, Harold E. Jr.; Frey, David G., editors, 1965, The Quaternary of the United States: Princeton University Press, p. 341-353.

Pleistocene glaciers in Washington and Oregon consisted of the Cordilleran ice sheet, which originated in western Canada and invaded northern Washington on both sides of the Cascade Range. Includes a map showing extent of glaciation, description of glacial events and related geomorphology.

Crosson, Robert S., 1972, Small earthquakes, structure and tectonics of the Puget Sound region: Bulletin of the Seismological Society of America, v. 62, no. 5, pp. 1133-1171.

Has a simplified geologic map of Puget Sound, graphs, map of epicenters, descriptions of seismograph system, structure, magnitudes of earthquakes and their tectonic implications.

Crosson, Robert S.; Noson, Linda J., 1979, Compilation of earthquake hypocenters in western Washington —1977: Washington Division of Geology and Earth Resources Information Circular 66, 12 p.

Has two maps showing epicenters and locations of seismograph stations, with a brief introduction and hypocenter listings.

Crowder, D.F.; Tabor, R.W., 1965, Routes and rocks; hiker's quide to the north Cascades form Glacier Peak to Lake Chelan: The Mountaineers, 235 p.

Describes geology, setting, hiking hints, and geologic story along hiking route. Contains maps, photographs and many sketches.

Crowder, Dwight F.; Tabor, Rowland W.; Ford, Arthur B., 1966, Geologic map of the Glacier Peak quadrangle, Snohomish and Chelan Counties, Washington: U.S. Geological Survey Geologic Quadrangle Map GQ-473, map and text on 1 sheet.

Geologic map has description of units and rock types.

Culver, Harold E.; Broughton, Willam A., 1965, Tungsten Resources of Washington: Washington Division of Geology Bulletin 34, 89 p. Abstract: Chemical Abstracts, v. 40, no. 15, p. 4321, August 10, 1946

Contains a map showing regions involved and has reference to geology, mineralogy and occurrence of tungsten in Sultan district, Snohomish County.

Dames and Moore, 1973, Regional Nuclear Power Plant siting study for The Public Power Council, Vancouver, Washington: Report, Washington Public Power Council.

This report presents the results of a study of potential nuclear power plant siting areas in the Pacific Northwest. Includes site development criteria, major siting areas including the Stillaguamish and Snohomish Rivers, population and land use, ecology, geology, seismology, climatology, water resources and fisheries consideration. Also has maps and tables (state-wide maps).

Danner, Wilbert R., 1957, A stratigraphic reconnaissance in the north-

western Cascade Mountains and San Juan Islands of Washington State: University of Washington, Ph.D thesis, 3 v., 562 p.

Abstract: Dissertation Abstracts, v. 18, no.1, p. 195, January 1958.

Comprehensive thesis on western Washington. Describes different rock units, their age, composition and location. Includes maps and pictures.

Danner, Wilbert R., 1959, Premain microfissils of northwestern Washington: Rocks and Minerals, v. 34, nos.3-4, p. 99-104, March-April 1959.

Abstract: GeoScience Abstracts (By J. Sinkankas), v. 1, no. 8, p. 14, August 1959.

Microfossils of western Washington are rare but do occur and are quarried in Snohomish County. The report gives description of location and brief history.

Danner, Wilbert R., 1965, Limestone of the western Cordilleran eugeosyncline of southwestern British Columbia, western Washington, and northern Oregon: Mining and Metallurgical Institute of India, 13 p.

Discusses briefly the limestone deposits of Snohomish County. Has a map and descriptions are listed chronologically.

Darton, Nelson H., 1909, Structural materials in parts of Oregon and

Washington: U.S. Geological Survey Bulletin 387, 33 p.

Gives brief summary of cement materials in Snohomish County.

Detheir, David P., 1974, Dissolved constituents in Williamson Creek, Snohomish County, Washington—A preliminary report: University of Washington M.S. thesis, 40 p.

Describes geology. Includes geologic map with a scale of 1:53,325 and analysis of water samples.

Detheir, David P., 1977, Beochemistry of Williamson Creek, Snohomish County, Washington: University of Washington, Ph.D dissertation, 315 p.

Includes a geologic, climatic, and biologic description of the area. Also covers geochemical and analytical methods used, as well as the hydrology involved, and chemistry of Williamson Creek.

Detheir, D. P.; Bortleson, G. S.; Scerra, J. D., 1978, Selected sources of geologic, hydrologic, and related information for the Puget Sound region, Washington: U.S. Geological Survey, 71 p., 6 fig.

An annotated bibliography.

Drost, B. W., 1977, Primary assessment of the water resources of the Tulalip Indian Reservation, Washington: U.S. Geological Survey

Open File Report, 67 p., 1 pl., 8 figs., 16 tables, scale 1:24:000.

Discusses reservoir and ground water supplies. Quality and quantities and distribution of use.

Dungan, Michael A., 1971, Structural and petrographic reconnaissance on northern portion of Sultan ultramafic-mafic complex, Snohomish County, Washington: University of Washington M.S. thesis, 32 p.

Describes previous work, petrology of the dunitic suite, metamorphic tectures and minerals, and analytical microprobe techniques.

Dungan, Michael A.,1974, The origin, emplacement, and metamorphism of the Sultan mafic-ultramafic complex, north Cascades, Snohomish County, Washington: University of Washington Ph.D thesis, 227 p. Abstract: Dissertation Abstracts International, v. 35, no. 7, p. 3391B-3392B, 1975

Covers stratigraphy, petrology, structure of the country rocks, igneous rocks, contact metamorphism, associated gabbros, primary peridotites, and serpentinites. Also gives location, regional stting with many graphs, geologic maps, and pictures.

Dungan, Michael A., 1977, Metastafility in serpentine-olivine equilibria: American Mineralogist (USA) (AMMIAY), v. 62, no. 9-10, p, 1010-1029.

Phase equilibrium considerations derived from studies of progressively metamorphosed serpentinites combined with a theoretical analysis of the system MgO-SiO_2-H_2O indicate that antigorite is the stable phase in olivine-serpentine reactions. Includes thin section photos.

Dungan, Michael A.; Vance, J. A.; Blachard, D. P., 1978, The Darrington-Sultan ophiolite; metamorphosed and fragmented crust of oceanic affinity in the north Cascades, Washington.
Abstract: Geological Society of America Abstracts with Programs, v. 10, no. 3, p. 103-104, 1978.

Gives position, orientation, rock type and age of dismembered ophiolite sequence.

Eddy, Paul A., 1964, Geochemical prospecting in the northern Cascades of Washington: University of Puget Sound B.S. thesis 21 p.

Includes a location map of the area. Description of climate topography, vegetation, exploration techniques used, and data from a chemical technique used.

Eddy, Paul A., 1971, Investigations; geology and ground water resources of Arlington Heights, Snohomish County, Washington: Washington Department of Ecology Technical report 71-16, 14 p.

The study consists of a general geological reconnaissance of the area which includes obtaining water levels of representative

wells, pump testing the aquifer, information from various sources and interpretations of the data.

Eddy, Paul A., 1971, Investigations: Ground water contamination along Interstate 405, southern Snohomish County, Washington: Washington Department of Ecology Technical report 71-12, 17 p.

The study includes a description of location, topography, a general geologic reconnaissance, occurrence of ground water, and a geologic map of the area at a scale of 1:24,100.

Emmons, Samuel F., 1903, (Ore deposits of Monte Cristo, summary of Spurr's work), In Investigation of metalliferous ores: U.S. Geological Survey Bulletin 213, p. 22.

A brief description on the emplacement of ore deposits in the Monte Cristo area, Snohomish County.

Engels, Joan C.; Crowder, Dwight F.,1971, Late Cretaceous fission-track and potassium-argon ages of the Mount Stuart granodiorite and Beckler Peak stock, north Cascades, Washington: U.S. Geological Survey Professional Paper 750-D, p. D39-D43.

Describes rock types and gives ages of Mount Stuart granodiorite and Beckler Peak stock, which occupy the southeast corner of Snohomish County. A map of the plutonic rocks is included.

Erickson, Erik H., 1969, Petrology of the composite Snoqualmie batholith, Central Cascade Mountains, Washington: Geological Society of America Bulletin, v. 80, no.11, p. 2213-2236, November 1969.

Contains a brief regional geologic description of the intrusive and extrusive igneous rocks found in the Cascades, which includes part of Snohomish County.

Evans, Howard T., Jr.; Milton, Charles; Chao, E. C.-T.; Adler, Isidore; Mead, Cynthia; Ingram, Blanche; Berner, Richard A., 1964, Balleriite and the new iron sulfide, mackinawite, Art. 1933. In Short papers in geology and hydrology: U.S. Geological Survey Professional Paper 475-D, p. D64-D69.

Mackinawite is a new copper-free iron sulfide from the Macinaw Mine, Snohomish County. The report discusses the identification of mackinawite and the minerals associated with it.

Evans, Howard T., Jr.; Berner, Robert A.; Milton, Charles, 1963, Valeriite and mackinawite.
Abstract: Geological Society of America Special paper 73, p. 147.

A brief description of the minerology of mackinawite.

Fenner, Clarence N., 1892, Note on the geology of the Monte Cristo District, Snohomish County, Washington: School of Mines Quarterly 14, Columbia University, p. 47-48.

Ford, Arthur, B., 1957, The petrology of the Sulphur Mountain, Glacier Peak quadrangle, Washington: University of Washington M.S. thesis, 103 p.

Comprehensive thesis of metamorphic and granitic rocks which occupy most of the northern Cascades. Includes an outline of the bedrock geology, petrology and geology of the crystalline rock, geologic maps, and several pictures; thin sections and scenic photos.

Ford, Arthur B., 1959, Geology and petrology of the Glacier Peak quadrangle, northern Cascades, Washington: University of Washington Ph.D thesis, 2 v.

A comprehensive thesis explaining the metamorphic and granitic rock which occupy the Glacier Peak quadrangle. Contains many photos, several cross-sections, and a geologic map.

Franklin, Wesley, E., 1974, Structural significance of meta-igneous fragments in the Prairie Mountain area, north Cascade Range, Snohomish County, Washington: Oregon State University, M.S. thesis, 109 pgs.

A study of the structural framework surrounding a meta-igneous complex to determine the existence of a paleosubduction zone in the western North Cascades. Includes petrography, chemistry, field description, and age correlation of the geologic units in the area. Also a geologic map with a scale of 1:24,000, a cross-section, and photos.

Glover, Sheldon L., 1941, Clays and shales of Washington: Washington Division of Geology Bull. 24, 368 p.

Abstract: Chem. Abstracts, v. 35, no. 19, p. 6543

Abstract: Annot. Bibliography Econ. Geology 1941, v. 14, no. 2, p. 233, Nov. 1942

A comprehensive study of the clays and shales in Washington. Discusses the origin of clays, their classification, constitution, working properties, technology, production statistics, testing, grouping by location and origin, and high aluminum content. Includes tables, photos, and a section on Snohomish County.

Glover, Sheldon L., 1947, Oil and gas exploration in Washington: Washington Division of Mines and Geology Information Circular 15, 49 p.

Abstract: Annot. Bibliography Econ. Geology 1947, v. 20, no. 2, p. 155, Dec. 1947.

A record of drill sites in Washington by county.

Glover, Sheldon L., 1936, Preliminary report on petroleum and natural gas in Washington (with forward by Harold E. Culver): Washington Division of Geology Report of Investigation 4, 24 p.

The report covers conditions of origin and occurrence of oil and gas conditions unfavorable to the occurrence of oil and gas; a brief description of the possibilities of oil and gas in Snohomish County is included.

Glover, Sheldon T., 1942, Washington iron ores, a summary report: Washington Division of Mines and Mining Report of Investigation 2, 23 p.

Abstract: Annotated Bibliography Economic Geology 1942, v. 15, no. 2, p. 183, Dec. 1943.

Gives a brief description of size, location, and some associated minerals of the iron ore.

Gonen, Behram, 1974, Building standards and the earthquake hazard for the Puget Sound basin: University of Washington M.S. thesis, 139 p.

Presents a historical survey of the character and the effects on structures of the two most recent major earthquakes (1949 and 1965) in the Puget Sound area. Included are seismological characteristics, earthquake provisions in the Puget Sound basin.

Gower, Howard D., 1978, Tectonic map of the Puget Sound region, Washington, showing locations of faults, principal folds, and large-scale Quaternary deformation: U.S. Geological Survey Open-File Report 78-426, 22 p.

Discusses briefly the deformation and application of knowledge of tectonic activity in Puget Sound region. Also contains cross-sections and a tectonic map of the Puget Sound region.

Graber, Allen E., 1947, Slime control at the Sunset mill, Index, Washington: University of Washington B.S. thesis, 58 p.

The purpose of this thesis is the study of slime control as it pertains to the recovery of the ores present in the copper-bearing deposits of the Sunset mine, near Index, Washington. Describes location, topography, climate and history of the mine. Also covers the geology, mineralogy, mining, milling, and loboratory procedures used at the mine.

Grant, Alan R., 1959, Geology and petrology of a portion of the Dome Peak area, northern Cascades, Washington: University of Washington M.S. thesis, 71 p.

A study of the relationships between the Dome Peak granitic complex and the surrounding rock units, and of the mode of origin of this body through petrographic and field studies. Includes an outline of geology, petrology of crystalline rocks, and structure of the area.

Grant, Alan R., 1966, Bedrock geology of the Dome Peak area, Chelan, Skagit, and Snohomish Counties, northern Cascades, Washington: University of Washington Ph.D. thesis, 270 p.

A comprehensive study of the relationships between the Dome Peak granitic complex and the surrounding rock units, and of the mode of origin of this body through petrographic and field studies. Includes an outline of geology, petrology of the crystalline rocks, and structure of the area.

Grant, Alan R., 1969, Chemical and physical controls for base metal deposition in the Cascade Range of Washington: Washington Division of Mines and Geology Bulletin 58, 107 p.

A comprehensive study of favorable environments of ore deposition. (Several areas in Snohomish County are discussed and) includes description of topography, geology, structural analysis, wall rock alteration, physical and chemical controls for sulfide deposits.

Grant, Alan R., 1976, Report of evaluation: mineral resource analysis study on United States Forest Service land, State of Washington: U.S. Forest Service - Region 6, p. 33-39.

Presents a concise description of the geology of the Index, Monte Cristo, Sultan, Silverton, Silver Creek and Darrington districts. Also covered is the economic geology of the districts. Along with the text is a set of Geologic maps, two of which covers the above districts in the eastern part of Snohomish County with scales of 1:250,000 and 1:62,500.

Greiner, Peter R., 1956, Geology and development of the Forence Rae mine, Sultan Basin, Snohomish County, Washington: Univeristy of Washington Bachelor of Science, 31 p.

Describes the geology and developmnet of the Forence Rae mine. Inlcudes history, climate, general geology, geologic history, and paragenesis of the mine.

Griffin, Bert E., 1948, The geology of the Monte Cristo district with the special reference to ore deposits: University of Washington M.S. thesis, 60 p.

A comprehensive thesis that discusses the general geology, structure, and petrology which is divided into sedimentary, andesite, basic, granitic, and schist rock types. Also covers metamorphism and ore deposits. Has a geological map with a scale of 1:15,000.

Griffis, Robert J., 1977, Igneous petrology, structure, and mineralization in the eastern Sultan Basin, Snohomish County, Washington: Washington State University Ph.D thesis, 270 p.

A detailed study on the interrelationship of igneous petrology, structure, and mineralization of major copper-molybdenum deposits in the eastern Sultan Basin. Includes discussion of location, history, intermediate plytonic rocks, structure, Sunrise breccis pipe, economic mineralization and alteration.

Grimstad, Peder, 1971, Investigations: Geology and ground water resources, Lake McMurray area, Snohomish and Skagit Counties, Washington: Washington Department of Ecology Technical report 71-19, 30+ p.

A study to determine the extent of the aquifer, its cahracteristics, and its hydraulic relationship with Lake McMurray. The study consisted of a review of existing data, a general geological reconnaissance, the hydrology, and aquifer testing of the area.

Hall, John B.; Othberg, Kurt L., 1974, Thickness of unconsolidated sediments, Puget Lowland, Washington: Washington Division of Geology and Earth Resources Geologic Map GM-12, 3 p., 1 map, scale 1:316,800.

A map with contours of depth of unconsilidated sediments. Includes the western part of Snohomish County. Also includes a brief supplement describing sources of data, plotting methods, limitations, and geologic setting.

Halliday, William R., 1962, Caves of Washington: Washington Division of Mines and Geology Information Circular No. 40, p.111.

Descriptions of three caves in Snohomish County.

Harris, Henry M.; Stranberg, Karle G.; and Kelly, Hal J., 1962, Resources for making expanded aggregate in western Washington and Oregon: U.S. Bureau of Mines Report of Investigation 6061, 41 p.

An investigation to test the suitability of shale, from deposits in the east Puget Sound area, for manufacturing expanded aggregate. Includes explanation of lightweight aggregate industry, field sampling, and guide to shale samples that bloat.

Hawley, Lyle T., 1921, Genesis of the ore of the Sunset mine, Index, Washington: University of Washington B.S. thesis, 53 p.

A study of the ores and country rock of the Index mining district, employing microscopic examination by the aid of thin and polished sections of the rocks and minerals. Includes description of location, general geology, and of the mine. Also has analysis of specimens from the mine.

Heath, Michael T., 1960, Geology and mineralization on Pole Creek, Snohomish County, Washington: University of Washington B.S. thesis, 27 p.

A description and determination of the general and structural geology and associated mineralization. Describes location, local physiography, history, historical geology, petrography, petrology, deposit mineralogy, and genesis of the mineralization.

Heath, Michael T., 1971, Bedrock geology of the Monte Cristo area, northern Cascades, Washington: University of Washington Doctor of Philosophy, 164 p.

A detailed petrographic analysis of the metamorphic rocks exposed in the eastern area, and their structural and metamorphic facies relationships across the suspected Staight Creek fault. Includes description of location, topotraphy, regional geologic setting, crystalline rocks, metamorphics, volcanics, and depositional, petrogenetic, and tectonic history. Also includes a geologic map and many photos.

Hedderly-Smith, David A., 1975, Geology of the Sunrise breccia pipe, Sultan Basin, Snohomish County, Washington: University of Washington M.S. thesis, 60 p.

A comprehensive study of the Sunrise breccia pipe. Includes a description of general geology, location, geography, history, and economic geology. Also has several geologic maps.

Hepp, Michael A., 1972, Clay mineralogy of late Pleistocene sequences in northwestern Washington and southwestern British Columbia: Western Washington State College M.S. thesis, 48 p.

A study of clay mineral composition of units in Washington and southwestern British Columbia. Includes origin of clay minerals, and correlation between clay mineral composition, sediment type, location, or probable geologic history of the sediments. Includes a small part on sediments in Snohomish.

Hidaka, F. T., 1973, Low-flow characteristics of streams in the Puget Sound region, Washington: U.S. Geological Survey Open-file Report, 55 p.

Presents data on low-flow characteristics of streams in the Puget Sound region, including Stillaquamish and Snohomish basins in Snohomish County. Text data presented on these basins is concerned with the occurrence of low flows, indexes of low-flow characteristics, and factors affecting low flow.

Hodge, Edwin T., 1938, Market for Columbia River hydroelectric power using Northwest minerals-Sec. 3-Northwest limestone; vol. 1. pt.1-Limestones of the northwestern states: U.S. Army Corps of Engineers, Office of the Division Engineer, North Pacific Division, Portland, Oregon, p. 11-131.

A collection of descriptions of limestone deposits in Washington including some in Snohomish County. Has location maps and a description of geology.

Hodge, Edwin T., 1938, Report on available raw materials for a Pacific coast iron industry; vol. 5, pt. 1-Information on additional iron ores of the Northwest: U.S. Army Corps of Engineers, Office of the Division Engineer, North Pacific Division, Portland, Oregon, p. 1-28.

A description of location, occurrence, and a brief analysis. Also contains a location map.

Hodge, Edwin T., 1944, Limestones of the Pacific Northwest; available limestones suitable for calcium carbide and/or for flint glass industries: U.S. Bonneville Power Administration, p. 15, 45-53, 54-59, 69-70.

Gives a brief description of the location, rocks, quality, and commercial values. Also has a map showing size and location of occurences.

Huntting, Marshall T., 1955, Gold in Washington: Washington Division of Mines and Geology Bulletin 42, 158 p.

Includes explanation of properties of gold, uses, gold ores, prospecting for gold, location mining claims, patenting mining claims, and history of gold in Washington. Also gives location of placer and lode occurrences. Contains location maps and tables.

Huntting, Marshall T., 1956, Inventory of Washington minerals, Part III—Metallic minerals: Washington Division of Mines and Geology Bulletin 37, 2 volumes, 495 p.

A annotated list of the metallic mineral occurrences in Washington

Also includes location maps of many common ores, description of properties, uses, ore minerals and geology of metallic minerals.

Huntting, Marshall, T.; Bennett, W. A. G.; Livingston, V. E., Jr.; Moen W. S., 1961, Geologic map of Washington : Washington Division of Mines and Geology, 2 sheets, scale 1 inch to 8 miles.

A geologic map of the state.

Jacobsen, Gordon L., 1956, Structure and ore deposition of the Florence Rae mine, Sultan Basin, Snohomish County, Washington: University of Washington B.S. thesis, 28 p.

A description of the Florence Rae mine, and determination of the structure and paragenesis of the ore. Includes discussion of location, ownership, development, production, and topography. Also covers climate, general geology, and ore geology.

Jaffee, Howard W.; Gottfried, David; Waring, Claude L.; Worthing, Helen W., 1959, Lead-alpha age determinations of accessory minerals of igneous rocks (1953-1957): U.S. Geological Survey Bulletin 1097-B, p. 82, 97, 98, 99, 145.

All ages and experimental data, equations, and constants from which they were calculated are given in tabular form. Includes four samples taken from the Holden quadrangle and one from Sultan quadrangle.

Jenne, David A., 1978, Structural geology and metamorphic petrology of the Gold Mountain area, Snohomish County, Washington: Oregon State University, M.S. thesis, 177 p.

Includes description of Darrington phyllite and Shuksan schist rock units. Also describes the Tertiary rocks, structural geology, Quaternary geology, and geologic history of the Gold Mountain area.

Jensen, Mead L., 1957, Sulfur isotopes and mineral paragenesis: Economic Geology, Vol. 52, no. 3, p. 271,273.

Gives a brief mineralogical description of a nickel-gold ore specimen taken from the Mackinaw mine.

Johnson, Arthur, 1939, Summary of investigations in Sauk River Reservoir site, Washington: U.S. Geological Survey Open-File Report, 7 p.

Describes topographic and geologic surveys made in the area of the Sauk River below Darrington and their relation to power, flood control, or irrigation developments.

Jones, Robert W., 1957, Petrology and structure of the Higgins Mountain area, northern Cascades, Washington: University of Washington M.S. thesis, 186 p.

A study of the metamorphic rocks that lie beneath sedimentary rocks in the Higgins Mountain area. Includes a description of location, topography, geologic setting and the main topic of the pet-

rology and stratigrpahy of the metamorphic, igneous and sedimentary rock in the area. Also covers structure and has a geologic map.

Jones, Robert W., 1959, Geology of the Finney Peak area, northern Cascades of WashingtonL University of Washington Ph.D thesis, 136 p.

A comprehensive study of the regional geology, stratigraphy, and petrology of the Finney Peak area. Has a description of the location, medium-grade metamorphic rock, low-grade metamorphic rocks, Gold Mountain phyllite, strongly recrystallized phyllites, petrogenesis, Finney greenschist, Mud Lake phyllite, Sutter Mountain unit, volcanics, Swauk Formation, plutonic rocks, structure, and glacial geology.

Jung, Jim G., 1967, A geologic and magnetic study of the Copper Bell property, Goldbar, Washington: University of Washington M. S. thesis, 38 p.

A study of the magnetic expression of several rock types in the area and test of the effectiveness of magnetic methods in locating economic mineral anomalies. Contains a description of location, climate, vegetation, history, and geology, including metamorphic rocks, granitic rocks structure, and mineralization. Also has explanation and data from magnetic studies.

Kaiser, Alfred E., 1934, The geology of the Yankee Boy mine, Snohomish County, Washington: University of Washington B. S. thesis, 20 p.

Contains description of the property, physiography, general geology, of the area and economic geology. Also includes geology, mineralogy, petrology and petrography of the Yankee Boy mine.

Ketcham, Lyman W. 1938, The Marguerite Moshier vein of the Florence Rae mine in Sultan Basin: University of Washington B. S. thesis, 56 p.

A description of the Florence Rae property, and a study of the geology of the ore deposits. Includes a description of the general geology, history of the Florence Rae claims, geology of the Moshier vein, mineralogy, proposed mining methods, milling character of the ore, and milling tests. Also contains tables on tests performed, maps, and sketches.

Landes, Henry, 1900, Index mining district: Mining, Vol. 5, p. 1-4.

A brief summation of the resources, history and location of the Index mining district.

Landes, Henry, 1902, The non-metalliferous resources of Washington, except coal: Washington Geological Survey Annual Report No. 1, pt. 3, 55 p.

Includes one page describing the granite quarries at Index and a half page on the limestone at Granite Falls.

Landes, Henry, 1906, Cement resources of Washington: U.S. Geological Survey Bulletin No. 285, p. 377-383.

A brief description of occurrence and a table of chemical analyses of limestone calcareous slate and clay near Granite Falls.

Landes, Henry, 1911, Road materials of Washington: Washington Geological Survey Bulletin No. 2, 204 p.

An evaluation of rocks tested and methods of testing are covered, along with distribution of road materials by county.

Landes, Henry; Thyng, William S.; Lyon, D. A.; Roberts, M., 1902, The metalliferous resources of Washington except iron: Washington Geological Survey annual report No. 1, pt. 2, 123 p.

A brief geologic description of Snohomish County and an explanation of mines by mining district.

Kauffman, Albert J., Jr., 1952, Industrial minerals of the Pacific Northwest: U.S. Bureau of Mines Information Circular 7641, 75 p.

A description of the industrial materials, broken down by state into occurrences by county. Materials covered are cement materials, clay, diatomaceous earth, feldspar, flourspar, gem materials, graphite, gypsum, limestone, magnesian minerals, mica, mineral wool, peat, phosphate rock, quartz crystal, refractories, sand, gravel, stone, talc, and vermiculite.

Kinkel, Arthur R., Jr.; Peterson, Nels P., 1962, Copper in the United States (exclusive of Alaska and Hawaii): U.S. Geological Survey Mineral Inventory Resource Map MR-13, 1 sheet, 15 p. of text.

A short introduction and two pages explaining distribution of copper deposits. Also map showing position of copper mining operations.

Leighton, Morris M., 1919, The road building sands and gravels of Washington: Washington Geological Survey Bulletin 22, 307 p.

A field examination to determine the nature, extent, and manner of occurrence of the gravel deposits; and laboratory tests to ascertain their probable quality. Includes general distribution of the sand and gravel formations of Washington, sand and gravel for gravel macadam, sand and gravel for Portland cement concrete, for bituminous concrete and sand for sheet asphalt construction. Also has a breakdown by county of the distribution and character of sands and gravels.

Lemmon, Dwight M.; Tweto, Ogden L., 1962, Tungsten in the United States (exclusive of Alaska and Hawaii): U.S. Geological Survey Mineral Investigation Resource Map MR-25, 1 sheet, 25 p. of text.

A brief introduction and explanation of geology and mineralogy associated with tungsten. Also a list of mines arranged by state. Two such mines are located in Snohomish County.

Levinson, Alfred A., 1955, Studies in the mica group-polymorphism among illites and hydrous micas: American Mineralogist, V. 40, nos. 1-2, January-February, p. 43, 44.

Discusses briefly some optical properties of muscovite from Sultan Basin, Snohomish County.

Lincoln, Francis C., 1911, Gold ores of Washington and Oregon: Engineering and Mining Journal, V. 92, p. 13-15.

A summary of gold deposits, including gold found in Monte Cristo area. A brief description of location, geology, and topography.

Lindquist, John W., 1957, Molluscan paleontology of Fiddlers Bluff, Washington: University of Washington undergraduate research paper, 38 p.

Discusses the nature of the outcrop at Fiddler's Bluff, physiography, location of sampling, structure, and ecology. Also has descriptions of rock units, cross sections, paleontology, correlation, and age.

Long, Joseph T., 1941, Pyritic gold ore from Mineral City: University of Washington B.S. thesis, 45 p.

Discusses history of Mineral City region, and development of the property, geography, and geology. Geology also has sections on mineralogy, petrography, petrology, and genesis of vein-forming solutions. Contains data from milling tests.

Lowry, Jack C., 1937, Flotation of ore from the Sunset mine, Index, Washington: University of Washington B.S. thesis, 63 p.

A study of the nature of the ore body, and more particularly the milling procedure, especially flotation. Covers location, history, regional geology, structural, historical, and geology of the ore body. Also discussed are mining, development, milling practice, and flotation tests.

Magill, Elwin A.; Schlagel, J. G., 1962, Copper deposits in Silver Creek mining district, Snohomish County, Washington: U.S. Bureau of Mines Open-File Report, 59 p.

Describes the location, history, physiography, and general geology of the Silver Creek mining district. Also gives description of deposits at 46 mines, claims, and prospects in the area.

Mangum, A. W., 1911, Reconnaissance soil survey of the eastern part of the Puget Sound basin, Washington: U.S. Department of Agriculture, Bureau of Soils, 90 p.

A comprehensive study including a description of the land, climate, agriculture, soils and the flora characteristic of the different soils. Contains soil maps. Scale of 1:125,000.

Mathews, William H., 1947, Calcareous deposits of the Georgia Strait area: British Colubia Department of Mines Bulletin 23, 113 p. Scale 1:1,000,000. Map 223c on Map Sheet No. 46 is figure 20 with the title "Geology and calcareous deposits of the Georgia Strait area."

Describes the origin, occurrence, mineralogy, and other properties of calcareous rocks. Includes explanation of quarrying, processing, chemical analysis, and description of deposits which encompasses Gold Bar, Granite Falls, and Bryant, all in Snohomish County.

Mattinson, James M., 1970, Uranium-lead geochronology of the northern Cascade Mountains, Washington: University of California at Santa Barbara Ph. D Thesis, 80 p.

A study of the northern Cascades which includes the eastern part of Snohomish County. Gives a description of geology, metamorphics, and igneous rocks, different dating techniques used, and analyses of selected specimens. Also has a bedrock geologic map, graphs and tables.

McFarland, Carl R., 1979, Oil and gas exploration in Washington: Washington Division of Geology and Earth Resources Information Circular 67, 119 p.

Has a location map and gives brief description in table form of wells drilled.

McInnis, Wilmer, 1957, Molybdenum-A materials study: U.S. Bureau of Mines Information Circular 7784, 75 p.

A comprehensive study of molybdenum, including history, geologic occurrence (containing two paragraphs pertaining to molybdenum in the Glacier Peak area in eastern Snohomish County), mining, metallurgy, production, forms, properties and uses.

McLerran, James H.; Krashevski, Stefan H., 1954, State of Washington Engineering Soils Manual; Part 11, Soils of Snohomish County: Washington State Council for Highway Research, 87 p.

Gives a description of soils found in Snohomish County, a cross-section, and location. Also points out type of drainage, topography, vegetation and engineering problems.

McKnight, Edwin T.; Ward, Alfred H., 1925, Geology of the Snohomish quadrangle: University of Washington M.S. thesis, 95 p.

A comprehensive study discussing Eocene and Oligocene rock formations and determining the Paleo climates from them. Other topics discussed are bedrock outcrops, types of sediment, structure, glaciation, and economic resources such as coal.

McPhee, John A.; Baumann, Henry N., Jr., 1911, The geology and mining of the western part of Index mining district: University of Washington B.S. thesis, 42 p.

The study is broken into four parts. Part 1 is geology which covers general geology and sedimentary, igneous, metamorphic and

glacial rock deposits. Part II covers ore deposits, Part III, mining development, and Part IV covers other economic resources. Also has a geologic map with a scale of 1:31,680 and a profile of mine workings.

Menzer, Fred J., Jr., 1966, Structural controls of ore deposition at Helena Peak, Snohomish County, Washington: Texas Journal of Science, V. 18, no. 3, p. 291-295.

A brief description of the Spuire Creek quartz dioritic stock that makes up Helena Peak, its properties and associated mineralogy.

Miers, John H. 1970, Ultramafic dikes on Jumbo Mountain, Snohomish County, Washington: University of Washington M.S. thesis, 54 p.

Determination of the petrography, mineralogy, possible mode of origin and extent of the ultramafic rocks on Jumbo Mountain, located just south of Darrington, Snohomish County. Includes a geologic map, scale, 1:31,680.

Miller, Reed M., 1960, Geochemical prospecting using stream sediments as a guide in ore search: University of Washington B.S. thesis, 24 p.

Explanation of geochemical prospecting and copper analysis. Includes description of mineralization, geology, climate, and topography in the vicinity of the North Fork Skykomish River.

Mills, J. W., 1960, Geology of the Jumbo Mountain nickel deposit, Snohomish

County, Washington: Washington Division of Mines and Geology Reprint 6, 4 p.

Includes description of rock units and how they correlate with each other and of the occurrence of nickel.

Mills, Joseph William, 1960, Geologic setting of the nickel occurrences on Jumbo Mountain, Washington: Mining Engineering, Vol. 12, no. 3, p. 272-274; A.I.M.E. Transactions 1960, vol. 217, p. 52-54, 1961.

Abstract: Mining Engineering, Vol. 12, no. 3, p. 204, March 1960; GeoScience Abstracts, Vol. 2, no. 6, p. 49, June 1960.

Milton, Charles, 1949, Nickel-copper-gold mineralogy at the Mackinaw mine, Snohomish County, Washington.

Abstract: Geological Society of America Bulletin, v. 60, no. 12, pt. 2, p. 1909, December 1949.

Abstract: American Mineralogist, Vol. 35, nos. 3-4, p. 287, March-April 1950.

A brief description of the mineralogy of the Mackinaw mine.

Milton, Charles; Milton, Daniel J., 1958, Nickel-gold ore of the Mackinaw mine, Snohomish County, Washington: Economic Geology, v. 53, no. 4, p. 426-447; Washington Division of Mines and Geology Reprint 4, 22 p. Reprinted from Economic Geology, v. 53.

Abstract: Geological Abstracts, Vol. 6, no. 3, p. 1, September 1958.

The report includes description of the mineralogy, deposits of similar mineralogy, relationships of the sulfide minerals and

paragenis.

Minning, Gretchen V., 1967, The significance of till-fabric analysis in the Puget Lowland, Washington: University of Washington M.S. thesis, 30 p.

Covers the geomorphology associated with the Puget Sound lobe of the continental ice sheet. A study of the till fabric, topography and lithology. Includes the southwest part of Snohomish County.

Misch, Peter, 1966, Tectonic evolution of the northern Cascades of Washington State; a west-Cordilleran case history: Canadian Institute of Mining and Metallurgy Special Volume 8, p. 101-148.

A geologic history of the northern Cascades, including the eastern part of Snohomish County. Description of units and time of emplacement are discussed.

Moen, Wayne S.; Huntting, Marshall T., 1975, Handbook for gold prospectors in Washington: Washington Division of Geology and Earth Resources Information Circular 57, 90 p.

Includes explanation of properties of gold, uses, gold ores, prospection for gold, locating mining claims, patention mining claims, and history of gold in Washington. Also gives location of placer and lode occurrences. Contains a state map showing location of deposits.

Mustoe, G. E., 1971, Biochemical origin of coastal weathering features in the Chuckanut Formation of northwest Washington: Western Washington

State College M.S. thesis, 77 p.

Covers the relationship between living organisms and the lithosphere. Includes field studies covering properties of the rocks in relation to hardening, weathering, and biologic activity. Also includes biochemical studies and analysis.

Nelson, L. M., 1971, Sediment transport by streams in the Snohomish River basin, October 1967-June 1969: U.S. Geological Survey Open-File Report, 44 p.

Evaluation of sediment-transport characteristics of Snohomish River basin, which covers about 1,780 square miles and ranges in altitude from sea level to about 8,000 feet. It reports result of a reconnaissance study. Precipitation, soils and sediment load maps, graphs, and tables.

Newcomb, R. C., 1948, Ground-water resources of Snohomish County, Washington: U.S. Geological Survey Open-File Report, Tacoma, Washington, 175 p.

A report covering geologic setting, characteristics of rock materials, occurrence of ground water, chemical character of the ground water, and many graphs, Topographic well location maps, and tables.

Newcomb, Reuben C., 1952, Ground-water resources of Snohomish County, Washington: U.S. Geological Survey Water Supply Paper 1135, 133 p.
Abstract: Annotated bibliography of Economic Geology, v. 26, no. 1, p. 91.

A thorough study consisting of a description of the geology,

structure, geologic history, water-bearing characteristics of rock materials, occurrence of ground water, chemical character of the ground water, and use of ground water. Also covered is well drilling and records of wells and springs. A 1:87,500 scale geologic map of western Snohomish County is also included.

Nichols, Bruce M., 1970, Hydrothermal sulfide and arsenide deposits associated with ultramafic and mafic rocks, Snohomish County, Washington: University of Washington M.S. thesis, 41 p.

Involves study done at eight sites between Darrington and Mineral City in central and eastern Snohomish County. Topics covered are geologic setting, mafic intrusions, ultramafic rocks, economic geology and guides to exploration. There are cross sections and geologic maps also included.

Nilsen, Tor H., 1976, Washington gravity base station network: Washington Division of Geology and Earth Resources Information Circular 59, 83 p.

Gives location of gravity base stations, three of which are in Snohomish County.

Norem, William C., 1950, The Lake Serene mine: University of Washington B.S. thesis, 23 p.

Includes a description of location, history, geography, and geology in an area south of Index, Snohomish County.

Norum, Birger, 1910, The geology of the southwestern portion of the Stillaguamish quadrangle: University of Washington B.S. thesis, 20 p.

A summary study of the Stillaguamish quadrangle, including the physiography, stratigraphy, structure, petrology of the rocks, and economic geology of the area.

Noson, Linda J., 1973, A paleomagnetic study of three granitic plutons exposed in the Cascade Mountains, Washington: Western Washington State College, M.S. thesis, 53 p.

This investigation attempts to use paleomagnetic data to detect tectonic movements that may have occurred among and within the Mount Stuart, the Grotto, and the Index batholiths of the Cascade Mountains, Washington. Includes a description of regional geology, geology of sampled units, experimental methods, and interpretation. Also has a geologic map, diagrams and tables.

Oles, Keihh F., 1956, The geology and petrology of the crystalline rocks of the Beckler River-Nason Ridge area, Washington: University of Washington Ph.D thesis, 192 p.

The study includes geologic setting, geology and petrology of the crystalline rocks. There are many photos and a 1:88,700 scale bedrock geologic map.

O'Neel, Albert B., 1923, A geological study of the Boston-American mine at Monte Cristo, Washington: University of Washington B.S. thesis, 32 p.

Location, physiography, historical, and general geology are covered in this thesis, along with geology of the Boston-American mine,

mineralogy, and genesis of ore.

Othberg, Kurt L., 1973, Paleomagnetism of late Pleistocene sediments, Puget Lowland, Washington: Western Washington State College M.S. thesis, 54 p.

A study of the geomagnetic polarity as a tool for stratigraphic correlations. Includes a description of geologic setting, sampling, and measurements. Also discussion of the validity of the measurements and of the results.

Pardee, Joseph T., 1937, Copper in Washington. In Copper resources of the World: International Geological Congress, 16th, v. 1, p. 371-373. Abstract: Annotated Bibliography of Economic Geology, Vol. 9, no. 1, p. 43.

A brief description of the occurrence of copper in the Index district.

Patty, Ernest N., 1921, The metal mines of Washington: Washington Geological Survey Bulletin 23, 366 p.

There is a statewide description of geography, geology, and ore deposits. There are also sections dealing with geology and mines of each county that has ore deposits.

Plummer, Charles C., 1964, The geology of the Mount Index area of Washington: University of Washington M.S. thesis, 62 p.

Describes the geology of Mount Index area. Topics covered are volcanic rocks, metamorphic rocks, intrusives, and structure of the area. Also includes a summary of geologic history.

Popoff, Constantin C., 1949, Investigation of limestone deposits near Arlington, Snohomish County, Washington: U.S. Bureau of Mines Report of Investigations 4393, 7 p.

The limestone deposits are in with highly metamorphosed sedimentary rocks, predominantly shales and schists. The report covers location, history, physiography, ownership, and description of the deposits.

Popoff, Constantin C., 1949, Investigations of the Whitechuck travertine deposit near Darrington, Snohomish County, Washington: U.S. Bureau of Mines Report of Investigation 4565, 4 p.

Abstract: Annotated Bibliography of Economic Geology, v. 22, no. 2, p. 186, April 1950.

Abstract: Chemical Abstracts, v. 44, no. 3, p. 983, February 1950.

A brief report describing location, deposit, mine workings, ownership, physical features, history, and description of the travertine.

Popoff, Constantin C., 1949, Investigation of Whitehorse limestone deposits, Snohomish County, Washington: U.S. Bureau of Mines Report of Investigation 4510, 9 p.

Abstract: Chemical Abstracts, v. 43, no. 18, p. 6953, 1949.

Abstract: Annotated Bibliography of Economic Geology, Vol. 22, no. 2, p. 177, 1950.

The limestone deposits are lenticular and belong to the same formation of metamorphosed sediments that underlies Whitehorse Ridge. A brief explanation of history, ownership, physiography, and geologic setting are included. Also description of specific deposits and analysis are discussed.

Porter, S. C., 1976, Stratigraphy and distribution of tephra from Glacier Peak (of 12,000 years ago) in the northern Cascade Range, Washington: U.S. Geological Survey Open-File Report, 1 p.

Map showing tephra distribution with short history and description.

Post, Austin; Richardson, Don; Wendell, Tangborn V.; and Rosselot, F. L., 1971, Inventory of glaciers in the North Cascades: Washington Geological Survey Professional Paper 705-A.

A brief description of the north Cascade setting, and compilation of data for glaciers including location, drainage basin, area, length, orientation, altitude, and classification as to form, source, surface, nature of terminus, and activity. Also has maps showing size and location of glaciers.

Puget Sound Task Force, 1970, Comprehensive study of water and related land resources, Puget Sound and adjacent waters, State of Washington, Appendix XIV; Watershed Management: Pacific Northwest River Basins Commission, 205 p.

A comprehensive study encompassing watershed management in the Puget Sound area. Includes a large section on soil and land use

interpretations, which involves description of soils, general properties of soils, and suitablility of soils for cropland, woodlands wildlife habitat or suburban uses. Also has detailed maps of river basin areas.

Purdy, C. Phillips, Jr., 1951, Antimony occurrences of Washington: Washington Division of Mines and Geology Bulletin 39, 186 p.
Abstract: Chemical Abstracts, v. 45, no. 17, p. 7479, September 1951.
Abstract: Annotated Bibliography of Economic Geology, Vol. 25, no. 1, p. 59, 1953.

A comprehensive report dealing with the properties, treatment, uses, and consumption of antimony. Also antimony minerals of Washington and their identification, and antimony occurrences by county.

Purdy, C. Phillips, Jr., 1954, Molybdenum occurrences of Washington: Washington Division of Mines and Geology Reprot of Investigation 18, 118 p.

Describes properties, uses, marketing, history, and common molybdenum minerals and their identification. Also covers investigated occurrences of molybdenite by county, and the geologic environment of molybdenite as an aid to prospecting.

Pytlak, Shirley R., 1970, Geology of the Blanca Lake area, Snohomish County, Washington: University of Washington M.S. thesis, 45 p.

Includes brief descriptions of topography, objectives, and field work. Also a more detailed description of the rock units in the area and of the structural history.

Ream, Lanny R., 1972, Economic geology of the Silver Creek mining district, Snohomish County, Washington: Washington State University M.S. thesis, 59 p.

This study covers mapping of the general geology and structures, analyzing the joint patterns, and study of mineralization and intrusive activity. Paragenesis and textures of the ore minerals and alteration of the mineralized rocks are also included to determine the relation of mineralization to alteration, intrusion, and jointing.

Reynolds, R. C., Jr; Johnson, N. M., 1972, Chemical weathering in the temperate glacial environment of the northern Cascade Mountains: Geochimica et Cosmochimica Acta, v. 36, No. 5, p. 537-554.

An in-depth study of chemical weathering activity in the South Cascade Glacier area. Gives explanation of water collection, analysis, and artificial weathering experiment, evidence of chemical weathering, mechanics of weathering, cationic denudation rate, and environmental factors in relation to chemical weathering.

Rigg, George B., 1958, Peat resources of Washington: Washington Division of Mines and Geology Bulletin 44, 272 p.
Abstract: Geological Abstracts, v. 6, no. 3, p. 125.
Abstract: (by Michael Fleisher.) Chemical Abstracts, Vol. 52, no. 21, p. 1811.

A definitive, comprehensive report on the peat deposits of the State of Washington. Discusses the general description of peats, kinds, rates of accumulation, mineral content, origin and development, and distribution by physiogrphic provinces and by county. The 34

major peat deposits of Snohomish County are described as to location, areal extent, and type of deposit. In most cases, there is a profile of the deposit.

Roberts, Elliott B.; Cloud, William K., 1958, Seismological activities of the Coast and Geodetic Survey in 1954 and 1955: Seismological Society of America Bulletin, v. 48, no. 1, p. 83-95.

Gives report of one earthquake in Snohomish County in 1955.

Rogers, C. L.; Jaster, Marion C., 1962, Titanium in the United States (exclusive of Alaska and Hawaii): U.S. Geological Survey Mineral Investigation Resource Map MR-29, 18 p.

Gives a brief description of occurrence and location of titanium. Only one occurrence in Snohomish County.

Rogers, William Patrick, 1970, A geological and geophysical study of the central Puget Sound lowland: University of Washington Doctor of Philosophy, 123 p.

Using pre-existing information the writer makes an encompassing geologic history of Puget Sound Basin. The main attention of the study is in the interpretation of gravity data, geomagnetic data, and geologic interpretation data. There are also profiles and gravity maps of the Puget Sound area.

Roth, Robert I., 1926, Geology of the central part of the Mount Vernon quadrangle: University of Washington M.S. thesis, 65 p.

The study is done chiefly in Skagit County but does reach down into Snohomish County. Basically a study of the stratigraphy and structure. Includes description of geologic conditions, sedimentary petrography, igneous rock petrography and historical geology.

Ruffner, William Henry, 1892, Some recent mineral discoveries in the State of Washington: Science, v. 19, p. 58-59.

Briefly describes the geology associated with mineral occurrence, much of which is in the Cascade Range, and thus includes the eastern part of Snohomish County.

Russell, Israel C., 1900, A preliminary paper on the geology of the Cascade Mountains in northern Washington: U.S. Geological Survey Annual Report, 20th, Part 2, p. 83-210.

Includes description of climate, vegetation, drainage, topographic features, geologic formations, geological structure, evidences of previously intense glaciation, post-glacial gravels and stream terraces, existing glaciers, landslides, and economic geology.

Scott, R. C.; Baker, F. B., 1962, Data on uranium and radium in ground water in the United States, 1954 to 1957: U.S. Geological Survey Professional Paper 426, p. 108-109.

Gives very brief geologic description of west coast. Also has tables which include one siting in Snohomish County and lists a chemical analysis of the well.

Shedd, Solon, 1903, The building and ornamental stones of Washington:

Washington Geological Survey, Annual Report 2, p. 1-163.

Discusses demand, uses, and tests on building and ornamental stones and their location. Describes granite quarrys near Index. Also covers methods of quarrying.

Shedd, Solon, 1913, Cement materials and industry in the State of Washington: Washington Geological Survey Bulletin 4, 268 p.

Examination of different cements and their constituents. Also covers the composition of limestones, clays and shales, and gives location by county, and chemical breakdown of limestone.

Smith, Clyde 1., 1961, Stratigraphy of the Red Mountain formation (Lower Pennsylvania) of northwestern Washington: University of British Columbia M.S. thesis, 96 p.

Makes correlation between five areas in western Washington one of which is the Prairie Mountain area of northeast Snohomish County. Describes the general geology, lithology, and outcrop characteristics of each of the five areas.

Smith Frederick G., 1952, Decrepitation characteristics of garnet: American Mineralogist, Vol. 37, nos. 5-6, p. 481, 482, 484, 485, 486.

Gives a brief description of garnets found in Snohomish County.

Smith, Joseph V.; Yoder, Hatten S., 1953, Theoretical and X-ray study of the mica polymorphs.
Abstract: American Mineralogist, v. 39, nos. 3-4, p. 343-344, March

1954.

Abstract: Geological Society of America Bulletin, Vol. 64, no. 12, part 2, p. 1475.

The mica used in the study is from the Sultan Basin in Snohomish County.

Smith, Mackey, 1975, Preliminary surficial geologic map of the Edmonds East and Edmonds West quadrangles, Snohomish and King Counties, Washington: Washington Division of Geology and Earth Resources Geologic Map GM-14.

A 7½-minute quadrangles with an overlay of the surficial geology.

Smith, Mackey, 1975, Preliminary surficial geologic map of the Mukilteo and Everett quadrangles, Snohomish County, Washington: Washington Division of Geology and Earth Resources, Geologic Map GM-20. 1 map, scale 1:24,000.

Snohomish County Planning Department, 1969, General land use plan, Snohomish County Washington: (in-house report), 58 p.

Gives a brief description of the soils and slope of the ground in western Snohomish County. A map is provided showing slope characteristics in western Snohomish County with a scale of 1:250,000.

Snow, Eugene L., 1941, The Silverton mine and mill: University of Washington, 62 p.

Describes the ore at a mine near Silverton. Covers the history

of the mine, mode of occurrence, and types of ore and mining and milling methods in use.

Spurr, Josiah E., 1901, The ore deposits of Monte Cristo, Washington: U.S. Geological Survey Annual Report, 22nd, Part 2, p. 777-865.

A detailed comprehensive study giving a description of location and history and concise information of rock divisions, such as granites, extrusives, and arkoses. Also covers jointing, and an in-depth study of ores.

Stepp, Jesse C., 1971, An investigation of earthquake risk in the Puget Sound area by use of the Type 1 distribution on largest extremes: Pennsylvania State University, Ph.D. thesis, 131 p.

Refinement of the current seismic risk map of the United States in the Puget Sound area is the main objective of this study. Includes description of seismicity, general geology, statistical theory, and earthquake risk mapping in Puget Sound area. Also covers general seismicity considerations, formation of a data sample at places in the Puget Sound, and results of extreme-value analysis.

Stoess, P. C., 1924, Arsenic deposits near Seattle, Washington: Engineering Mining Journal, v. 118, p. 821-822.

Report covers deposits of the Goat Lake, Monte Cristo, Miller River, and Money Creek areas. Includes description of occurrences, and history of development.

Stretch, Richard H., 1893, The Monte Cristo mining district, Washington: Engineering Mining Journal, v. 55, p. 343.

A brief description of the terrain, rock structure, and ore occurrence and history of mining.

Stretch, Richard H., 1902, The Independent mine at Silverton, Snohomish County, Washington: Engineering Mining Journal Vol. 73, p. 832.

Description of geology and mineralogy associated with mining tunnels of the Silverton mine, Snohomish County.

Stretch, Richard H., 1904, Copper ore in the Cascade Mountains: Engineering Mining Journal, v. 78, p. 789-790.

Includes a general description of geology and mining history in areas of eastern Snohomish County. Also give a concise description of petrology and structure associated with ores.

Stuart, David J., 1965, Gravity data and bouguer-gravity map for western Washington: U.S. Geological Survey Open-File Report, 50 p.

Has brief discussion of field work and many tables of gravity measurements and locations. Has a map showing basic rock units and gravity contours. Only shows the part of Snohomish County west of 122°.

Tabor, Rowland W.; Crowder, Dwight F., 1969, On batholiths and volcanoes. Intrusion and eruption of late Cenozoic magmas in the Clacier Peak area, north Cascades, Washington: U.S. Geological Survey Professional

Paper 604, 67 p.

A detailed study of the Cloudy Pass batholith, including descriptions of the geologic setting, structure, and lithology. Also volcanism is covered extensively in relation to topographic features and petrology.

Tippetts-Abbett-McCarthy-Stratton, 1967, Snohomish River basin study, Phase 1, Seattle.

A concise description of topography, geology and soils, with a soils classification and soils drainage map (scale 1:1,562,500) of the Snohomish River basin.

Thompson, Marcus L.; Wheeler, Harry E., 1942, Permian fusulinids from British Columbia, Washington and Oregon: Journal of Paleontology, v. 16, no. 6, p. 700-711.

Abstract: Geological Society of America Bulletin, Vol. 52, no. 12, Part 2, p. 1984, 1941.

Abstract: Biological Abstracts, Vol. 17, no. 2, p. 641, entry 7557, 1943.

Gives description of location and occurrence of different genera of fusulinids one of which is found near Granite Falls, Snohomish County.

Toepfer, Peter H., 1953, Investigation of the Sunset copper mine, Snohomish County, Washington: U.S. Bureau of Mines Report of Investigation 4989, 9 p.

A summation of factors related to Sunset copper mine. Includes expansion of physiography, history of the mine, description of the ore

deposit, and metallurgical tests. Also has diagrams of the mine and a geologic map, scale 1:62,5000, of the area.

U.S. Army Corps of Engineers, 1967, Flood plain information study, Snohomish River basin, Washington: Washington Department of Conservation, Technical Report, 51 p.

Contains a brief introduction including the purpose, use and area covered by report. A second section covers the guidelines for reducing flood damage and preventing improper development in the flood plain. The 25 plates include detailed maps of the area and flood profiles.

U.S. Geological Survey, 1914, Profile surveys of Snoqualmie, Sultan, and Skykomish Rivers, Washington: Water-Supply Paper 366, Washington D.C., F-45.

Graphically gives profiles of the Snoqualmie, Sultan, and Skykomish rivers. Also has topographic maps of sections of the rivers.

U.S. Geological Survey, 1966, Mineral and water resources of Washington: U.S. Congress, 89th, 2nd Session, Committee on Interior and Insular Affairs; reissued as Washington Division of Mines and Geology Reprint 9, 436 p.

A statewide study that briefly encompasses geology, mineral resources, mineral fuels resources, water resources, and development. Also contains a geologic map, scale 1:1,687,500, graphs, and tables.

U.S. Geological Survey, 1972, The North Cascades, Washington: Topographic

map, scale 1:250,000.

U.S. Geological Survey, 1975, A study of earthquake losses in the Puget Sound, Washington, area: U.S. Geological Survey Open-File Report, 298 p.

Lengthy but thorough report on effects of earthquakes in the area. Emergency backups and aide, history of earthquakes in Puget Sound region, diagram of intensity on the Mercalli scale, etc.

U.S. Work Progress Administration, 1937?, Mining claims-Snohomish County: unpaged.

Gives name, location, owner, and date. Listings of all mines in Snohomish County that were registered between 1871-1937.

University of Washington, 1953, Puget Sound and approaches-A literature survey; v. 2, geology, volcanology, seismology, geomagnetism, geodesy, hydrography: University of Washington Department of Oceanography, Seattle, Washington, 118 p.

A thorough study of the Puget Sound region which includes western Snohomish County. This volume covers concisely the geology, volcanology seismology, geomagnetism, geodesy and hydropgrphy. Contains a geologic scale 1:1,000,000, profiles, graphs and tables.

University of Washington, 1963, A geologic trip along Snoqualmie, Swauk, and Stevens Pass Highways: University of Washington Geology Department staff, rev. by Vaughn E. Livingston, Jr., Olympia, Washington Department of Conservation, 51 p.

A road log giving mileage between geologic points of interest with a description of each point.

Valentine, Grant M., 1960, Inventory of Washington minerals-Part 1, Nonmetallic minerals, 2nd ed., (revised by Marshall T. Huntting): Washington Division of Mines and Geology Bulletin 37, 2 volumes, 258.

Abstract: GeoScience Abstract, v. 3, no. 1, p. 48, January 1961.

Includes a brief description of location and occurrence of the common nonmetallic minerals in Washington by county and mineral. Includes maps of locations of the different minerals.

Vance, Joseph A., 1954, Glaucophane schists associated with greenschists in the Sauk River area of the northern Cascade Mountains, Washington.

Abstract: Geological Society of America Bulletin, v. 65, no. 12, pt. 2, p. 1352, December 1954.

Description of a 25-mile-long belt of metamorphic rock which includes glaucophane schists associated with greenschists.

Vance Joseph A., 1957, The geology of the Sauk River area in the northern Cascades of Washington: University of Washington, Ph.D. thesis, 312 p.

An in-depth study to map the rocks, determine structure and age relations, and their origin. Includes discussion and description of low-grade and high-grade metamorphic rocks, sedimentary and volcanic rocks, and intrusive rocks. Also an outline of the structure of the area.

Vance, Joseph A., 1962, Observations on the rhombic section of a zoned plagioclase crystal: Mineralogical Magazine, v. 33, no. 1, 257, p. 125-131, June 1962.

Presents a concise observation of the internal structure of a zoned plagioclase crystal from the Squire Creek stock near Darrington.

Vance, Joseph A., 1968, Metamorphic aragonite in the prehnite-pumpellyite facies, northwest Washington: American Journal of Science, v. 266, no. 4, p. 299-315, April 1968.

The study covers geologic and metamorphic setting, occurrence and petrography of the argonite, and origin of the aragonite. Also contains a map of the metamorphic found in northwestern Washington.

Videgar, Frank D., A geochemical study of the Tertiary volcanic rocks of northwestern Washington: Western Washington State College, M.S. thesis, 83 p.

Provides chemical and petrographic information on the Tertiary volcanic rocks of northwestern Washington and compares this data to other volcanic rocks in the state.

Walters, Kenneth L., 1971, Reconnaissance of sea-water intrusion along coastal Washington: Washington Department of Ecology, 208 p.

A study of nearshore wells and the salt content of the well water. Also, determination of the extent of intrusion of salty water into coastal aquifers and areas likely to have problems in the future. Contains a section on Snohomish County and a coastal

geologic map.

Walthall, William F., The Ethel copper mining property, Index, Washington: University of Washington B.S. thesis, 56 p.

A study of past operations and present conditions of the mine. Includes examination of specimens of country rock and mineral-bearing material. Also, description of the geology of the district and the mine itself.

Washington [State] Department of Agriculture, 1965, Snohomish County Agriculture: Washington [State] Department of Agriculture, 61 p.

The only information of geologic importance would be the two pages on land classification and soils.

Washington [State] Department of Ecology, 1973, Central Sound basin bibliography: Washington Department of Ecology Water Resources Information System, 25 p.

Includes western Snohomish County.

Washington [State] Department of Ecology, 1979, Coastal Zone Atlas of Washington; v. 5, Snohomish County, 24 p.

A comprehensive study containing explanation of geologic units, land use description, slope stability, coastal drift, sand and gravel units and coastal flooding. There are maps (scale 1:24,000) displaying such information for the entire coast line of Snohomish County excluding the Tulalip Indian Reservation.

Washington State Planning Council, 1940, Cascade Mountains Study: Washington State Planning Council, 56 p.

Presents general overall study of the Cascades without a lot of detail. Has a chapter on geology and mineral resources which includes eastern Snohomish County.

Weaver, Charles E., 1912, Geology and ore deposits of the Index mining district: Washington Geological Survey Bulletin 7, 96 p.

An in depth study of the Index mining district with description of physiography, the petrography of the different rock units and their relationship to each other, and structural and historical geology. Also gives a detailed description of the economic geology and each of the major mines found in the Index Mining District.

Weaver, Charles E., 1916, The Tertiary formations of western Washington: Washington Geological Survey Bulletin 13, 327 p.

Contains a section that discusses the Index granodiorite. Describes briefly its distribution, character, petrography, and correlation with other rock units.

Weaver, Charles E., 1937, Tertiary stratigraphy of western Washington and northwestern Oregon: University of Washington Publications in Geology, v. 4, 266 p.

Gives a brief description of pre-Tertiary formations in the central Cascades of Washington which includes eastern Snohomish County.

Westgate, J. A.; Evans, M. E., 1978, Composition variability of Glacier Peak tephra and its stratigraphic significance: Canadian Journal of Earth Sciences, v. 15, no. 10, p. 1554-1567.

A physical and compositional analyses of Glacier Peak tephra found in parts of eastern Washington.

Whetten, John T., 1978, The Devils Mountain Fault. A major Tertiary structure in northwest Washington: Geological Society of America Abstract with Programs, v. 10, no. 3, p. 153.

A brief description of the extent and geologic interpretation of the age of the rocks associated with the Devils Mountain Fault.

White, Donald E., 1962, Antimony in the United States (exclusive of Alaska and Hawaii): U.S. Geological Survey Mineral Investigation Resource map MR-20, 1 sheet accompanied by 6 pages of text.

Discussion of geology associated with antimony and gives a list of deposits along with location map. There is one deposit listed in Snohomish County.

Wiebe, Robert A., 1963, The geology of Mount Pilchuck: University of Washington M.S. thesis, 52 p.

A concise description of the rock units that make up the Mount Pilchuck area. Also covers contact metamorphic rock, structure, glacial features, and geologic history.

Wiebe, Robert A., 1964, Quartz monzonite stock and its contact aureole on Mount Pilchuck, Snohomish County, Washington: Geological Society of America Special Paper 76, p. 231-232.

Gives a concise description of the petrography associated with the contact and its extent.

Wiebe, Robert A., 1968, Plagioclase stratigraphy; a record af magmatic conditions and events in a granite stock: American Journal of Science, v. 266, no. 8, p. 690-703.

"Plagioclase zoning appears to be a useful record of conditions and events occurring within granitic magmas" is the conclusion reached by Wiebe. The study includes description of the areal geology, petrography, and detailed discussion of zoning.

Williamson, Donald R., 1943, Occurrence and possible utilization of a titaniferous iron ore in Snohomish County: University of Washington, Bachelor of Science thesis, 31 p.

A basic description of the geography and exploration. More detail is given to the geology of the area, milling and metallurgy processes.

Wilson, Hewitt; Skinner, Kenneth G.; Couch, Albert H., 1942, Silica sands of Washington: University of Washington Engineering Experiment Station Bulletin 108, 76 p.
Abstract: Annotated Bibliography of Economic Geology 1942, v. 15, no. 2, p. 214, December 1943.

A mention of two sites in Snohomish County where silica sands are found.

Wilson, R. T., 1975, Solid-waste disposal sites in relation to water resources in the Seattle-Tacoma urban complex and vicinity, Washington: U.S. Geological Survey Open-File Report 75-344 (Basic data contribution 6), map and text on one sheet.

Has map showing type and location of disposal sites. Also contains information on soils beneath, leachate, problems, nearby land use, and topographic setting.

Winchell, Horace V., 1902, The ore deposits of Monte Cristo, Washington [review of Spurr, USGS, AN RP 22, pt 2, p. 779-865]: American Geologist, v. 30, 113-118, 1902.

A concise summary of the study by Josiah E. Spurr. Describing the different rock types and geologic history of them.

Wunder, John M., 1976, Preliminary geologic map of the Utsalady quadrangle, Skagit and Snohomish Counties, Washington: Washington Division of Geology and Earth Resources Open-File Report 76-10.

A geologic map (scale 1:24,000) showing only the northeast corner of Snohomish County. Also contains an explanation of units.

Yeats, Robert S., 1956, Petrology and structure of the Mount Baring area, northern Cascades, Washington: University of Washington M.S. thesis, 80 p.

The study discusses, in detail, the rock units, such as the Mount Baring unit, the metasediments, quartz diorite, and the dike and extrusive rocks. Structure is also covered which includes a cross section.

Yeats, Robert S., 1958, Geology of the Skykomish area in the Cascade Mountains of Washington: University of Washington, Ph.D. thesis, 270 p.

An in depth comprehensive study describing the regional geology, rock formations, Tertiary volcanics, the Tertiary plutonics, and structure of the area. Also contains a geologic map scale 1:31,250.

Yeats, Robert S., 1962, Structure of the Cascade Range east of Seattle, Washington.
Abstract: Geological Society of America Special Paper 68, p. 64, 1962.

A brief description of the rock types and structure that make up the Cascade Range in the east parts of King and Snohomish Counties. Also a concise explanation of geological events is provided.

Yeats, Robert S., 1964, Crystalline klippen in the Index district, Cascade Range, Washington: Geological Society of America Bulletin, v. 75, no 6, p. 549-561, June 1964.

In the Index district in the Cascades two kleppen of hornblende-rich migmatitic rocks overlie a sequence of Permian marbles. This is a concise study which covers the migmatitic rocks, pre-Tertiary sedimentary structure, correlation of the migmatitics, and evidence for

major thrusting in the Index district, Cascade Range.

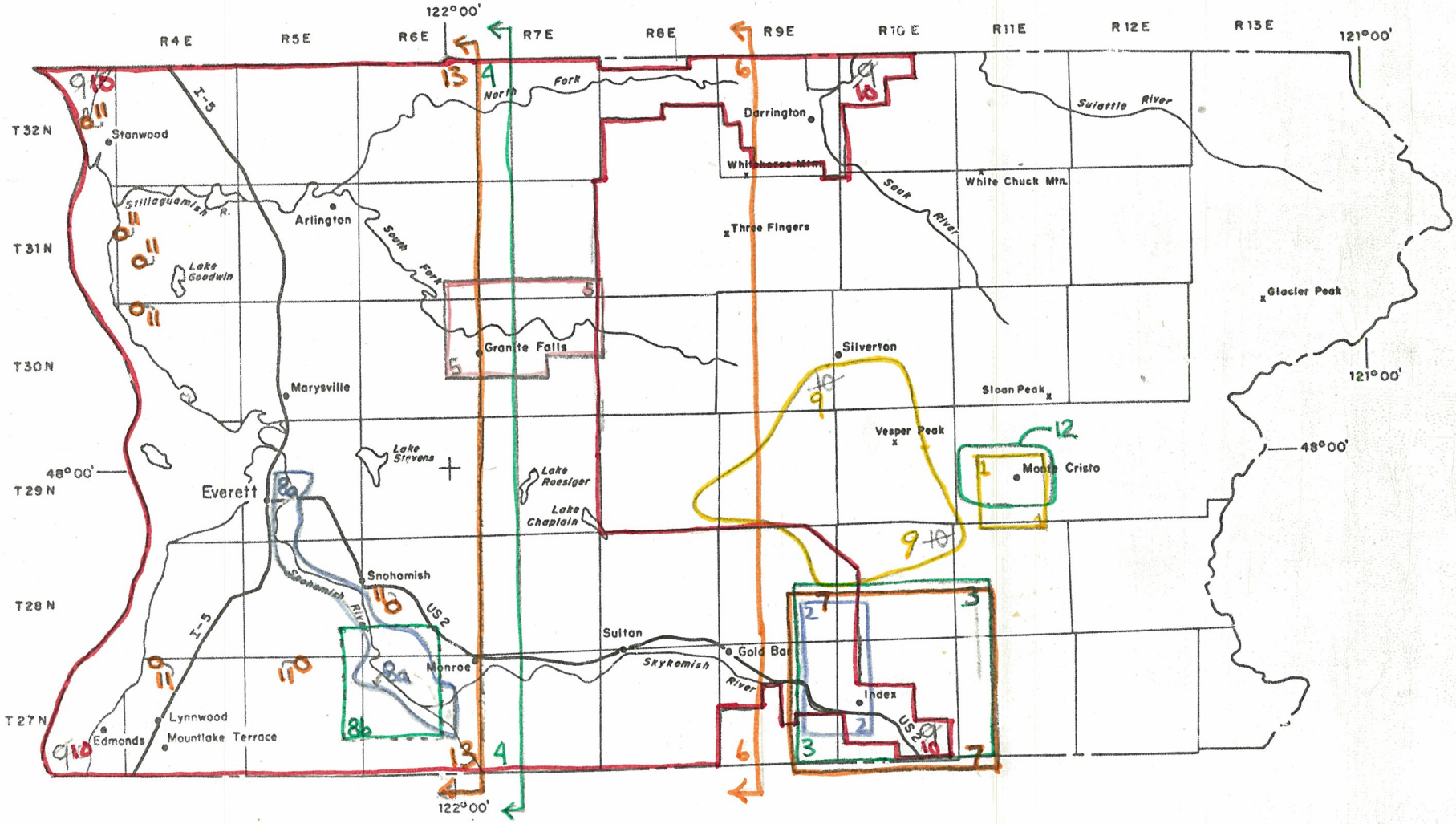
Yeats, Robert S.; Engels, Joan C., 1971, Potassium-argon ages of plutons in the Skykomish-Stillaguamish areas, north Cascades, Washington: U.S. Geological Survey Professional Paper 750-D, p. D34-D38.

Gives a rock type description and an estimate of the ages of the Index Grotto and batholiths, and the Granite Falls, Squire, and Monte Cristo Stocks. Also has a map(scale 1:570,240) showing the Swauk Formation, faults, and plutonic rocks in the study area.

Yeats, Robert S., 1977, Structure, stratigraphy, plutonism, and volcanism of the central Cascades, Washington; Part 1, General geological setting of the Skykomish Valley. In Geological excursions in the Pacific Northwest: Geological Society of America Annual Meeting, Seattle, 414 p.

A summary of recent geological studies in the central Cascades. Emphasis is placed upon the structure and evolution of the Straight Creek Fault, a major Tertiary feature; Tertiary volcanic stratigraphy; petrogenesis of the Cretaceous Mount Stuart batholith and selected younger Tertiary plutons; and the petrology and structure of ultramafic and mafic rocks.

1 FIGURE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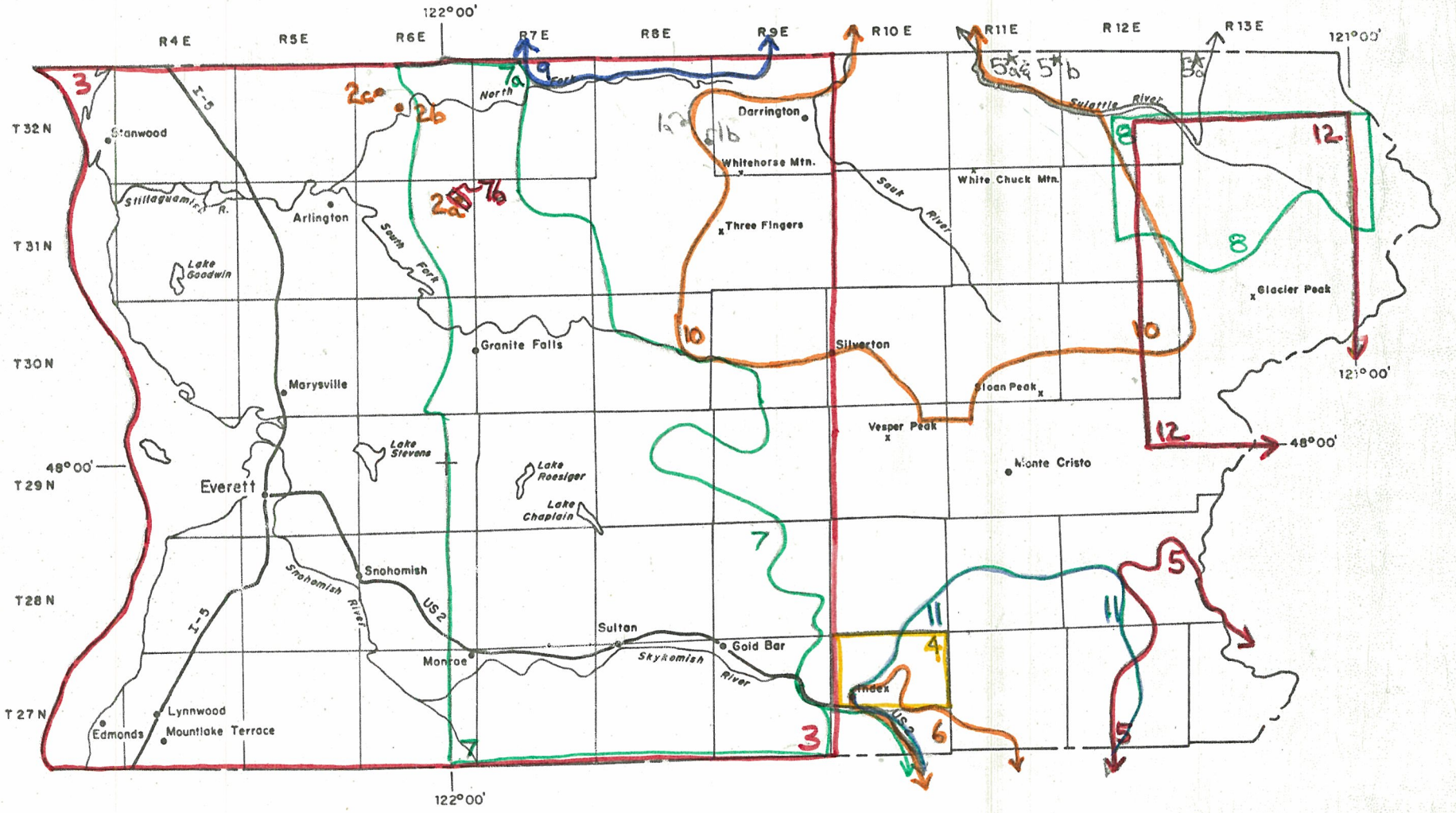
2 FIGURE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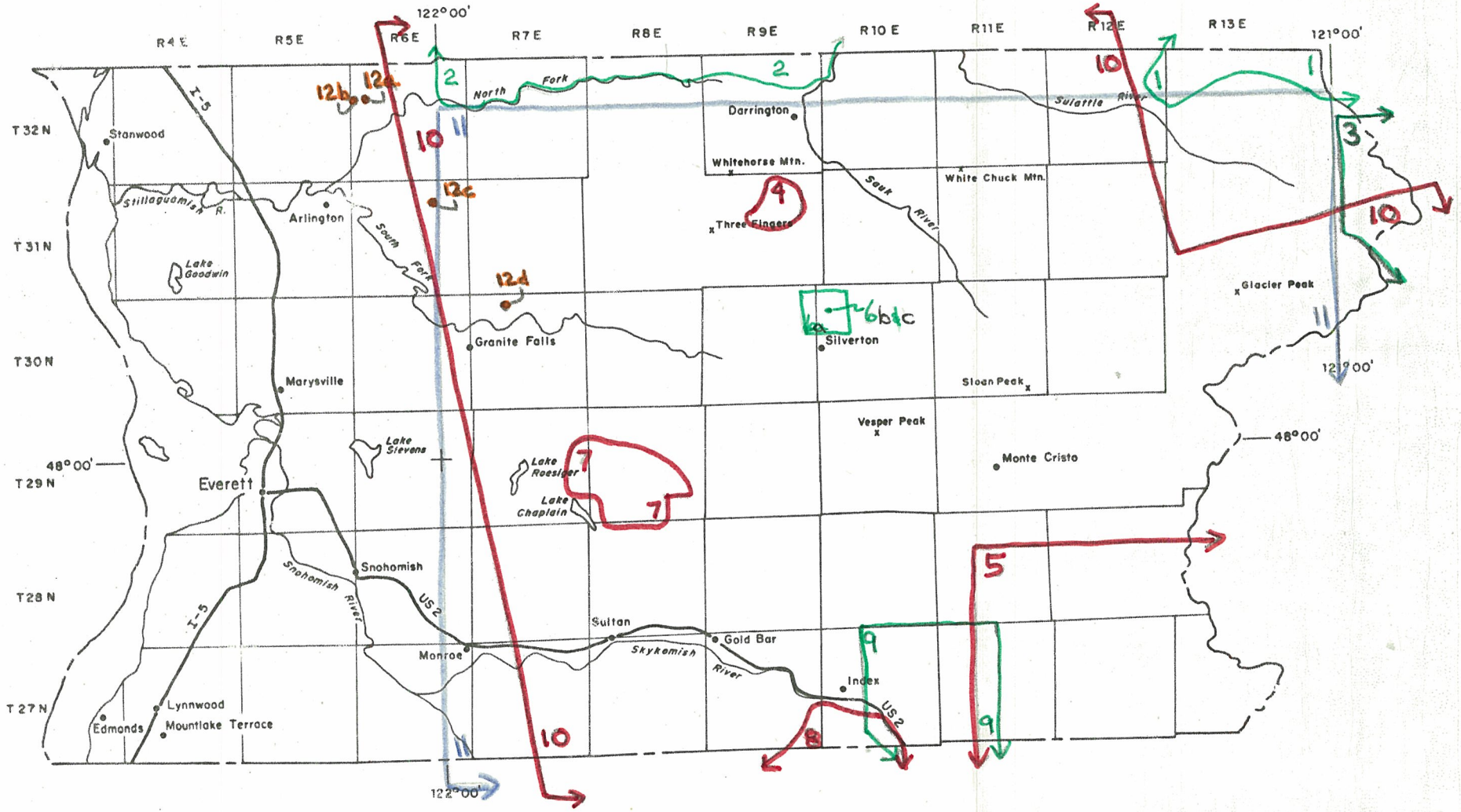
3 FIGURE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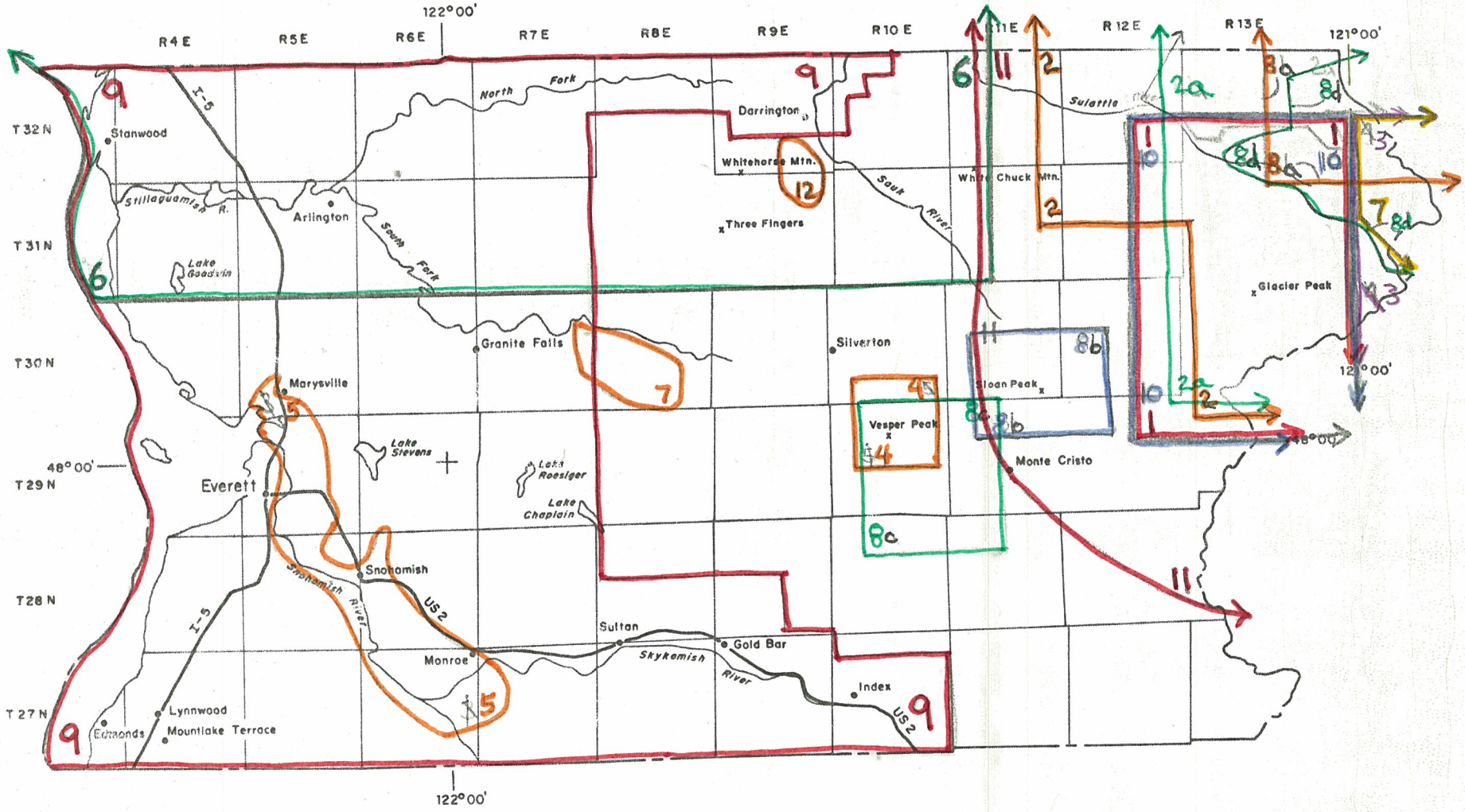
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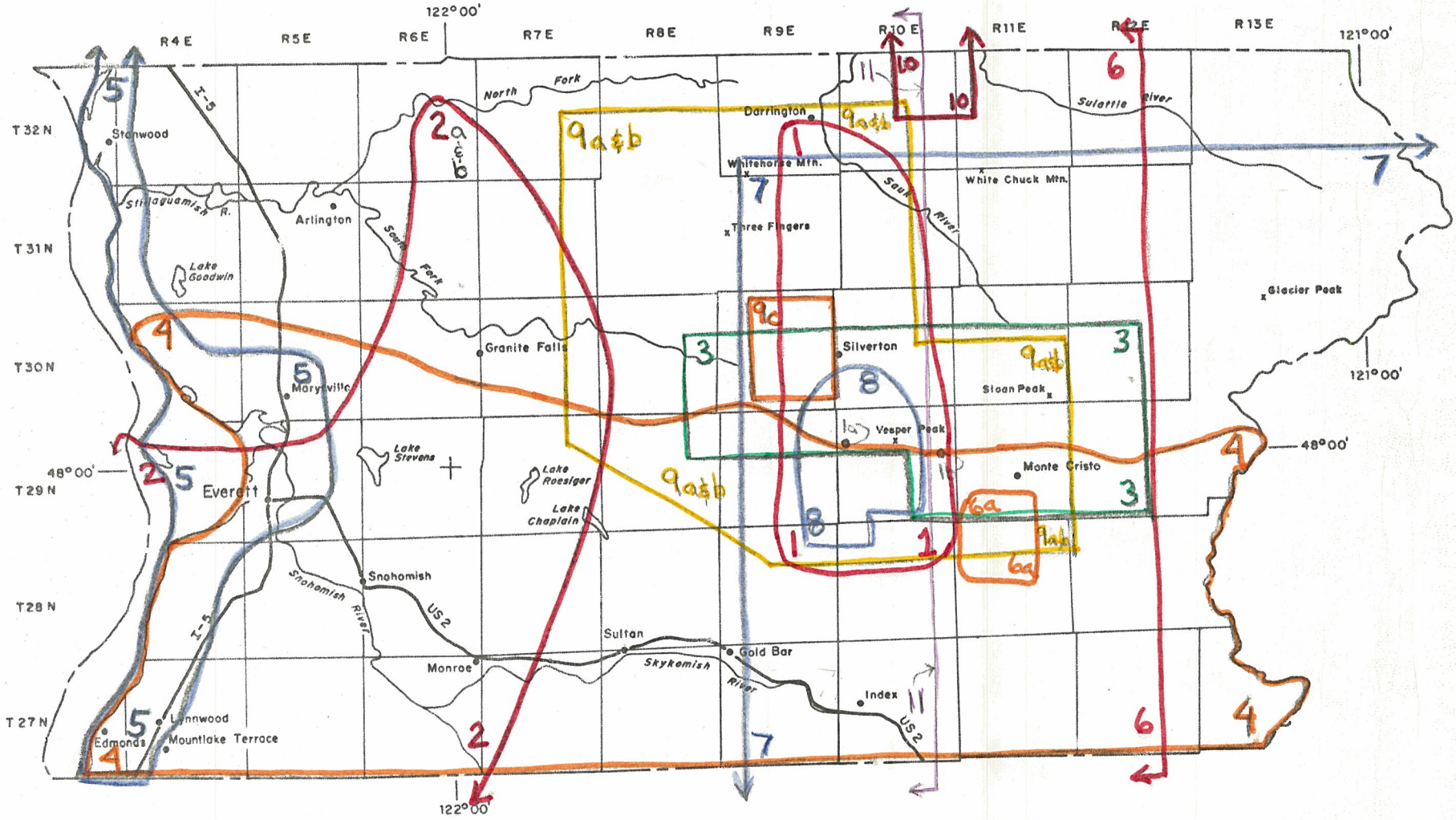
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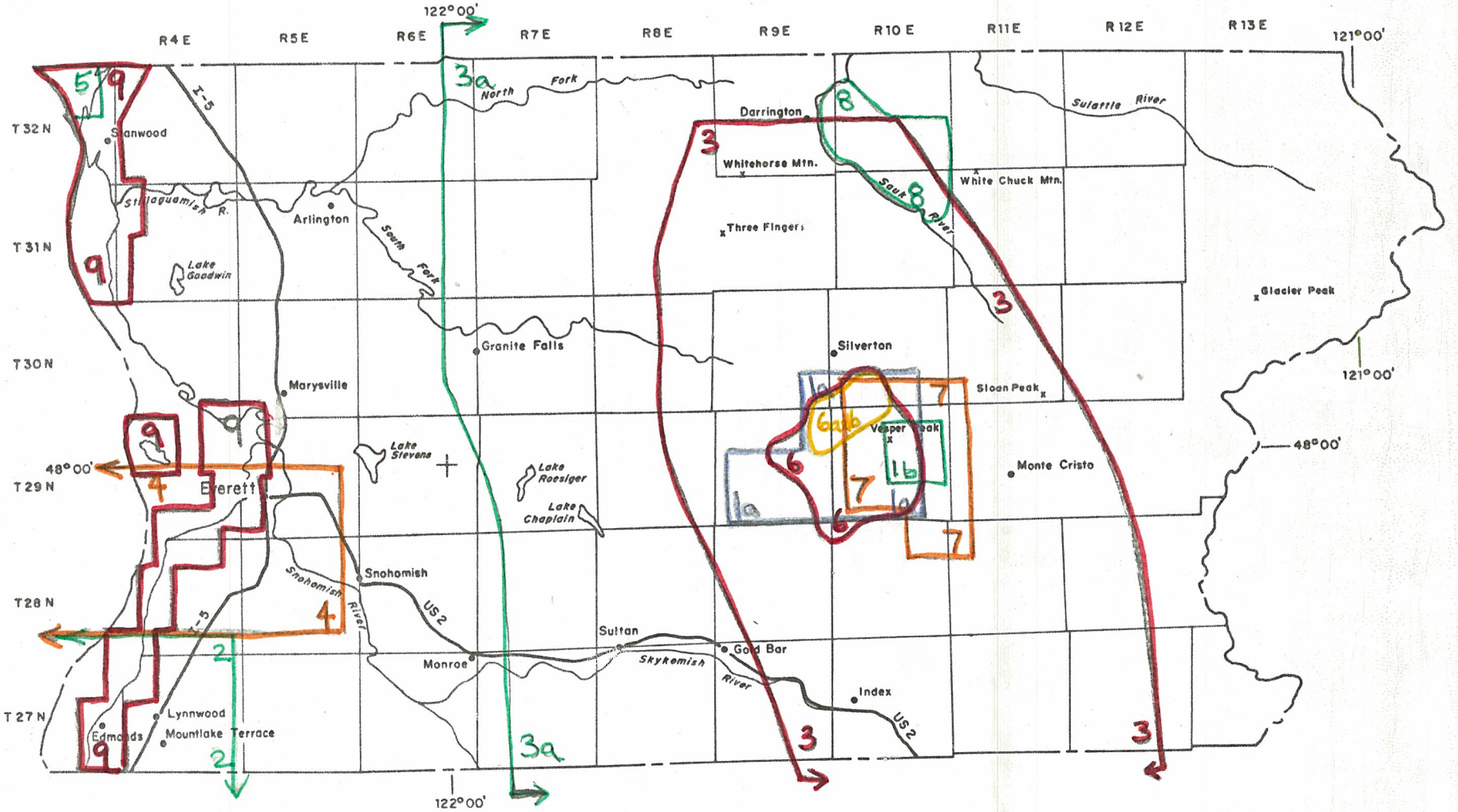
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FIGURE 1

1. Spurr, Josiah E., 1901, The ore deposits of Monte Cristo, Washington: U.S. Geological Survey Annual Report, 22nd, part 2, p. 777-865. Plate 80, scale, 1:30,000.

NAGUM → 2. SEE YELLOW SHEETS.

~~2~~ 2. McPhee, John A.; Baumann, Henry N., Jr., 1911, The geology and mining of the western part of Index mining district: University of Washington B.S. thesis, 42 p. Plate IX, scale, 1:31,680.

~~3~~ 3. Weaver, Charles E., 1912, Geology and ore deposits of the Index mining district: Washington Geological Survey Bulletin 7, 96 p. Plate 2, scale, 1:62,500.

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FIGURE 3

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FIGURE 4

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FIGURE 5

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FIGURE 6

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