A PUBLICATION OF THE WASHINGTON STATE DIVISION OF GEOLOGY AND EARTH RESOURCES

# WASHINGTON GEOLOGIC NEWSLETTER

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BERT L. COLE
COMMISSIONER OF PUBLIC LANDS

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## MINING ACTIVITIES IN WASHINGTON DURING 1974

Mineral exploration and development appeared to be on the increase in northeastern Washington and the Cascade Mountains during the first nine months of this year. The Knob Hill gold mine in Ferry County, the Midnite uranium mine in Stevens County, and the Pend Oreille lead-zinc mine in Pend Oreille County operated throughout the year and continue to be the state's major metal mines. Production of zinc ore began at the Schumaker mine in Stevens County in August, with the ore being concentrated at the Goldfield mill near Aladdin; while at the Pacific Mutual mine in Ferry County, copper-lead-silver ore was mined and stockpiled.

Exploration for copper, zinc, and uranium increased, and there appeared to be renewed interest in the state's gold and silver deposits. More Canadian mining and exploration companies were active in Washington during 1974. This appears to be the result of the recently passed Mineral Royalties Act, which has discouraged mining activities in British Columbia by imposing high royalties on metal producers.

It is impossible to list all mining activities in the state during the first nine months of 1974; however, the breakdown by counties that follows lists some of the major developments.

### Chelan County

In the Blewett district, exploration work is underway at properties in Culver Gulch, while both Homestake Development Co. and other companies undertook limited reconnaissance work in the Wenatchee area.

Texas Gulf was reported to be investigating copper mineralization at the Red Mountain mine on Phelps Ridge.

## Ferry County

Knob Hill mines continued their drilling program in the vicinity of their gold mine at Republic.

Coastal Mining Co. of Vancouver, B.C., explored the copper potential of the Lone Star mine, west of Danville.

Nesco Mining Co. stockpiled copper-lead-silver ore at the Pacific Mutual mine, east of Keller, and is currently erecting a 50-ton flotation mill at Nespelem.

Bear Creek Mining Company continues to explore their copper-moly deposit at Tolman Mountain near Keller.

## King County

Cities Service Minerals Corp. continued their exploratory drilling program at their Middle Fork copper-moly property. Elsewhere in the county, several other companies were exploring for copper.

## Kittitas County

Several Canadian mining companies were looking into the copper possibilities of the Cle Elum district. In the Swauk district mining was undertaken at the Red Jacket, Ace of Diamonds, and Anna May gold properties.

## Okanogan County

Quintana Minerals Corp. of Arizona is exploring a large low-grade disseminated copper deposit near Mazama, as well as investigating other mineralized areas of the county.

New York and Canadian interests have acquired mining claims on Mineral Hill, near Conconully, and are carrying out exploration work on deposits of copper, lead, and silver. Exxon also investigated several mineral deposits in the Conconully district, as have several Vancouver, B.C., mining companies.

Limited exploration work is also being undertaken by local interests at the Ruby silver mine near Nighthawk, at the Pinnacle gold mine near Loomis, and at the Ivanhoe silver mine on Palmer Mountain.

At the Alder gold mine near Twisp, Continental Mining and Excavating Co. of Everett is currently evaluating gold and copper potentials.

## Pend Oreille County

Pend Oreille Mines & Metals Co. continued their drifting and crosscutting program on two major lead-zinc mineralized horizons in the Pend Oreille mine.

Bunker Hill Co. is currently exploring the lead-zinc mineralization at the Leadhill mine, northeast of Metalline Falls.

## Skamania County

Duval continued their drilling program on their copper claims in the Mount St. Helens mining district.

## Snohomish County

Mintex Quarries, Inc. undertook exploration and development at their Copper Bell copper mine near Index; while in the Beckler River area, north of Skykomish, core drilling was undertaken at the Copper Knob prospect.

In the Sultan district, Brenmac continues with the development of the Sunrise copper prospect and is currently core drilling.

## Stevens County

Western Nuclear Inc. continued to explore the uranium mineralization at their Sherwood mine on

the Spokane Indian Reservation. They were also exploring lands under lease on the Colville Indian Reservation, in Ferry County.

Dawn Mining Company continued their drilling program in search of new ore bodies at the Midnite mine.

Delphi Resources Ltd. of Vancouver, B.C., investigated the mineral potential of Mineral Mountain, southwest of Northport.

Exxon is currently engaged in a mineral exploration program in the Deer Trail mining district, which lies northwest of the Midnite uranium mine.

Burlington Northern investigated the mineral potential of lands adjacent to their railroad lines.

Lucius Pitkin Inc., working for the U.S. Atomic Energy Commission, began a study of the uranium deposits of Stevens, as well as Pend Oreille County.

Cominco is carrying out an extensive drilling program at the Calhoun lead-zinc mine at Leadpoint. The company is also doing exploration work at the Deep Creek and Iroquois mines, which are past producers of lead and zinc.

## Whatcom County

Western Gold continued to explore for ore bodies at their New Light gold mine near Harts Pass; while in the Mount Baker district, several copper and silver occurrences were under investigation by unidentified parties.

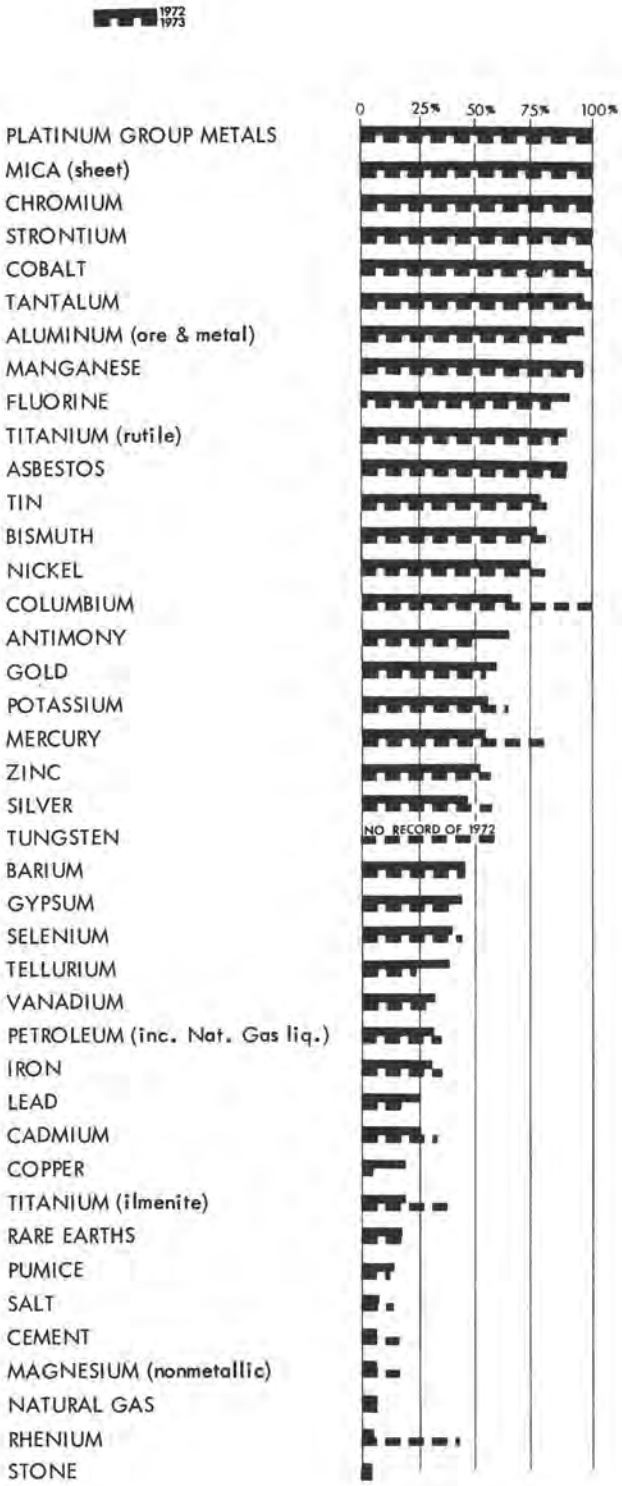
## Yakima County

Duval continued to explore for copper on claims staked last year in the Morse Creek area.

The above-mentioned mining, exploration, and development activities are by no means complete. Several unidentified geological survey crews were engaged in geochemical and geophysical surveys during the summer in Stevens, Ferry, Okanogan, King, and Snohomish Counties. No doubt, mineral occurrences in other parts of the state were also under investigation.

Wayne S. Moen

COMPARISON OF MINERAL IMPORTS
FOR THE UNITED STATES
1972-1973




From U.S. Bureau of Mines

## DIVISION RELEASES EIGHT NEW PUBLICATIONS

A variety of subjects are covered in the reports published in September by the Division of Geology and Earth Resources. The large number of requests we have received for these reports indicates a wide interest in geologic and mining matters by many individuals, government agencies, private companies, and schools. This response also emphasizes the importance of our service function of providing needed geologic reports to the public. These reports may be ordered from the Department of Natural Resources, Division of Geology and Earth Resources, Olympia, WA 98504.

Bulletin 67

MINING LAWS OF THE STATE OF WASHINGTON, by John L. Neff and Robert L. Magnuson, 109 p., 9 figs. Price, $1.50. [Report is not bound; cover and text are punched for 3-hole binder.]

Information Circular 51

PIERCEMENT STRUCTURE OUTCROPS ALONG THE WASHINGTON COAST, by Weldon W. Rau, 7 p., 7 figs. Free.

GM-7

PRELIMINARY GEOLOGIC MAP OF THE NEWPORT NUMBER 1 QUADRANGLE, PEND OREILLE COUNTY, WASHINGTON AND BONNER COUNTY, IDAHO, by Fred K. Miller. Scale 1:62,500. Map accompanied by 6 pages of text. Price, $1.00

GM-8

PRELIMINARY GEOLOGIC MAP OF THE NEWPORT NUMBER 2 QUADRANGLE, PEND OREILLE AND STEVENS COUNTIES, WASHINGTON, by Fred K. Miller. Scale 1:62,500. Map accompanied by 6 pages of text. Price, $1.00.

GM-9

PRELIMINARY GEOLOGIC MAP OF THE NEWPORT NUMBER 3 QUADRANGLE, PEND OREILLE, STEVENS, AND SPOKANE COUNTIES, WASHINGTON, by Fred K. Miller. Scale 1:62,500. Map accompanied by 7 pages of text. Price, $1.00.

GM-10

PRELIMINARY GEOLOGIC MAP OF THE NEWPORT NUMBER 4 QUADRANGLE, SPOKANE AND PEND OREILLE COUNTIES, WASHINGTON, AND BONNER COUNTY, IDAHO, by Fred K. Miller. Scale 1:62,500. Map accompanied by 6 pages of text. Price, $1.00.

GM-11

COMPLETE BOUGUER GRAVITY ANOMALY MAP OF WASHINGTON, by W. E. Bonini, D. W. Hughes, and Z. F. Danes. Scale 1:500,000. Price, $2.50.

GM-12

THICKNESS OF UNCONSOLIDATED SEDIMENTS, PUGET LOWLAND, WASHINGTON, by John B. Hall and Kurt L. Othberg. Scale: 1:250,000. Map accompanied by 3 pages of text. Price, $1.00.

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## DIVISION GEOLOGISTS ATTEND SURFACE MINED LAND MEETING

Don Ford and Ralph Kimmel, who administer the Surface Mined Land Reclamation Act, and Gene Chase and Jim Beaster, from the South Puget Sound and Northwest Area offices, respectively, of DNR, recently attended a 3-day annual convention of the National Association of State Land Reclamationists in Billings, Montana.

Gene Chase and Jim Beaster were selected to attend the meeting from a group of names submitted earlier by the various DNR Area Managers as local or district managers who have demonstrated an outstanding degree of interest and ability in the field of surface mined land reclamation.

The N.A.S.L.R. consists of states and individuals who are involved in administering a state-sponsored land reclamation program. The association was formed to:

1. Bring together state officials for discussions of problems of mutual interest.
2. Assist members to keep abreast of the art of land reclamation.
3. Promote cooperation between states, private mining groups, and the Federal Government on matters affecting the reclamation of mined lands.
4. Discuss, encourage, endorse, or sponsor activities, programs, and legislation that will advance the practice of mined land reclamation.

Member states are Alabama, Arkansas, Georgia, Illinois, Kentucky, Michigan, Missouri, Montana, North Dakota, Ohio, Oregon, Virginia. Soon to become members are West Virginia, Wyoming, South Carolina, and New York.

The meeting was well attended and consisted of presentations dealing with technical reclamation topics, effect of proposed federal legislation of surface mining of coal, and the cooperation and contributions of various federal agencies. Valuable mining and reclamation workshops and technical committee meetings were held.

Don Ford was appointed as chairman of the Cooperative Land Reclamation Committee and Ralph Kimmel was appointed to serve on a committee for Research of Improved Mining and Reclamation Methods.

During the business session and election of officers, Don Ford was elected as a member of the Executive Committee for the period of 1 year.

The meeting was successfully concluded by a tour of coal mining activity in the Colstrip and Decker, Montana, areas.

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*"Praise, like gold and diamonds, owes its value to its scarcity." Dr. Samuel Johnson*

ANNOUNCEMENT
80th ANNUAL CONVENTION
NORTHWEST MINING ASSOCIATION

Conforming to a long tradition, the 1974 Convention will be held at the Davenport Hotel in Spokane, Washington on the first Friday and Saturday in December, the 6th and the 7th. It is expected that attendance may reach 1500 persons. Non-members are welcome.

The program will include sessions on the following subjects:

Gold and Silver
Geology and Exploration
New Developments in the Region
Mineral Processing
Mining Technology
Industrial Minerals

The Opening General Session on Friday morning and two luncheons will feature speakers and topics of national significance.

A number of related activities are planned for the Convention dates. The U.S. Bureau of Mines will dedicate its new Center and provide tours of this new Spokane facility. The Washington Division of Geology and Earth Resources will conduct a symposium on Geology in Land Planning. It is expected that the city, county, and state planning personnel who will attend the symposium will be interested in a number of the Association's sessions and that, likewise, some of the planning discussions will be informative for the Association registrants.

In a repeat of a very successful program last year, students will hear a panel of experienced professionals discuss Careers in Mineral Sciences and Technology.

Inquiries should be addressed to the Northwest Mining Association, West 522 First Avenue, Spokane, Washington 99204. Phone (509)624-4822.

Russell H. W. Chadwick
President

## DIVISION TO CONDUCT SYMPOSIUM AT CONVENTION

The Division of Geology and Earth Resources will conduct a special session at the 80th Annual Meeting of the Northwest Mining Association to be held December 6th and 7th, 1974 at the Davenport Hotel in Spokane. The session will be mainly geared toward land use planning and the mineral industry. Topics of discussions will include "Land Utilization and the Mining Industry," "Zoning of Mineral Lands," and "The Economic Impact of Geologic Problems, such as the loss of mineral resources in land use planning." The topics are timely and should interest planners, engineers, students, and architects, as well as general public.

Ernest R. Artim

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## JOHN T. WHETTEN COMPLETES TERM AS DEPARTMENTAL CHAIRMAN AT UNIVERSITY OF WASHINGTON

Professor John T. Whetten has completed his 5-year term as chairman of the Department of Geological Sciences at the University of Washington. Bernard Evans will assume the chairmanship when he returns from leave for 1974-75. Dr. James Kelley, geologist and Associate Professor of Oceanography, will be acting head for this period of time.

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## FUTURE SCIENTISTS "RIGHT" TO US

In the midst of the many requests we receive for information and publications are letters from school children. Perhaps they have been assigned a school project or they may just have a natural curiosity about rocks. We enjoy the letters very much and plan to feature a few of them occasionally in our newsletter. To retain their originality, we are going to leave the spelling and sentences just as they were written by the children.

One little boy from Upper Sandusky, Ohio, writes . . .

I would like you to send me your information on strata, fozzilization and topography, for the State of Washington. I will endure the cost. Thank you.

A letter from Seattle . . .

Dear Sirs (or laidies), The man at the rock shop didn't have a chart that would pinpoint minerals in Wash. state, so he said to write to you. So would you send me one. . . . My erea code is 206. . . . Your good friend.

We would have a hard time filling this order from Beebe, Arkansas . . . Dear Sir, I would like to have all the rocks or minerals samples in your state that I can get for a science project at school.

A young man from Albuquerque, New Mexico who might as well have a rock since he already has our state, writes . . . I would like to have a rock or a mineral please. Because our teacher had us draw a state. I drew yours. And I am very happy to get your state. So I would be very pleased to have a rock or a mineral. I need one for science.

This one got tired of "righting" and ended in the middle of a sentence . . .

Dear Division Mines & Geology, we have a club called the fossil finders. We have read a book called "What on earth—Happened before man arrived" and in the back it had a place that told wher to right for information on where to locate fossils in Washington. If you could spare a few minutes and write back and give us the information we despretly need. Cordilly yours.

And there is Donald from San Antonio, Texas . . . I am Donald. I would like some information on your state. Please send all you can and send it in a small cardboard box if you have to, just try to send a lot.

## NEW FOREST SERVICE RULES AND REGULATIONS

The Forest Service has published new rules and regulations pertaining to prospecting and mining on National Forest System lands that became effective on September 1, 1974. A plan of operations and a performance bond, with some exceptions, will now be required for exploration and mining. In order to comply with these new regulations, every prospector and miner should have a copy of them. It is the purpose of the regulations to minimize adverse environmental impacts on public lands, and every attempt should be made to work closely with the local district rangers to promote harmony between industry and Forest Service.

Copies of the rules and regulations will be available from local Forest Service offices or you may obtain a copy from the State Geologist, Department of Natural Resources, Division of Geology and Earth Resources, in Olympia.

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## ALTERNATE METHODS FOR WASTE DISPOSAL

The total municipal solid waste generation in Washington State is estimated to be 3.1 million tons per year, or approximately 5.4 pounds per capita per day. These figures include wastes generated in households, commercial and business establishments; institutions, such as schools and hospitals; industrial wastes; construction and demolition wastes; abandoned and junked motor vehicles; street and other public debris; and sewage sludge. A breakdown by percentage of the discarded materials consists of paper, 31.3; yard and other organic wastes, 19.3; food wastes, 17.6; glass, 9.7; metals, 9.5; wood, 3.7; plastics, 3.4; rubber and leather, 2.6; textiles, 1.4; and miscellaneous, 1.5.

A popular method of disposal is the so-called "sanitary landfill"; however, in many cases, the method employed involves merely dumping discarded materials under the title of "sanitary." The approximate cost for disposal ranges from $5 to as high as $24 per ton. Disposal costs for Washington are about $70 million per year. In addition, municipal sanitary landfills are an almost universal source of groundwater pollution.

It has been estimated that the discarded materials in Washington represent nearly $80 million in reusable goods. As soon as many of these articles are discarded, they should be considered as raw materials. Recently, the people in Washington became aware of their dependency on oil and oil-based products. They have also been confronted with an alarming increase in prices for materials. Environmental awareness and the costs involved in implementing new programs to make the surrounding countryside more esthetically pleasing have partially contributed to this rise in prices. Most of these problems have originated because of the shortage of certain natural resources in this nation.

One of the most logical methods of alleviating the pressures upon our natural resources is to remine and reuse metals, minerals, and other materials already removed from the earth's crust that are now being discarded. The U.S. Bureau of Mines has developed new methods of resource recovery, including the converting of organic waste materials, such as food wastes, wood, and sewage sludge, into a usable type of synthetic oil. A pilot plant is testing the economics and feasibility of this resource recovery method. Under the test method, one ton of dried organic waste can yield as much as two barrels of synthetic oil.

Resource recovery (recycling) is emerging as an important and economically successful way to conserve resources and energy, decrease solid waste problems and help slow the increase in price due to natural resource depletion. According to the Environmental Protection Agency's 2nd Report to Congress, utilization of recycled material rather than virgin material generally results in reduced levels of atmosphere emissions, reduced effluent discharges to surface and

ground water, reduces energy consumption, and reduced generation of industrial and mining wastes, when all stages of material acquisition, processing, and transportation are considered.

The first resource recovery permit in the State of Washington has been issued to Thurston County Recycling for a center on Black Lake Road, south of the Black Lake Exit on the Aberdeen Freeway, west of Olympia. The center will pay for a wide variety of materials, such as newspapers, 1 cent per pound; magazines $\frac{1}{4}$ cent per pound; cardboard (flattened), 1 cent a pound; and aluminum cans, pans, etc., 8 cents per pound. The center will accept other metal cans, glass, clear plastic bags (produce and dry cleaning), and clean scrap paper. They will also pay 40 cents for cases of 24 beer bottles.

Resource recovery will certainly never replace mining of raw materials; however, it can alleviate the pressure on natural resources and give partial price relief to the consumer. Furthermore, it will eventually result in complete utilization of our natural resources, decrease our dependency for importation of raw materials, and solve some of our waste disposal problems.

Ernest R. Artim

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## GEOLOGICAL SCIENTIST REGISTRATION BILL

On October 30, 1973, a group of geologists met at the request of John Whetten, Geology Department, University of Washington, to discuss the pros and cons of legislation that would establish registration of geologists in Washington. Various criteria for registration were discussed; the final conclusion was that no one was satisfied with the bill that had been submitted to the 1973 Session of the Legislature (House Bill 1057). After some deliberation, the group concluded that it would be best to start from "scratch" and write another bill, getting input from all segments of the geologic community.

A drafting committee was selected that initially consisted of the following individuals:

| Name | Representing |
|---|---|
| Allen Agnew | Wash. State University |
| Roy Anderson | Assoc. of Engineering Geologist |
| Ernie Artim | Geology and Earth Resources |
| Donald Hull | Homestake Mining Company |
| Wayne Moen | Geology and Earth Resources |
| Dan Patterson | Assoc. of Engineering Geologist |
| Bill Reed | Consulting Geologist |
| Link Washburn | Univ. of Washington |

Peter Hooper of Washington State University filled the vacancy left by Allen Agnew, and John Whetten coordinated the actions of the University of Washington.

Meetings were held in Seattle, Olympia, and Spokane and data from earth science groups and individuals were received by mail and telephone. Drafts of the bill were circulated among the various groups for opinions and comments. After the eighth draft, copies were mailed out asking for a straw vote on that draft. The results were 90 percent for; 10 percent for, with reservations; and none against.

A draft copy of the proposed bill is available from the State Geologist's office in Olympia.

Ernest R. Artim

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## PROFESSOR AT E.W.S.C. PARTICIPATES IN SOVIET UNION EXCHANGE STUDY

Ernest H. Gilmour, Professor of Geology at Eastern Washington State College, recently returned from a 3-month study and lecture exchange visit in the Soviet Union. This exchange was provided for under the auspices of the U.S. National Academy of Sciences and The Soviet Academy of Sciences. His studies were done in Moscow, Kiev, Leningrad, and also in the field, approximately 200 km south of Moscow. Lectures were presented in Russian on Devonian, Carboniferous, and Permian carbonate paleon-

tological studies that had been conducted by Ernie in Montana, Idaho, and Washington. He, in turn, was able to inspect Permian bryozoans from all over the Soviet Union.

Following the 3 months in Russia, a 1-week visitation was made at the Paleontological Institute in Warsaw, Poland, where Ernie conferred with Polish paleontologists.

Ernie has hundreds of 35-mm slides and will be happy to present lectures on life and science in the Soviet Union to interested groups. Requests should be directed to him at E.W.S.C. in Cheney.

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## MINING CLAIMS—SURVEY REPORTS

Some confusion has developed as to what should be filed with the county auditors with the proof of labor under RCW 78.06.010 - 030. This law was passed in 1959 and has to do with using geological, geophysical, and geochemical surveys as assessment work. The RCW reads as follows:

78.06.010 Definitions. Words or terms used herein have the following meanings:

(1) "Geological surveys" means surveys on the ground for mineral deposits by the proper application of the principles and techniques of the science of geology as they relate to the search for and discovery of mineral deposits.

(2) "Geochemical surveys" means surveys on the ground for mineral deposits by the proper application of the principles and techniques of the science of chemistry as they relate to the search for and discovery of mineral deposits.

(3) "Geophysical surveys" means surveys on the ground for mineral deposits through the employment of generally recognized equipment and methods for measuring physical differences between rock types or discontinuities in geological formations. [1959 c 119 § 1.]

78.06.020 Duplicate survey reports to be filed with county auditor—Contents. All reports of geological, geophysical, or geochemical surveys on mining claims which may be filed with the auditor of any county in this state pursuant to United States Public Law 85-876 or amendments or revisions thereto shall be so filed in duplicate, and shall set forth fully:

(1) The location of the survey performed in relation to the point of discovery and boundaries of the claim.

(2) The nature, extent, and cost of the survey.

(3) The date the survey was commenced and the date completed.

(4) The basic findings therefrom.

(5) The name, address, and professional background of the person or persons performing or conducting the survey. [1959 c 119 § 2.]

78.06.030 Auditor to forward survey reports to division of mines and geology. All county auditors receiving for filing duplicate copies of geological, geochemical, and geophysical survey reports on mining claims shall forward, monthly, one copy of each report received to the division of mines and geology of the department of conservation.[1/] [1959 c 119 § 3.]

This RCW has been generally ignored by industry; however, the state is now requiring the auditors to turn in accurate reports. Survey reports used as assessment work should include all data required by law, so the auditors can accept the surveys as valid work.

1/ The Department of Conservation was abolished in 1968. The Division of Mines and Geology is now the Division of Geology and Earth Resources, of the Department of Natural Resources.

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## QUATERNARY FAULTING ON DOW MOUNTAIN, MASON COUNTY

Excavation of a trench four miles north-northwest of Hoodsport has verified the existence of the Dow Mountain Fault, located in secs. 22, 26, and 27, T. 23 N., R. 4 W. Prior to the excavation, the only lines of evidence for faulting were a northwest-trend-

ing lineament on aerial photographs, and a southwest-facing scarp about one-quarter mile long and up to 35 feet high. The trench is on property owned by Simpson Timber Company and was dug to a maximum depth of 23 feet with a front-end loader operated by Gene Visser. The trench revealed that the reverse fault strikes N. 60° W. and dips 59° NE. In the trench Salmon Springs till overlies Eocene Crescent basalt and is offset by at least 6 feet. The present scarp of the Dow Mountain Fault is at an approximate elevation of 1500 to 1800 feet, which is near the upper limit of Vashon till. That part of the original scarp that was below 1500 feet was probably obliterated by the Puget Lobe of the Cordilleran ice sheet during the Fraser Glaciation. As Vashon Drift is not offset by the Dow Mountain Fault, the last major movement evidently occurred during the Olympia Interglaciation.

The Dow Mountain Fault may be offset by the Saddle Mountain East Fault, a reverse fault that strikes N. 25° E. and dips 74° SE. Ponds were created when drainage was blocked by the upthrown side of the fault. Radiocarbon dating of stumps in these ponds indicates that the last major movement of the Saddle Mountain East Fault took place about 1200 years ago.

Another probable late Quaternary fault on Dow Mountain has been named the Cushman "Rift." The feature is located in sec. 28, just east of Lake Cushman, and strikes N. 55° E. The Cushman "Rift" is a linear valley approximately 1 mile long, 100 to 300 feet deep, and 200 to 500 feet wide. Salmon Springs and Fraser drifts are exposed on the northwest side of the valley, and the Crescent basalt crops out on the southeast side. Two elongate closed depressions have probably been caused by landslides of basalt into the valley.

Robert J. Carson
Joseph R. Wilson

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Oil and Gas Drilling Permits Issued by Division of Geology and Earth Resources
(January 1, 1974 to September 30, 1974)

| Permit number / Unique number | Spud date | Name of operator and well name | Total depth (feet) | Location (sec., T., R.) | Results |
|---|---|---|---|---|---|
| 297-A / 027-00127 | 9-25-74 | El Paso Products Co. Montesano No. 1-X | | 13-17N-8W Grays Harbor Co. | Presently drilling |
| 297 / 027-00126 | 9-15-74 | El Paso Products Co. Montesano No. 1 | 214 | 13-17N-8W Grays Harbor Co. | Abandoned location to drill offset well |
| 296 / 041-00134 | 6-28-74 | Washington Nat. Gas Co. S.U. No. 908 | 4,000 | 17-11N-1W Lewis County | Gas storage well |
| 295 / 041-00133 | 5-28-74 | Washington Nat. Gas Co. S.U. No. 907 | 3,950 | 17-12N-1W Lewis County | Gas storage well |
| 294 / 027-00125 | 4-19-74 | El Paso Products Co. Grays Harbor Co. 35-1 | 2,495 | 35-19N-12W Grays Harbor Co. | Suspended |
| 293 / 041-00132 | 2-7-74 | Washington Nat. Gas Co. S.U. No. 906 | 2,905 | 17-12N-1W Lewis County | Gas storage well |
| 292 / 027-00124 | 3-13-74 | Development Assocs. Inc. Carlisle 1-23 | 4,100 | 23-20N-12W Grays Harbor Co. | Suspended |

## YOUR STATE GEOLOGIST REPORTS

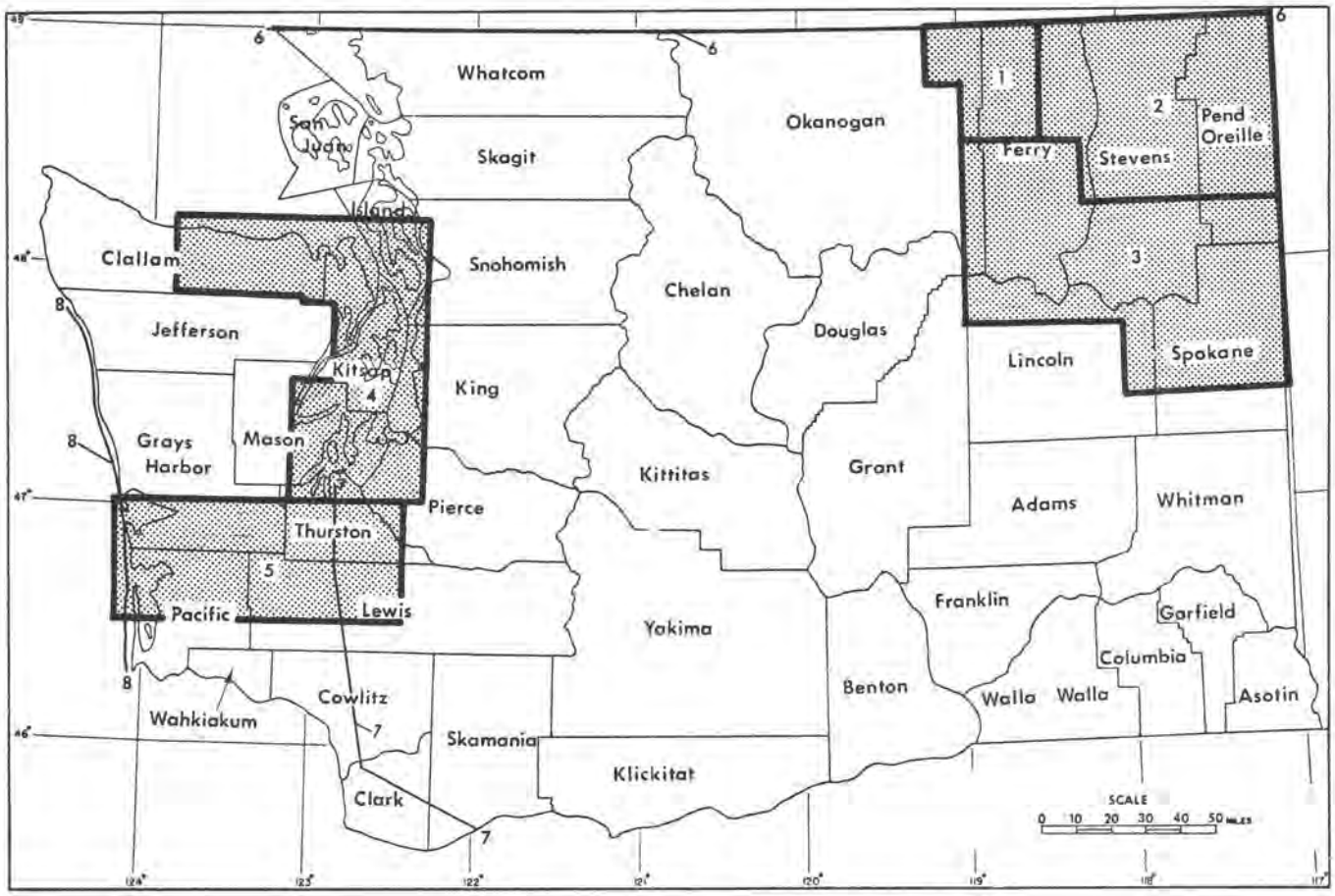
It's the time of year again when we begin to think of winter and its attendant activities, not the least of which is attendance at the Northwest Mining Association meeting on December 6 and 7 in Spokane. As usual, the meeting will be held in the Davenport hotel. This traditional meeting is a "must," I feel, for all miners and geologists. This year's program promises to be a good one with sessions on mining, geology in land use planning, employment practices, etc. I would encourage all people who are interested in mining, whether they are miners or not, to attend. The addition last year of the sections on mining law and employment practices, and geology in land use planning this year are examples of the association's moving to meet changing needs.

Along with attending the meeting, I would encourage everyone who has an interest in mining and geology to become an active member of the association. It is the one organization in the Northwest that can speak freely on issues, because while many companies support the association, only individuals belong. This eliminates the possibility of putting a company in an embarrassing position. The association was foremost in the battle to get recent proposed federal mining rules and regulations modified to a more acceptable form. We probably have many similar battles to fight in the future, especially in mine reclamation. I am pretty well convinced that once Congress passes the surface coal mine reclamation act they will start looking at reclamation associated with all other types of mining. We will need to be united to make our voices heard, and the best organization I can see to help us in the Pacific Northwest is the Northwest Mining Association.

Ted Livingston

## U.S. GEOLOGICAL SURVEY 7½-MINUTE TOPOGRAPHIC QUADRANGLES
(New maps received in Division of Geology and Earth Resources Library since October 1, 1973)

| Name | Latitude (indicates southeast corner) | Longitude | County |
|---|---|---|---|
| Asotin | 46°15'00" | 117°00'00" | Asotin |
| Clarkston | 46°22'30" | 117°00'00" | Whitman, Asotin |
| Jungle Butte | 46°07'30" | 121°15'00" | Yakima |
| Manastash Lake | 46°52'30" | 120°52'30" | Kittitas, Yakima |
| Mt. Rainier East | 46°45'00" | 121°37'30" | Pierce, Lewis |
| Mt. Rainier West | 46°45'00" | 121°45'00" | Pierce, Lewis |
| Old Scab Mtn. | 46°52'30" | 121°07'30" | Yakima |
| Pine Mtn. | 46°30'00" | 120°52'30" | Yakima |
| Rockpile Creek | 46°15'00" | 117°07'30" | Asotin |
| Silcott | 46°22'30" | 117°07'30" | Whitman, Asotin, Garfield |
| Steamboat Mtn. | 46°07'30" | 121°37'30" | Skamania |
| Stember Creek | 46°22'30" | 117°15'00" | Garfield, Asotin |
| Sunrise | 46°52'30" | 121°37'30" | Pierce |
| Tampico | 46°30'00" | 120°45'00" | Yakima |
| Weddle Canyon | 46°37'30" | 120°52'30" | Yakima |
| Woodland | 45°52'30" | 122°37'30" | Cowlitz, Clark |




INDEX OF AEROMAGNETIC SURVEYS IN WASHINGTON


1. Hunting Geophysical Services, 1960, Geological interpretation of airborne magnetometer and scintillometer survey, Mt. Bonaparte, Bodie Mountain, Curlew, Aeneas, and Republic quadrangles, Okanogan and Ferry Counties, Washington, for the Division of Mines and Geology, Department of Conservation of the State of Washington: Washington Division of Mines and Geology Report of Investigations 20, 34 pages and 25 separate sheets.

2. United States Geological Survey, 1973, Aeromagnetic map of parts of the Okanogan and Sandpoint 1° by 2° quadrangles, Washington-Idaho-Montana: U. S. Geological Survey open-file map, 1 sheet, scale 1:250,000.

3. United States Geological Survey, 1974, Aeromagnetic map of parts of the Okanogan, Sandpoint, Ritzville, and Spokane 1° by 2° quadrangles, northeastern Washington: U. S. Geological Survey open-file map, scale 1:250,000, 1 sheet. Also 23 sheets, scale 1:62,500, of the same area.

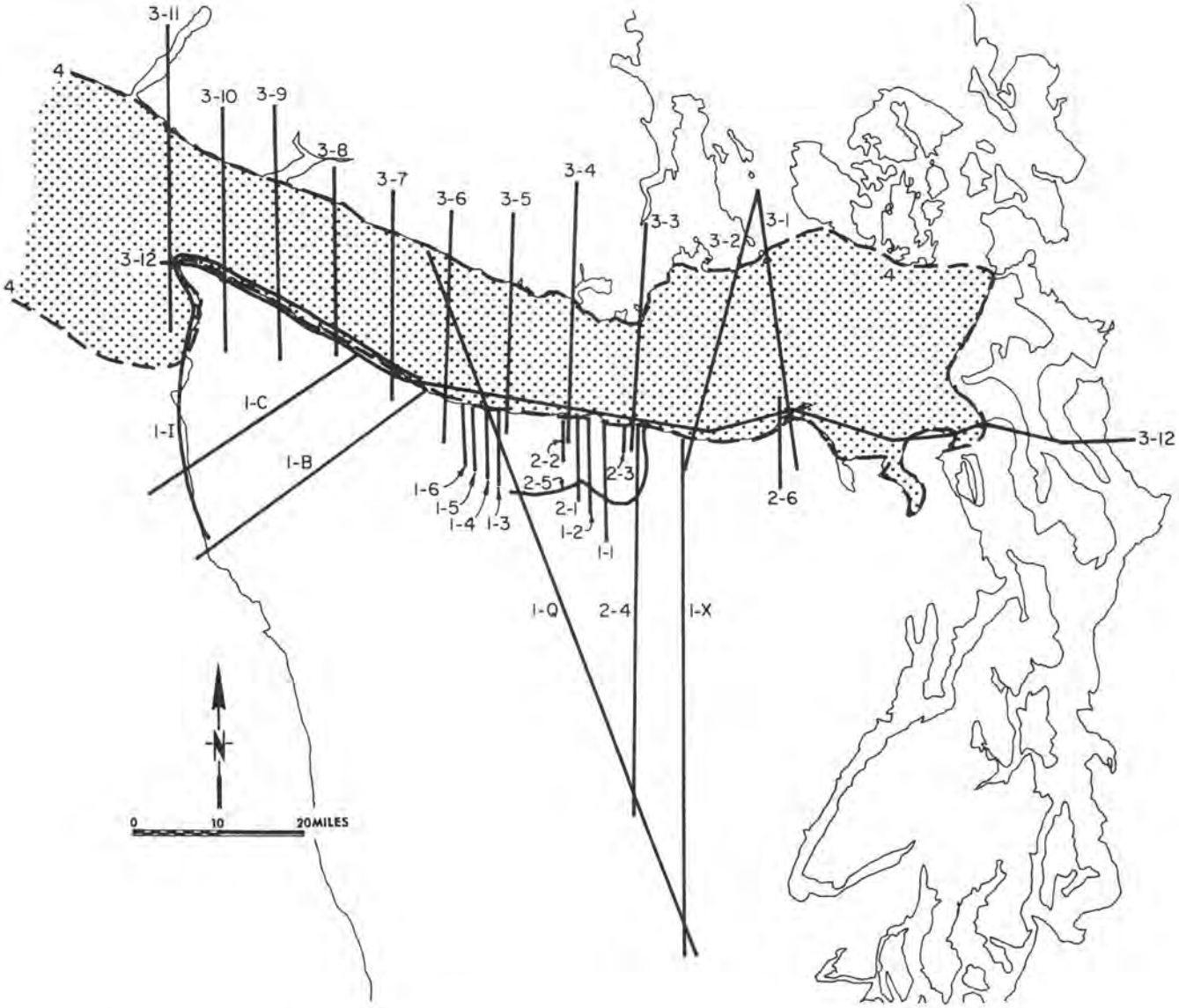
4. United States Geological Survey, 1974, Aeromagnetic map of part of the Puget Sound area, Washington: U. S. Geological Survey open-file map, 1 sheet, scale 1:125,000. Also 16 sheets, scale 1:62,500, for the same area.

5. Henderson, J. R.; and others, 1958, Aeromagnetic maps of the Aberdeen (GP-177), Adna (GP-187), Cape Shoalwater (GP-183), Centralia (GP-188), Grayland (GP-176), Malone (GP-179), Montesano (GP-178), Onalaska (GP-189), Pe Ell (GP-186), Rochester (GP-180), South Bend (GP-184), Tenino (GP-181), Willapa (GP-185), and Yelm (GP-182) quadrangles, Grays Harbor, Lewis, Pacific, and Thurston Counties, Washington: U. S. Geological Survey Geophysical Investigations Maps, 1 sheet each.

6. Geological Survey of Canada, 1959, Aeromagnetic survey across the Cordillera, from the Pacific Ocean ot Lethbridge, Alberta, adjacent to the 49th parallel: Geological Survey of Canada [ Geophysics Paper ] 749, map with explanatory notes.

7. Agocs, W. B.; Hartman, R. R., 1956, Airborne magnetometer profile from Olympia, Wash., to Laramie, Wyo.: Mining Engineering, v. 8, no. 12, p. 1210-1215.

8. Henderson, J. R., 1953, Preliminary total intensity aeromagnetic profile from Baker Bay to Goodman Creek, Washington: U. S. Geological Survey open-file map, 1 location map, 1 profile sheet.




INDEX MAP OF AEROMAGNETIC FLIGHT LINES ON THE OLYMPIC PENINSULA, WASHINGTON


1. Henderson, J. R., 1954, Preliminary total intensity aeromagnetic profiles in Olympic Peninsula, Washington: U. S. Geological Survey open-file map, 2 sheets.

2. Henderson, J. R., 1957, Total intensity aeromagnetic profiles of Olympic Peninsula area, Washington: U. S. Geological Survey open-file map, 3 sheets.

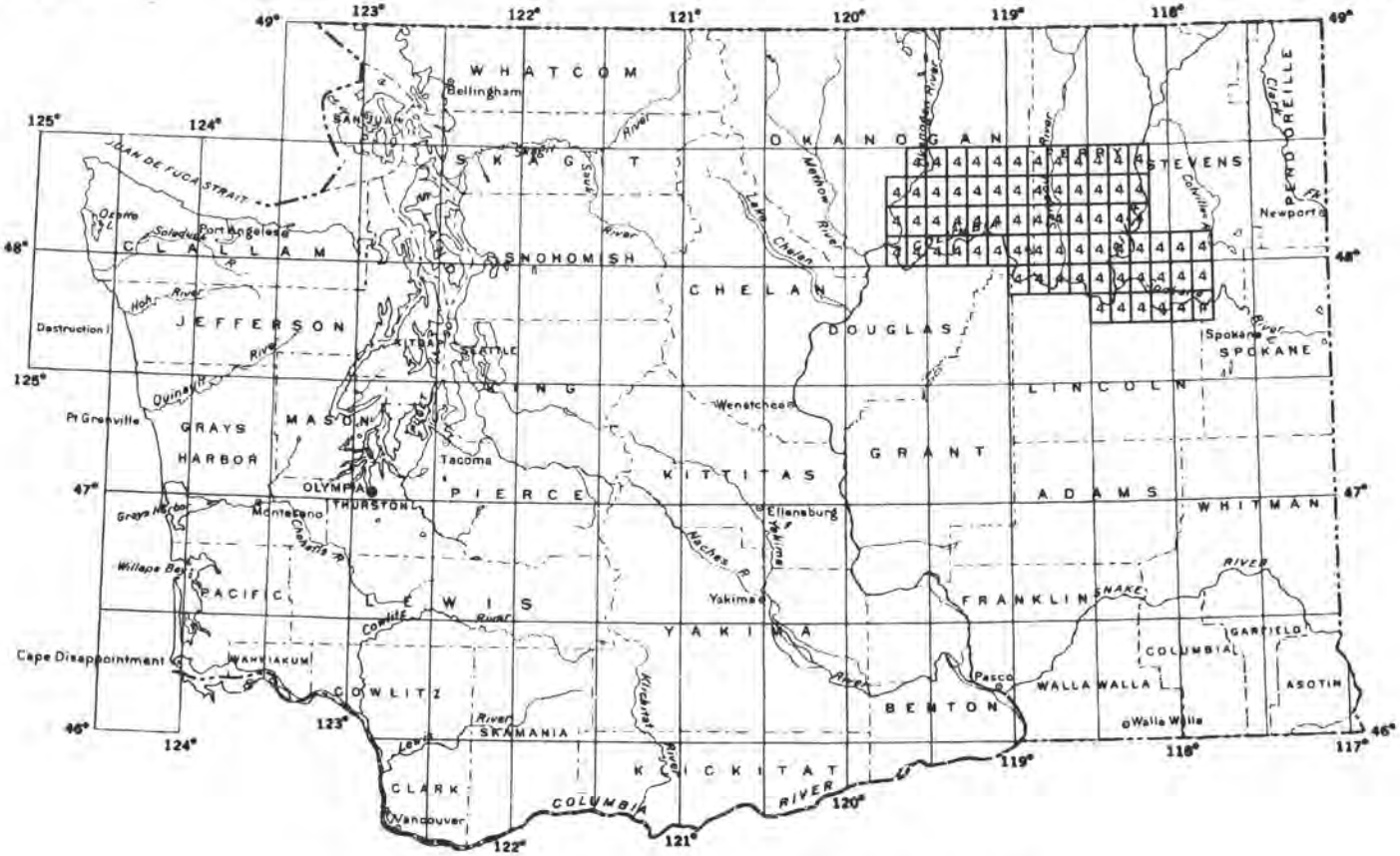
3. Gonnason, W. L., 1964, Aeromagnetic profiles of north-south flight lines across the Strait of Juan de Fuca, and east-west flight lines along the south shore of Vancouver Island and along the Olympic Peninsula from Cape Flattery to Dungeness Spit, thence east to U. S. Hy. 99 at Marysville: Walter L. Gonnason, P. O. Box 9204, Seattle, WA, 98109, 14 profile sheets, 1 location map.

4. Snavely, P. D., Jr.; Tiffin, D. L.; MacLeod, N. S.; Currie, R. G., 1974, Preliminary gravity and magnetic maps of the Strait of Juan de Fuca, British Columbia, Canada, and Washington, United States: U. S. Geological Survey open-file report, 2 maps accompanied by 10 pages of text.

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

# WASHINGTON

TOPOGRAPHIC DIVISION
WESTERN MAPPING CENTER
MENLO PARK, CALIFORNIA




## Status of new topographic mapping as of July 1, 1974

[2] Aerial photography completed, generally quad-centered at 1:76,000 scale. See instructions on front for ordering.

[4] Advance copies of orthophotoquads available only as continuous-tone product;
$6.50 for photographic paper (1594 kind), or $10.00 for opaque scale-stable film. See Note 1 on front for ordering.

[•] Orthophotoquad published since last Sales Index. Price is 75 cents. Order from Denver Distribution Section.

UNITED STATES
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# WASHINGTON

TOPOGRAPHIC DIVISION
WESTERN MAPPING CENTER
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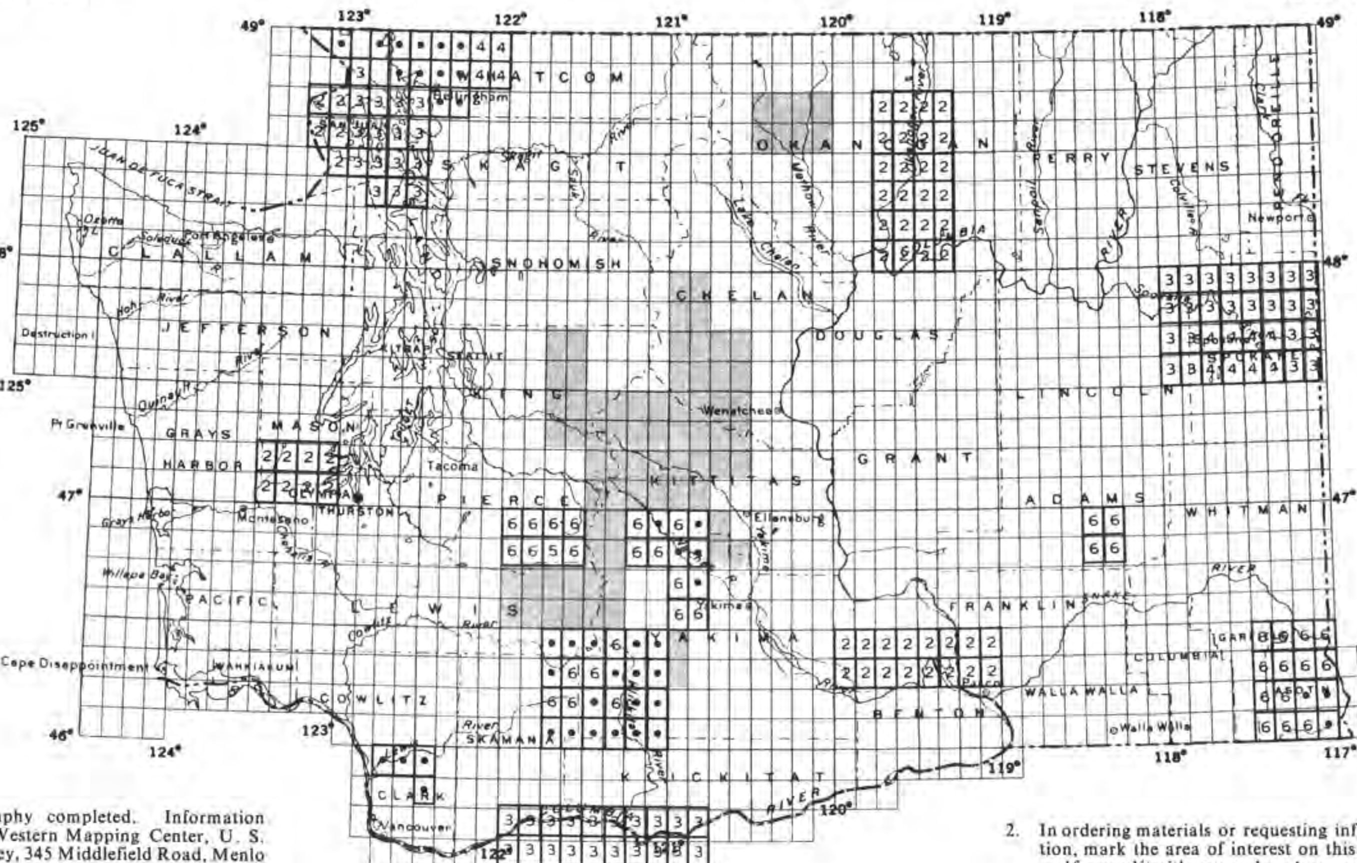


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| 2 |

Aerial Photography completed. Information available from Western Mapping Center, U. S. Geological Survey, 345 Middlefield Road, Menlo Park, CA 94025, or Map Information Office, U. S. Geological Survey, Washington, D. C. 20244.

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| 3 |

Basic horizontal and vertical control surveys completed. Descriptions and unadjusted coordinates and/or elevations are available. Price is 50 cents for each 15-minute quadrangle horizontal or vertical control list. See Notes.

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| 4 |

Prints of manuscripts compiled from aerial photographs are available at 75 cents each.

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| 5 |

Field mapping and checking completed. One-color unedited advance prints, with names and section corner data, are available for 75 cents each.

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| 6 |

Final drafting completed. Partially edited one-color advance prints available for 75 cents each. (If shaded, see explanation below).

Shaded areas indicate that maps have been published at 1:62,500-scale ONLY. However, 1:24,000-scale prints in 7.5-minute units, with appropriate accuracy and contour interval, are and will remain available. Each such print is 75 cents, or $3 for prints covering a complete 15-minute quadrangle.

NOTES:

1. Requests for all advance materials should be sent to Western Mapping Center, U. S. Geological Survey, 345 Middlefield Road, Menlo Park, CA 94025. Payment in exact amount should accompany order and may be made by check or money order, payable to U. S. Geological Survey. Please do not send stamps. NO DISCOUNT ALLOWED.

2. In ordering materials or requesting information, mark the area of interest on this index and forward it with your order. A new copy of the index will be returned for your future use.

## PUBLISHED MAPS

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**Maps published since latest edition [ NOV. 1973 ] of Sales Index to published maps.**

**Sales Index available free. Published maps available at 75 cents each from U. S. Geological Survey, Denver Distribution Section, Federal Center, Bldg. 41, Denver, CO 80225, and Distribution Section, U. S. Geological Survey, 1200 South Eads St., Arlington, VA 22202. On an order amounting to $300 or more at the list price, a 30-percent discount is allowed; no other discount is applicable. Remittance may be made by check or money order payable to the U. S. Geological Survey.**

Status of advance orthophotoquad mapping as of July 1, 1974

Department of Natural Resources
Division of Mines and Geology
Olympia, WA 98504

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