March 1953

Portland, Oregon

STATE DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES
Head Office: 1069 State Office Bldg., Portland 1, Oregon
Telephone: Columbia 2161, Ext. 488

\*\*\*\*\*\*\*\*\*

LIST OF ACTIVE MINES IN OREGON 1953

Many requests are received annually for names of active Oregon mining properties. The list does not include brick and tile plants, sand and gravel quarries, or rock crushers.

Ed.

### Building Stone

Northwest Granite Co.	Baker County		
Haines, Oregon	Sec. 27		
	T. 7 S., R. 39 E.		
Pacific Cut Stone Co.	Jefferson County		
(Tuff)	Sec. 9		
C/o Mutual Materials	T. 9 S., R. 15 E.		
Seattle, Washington			
Danna Budlidan Stana Ga	Deservates County		
Perma Building Stone Co.	Deschutes County		
(Tuff)	Plant in Bend		
Bend, Oregon			
Rainbow Rock Quarry	Wasco County		
(Tuff)	Sec. 11		
D. A. Temple	T. 6 S., R. 11 E.		
Brightwood, Oregon	•		
Rocky Butte Quarry	Multnomah County		
(Basalt)	Quarry at		
Joe Marsden	Rocky Butte		
Portland, Oregon			
Tuff Stone Co.	Marion County		
Frank Singletary	Sec. 29		
Portland, Oregon	T. 8 S., R. 1 E.		

### Chrome Concentrating Plants

Oli	1 2011 00
Ashland Mining Co.	Jackson County
Van Curler Bros.	Sec. 6
Ashland, Oregon	T. 39 S., R. 1 E.
Birdseye Creek Mill	Jackson County
Roy A. Mills and	Sec. 27
W. H. Holloway	T. 36 S., R. 4 W.
Gold Hill, Oregon	
Bristol-Baker	Curry County
F. I. Bristol	Sec. 36
Grants Pass, Oregon	T. 40 S., R. 11 W.
Bowers Mill	Josephine County
Dana W. Bowers	Sec. 3
Medford, Oregon	T. 35 S., R. 8 W.
Chrome Milling Co.	Josephine County
Rice Brothers	Sec. 23
Takilma, Oregon	T. 40 S., R. 8 W.
Foster Mill	Josephine County
Ernest Foster	Sec. 28
Grants Pass, Oregon	T. 37 S., R. 9 W.
Freeman & Twombly Mill	Curry County
W. B. Freeman and	Sec. 11
L. Twombly	T. 38 S., R. 10 W.
Cave Junction, Oregon	
Grants Pass Chrome Mill	Josephine County
Mary Ellen Dieter	NW "F" Street
Sunny Valley, Oregon	Grants Pass, Oregon

Chrome Concentra	ting Plants (cont.)	Chrome Mine	s (cont.)
King Mill	Josephine County	Chapman Peak Chrome	Josephine County
Franklin & Elmo King	Sec. 31	Oregon Caves Lumber Co.	Sec. 14
Grants Pass, Oregon	T. 37 S., R. 9 W.	Grants Pass, Oregon	T. 39 S., R. 8 W.
Laughlin Engineering Co.	Jackson County	Chetco Mining Co.	Curry County
Medford, Oregon	la miles W. of	F. I. Bristol, et al	Secs. 2, 3, 10
	Eagle Point	Grants Pass, Oregon	T. 39 S., R. 10 W.
McCaleb Mill	Curry County	Chollard Chrome Mine	Josephine County
R. E. McCaleb	Sec. 24	M. E. Hughes	Sec. 17
Selma, Oregon	T. 38 S., R. 10 W.	Murphy, Oregon	T. 40 S., R. 7 W.
Southwest Mines Inc.	Josephine County	Chrome King	Josephine County
Dale H. Franklin	Sec. 2	Paul Fattig	Sec. 32
Medford, Oregon	T. 37 S., R. 7 W.	Wonder, Oregon	T. 40 S., R. 9 W.
Tri-County Milling &	Grant County	Chrome King Mine	Josephine County
Concentrating Corp.	Sec. 26	E. E. Thompson	Sec. 36
E. R. Wells, et al John Day, Oregon	T. 13 S., R. 31 E.	Glendale, California	T. 37 S., R. 10 W.
		Desp Gorge Mine	Josephine County
		James N. & Max Grissom	Sec. 32
		Selma, Oregon	T. 37 S., R. 9 W.
Chrome M	ines	Dry Camp	Grant County
Ali Baba Chrome	Josephine County	Mickey Ellictt	Sec. 8
John Rodwick	Sec. 31	John Day, Oregon	T. 14 S., R. 33 E.
Grants Pass, Oregon	T. 40 S., R. 7 W.	Eight-Dollar Chrome	Josephine County
Althouse Chrome Mine	Josephine County	Glen, Tom, Murphy Young	Sec. 20
C. C. Beck	Sec. 23	Kerby, Oregon	T. 38 S., R. 8 W.
Holland, Oregon	T. 40 S., R. 7 W.		
	., ,, ,, ,,	Esterly Mine	Josephine County
Big Bear	Josephine County	R. F. Oliphant	Sec. 22
Fred Langley and	Sec. 35	Cave Junction, Oregon	T. 40 S., R. 8 W.
Claude Dean	T. 36 S., R. 8 W.	0 - 1 0	
Grants Pass, Oregon	5 - F	Gardner Chrome	Curry County
		Fred Gardner	Sec. 10
Black Diamond Mine	Josephine County	Harbor, Oregon	T. 39 S., R. 11 W.
Marlin Williams	Sec. 31	Glade Creek Chrome	Jackson County
Grants Pass, Oregon	T. 40 S., R. 6 W.	Wallace A. Budden	Sec. 29
Disab Wiss Wiss	1	Medford, Oregon	T. 39 S., R. 1 W.
Black King Mine	Josephine County Sec. 24		
Donald Foster Kerby, Oregon	7. 38 S., R. 9 W.	God's Little Acre	Josephine County
Rerby, oregon	1. 00 3., 1 , ".	Edwin Cook and	Sec. 32
Black Nugget Chrome	Josephine County	R. J. Nauve	T. 40 S., R. 9 W.
Gordon Leonard and	Sec. 11	O'Brien, Oregon	
D. D. Austin	T. 41 S., R. 8 W.		
Bridgeview, Oregon		Inman & Leonard Chrome	Josephine County
- · · · <del>-</del>		Jack Leonard and	Sec. 21
Black Streak Chrome	Josephine County	Joe Inman	T. 37 S., R. 9 W.
Murphy Young	Sec. 19	Grants Pass, Oregon	
Kerby, Oregon	T. 39 S., R. 9 W.		

Chrome Mine	s (cont.)	Chrome Mines	(cont.)
Jackson Chrome	Curry County	Onion Springs Mining Corp	. Jackson County
Roy Jackson	Sec. 11	H. H. Wilson	Sec. 17
Selma, Oregon	T. 38 S., R. 10 W.	Azalea, Oregon	T. 33 S., R. 4 W.
Last Drink	Josephine County	Pearsoll Mine	Curry County
Edwin N. Cook and	Sec. 7	Ernest Foster	Sec. 2
R. J. Nauve O'Brien, Oregon	T. 41 S., R. 9 W.	Grants Pass, Oregon	T. 38 S., R. 10 W.
		Potato Patch Mine	Grant County
Lucky Star	Josephine County	E. R. Wells	Sec. 3
E. K. McTimmonds	Sec. 21	John Day, Oregon	T. 14 S., R. 31 E.
Selma, Oregon	T. 37 S., R. 9 W.		
		Rainy Day Mine	Douglas County
Lucky Strike Chrome	Josephine County	Glenn Shippen	Sec. 15
Glen Young	Sec. 18	Canyonville, Oregon	T. 30 S., R. 4 W.
Kerby, Oregon	T. 39 S., R. 8 W.		
		Rock Creek Chrome Claims	Josephine County
Mammoth Chrome	Josephine County	Edwin Cook and	Sec. 3
O. L. Moore	Sec. 28	R. J. Nauve	T. 41 S., R. 9 W.
Wolf Creek, Oregon	T. 33 S., R. 5 W.	O'Brien, Oregon	
Mary Walker Claim	Josephine County	Salt Rock Mine	Josephine County
Louis A. Robertson	Sec. 22	Pat Arnot	Sec. 6
Galice, Oregon	T. 36 S., R. 9 W.	Grants Pass, Oregon	T. 36 S., R. 7 W.
McCaleb Chromite	Curry County	Shade Mine	Josephine County
R. E. McCaleb	Secs. 11, 12	Roy Hills and	Sec. 21
Selma, Oregon	T. 38 S., R. 10 W.	Pieren Bros.	T. 37 S., R. 9 W.
		Grants Pass, Oregon	
Mockingbird Chrome	Josephine County	<b>3</b> 1-2 1 - <b>3</b>	
A. R. Strickland	Sec. 28	Shady Cove	Josephine County Sec. 11
Grants Pass, Oregon	T. 37 S., R. 9 W.	H. Z. Bielenberg Galice, Oregon	T. 36 S., R. 9 W.
Mohawk Chrome Mine	Josephine County	darive, or egon	1. 30 3., R. 7 H.
Carl Stevens	Sec. 29	Sordy Mine	Josephine County
Selma, Oregon	T. 38 S., R. 9 W.	Dana W. Bowers	Sec. 14
		Medford, Oregon	T. 36 S., R. 9 W.
Molly No. 1 Claim	Josephine County		
Colin B. and	Sec. 29	Seurdough Mine	Curry County
Levi V. Campbell	T. 40 S., R. 9 W.	Ben Baker, et al	Sec. 36
Grants Pass, Oregon		Grants Pass, Oregon	T. 40 S., R. 11 W.
Munger Creek Chromite	Josephine County	Scwell Chrome	Josephine County
W. C. Lind	Sec. 25	R. G. Sowell	Sec. 30
Grants Pass, Oregon	T. 38 S., R. 6 W.	Cave Junction, Oregon	T. 40 S., R. 8 W.
Nigger Mine	Josephine County	Squaw Creek Chrome	Josephine County
Louis A. Robertson	Sec. 24	R. E. Williams and	Sec. 33 (?)
Galice, Oregon	T. 36 S., R. 9 W.	Brooks Bros. Takilma, Oregon	T. 37 S., R. 8 W.
Oregon Chrome Mine	Josephine County		
W. S. Robertson	Sec. 21	Tennessee Pass Chrome	Josephine County
Grants Pass, Oregon	T. 37 S., R. 9 W.	Murphy Young	Sec. 12
, 6		Kerby, Oregon	

#### Chrome Mines (cont.)

Twin Cedars Josephine County
R. E. McCaleb Sec. 6
Selma, Oregon T. 38 S., R. 9 W.

Wonder Mine Curry County
W. B. Freeman and Secs. 11, 14
L. Twombly T. 38 S., R. 10 W.

Cave Junction, Oregon

#### Gold Lode Mines

Buffalo MineGrant CountyJ. P. Jackson, Jr.Sec. 14Granite, OregonT. 8 S., R.  $35\frac{1}{2}$  E.

East Eagle Mine Baker County
Rawleigh Chadwell Secs. 17, 18
Baker, Oregon T. 6 S., R. 44 E.

# Gold Placers (Mostly seasonal operations)

Cal.-Ore. Placer Josephine County Ed Carlson Secs. 2, 3 T. 35 S., R. 8 W. Galice, Oregon Goff Mine Josephine County C. C. Clark Sec. 5 T. 34 S., R. 6 W. Leland, Oregon Josephine County Golden Bar Placer R. L. Pancost Sec. 2 T. 35 S., R. 8 W. Merlin, Oregon Leipold Placer Josephine County H. Brunswick Sec. 3 T. 35 S., R. 8 W. Pieren Bros. Galice, Oregon Lewis Placer Josephine County Sec. 36 Bud Lewis T. 34 S., R. 8 W. Galice, Oregon Josephine County Pankey Placer Sec. 10 Bert Pankey T. 35 S., R. 8 W. Merlin, Oregon

Pedro Bros. Placer

Huntington, Oregon

Baker County

Lower Connor Creek

#### Gold Placers (cont.)

Powder River Dredging Co. Baker County Sumpter, Oregon Upper Sumpter Valley

Spanish Gulch Placer Wheeler County
Sydney Zintner Near Antone
Antone, Oregon

Tennessee Gulch Placer Douglas County
Ray Rife Sec. 2
Glendale, Oregon T. 33 S., R. 5 W.

United Mining & Baker County
Metals Corp. Secs. 10, 15, 21,
Henry L. Bruneau 22

Portland, Oregon T. 12 S., R. 39 E.

Winterville Placer Baker County
A. Brandenthaler Sec. 16

Baker, Oregon T. 10 S., R.  $35\frac{1}{2}$  E.

#### Lightweight Aggregate Producers

Cassade Pumice	Deschutes	County
Lloyd A. Williamson	Sec. 5	
Bend, Oregon	T. 18 S.,	R. 12 E.
	& Sec. 36	
	T. 16 S.,	R. 11 E.
Central Oregon Pumice Co.	Deschutes	County
W. E. Miller	Sec. 7	
Bend, Oregon	T. 17 S.,	R. 12 E.
	8 Can 7	

end, Uregon T. 17 S., R. 12 E. & Sec. 7 T. 18 S., R. 12 E.

Cinder Hill Quarry
(Cinders)
Leroy E. Grote
Redmond, Oregon

Deschutes County
Sec. 33
T. 14 S., R. 13 E.

Deschutes Concrete
Products Co.
(Pumice)
Chester T. Lackey
Redmond, Oregon

Deschutes County
Sec. 30
T. 16 S., R. 12 E.
A Sec. 33
T. 14 S., R. 13 E.

Great Lakes Carbon Corp. Deschutes County
(Diatomite) Sec. 16
Dicalite Division T. 14 S., R. 12 E.

Lower Bridge, Oregon

#### Lightweight Aggregate Producers (cont.) Limestone (cont.) Harney Concrete Tile Co. Harney County Pacific Portland Josephine County (Pumice) Sec. 3 Cement Co. Sec. 30 Don Robbins T. 24 S., R. 30 E. T. 37 S., R. 6 W. (Quarry at Marble Mt.) Burns, Oregon Gold Hill, Oregon Lady Frances Mine Wasco County Polk County Polk County Lime Co. (Perlite) Sec. 24 Dallas, Oregon S.W. of Dallas T. 6 S., R. 13 E. Kaiser Gypsum Div. Kaiser Industries Roseburg Lime Douglas County Dant, Oregon Products Co. Sec. 33 T. 27 S., R. 4 W. Harry Brubaker Northwest Aggregates, Inc. Washington County Roseburg, Oregon (Expanded shale) Sec. 24 Portland, Oregon T. 3 N., R. 5 W. Mineral Processing Plants Red Rock Cinders Deschutes County (Cinders) Sec. 29 Electro Metallurgical Co. Multnomah County Don E. Hurrle and T. 14 S., R. 13 E. (Carbide) Plant in M. E. Roberts Div. Union Carbide Co. St. Johns Portland, Oregon Portland, Oregon Smithwick Concrete Washington County Morris P. Kirk & Son Multnomah County Products Co. T. 3 N., R. 4 W. (Antimony) Plant in (Expanded shale) 5909 N.W. 61st Guilds Lake Dist. Portland, Oregon Otto C. Frei Portland, Oregon National Metallurgical Lane County Western Pumice Sand Co. Klamath County Plant under con-Corp. Thomas Philipsen Sec. 20 (Aluminum silicon) struction at Klamath Falls, Oregon T. 36 S., R. 15 E. Springfield, Oregon Springfield Oregon Steel Mills Multnomah County (Steel) Limestone 5200 N.W. Front Burch Gravel Co. Polk County Portland, Oregon Secs. 19, 20, 29, Route 1 Sheridan, Oregon 30 Orr Eng. & Chemical Co. Columbia County T. 6 S., R. 6 W. (Limonite) Plant in James M. Orr Scappoose Lime Products Co. Polk County Scappoose, Oregon T. T. Leonard Sec. 11 T. 8 S., R. 6 W. Dallas, Oregon Multnomah County Pacific Carbide & Allovs Co. (Carbide) Plant in Oregon Portland Baker & Polk N. Columbia Blvd. & Hurst North Portland Cement Co. counties Portland, Oregon Secs. 26,27,34,35 (Quarries at Lime and

Reynolds Metals Co.

(Aluminum)

935 N.W. 12th

Portland, Oregon

2303 N. Harding Portland, Oregon

Inc. (Vermiculite)

Multnomah County

Troutdale

Plant at

Vermiculite - Northwest, Multnomah County

Dallas; plant at Oswego) T. 13 S., R. 44 E.

& Sec. 12

Sec. 19

T. 8 S., R. 6 W.

T. 2 S., R. 44 E.

Wallowa County

Portland, Oregon

Pacific Carbide &

Portland, Oregon

(Quarry near Enterprise)

Alleys Co.

#### Miscellaneous Metals

Bonanza Mine Douglas County
(Mercury) Sec. 16
Bonanza Mines Inc. T. 25 S., R. 4 W.
Sutherlin, Oregon

Coast Minerals Co. Coos County
(Black sand) Secs. 28, 33
Geo. E. & Harry Murphy T. 27 S., R. 14 W.
Portland, Oregon

Hanna Development Co. Douglas County (Nickel) Nickel Mountain Riddle, Oregon T. 30 S., R. 6 W.

Maury Mountain Mine Crook County (Mercury) Sees. 10, 15
F. D. & H. W. Eickemeyer T. 17 S., R. 19 E. Prineville, Oregon

Platner Mine Crook County
(Mercury) Secs. 18, 19
Laverne Taylor T. 18 S., R. 17 E.
Portland, Oregon

Roba Quicksilver Grant County
(Mercury) Mine on
Lawrence N. Roba Murderer's Creek

Sheep Mountain Mine
(Manganese)

Paul Wise

Boise, Idaho

Baker County

Sec. 33

To 11 So, Ro 42 E.

Standard Mine Grant County
(Copper, Cobalt) Sec. 12
Ray Summers T. 12 S., R. 33 E.

Towner Quicksilver Mine (Mercury)

Canyon City, Oregon

Frank Towner Post, Oregon

John Day, Oregon

Crook County Sec. 10 T. 17 S., R. 19 E.

\*\*\*\*\*\*\*\*\*\*

## Miscellaneous Nonmetals

Bristol Silica Co. Jackson County (Crushed granite & quartz) Sec. 30

F. I. Bristol T. 36 S., R. 3 W. Rogue River, Oregon

Gibbs Coal Mine Coos County
Leonard Gibbs Sec. 2
Coquille, Oregon T. 27 S., R. 14 W.

Wilhoit Coal Mine Clackamas County
T. G. Mandrones Sec. 15
Portland, Oregon T. 6 S., R. 2 E.

R.S.M.

#### YOUTHFUL OIL

It has previously been thought that oil is formed from the remains of small marine plants or animals by a chemical process requiring millions of years. Today that idea of very slow chemical change is being challenged by a young organic chemist, Dr. Paul V. Smith, of Jersey's research affiliate, Standard Oil Development Company. Dr. Smith has detected traces of oil in recently deposited ocean, river, and lake muds. In one case, oil was found in a mud sample taken from an artificial lake which was constructed only 100 years

Just to be sure that the oil traces he finds do not come from some leaking boat motor or torpedoed tanker, Dr. Smith has, with the help of Columbia University's Lamont Geological Observatory, used the carbon 14 method to determine the ages of several oil samples. Radioactive earbon 14 is present in all living things but begins to disappear immediately after death and is gone after about 30,000 years, so that measurement of the remaining amount of carbon 14 makes possible an accurate calculation of the time which has passed since the plant or animal died. These radioactive measurements have, in every case, revealed measurable amounts of carbon 14 still remaining in the oils which Dr. Smith has extracted from recent mud deposits, showing these oils are not the result of contamination but formed in the recent deposits in which they are now found.

The amount of oil in recent sediments is far too small to give any promise of commercial production. But an increased knowledge of the origin of oil may indicate new places to look for commercial deposits.

(Excerpt from Briefs, published by Standard Oil Company of New Jersey, March 1953.)

#### \*\*\*\*\*\*\*\*\*

#### TUNGSTEN EXPLORATION

George, Ed, and Lewis Tulare are driving a crosscut from the end of the lower or "mill level" tunnel at the Sylvanite mine, 3 miles northeast of Gold Hill, Jackson County, in sec. 2, T. 36 S., R. 3 W. The crosscut will intersect the "Little Scheelite" and the "Big Scheelite" veins that are exposed in a crosscut trending N. 48° W. from the so-called "Half-Tunnel" which is about 470 feet northwest and approximately 75 feet higher in elevation than the lower tunnel. The "Big Scheelite" vein is intersected at 113 feet in the crosscut off the "Half-Tunnel" and is exposed along a 25-foot drift. It is 10 inches wide, striking N. 40° W. and dipping 70° N.E. Scheelite occurs irregularly and sparsely disseminated along this exposure and especially along a 2-inch band in the quartz vein. No scheelite was observed in the "Little Scheelite" vein in the upper workings, but a minor amount appears in this vein where exposed at the end of a 100-foot crosscut extending N. 27° E. from an incline raise at the end of the lower tunnel.

#### \*\*\*\*\*\*\*\*\*\*

## STRATEGIC MATERIALS REPORT

The Defense Production Administration has issued a report which asserts that the United States must depend more and more on imports of strategic raw materials rather than stepped-up domestic production for its ever-growing raw materials needs.

The report lists these materials which must be imported, the percentage of which must be imported, and the current supply situation:

Antimony, 75 percent, ample; asbestos, 95 percent, very short; bauxite, 65 percent, adequate; beryl, 90 percent, tight; bismuth, 50-55 percent, adequate; chromite, 99 percent, short; cobalt, 90 percent, very short; columbium, 100 percent, short; copper, 35 percent, inadequate; fluorspar, 35 percent, adequate; ilmenite, 32 percent, sufficient; industrial adequate; diamonds, 100 percent, barely adequate; iron ore, 8 percent, ample; jewel bearings, 90 percent, lead, 45 percent, adequate; manganese, 90 percent, inadequate; mercury, 90 percent, adequate; mica, 95 percent, barely adequate; nickel, 99 percent, critical; platinum group, 90 percent,

adequate; quartz crystals, 100 percent, adequate; natural rubber, 100 percent, adequate; rutile, 31 percent, adequate; selenium (elemental), 34 percent, short; tin, 100 percent, short; tungsten, 52 percent, ample; zinc, 35 percent, ample.

(From The American Mining Congress Bulletin Service, February 16, 1953.)

#### \*\*\*\*\*\*\*\*

#### BILL TO EXTEND DOMESTIC MINERALS PROGRAM

H. R. 2823 - by Congressman Aspinall (Colo.). Referred to Committee on Interior and Insular Affairs. Would have Congress recognize that continued dependence on overseas sources for strategic or critical minerals and metals during periods of world political instability gravely endangers the economy and security of the United States. Would declare it the policy of Congress that Federal agencies concerned with discovery, development, production, and acquisition of strategic or critical minerals and metals undertake to decrease and eliminate, where possible, United States dependency on overseas sources.

Would extend at least two years the termination dates of all purchase programs designed to stimulate the domestic production of tungsten, manganese, chromite, mica, asbestos, beryl, and columbium-tantalum-bearing ores and concentrates. Would also empower regulatory agencies to extend termination dates beyond the two-year extension and increase the quantity of materials that may be bought under these programs.

(From The American Mining Congress Bulletin Service, February 17, 1953.)

#### \*\*\*\*\*\*\*\*\*\*

#### ATOMIC ENERGY COMMISSION MEN SURVEY OREGON

H. W. Norman and R. G. Pruett, geologists with the Atomic Energy Commission with mailing address at P.O. Box 1984, Butte, Montana, are investigating possible sources of radioactive minerals in Oregon. They visited Grants Pass during the week beginning March 20. After making inspections in southwestern Oregon, they returned north through eastern Oregon. They inspected records at the field offices of the Department as well as the head office in Portland. Any person who has a suspected source of radioactive minerals should correspond with, or better, send sample to Mr. Norman at the above address.

#### \*\*\*\*\*\*\*\*\*

#### TOWNER QUICKSILVER MINE PRODUCING

Frank Towner, Jr., is retorting ore being mined at the Towner quicksilver mine in the Maury Mountain district, Crook County, Oregon. Some underground development work is also being carried on.

## \*\*\*\*\*\*\*\*\*

#### TAX WRITE-OFF FOR OREGON METALLURGICAL PLANT

National Production Authority has announced in the press that the National Metallurgical Corporation, Springfield, Oregon, has been granted tax amortization for 85 percent of the plant cost of \$438,000. This corporation is a joint project of the Apex Smelting Company and the American Smelting and Refining Company. The plant, designed for pilot plant work, will produce an aluminum-silicon alloy from clay.

\*\*\*\*\*\*\*\*\*