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Credit given the State of Oregon Department of Geology and Mineral Industries
for compiling this information will be appreciated.

MINING COMMUNICATIONS 70 YEARS AGO

Norman S. Wagner *

"MANESIS" or, if you prefer, "28585," meaning, "It is not advisable that this should be published" is part of an elaborate mining code in use early in the century when the telegraphic key was the foremost means of communication.

Creator of the code was Bedford McNeill, Associate of the Royal School of Mines in England. McNeill's Code, consisting of 45,000 words, was designed to cover the whole field of mining activities from claim staking to smelting. Each code word was accompanied by a corresponding five-digit number that could be substituted for it. Several pages of the 807-page code book are reprinted here.

Published in 1899, the code was "extensively adopted in all the more important mining centres throughout the world, including Australia, India, South Africa, and the United States." Since our western frontier abounded with persons engaged in some aspect of mineral development at the turn of the century, McNeill's Code is a part of the history of those times.

The versatility of McNeill's Code was limitless. A scout sent out to the frontier in search of promising mining investments could use it to dispatch a 67-word message to his associates at the expense of only 11 telegraphed words. For example, MANESIS BALANZON 28019 RINOMABILE LOSBRECHEN decodes to read, "It is not advisable that this should be published, but the general opinion of all who have visited the property is that the property is well placed for economic development and working." Add to this HOPLITES IMBAGNATO TRAMITELO and the message continues "Would suggest that you make an offer to option for 30 days." To advise the need for fast action, add ALEMA HOMEBRED LOWERMOST and urge, "Consider it very desirable at once to cable terms of offer. Delay on your part is dangerous; the property should not be lost."

Not only did this ingenious code provide a great saving in cost of sending messages, it also served as a protection of private business secrets, unless, of course, one's competitors also had copies of McNeill's Code. A section at the back, however, listed many extra and substitute code words

*Resident Geologist, Department of Geology and Mineral Industries, Field Office, Baker, Oregon

so the user could record additional or secret meanings of his own devisement to further protect his information transmission.

In addition to the financial aspects of mining transactions, the code applied to rocks, minerals and ores, milling, smelting, machinery, repair and replacement, transportation, accidents, and all possible considerations even including the weather. Thus, PIANIST means "Shipments stopped as teams cannot haul on account of road." PORFIA explains further, "The roads are impassible from snowslides." And PORPORATO TRAITABLE adds the warning, "Shall probably be snowed up for another four weeks."

Some examples of the way McNeill's Code could be adapted to mining operations are given as follows:

Geology

DISIMULO IMPROBULUS SWINISHLY DIXIEME MAZZERO. The general geological conditions are such that I can confirm the statement made, i.e., as depth is obtained the ore bodies are more solid and continuous with visible free gold uniformly disseminated through the quartz.

Prospecting

SOLVIENTE TUSILAGO BALANZON SOMBROUSLY. The vein can be traced at the surface for a distance of 750 feet but it is a very irregular one both in width and value.

Lode mining

MANTENERSI TRAPICIO BALANZON EINFORMIG STOP REGRESSION. We will probably be able to sink 100 feet additional with the present pump but we have not sufficient boiler power for hoisting. Can you find competent man as surveyor who can also make assays.

Placer Mining

DIVULGETER BALANZON EMBOUCHURE TRISTESSE TRAINOIL. The gold is coarse and readily amalgamated but we have 460 feet of ditch to make, requiring 3 days, before we commence hydraulicing.

Surveying

PUPITRE TRINCAFIER STUPIDITY STOP PECIENTO FOXDOG REGNICOLA. We have holed through to the 400 foot level from the stope below during the past week. Will send map as soon as we have finished surveying.

McNEILL'S CODE.

Arranged to meet the Requirements of
MINING, METALLURGICAL AND CIVIL ENGINEERS; DIRECTORS OF MINING,
SMELTING AND OTHER COMPANIES; BANKERS; STOCK AND SHARE BROKERS;
SOLICITORS, ACCOUNTANTS, FINANCIERS AND GENERAL MERCHANTS.

—
SAFETY AND SECRECY.
—

BY

BEDFORD McNEILL, Assoc. M. Inst. C. E.

*Associate of the Royal School of Mines;
Member of the Institution of Mining and Metallurgy and of the
North of England Institute of Mining and Mechanical
Engineers; Fellow of the Geological Society,
&c., &c.*

—
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PREFACE.

In the present volume the Author has endeavoured to include the technical terms and sentences required by the Mining, Metallurgical and Civil Engineer, by the Mine Director, and by those connected with the direction or management of Mining and Smelting Companies. Particular attention has also been paid to the financial part of mining, needs of Financiers generally, negotiations for effecting the sale or purchase of mineral and other properties, as well as to the requirements of Stock Exchange transactions. Legal, Banking and General Phrases are also largely included.

*The Code is alphabetically arranged, with but one exception, viz. :—
"Sundry Weights and Measures" on pages 774-775.*

On pages 373-376, under the word "Mineral," will be found a list of the more commonly occurring Minerals; and on pages 533-535, under the word "Rock," will be found a similar list of Rocks. Both "Minerals" and "Rocks" are arranged alphabetically.

The Cipher Words have been carefully selected with a view of eliminating such as may be identical in their telegraphic signals, or otherwise liable to error in transmission. On the next page will be found General Suggestions as to the use of the Code, also for securing accuracy in messages received, for the prevention of errors in transmission, and for deciphering mutilated words when such occur.

The First Part contains over forty-four thousand Mining, Legal and General Phrases; while the Second Part includes Numerals, Measurements, Weights and Currencies.

A Schedule embracing the phrases required when surveying or reporting upon a mineral property is also added.

Any suggestions will be most cordially received.

BEDFORD McNEILL.

utter you refer f standing	Apunchar ... 02988	No assay office is available
	Apuntado ... 02989	From the assay results
	Apuntalar ... 02990	Vein matter assays
	Apunto ... 02991	The outcrop assays
	Apuracion ... 02992	The ore streak assays
t is false	Apuradero ... 02993	The drill core(s) assay(s) [telegraph results]
ing	Apurativo ... 02994	Send duplicate samples to nearest government assay office, and
e facts	Apurement ... 02995	From the assay it looks as if sample(s) has (have) been salted
	Apurir ... 02996	The following are the assay results of the duplicate samples
	Apyrexia ... 02997	Pulp assays at mill average
he coal	Aquagium ... 02998	Pulp assays at — mill average per ton
of ash	Aquarelle ... 02999	Tailing assays average — per ton
	Aquarium ... 03000	Control assay
ie coke	Aquatico 03001	Have made control assay which gives
t. of ash	Aquatique 03002	Wait for cable giving results of assays
	Aquatoris ... 03003	Better wait for results of assays
	Aquejar ... 03004	Assay of samples from — to-day gives
	Aquel ... 03005	Assays for the week do not show any improvement
	Aquende ... 03006	I (we) believe the ore will assay at least — ozs. to the ton
	Aquestar ... 03007	Why do you not report assays
	Aquidoccio 03008	What is the assay value
	Aquiducum 03009	What is the assay value for silver per ton of ore
	Aquietar ... 03010	What is the assay value for gold per ton of ore
	Aquifolia ... 03011	Assay value — per ton
	Aquilatar ... 03012	Assay value for gold per ton
	Aquilea ... 03013	Assay value for silver per ton
	Aquilentam 03014	Telegraph the result of assays from
	Aquilifero 03015	Are the assays absolutely reliable
	Aquilino ... 03016	Assays are absolutely reliable
	Aquilonal ... 03017	Sample assays gold —, silver — per ton of 2,240 lbs.
	Aquilotto ... 03018	Sample assays gold —, silver — per ton of 2,000 lbs.
	Aquitibi ... 03019	Sample assays silver — ozs., lead — per cent., copper —
	Arabescato 03020	Sample(s) to be assayed for [per cent.]
	Arabesco ... 03021	Has (have) forwarded duplicates of samples for assay
	Arabesque 03022	Average assay of ore milled last month is gold —, silver —
	Arabian ... 03023	Average assay of ore milled for month of — is gold —, silver —
	Arabiga ... 03024	— Carload assays silver — ozs. per ton, copper — per
	Arachidnam 03025	Cable assay results of stuff from [cent., lead — per cent.]
	Arador ... 03026	Results of assays will follow; have not yet received
	Aradorcico 03027	Average assay of ore is
ly	Aradura ... 03028	Average assay value of the ore in the mine is —
fully	Aragnoides 03029	Average assays for last month are
	Aragonesa 03030	Average assays for last week are
nces," "Pe	Araignee ... 03031	Assayed
"Test." &c.)	Arambel ... 03032	Not yet assayed —
	Aramento ... 03033	Some of it assayed as much as
	Aranata ... 03034	Assayer
	Arancel ... 03035	Employ as assayer —
	Aranciano ... 03036	Competent assayer should be sent out as soon as possible
	Arandano ... 03037	Can you secure services of reliable and competent assayer
	Arandela ... 03038	Send duplicate samples to nearest reliable assayer, and tele-
	Araneas ... 03039	[graph results]
	Araniego ... 03040	Assent
	Arapende ... 03041	Shall I (we) assent
	Aratoire ... 03042	To assent
	Aratura ... 03043	Do you (they) assent
give	Arizzera ... 03044	Do not assent
	Arbaleta ... 03045	You have my (our) assent
t,	Arbeitsam ... 03046	Cannot give my (our) assent
including		Cannot obtain —'s assent
ary reagents		Has (have) obtained —'s assent

Diz—Dog

GOLD (continued).

Dizain ...	15572	Can pan out gold
Dizionario ...	15573	— gold from each pan
Dizziness ...	15574	Have made many pannings and have always found gold
Doblone ...	15575	Value for gold and silver
Dobladilla ...	15576	Gold and silver
Doblado ...	15577	Gold, silver and copper
Dobladura ...	15578	Gold, silver and lead
Doblar ...	15579	Have saved — per cent. of the gold
Dobleable ...	15580	Little or no gold present
Doblegar ...	15581	Must be paid in gold coin
Doblemente ...	15582	Pennyweights of gold per ton of 2,240 lbs.
Dobleria ...	15583	Prevents us recovering a fair proportion of the gold
Doblete ...	15584	On account of the gold being associated with
Doblonada ...	15585	I apprehend difficulty in treating the gold
Docciatura ...	15586	Gold is very fine and will present great difficulty in treatment
Docetur ...	15587	Gold is very rusty, and I (we) apprehend difficulty in treatment
Dochleas ...	15588	Gold extracted since the mine was commenced is valued at
Docht ...	15589	Gold and silver are in about equal proportions
Docidium ...	15590	What is the fineness of the gold
Docientos ...	15591	Gold is — fine
Docilidad ...	15592	Gold is increasing in fineness
Docility ...	15593	The gold is associated with
Docilmente ...	15594	Gold is associated with iron pyrites
Docimastic ...	15595	Gold is associated with arsenical pyrites
Docketing ...	15596	The gold is associated with black iron sand
Dockyards ...	15597	Ore contains no visible gold
Doctificam ...	15598	Ore contains visible gold
Doctissime ...	15599	There is no visible gold
Doctorando ...	15600	Gold is very fine and most difficult to save
Doctorar ...	15601	Have found a nugget of gold weighing — ozs.
Doctorate ...	15602	Owing to reputed find of nuggets of gold
Doctoribus ...	15603	Nuggets of gold are occasionally found
Doctress ...	15604	Washing for gold
Doctricem ...	15605	Gold is mainly in the free state and coarse
Doctrinal ...	15606	The gold is mainly in the free state but very fine; apprehend [considerable difficulty in saving a fair proportion]
Doctrinero ...	15607	The gold is entirely alluvial
Doctrino ...	15608	The gold occurs in
Documento ...	15609	The gold is very base
Dodder ...	15610	The gold contents is increasing
Doddering ...	15611	The gold contents is diminishing
Dodecaedro ...	15612	The gold contents has become practically nil
Dodecagon ...	15613	The yield amounts to — ounces of retorted gold
Dodgingly ...	15614	An average assay for gold gave — per ton of 2,240 lbs.
Dodicina ...	15615	An average assay for gold gave traces only
Dodliner ...	15616	An average sample assayed, gold nil
Dodrante ...	15617	The quartz carrying the gold is
Doffing ...	15618	The paystreak carrying the gold is
Dogana ...	15619	A paystreak — inches wide, full of visible gold
Doganiero ...	15620	Samples can be found showing free gold but the average is low
Dogaresse ...	15621	We shall then materially increase the amount of gold saved
Dogcart ...	15622	There are plenty of indications of the existence of gold
Dogdays ...	15623	Ounces of gold
Dogfishes ...	15624	Bar of gold, total weight —, has been shipped
Dogged ...	15625	What quantity of gold have you on hand
Doggerel ...	15626	Ship as much gold prior to — as you can
Doghetto ...	15627	What quantity of gold have you shipped
Doglia ...	15628	Expect to ship balance of gold on —
Doglianza ...	15629	During the No. — campaign we have crushed — tons of [stone which has yielded — ounces of gold, — fineness]

Doghetto ...
Dogmatical
Dogmatico
Dogmatique

Dogmatist
Dogmatizar
Dogbane ...
Dogtooth ...
Dogtrot ...
Dogwood ...
Dogter ...

Doktorhut
Dolabamur
Dolabratus
Doladera ...

Dolage ...
Dolamas ...
Dolavisse ...
Dolamente

Dolanza ...
Dolcino ...
Dolcino ...
Dolcissimo

Dolle ...
Dol drums...
Dolence ...
Dolfully ...

Dolument
Dolencia ...
Dolosome ...
Dolote ...

Dolichorum
Dolente ...
Dolman ...
Doloso ...

Dolando ...
Dolvari ...
Dolurus ...
Dolre ...

Dolrato ...
Dolrallo ...
Dolrido ...
Dolrife ...

Dolrous ...
Dolphin ...
Dolishly ...
Dolero ...

Dolists ...
Dolimo ...
Doluble ...
Dolador ...

Doladus ...
Dolane ...
Dolatio ...
Doltriare ...

Dolatrice ...
Dolstina ...
Dolucto ...
Dolodidio

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PORTLAND CHAMBER OF COMMERCE ISSUES
MINERAL RESOURCES POLICIES

The Portland Chamber of Commerce recently issued the following statement on the development of mineral resources in Oregon:

The Chamber vigorously supports development of Oregon's mineral resources as consistent with maintaining quality of life and a healthy economic climate. We recognize that all resources must be responsibly managed, for they are finite.

We strongly feel excesses have been committed in the name of environmental protection, and these excesses are now throttling our nation and threatening its very foundation. Needless proliferation of controls and restrictions on legitimate business engaged in mining and exploration contribute to shortages, and in a very real sense, to a higher cost of living.

The Chamber is concerned that mining, and particularly the sand and gravel industry, is increasingly the target of prohibitionists. This industry, a cornerstone of construction and the largest dollar volume producer of all Oregon's mineral industries, is threatened by urbanization and other factors which will lock away the resource forever. We must insure that remaining deposits are fully utilized, whether located on land or in waterways.

Land use planning should recognize mining and exploratory drilling as the "highest and best use" in many areas of Oregon, and these operations should be entitled to equal consideration with urban development, agriculture and recreation.

Mineral industries are closely allied in many segments with energy supply. Uranium, fossil fuels, and geothermal deposits all have their role to play in alleviating the nation's energy crisis. The Chamber, therefore, strongly supports development of Oregon's potential in these areas.

Oregon's historic role as a storehouse of vitally needed materials in the national interest, as a major regional power producer, and as the most liveable of states, can be continued. This concept requires responsible management of our minerals, and we believe private industry can best provide that management.

* * * * *

NORTHWEST MINING ASSOCIATION TO MEET

The 79th annual convention of Northwest Mining Association will be December 7-8, 1973, at Davenport Hotel, Spokane. Program will include new legislative actions, exploration activities, and outlook for regionally-produced commodities. Authors of papers and those wishing information may write: Program Committee, N.M.A., W. 522 First Ave., Spokane, WA 99204.

* * * * *

EARTHQUAKE INFORMATION SERVICE SHIFTED TO USGS

The National Earthquake Information Service, formerly a component of the National Oceanic and Atmospheric Administration (NOAA), Department of Commerce, has now been shifted to the U.S. Geological Survey, Department of the Interior.

The quake information group, located in Boulder, Colorado, receives and analyzes worldwide seismic data, determines earthquake epicenter locations, collects earthquake damage data, and makes the data available through publications. The group also provides assistance to other Federal agencies concerning studies such as seismic effects of nuclear blast testing, building vibration studies, and nuclear power-plant siting.

The move of the earthquake information facility from NOAA to the USGS is part of a series of actions taken to consolidate the Federal program in solid-earth physics that began last May when seismological and geomagnetic research groups were moved from NOAA to the USGS. Details of completion of the entire consolidation - involving about 175 scientists, engineers and technicians, as well as property and equipment at laboratories, offices, and observatories located in nine states and in Guam and Puerto Rico - will be announced shortly.

The National Earthquake Information Service was established in 1966 in order to refine and expand the presentation of seismic data to the scientific community and the general public.

According to Dr. Arthur C. Tarr, geophysicist, and Acting Chief of the Service, "our major function is to provide scientists, the public, and disaster-relief agencies with timely data on important earthquakes that occur in the United States and worldwide. Although originally a basic data-processing operation, the addition and expansion of communications and computer systems has transformed our operation into an information-centered one. Continuous data coming in from several lines linked to a worldwide network give us the capability to locate any destructive earthquake within 30 minutes to an hour."

The operations room of the Service is banked by instruments providing continuous visual recordings of incoming signals, and devices which automatically convert seismic signals into photographic seismic records. A teletypewriter circuit connects the Service with other operators, worldwide. Seismic information is received over this circuit from hundreds of USGS-managed and independent stations around the globe.

"An alarm system in the instrumentation," Tarr said, "alerts duty seismologists when an earthquake of Richter magnitude 5 or greater is detected in the United States, and 6.5 or greater elsewhere in the world."

The earthquake information number in Boulder is 303 - 444-1139. After hours (5:00 p.m. to 8:00 a.m., Mountain Time) callers will hear a recorded voice identifying the duty geophysicist and how to reach him, if it is an emergency. The voice also lets callers leave a recorded message

for seismologists to answer when they return during normal duty hours. The mailing address of the Service is:

National Earthquake Information Service
U.S. Geological Survey
RIO/S
Boulder, Colorado 80302

* * * * *

SILVER SHORTAGE

An immense shortage of silver is developing all over the world, according to the latest E. George Schaefer letter. Silver users are dipping into their inventories as more silver is being used than is being mined. Schaefer cannot see why the U.S. government put a ceiling price of \$2.716 an ounce on silver because there is no restriction on selling silver to foreigners, who will pay higher prices while U.S. silver users suffer. He notes that Handy and Harman, the world's largest silver dealer, says that Phase IV leaves it unable to sell any silver to U.S. silver users, and concludes:

"The chickens are coming home to roost. For so many years, both the Silver Users Association and the government have said there is plenty of silver. Therefore, the price declined and the silver mining industry has not been able to expand, as needed, for our growing economy. The price of silver has been entirely too low to encourage expansion and exploration of the mines. Now, suddenly, a silver shortage and explosion in price. As I see it, there is plenty of silver to be mined at a much higher price for silver. The same applies to gold. But the government does not want to relax the rules, so shortages and more inflation are most likely to develop in the future."

(Alaska Mines Bulletin, v. 22, no. 10)

* * * * *

TEMPERATURE GRADIENT INFORMATION AVAILABLE

The U.S. Geological Survey has released on open file "Temperature Gradients in Harney County, Oregon," by J. H. Sass and R. J. Munroe. The report provides additional data supplementing that published by the Department in the April 1972 The ORE BIN. Copies of the open-file report are available at various Survey offices and also at Oregon Department of Geology and Mineral Industries library in Portland. Material from which copy can be made at private expense is obtainable in the USGS library at Menlo Park, California.

* * * * *

DESCHUTES COUNTY SOIL MAP PUBLISHED

"General Soil Map, with Soil Interpretations for Land Use Planning, Deschutes County, Oregon," has been published by the U.S.D.A., Soil Conservation Service, in cooperation with the Oregon Agricultural Experiment Station.

The Deschutes soils have developed from a variety of rock types including wind and water deposited sands and gravels in the eastern part of the County and pumice, ash, and glacial till in the western and southern parts. The characteristics of the soil units and their suitability for a number of particular uses are tabulated. A copy of the publication can be seen at the Oregon Department of Geology and Mineral Industries library.

* * * * *

COPPER AND TIN RECOVERED FROM SCRAP

Research chemists at the Bureau of Mines' Albany Metallurgy Research Center in Albany, Oregon, have demonstrated that it is possible to recover copper and tin from the ferrous fraction of municipal incinerator residues. The techniques developed are important for two reasons: from a conservation standpoint, valuable and perhaps strategically needed metals can be recovered, and secondly, these impurity metals can be removed from the ferrous scrap being recycled by the steel industry. The methods developed by the Albany Center are described in RI 7776, "Reducing copper and tin impurities in ferrous scrap recovered from incinerated municipal refuse," available from Publications Distribution Branch, Bureau of Mines, 4800 Forbes Avenue, Pittsburgh, Pennsylvania 15213. Copy may be consulted in the library at Oregon Department of Geology and Mineral Industries, Portland.

* * * * *

USGS WESTERN REGION DIRECTOR NAMED

Joel M. Johanson, 53, has been named Assistant Director for the Western Region, U.S. Geological Survey, Department of the Interior. He assumes his new post after serving 7 years as Assistant Director for Programs, USGS. With offices at the Survey's Menlo Park, California field center, Johanson will be the personal representative of the Director of the Geological Survey. He will provide policy guidance and coordination of Survey activities, and liaison with Federal, State, and local agencies in the States of Washington, Oregon, Idaho, Nevada, California, Arizona, Alaska, and Hawaii.

* * * * *

U.S. MINERAL DEVELOPMENT LAGGING, INTERIOR REPORT SAYS

Improved technology is urgently needed to bolster the mineral productivity of the United States, according to a report released recently by Secretary of the Interior Rogers C. B. Morton.

Noting that the country's mineral resource position is still basically sound, the report states, however, that "development of our domestic resources is not keeping pace with needs." For example:

The U.S. trade deficit in minerals totaled \$6 billion in 1972, and could reach \$100 billion by the year 2000.

Domestic mineral exploration continues a downward trend.

Some forms of energy are in short supply.

Even with domestic oil wells producing at full capacity, 29 percent of the nation's petroleum came from foreign countries in 1972.

Domestic petroleum refining capacity cannot meet the country's current demand, and increasing amounts of refined petroleum products are being imported.

Over 17 million tons of foreign steel was imported last year.

The document, titled "Mining and Minerals Policy--1973," is the Interior Secretary's second annual report under the Federal Mining and Minerals Policy Act of 1970. It says that to improve productivity in the domestic mining, minerals, mineral-reclamation, and energy industries, better technology needs to be introduced rapidly for all phases of mineral industry operations, including exploration, mining, processing, use, recovery, recycling, and oil and gas production. The kind of technology needed, Secretary Morton said, must also safeguard the health and safety of mineral industry employees and protect the environment from pollution associated with mineral operations.

The report supports several legislative proposals being considered by the Congress, including creation of a U.S. Department of Energy and Natural Resources, overhaul of the Federal mineral leasing laws, and environmental regulation of surface mining activities. It also calls for cooperative research on mineral technology, involving companies, universities, and government agencies, and recommends a review of the U.S. tax structure to seek new incentives for mineral producers.

Library copies of the report can be consulted at the following places in Oregon: Bureau of Mines State Liaison office, Salem; Bureau of Mines in Albany; and Oregon Dept. of Geology and Mineral Industries, Portland. Copies can be purchased from Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402, as follows:

Mining and Minerals Policy, 1973, No. I-1.96/3:973	\$1.25
Mining and Minerals Policy, 1973, Appendices, No. I-1.96/3:973/Pt. 2	\$5.30

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INLAND TILLAMOOK AND CLATSOP COUNTIES STUDY PUBLISHED

"Environmental Geology of Inland Tillamook and Clatsop Counties, Oregon" is the latest of the Department's bulletin series to come off the press. Its author is John D. Beaulieu, Department stratigrapher. The new publication, designated Bulletin 79, is a companion to Bulletin 74, which dealt with the coastal region of Tillamook and Clatsop Counties.

The inland portions of Tillamook and Clatsop Counties lie in the northwestern corner of the Coast Range, a mountainous region drained by Columbia, Nehalem, Wilson, Trask, and Nestucca Rivers. These five valleys are the routes of highways and sites of a growing number of uses. The very nature of the topography and bedrock make much of the area unsuitable for development unless approached wisely with adequate knowledge of the ground conditions. The Bulletin describes the various geologic units and discusses the related geologic hazards present in each of the five river basins.

Bulletin 79 has 65 pages, numerous photographs and diagrams, and is accompanied by a folder containing 12 geologic and hazard maps in color covering 6 quadrangles. The Bulletin and its maps can be obtained from the Oregon Department of Geology and Mineral Industries at its offices in Portland, Baker, and Grants Pass. The price is \$6.00.

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EUGENE AREA GROUND WATER RESOURCES PUBLISHED

"Ground Water in the Eugene-Springfield Area, Southern Willamette Valley, Oregon," by F. J. Frank, has been published as U.S. Geological Survey Water-Supply Paper 2018. The report presents geologic and hydrologic information on an area covering approximately 450 square miles where rapid population growth and progressively greater volumes of ground water are being required. The 65-page report includes a geologic map in color, a water-level map, and geologic sections based on well data.

Water-Supply Paper 2018 is for sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. The price is \$2.75. Stock Number 2401-00277.

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COOS BAY-MEDFORD AEROMAGNETIC MAP ISSUED

The U.S. Geological Survey has released in open file "Aeromagnetic Map of Parts of Coos Bay and Medford 1° by 2° quadrangles." Copy available for inspection (or for sale at \$2.00) in Department's Portland office.

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