

## STRATEGIC MINERALS

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The term "strategic minerals," like many terms used today, means different things to different people at different times.

One of its first uses can be found in Public Law 117 of the 76th Congress (1939), where it was stated that strategic and critical materials were those which were "essential to the needs of industry for the manufacture of supplies for the armed forces and the civilian population in time of a national emergency." The 79th Congress in 1946 used similar language when, in Public Law 520, it referred to strategic and critical materials as those which are "deficient or insufficiently developed to supply the industrial, military, and naval needs of the country for common defense." The term took on legal status in tax legislation during the early days of World War II. Those metals which were not produced in the continental United States in amounts necessary to meet military requirements were deemed strategic.

It can readily be seen that advancements in technology, commercial uses for elements generally considered as having scientific interest only, changing political alignments of nations, larger domestic consumption by countries which were major suppliers of raw materials to the more industrialized countries, new military weapons, and new methods of conducting warfare all contribute to a continuing expansion and reduction of those minerals which could be considered "strategic." Therefore, the "strategic minerals" which I shall review are necessarily chosen arbitrarily and most likely will not be or will not include the minerals and metals which others would consider "strategic."

My choice is going to be based on nostalgia. I shall hark back to the "good old days"--those days when the term "stockpile" was not a nasty word; when wild and wilderness regions were wide open to mineral exploration

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\* A speech delivered before the 1963 American Mining Congress convention in Los Angeles, Calif., September 16 as part of the "State of the Mining Industries" session.

without censor; and when the requirements for being a successful prospector were skill, luck, and the willingness to work hard (as opposed to the present-day need for ready access to a highly competent legal staff and immortality to carry a case through the hearing procedures and the courts).

The minerals I am going to discuss, or probably more accurately, ex-hume, are antimony, chrome, cobalt, columbium-tantalum, manganese, mercury, thorium (including monazite and the rare earths), and tungsten. My statistics are taken from two worthy but somewhat conflicting Government documents, namely: "Federal Stockpile Inventories, May 1963, Additional Report of the Joint Committee on Reduction of Nonessential Federal Expenditures" (Senate Committee Print No. 42); and "Stockpile Report to the Congress, Statistical Supplement, July-December 1962," prepared by the General Services Administration.

### Antimony

The domestic production of antimony provides only a small proportion (approximately 5 percent in recent years) of our domestic requirements. Under present circumstances and with the bulk of antimony imports (in the form of ores and concentrates) coming in duty free, an expansion of domestic antimony production does not appear possible.

In 1962, the United States imported 15,800 tons of antimony. This was nearly 20 percent more than in 1961. Approximately 28 percent of all primary antimony imported came from Mexico, 23 percent from the Republic of South Africa, 14 percent each from Belgium-Luxembourg and the United Kingdom, 8 percent from Yugoslavia, 7 percent from Bolivia, and the remaining 6 percent from seven other countries. The metal from Belgium-Luxembourg probably originated in Red China which, then, would make a total of 21 percent of our imported supply from communist-dominated sources.

Federal Stockpile Inventories reports 50,688 short tons, of which 30,301 are in the national stockpile and 20,387 are in the supplemental (barter) stockpile. Its value is listed as \$32,263,508. The Stockpile Report to Congress reports that only 9,394 short tons in the national stockpile are domestic material (see Table 1).

### Chrome

Domestic chrome mining died on October 3, 1961, with the closure of the American Chrome operation in Montana. Oregon-California-Alaska chrome mining had passed away two years earlier. All this mining was in response to the Federal stockpiling program of the 1950's. The result of this program was the production of 400,000 long tons of chrome ore, a pilot plant operation showing the feasibility of converting the ore into acceptable

TABLE 1. Strategic Minerals in the National Stockpile\*

<u>Mineral</u>	Percent Foreign Materials	Material Purchase Cost	
	<u>Quantity</u>	<u>Total Value</u>	<u>Foreign Materials</u>
Antimony Metal	55.5%	\$ 14,000,039	\$ 7,895,894
Chromite (all grades, & ferro)	90.8%	240,703,351	200,377,773
Cobalt	93.1%	146,242,631	136,266,378
Columbite	94.9%	24,516,573	23,290,987
Tantalite	85.1%	5,752,354	5,021,516
Manganese (all grades, & syn.)	87.2%	194,449,393	142,447,287
Mercury	100.0%	9,650,382	9,650,382
Rare Earths	35.6%	6,160,519	3,015,461
Tungsten	92.8%	280,931,073	266,460,125
Average 81.7%		Total \$922,406,315	Total \$794,425,803

\* Includes only minerals discussed in this report and purchased with Public Law 520 funds through December 31, 1962, as recorded in "Stockpile Report to the Congress, Statistical Supplement, July-December 1962."

ferrochrome, and the discovery and cataloguing of more than 400 domestic deposits. Any likelihood of resurrecting chrome mining was effectively stopped by the Senate committee investigating stockpiling when it accused the industry of exerting political influence and receiving prices far above world markets.

During 1963 Russian chrome was taking over the domestic markets through imports of below-market-priced ferrochrome\*\*. Some domestic ferrochrome producers were negotiating with Russia for ore. Because of prodding by Rhodesia and Turkey, the State Department has under consideration further subsidization of these producers. Ironically, the Russian ore was putting the Free World producers out of business for the same reason the domestic producers had to close, that is, higher-grade ore offered at a lower cost.

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\*\*Engineering & Mining Journal Metal and Mineral Markets, Feb. 11, 1963.

There are 8,810,012 short tons of chrome of all grades in the stockpile. Of this amount the national stockpile lists 330,803 short tons of ore, 6,369 short tons of high-carbon ferro, and 18,741 short tons of low-carbon ferro from domestic sources. Value of chrome in the national stockpile is given as \$240 million, of which \$40 million was for domestic ore and \$200 million for foreign ore.

### Cobalt

The situation in regard to cobalt can be summarized in one brief sentence: The price for cobalt in 1940 was \$1.50 per pound -- the current price for cobalt is \$1.50 per pound. No domestic cobalt mine can operate under these conditions.

The principal production of cobalt comes from Africa, where it is produced in Katanga, Northern Rhodesia, Morocco, and Uganda. The security of these sources of supply needs no comment. Another potential source is Cuba.

In North America, production is coming from the Sherritt Gordon operation at Lynn Lake, Manitoba. There is also some production as a by-product from smelters. In the United States proper the only source for cobalt seems to be the Blackbird District in Idaho which, for some time, produced the metal but was forced to close operations because of the low price. Cobalt-bearing lead ores near Fredericktown, Missouri, and cobalt-bearing iron-ore deposits at Cornwall, Pennsylvania are theoretically potential sources, but no practical production from them has been demonstrated.

There are 103,018,126 pounds of cobalt in the stockpile inventories. Of the 76.8 million pounds in the national stockpile, about half a million pounds have come from domestic sources. This compares with one million pounds in the barter stockpile.

### Columbium-tantalum

The western states have the only significant reserves of tantalum in the North American continent, and the only significant potential producer of columbium in the United States, at Bear Valley, Idaho. However, the domestic production of these elements is controlled by imports of both columbium-tantalum ores and heavy rare-earth metal source materials. The result -- all United States mines are at a standstill.

The Federal Stockpile Inventories records a total of 16,099,060 pounds of columbium in the stockpile. Of the 8.4 million pounds in the national stockpile, less than half a million pounds have been produced domestically. This is about the same amount that has been obtained through barter of

surplus agricultural goods.

For tantalum, the statistics are 4,959,880 pounds in the stockpile, with 75,588 pounds from domestic mines.

### Manganese

From any realistic viewpoint, there is no domestic manganese mining left in the United States. Most of the operating mines closed with the termination of the last of the Government Manganese Purchase Programs in August, 1959. The last special contract with an individual producer ended in 1961 and the plant in Nevada has been dismantled. At the present time, only the mines at Philipsburg, Montana, remain open and their production is primarily for dry-cell battery and chemical use. Anaconda has produced nodules intermittently from stockpiled ore, and Manganese Chemicals Corp. is producing synthetic manganese from manganiferous iron ores and tailings in Minnesota.

Table 2 shows the relation between domestic and foreign production of manganese and illustrates the decline in domestic production since 1958.

TABLE 2. Manganese Production in Short Tons  
(From USBM Minerals Yearbook - 1961)

<u>Year</u>	<u>Domestic</u>	<u>Foreign</u>
1952-56 average . . . . .	222,207	2,530,447
1957 . . . . .	366,334	3,105,172
1958 . . . . .	327,309	2,452,578
1959 . . . . .	229,199	2,397,804
1960 . . . . .	80,021	2,543,841
1961 . . . . .	46,088	2,098,438
1962 (estimated) . . . . .	20,000	2,200,000

In 1954, there were 367 manganese "establishments" engaged in producing manganese ore in the United States. In 1958 there were 186; in 1961 about half a dozen; and in 1962, four.

The number of employees in the manganese mining and milling industry averaged 2,604 in 1954 and 2,099 in 1958, and wages paid to production and related workers in each of these years amounted to more than \$7,000,000. In 1961, there were 222 workers with total wages of about \$1,000,000, and in 1962 the figures could well have been reduced by 50 percent of the 1961 figure.

There are 12,327,663 short tons of metallurgical grade manganese in the stockpile, of which 3.4 million have been obtained through barter. Less than 0.4 million short tons of the total is domestic material.

### Mercury

In 1958 mercury production in the United States came from 12 major producers. In 1961 the number had dropped to five. At the present time there are only two. Although the United States consumption is probably at, or close to, an all-time high, domestic production continues to fall because of generally increasing domestic labor costs and declining prices. World-wide over-capacity, as the result of United States Government requirements and programs during and after the Korean War, is now having its inevitable effect.

Within the last few months governmental policies came extremely close to destroying entirely the domestic industry and severely crippling the whole Free World's mercury industry. The story is this:

During the middle 1950's the Atomic Energy Commission obtained very large supplies of mercury for its isotope separation facilities, from both the federal stockpile and foreign suppliers. When the program was approaching completion, the AEC declared 50,000 flasks of this material excess to its requirements. This material was turned over to the General Services Administration for disposal under the Surplus Property Act. Fifty thousand flasks is the equivalent of more than three years' domestic production, and almost the equivalent of one year's United States consumption.

The total amount of mercury in the hands of the AEC is probably greater than the total Free World's annual production capacity and could have easily followed the same route.

Although much of this material had been in the United States stockpile, where it could have been disposed of only with Congressional approval, by its transfer to the AEC for essential defense use and then, when that defense use was no longer required, its transference to "excess" and then presumably to "surplus," it was available for public disposal.

As a result of protests by western mining states' Senators, and by vigorous action of Congressman Aspinall and Congressman Baring, the excess mercury was transferred back to the Strategic Stockpile. For a time at least, the domestic industry has been given a reprieve. Congressman Aspinall has also introduced legislation (H. R. 8248) to plug the loophole whereby national stockpile material can reach the market place without Congressional approval through agency transfer. This bill deserves strong support.

(Continued on Page 178)

## COAST ASBESTOS CO. OPERATIONS GRANT COUNTY, OREGON

By N. S. Wagner\*

Milling operations in Grant County, Oregon, by the Coast Asbestos Co., Los Angeles\*\*, constitute the only recorded attempt to evaluate an Oregon chrysotile occurrence by actual production under field conditions on a pilot plant scale (figure 1). Approximately 525 short tons of marketable fiber have resulted from this test to date. Thus this production rates as an historical "first" in this area of mineral output in Oregon.

The occurrence on which this test is being made is located on Beech Creek, a few miles northeast of Mount Vernon, Grant County. This locality is indicated in figure 2, along with certain of the other known chrysotile occurrences in eastern Oregon. It is shown in greater detail in figure 3, which features the serpentine body in which the chrysotile occurs and other of the principal bedrock types exposed in the immediate area.

Most of the eastern Oregon chrysotile occurrences have, over the years, received some measure of prospect attention and certain of the more promising localities have been mapped in considerable detail, surveyed with a magnetometer, and even core-drilled to a limited extent. The occurrence on Beech Creek is probably the most publicized of the group as a result of an examination made by the Asbestos Corp., Ltd., Thetford Mines, Quebec, during the field seasons of 1949 and 1950. Geologists of the Johns-Manville Co. also examined the property during the early 1950's but conducted no exploration work.

Operations by the Coast Asbestos Co. began in 1959, were dormant during 1960, and then were pursued actively throughout the field seasons of 1961 and 1962. During this period the original mill was rebuilt several times, and its flow sheet was altered and expanded each time in accordance with the experience obtained from a succession of test runs.

Figure 1 pictures the mill as it appeared in November, 1962, its capacity rated at an estimated 5,000 pounds of recovered fiber per 8-hour shift. Fiber quality as recovered to date is reported to include group 5, 6, and low 7 material as classified by Canadian standards. Under the present set-up, however, the product from the test mill contains approximately 80

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\* Geologist, State of Oregon Dept. of Geology & Mineral Industries.

\*\* The company is an Oregon corporation; the Los Angeles address is that of the Western Chemical & Manufacturing Co., where the accounts are kept.



Figure 1. Coast Asbestos Co.'s pilot mill in Grant County, Oregon, 1962. Primary crushing and drying facilities are housed in large building on left side of picture and the storage shed for sacked fiber is on the extreme right. Supplemental processing and sacking facilities occupy intermediate building space. A portion of one of the pits from which ore is taken is shown in rear.

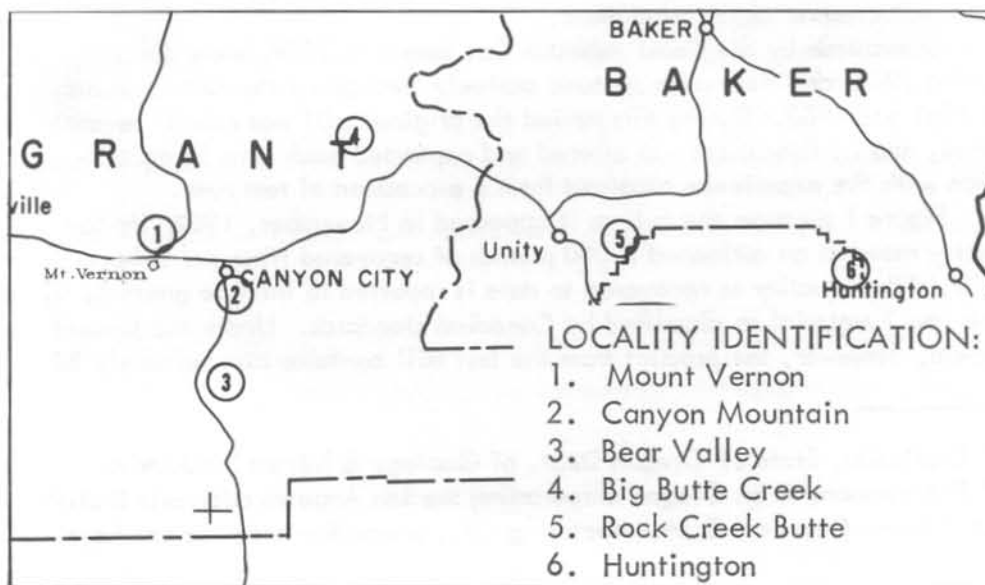


Figure 2. Map showing location of principal chrysotile occurrences in eastern Oregon. Locality No. 1 is described in this report.



percent fiber and 20 percent waste; final upgrading and quality control are accomplished in a plant in Los Angeles operated by the Western Chemical & Manufacturing Co.

The flow sheet at the pilot plant is divided into two sections. The "crude," or primary, section begins with a hammer mill in which pit run ore is reduced to minus  $3/4$  inches. This reduction is followed by drying in a 5- by 40-foot oil-fired rotary drier which discharges into another hammer mill where further reduction to minus  $1/2$ -inch is accomplished. At this stage screening over a 16-mesh rotary screen eliminates minus 16-mesh material as waste. The plus 16-mesh material is stockpiled as "heads" for subsequent treatment.

The second, or finishing, section of the flow circuit begins with a shaker screen from which some long fiber is taken off from the plus 16-mesh feed and routed directly to a fiberizing mill and bagger. The plus 6-mesh feed material from this screening is diverted as tailings, and the minus 6-mesh fraction is then milled in a hammer mill and again screened over another 16-mesh rotary trommel. The fines from this screen are waste, but the over-size receives continued processing, first over a 20-mesh shaker screen where more fiber is recovered, and then through an attrition mill followed by two 30-mesh rotary screens. The minus-30 fines from this screening are treated as tailings, while the plus-30 material progresses through a 20-mesh shaker screen and a battery of Overstrom vibrating screens from which fiber is recovered at a series of screen stages to conclude the main stream treatment.

The plant has a supplemental circuit, consisting of a micro-mill and two 30-mesh rotary screens. Most of the tailings diverted from the main stream, second stage, prior to the Overstrom battery stage, are re-worked here. The plus-30 mesh fraction from this treatment is re-introduced into the main circuit at the Overstrom battery stage for final fiber salvage.

The entire plant is activated electrically with power from two diesel generators which give a 300-ampere total output. As stated previously, the product of this mill is shipped to Los Angeles for final upgrading and quality control. The fiber is sacked for shipment and shipments have been made by both truck-trailer and rail in carload lots.

Western Chemical & Manufacturing Co., in whose plant the final upgrading is done, also serves as the sole and exclusive sales agent for the Coast Asbestos Co.'s output. So far, all fiber from the test operation has been marketed to consumers in the Los Angeles area, principally those engaged in manufacture of cement and acoustical products.

Mining is accomplished by dozing from a series of benches situated on the hillside directly above the mill. Only a portion of one bench is evident in figure 1.

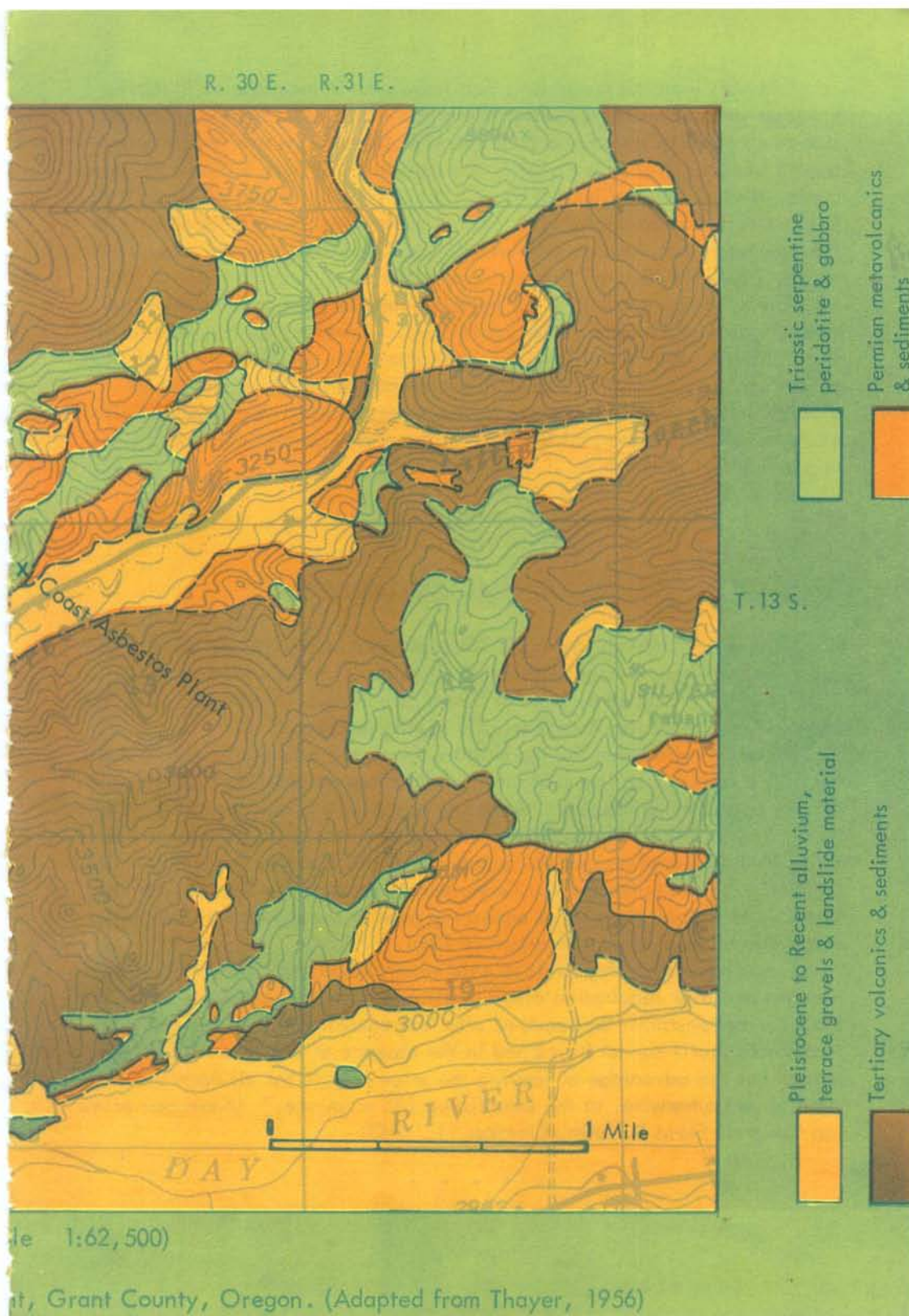
Map prepared by  
STATE OF OREGON  
DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES



(Base from Mt. Vernon Quadrangle)

Figure 3. Geology in the area surrounding the Coast Asbestos Co., p





Chrysotile on the property is best known for its occurrence in narrow but well-defined stringers, which yield attractive collection specimens. However, much of the chrysotile content of the pit-run mill feed is believed to occur in the form of slip fibers, which are more difficult to recognize than the cross-fiber stringers. The slip fiber content of the host serpentine is indicated by the pilot milling experience, which, according to the operators, has shown a pit-run mill-head recovery average of approximately 7 percent fiber for the tests made thus far.

The company plans to make more test runs in order to determine the overall grade and extent of the occurrence. However, for the next test stage it anticipates boosting mill capacity to a 25- to 30-ton level of fiber output per day, by adding new drying and storage facilities and by replacing certain old machinery with modern equipment. The company also plans to investigate markets for fiber in the northwest and will add a final upgrading unit to the mill, if needed.

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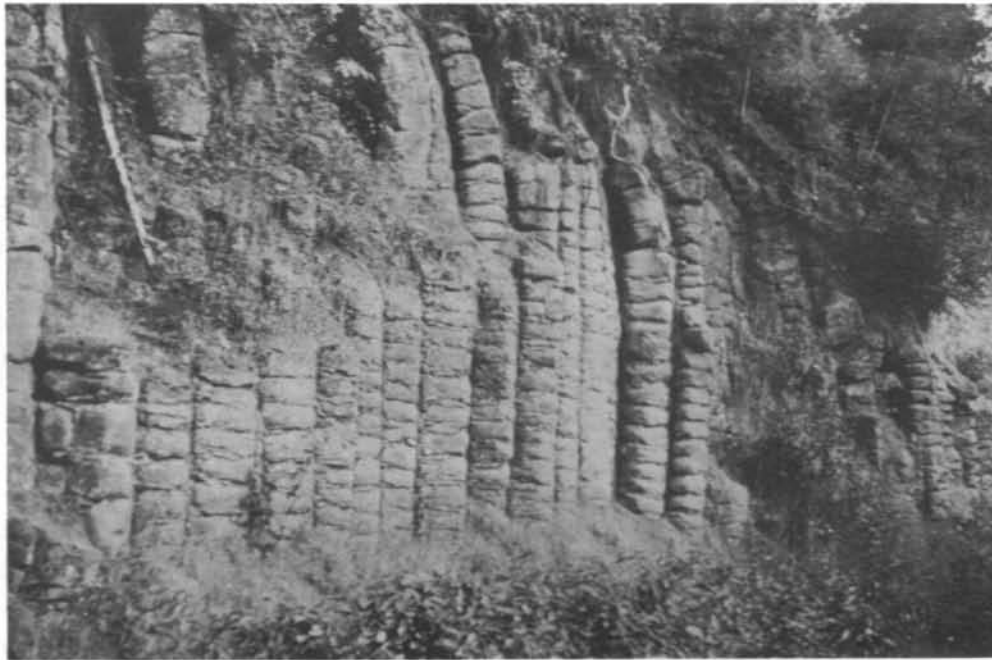
#### GOLD HEARINGS SLATED

The Minerals, Materials and Fuels Subcommittee of the Senate Interior Committee has scheduled open hearings on October 23 and 24 to consider S. 2125, a bill introduced by Senator Ernest Gruening of Alaska and other Senators to "revitalize the American gold mining industry."

When he introduced the legislation, Gruening told the Senate that the bill was a result of earlier subcommittee hearings considering legislation to aid the gold mining industry. Gruening said that this new legislation might be more effective in overcoming the essential obstacles to increase productivity in the gold mines and the opposition of the Treasury Department. The legislation would authorize the Government, through the Secretary of the Interior, to support the cost of producing gold to the extent this cost exceeds that of equivalent operations in 1940.

Gruening said: "Payments to gold miners would be carefully limited to amounts actually required to allow profitable operation and only where the producer demonstrates that costs of efficient operation are so excessive a reasonable profit cannot be earned in the absence of assistance. This approach has the advantage of leaving the price of gold for all purposes, commercial and otherwise, at the established \$35 an ounce." (American Mining Congress News Bulletin, October 11, 1963)

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## GEOLOGIC BISCUITS

Photo by R. S. Mason

What are they? How did they get there? These are questions that many people ask when they drive past this unique rock outcrop. The photograph is the first in a series to appear from time to time in The ORE BIN, depicting unusual geologic features seen along Oregon highways.

The outcrop pictured above looks like stacks of petrified biscuits from the oven of Paul Bunyan. Each bun is about 15 inches in diameter and 8 inches thick, brown on the outside and light gray within. The location is on the Clackamas River road 4 miles upriver from Estacada and 35 miles southeast of Portland.

Geologically, the outcrop illustrates weathering and erosion of an unusual fracture pattern in andesite (a rock similar to basalt but lighter in color and having a slightly different chemical composition). Some 15 million years ago this was a flow of molten lava, perhaps 20 or 30 feet thick, which poured out of a nearby volcano. On solidifying and shrinking, the sheet of lava fractured vertically into columns. Further stresses created platy jointing at right angles to the columns. Later in geologic time the Clackamas River carved its valley downward through the layer of andesite, exposing the rock to the weather. Air and moisture penetrated the cracks, causing chemical breakdown of minerals in the andesite and disintegration of the rock surfaces. This had the effect of widening the cracks, separating the columns, and rounding off the sharp corners of the plates or biscuits. Rain water pouring down the cracks between the columns also helped to enlarge the gaps. Building of the Clackamas River road further exposed the rock to the elements.

The andesite at this locality is part of the Rhododendron Formation composed of volcanic mudflows and lavas of late Miocene age.

"Strategic Minerals" (continued from page 170)

The amount of mercury in the stockpile is given as 145,525 flasks, of which 16,000 flasks are in the supplemental or barter stockpile. There is no domestic mercury in the national stockpile.

#### Thorium, monazite, and the rare earths

Nothing was produced during 1962 in the heavy rare earths (thorium-monazite class) since the imports of foreign ores and finished or semi-finished products are the controlling factor. Some production has been maintained in light rare earths (cerium) from the Mountain Pass, California, property. However, it is understood that there was no increase in production in 1962 as compared to 1961.

Open market prices for thorium or monazite sand concentrates, had there been any sales in 1962, were such that freight to market would have absorbed 50 percent of the price. However, things have taken a turn for the better in the past six months. The price on monazite has been rising, owing to increased world demand.

If yttrium nodular iron is successful, as it seems to be, there will be an increased demand for all rare earths containing yttrium.

Our stockpile contains 9,127,549 pounds of thorium. Eight million pounds of this is in the supplemental (barter) stockpile. The Stockpile Report to the Congress shows 7,960 short tons of rare earths, of which 5,120 is domestic material.

#### Tungsten

The peak year of tungsten production was 1955, when there were 40 large producers and more than 700 other producers. Today there are three domestic producers.

Communist countries are using tungsten, like chrome, as a source of dollar exchange. In this instance, Red China is the country that is causing serious disruption in the market.\* The ore goes to such countries as Japan to be processed into ferro and from this secondary source it reaches the Free World market, presumably without a red tinge.

Stockpiled tungsten amounts to 204,020,221 pounds. Nearly 6 million pounds of this is in the supplemental (barter) stockpile. In the national stockpile of 86 million pounds, 6 million pounds are listed as domestic materials.

\* The Iron Age, Feb. 28, 1953.

## Conclusion

With this very gloomy review of the former pride of the western mining industry in mind, I think that the importance of the stockpile is quite evident. We see it as a buffer in the economic warfare the communist countries are conducting in chrome, tungsten, and antimony. Its value will increase as other metals become involved. There is little doubt that they will.

We see, from the example of mercury, the care that must be taken when stockpile disposal is contemplated and we also see the necessity for continuing Congressional control of the stockpile.

We have learned from the sources of the stockpiled material one of the reasons why domestic mines have been unable to compete with foreign mines. Of the minerals covered by this review, 81.7 percent in the national stockpile has come from foreign sources. The dollar totals are \$794 million for foreign ores and \$128 million for domestic ores. Of the \$4.8 billion total value of the 78 materials purchased under Public Law 520 funds through 1962 for the national stockpile, \$3.5 billion, or 73.1 percent, are foreign materials. The dollar total of foreign materials in all of the stockpiles would undoubtedly boost this \$3.5 billion to at least \$5.5 billion. Furthermore, foreign purchases through barter of surplus agricultural commodities still continue. I think anyone would concede that this multi-billion-dollar market makes pretty tough competition for domestic mines. It can be concluded that foreign deposits do have a long-range minerals program -- our stockpile.

Unfortunately, the loss to the economy of the western states is not the only result of the destruction of these many parts of the strategic mineral industry. Probably the effect of not having an active prospecting and small mining nucleus is of greater national significance than the general curtailment of the economy. In 1960, 71 elements were in commercial use in the United States. This compares with 60 elements in 1950; 50 elements in 1940; and 29 elements in 1900. Who in the past 10 years has been trying to determine the potential and the reserves of this nation for these 10 new elements? What new elements will be used in 1970, and what is being done to locate these, and who will do the prospecting? Does mining have to be a time of crash programs, or uranium rushes? In this day of automation, exploration of space, and rapid transportation, this approach to mining just doesn't make sense.

I can't believe we are such a "have-not" nation as many people would have us think. It is true that no nation can hope to meet all its requirements from domestic sources. In the long term, however, the United States will have to provide the bulk of its own supplies, if only because other nations will consume a larger and larger share of their own production as they

raise their levels of living.

Dr. Thomas Nolan, Director of the U.S. Geological Survey, made a very significant point in his speech, "Current Research of the U. S. Geological Survey," before the American Association of Petroleum Geologists, at Houston, Texas, March 28, 1963. He stated: "It is true, of course, that the amount of a given material in the earth's crust is finite. But which, and how much, of these materials are usable at any time and thus constitute a mineral resource, depends upon what man's knowledge and ingenuity make it possible for him to use to his advantage at that particular time."

I would add only that "ingenuity" includes Government actions and policies, domestic as well as foreign.

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#### ALUMINA EXTRACTION METHOD DESCRIBED

Successful extraction of alumina from Oregon ferruginous bauxite by a double-leach process has been demonstrated by the Albany Metallurgy Research Center, Bureau of Mines, Albany, Oregon. The process recovers a greater proportion of alumina from high-silica ores than the conventional single-leach method. The recovery is accomplished by calcining the ore, removing reactive silica in a preliminary dilute caustic soda leach, and then applying a second leach to dissolve alumina. Eighty-percent recovery of alumina was obtained from Salem Hills bauxite containing as much as 15 percent  $\text{SiO}_2$ , 35 percent  $\text{Al}_2\text{O}_3$ , and 30 percent  $\text{Fe}_2\text{O}_3$ .

The process is described in Bureau of Mines Report of Investigations 6280, "Extraction of alumina from ferruginous bauxite by a double-leach process," by W. F. Holbrook and L. A. Yerkes. The report may be obtained free of charge from Publications Distribution Section, U.S. Bureau of Mines, 4800 Forbes Ave., Pittsburgh, Pa., 15213.

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#### LIME COMPANY OPENS NEW QUARRY

Chemical Lime Co., Baker, Oregon, has recently completed a diamond-drill program on a limestone occurrence situated at the head of Baboon Creek in the Elkhorn Mountains, Baker County. This location is approximately  $2\frac{1}{2}$  miles airline west of the company's Marble Creek quarry. Crushing at the new location started October 16.

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## RULES FOR COLLECTING PETRIFIED WOOD PROPOSED

In the August 6 issue of the FEDERAL REGISTER there was published a Proposed Rule Making for free use of petrified wood by individuals. These rules were as follows:

"Rules for collection of specimens.

(a) The following rules shall govern the removal without charge of specimens from public lands administered by the Department of the Interior:

(1) No application or permit for free use is required.

(2) The maximum quantity of petrified wood that any one person is allowed to remove without charge in any one day is 10 pounds in weight.

(3) Collection of specimens under the authority of this act must be accomplished in a manner that avoids unnecessary soil erosion or needless damage to the land or the resources.

(b) The head of the Bureau having jurisdiction over a free use area, or his delegate, may establish and publish additional rules for the free use of petrified wood for non-commercial purposes."

Mr. T. M. Tyrrell, Acting State Director of the Bureau of Land Management in Portland, replied on September 26 to an inquiry from this Department on the above as follows:

"Since the publication of the above, this office has suggested to the Director of the Bureau of Land Management that certain changes of the proposed rules might be appropriate, particularly regarding the 10-pound limit. Specifically, it was suggested that the maximum quantity of petrified wood any one person is allowed to remove without charge in any one day is 10 pounds in weight, and one specimen. As a result, the Director extended the time for receipt of comments covering the proposed petrified wood regulations to October 5, 1963. He also directed all State Directors to forward additional comments and, when feasible, to obtain the views of local organizations of rock collectors. These same instructions have been forwarded to all District Managers in the State.

"One mining engineer has been assigned this case and he is now in the process of collecting and preparing all information for submission to the Director. In addition, there has been a substantial volume of correspondence from individuals and rockhound societies who have contacted directly both the Director and the Department of the Interior. In most cases they were concerned about the 10-pound limit.

"We believe that with the information supplied by this office, plus the large amount of correspondence from individuals, there should result a set of regulations which are satisfactory to most of the people concerned."

In a letter dated October 11 in reply to another inquiry from this Department, Mr. Russell E. Getty, State Director of the Bureau of Land

Management, gave this information:

"The act of September 28, 1962, or Public Law 87-713, was passed by the Congress. It authorizes the disposal of certain mineral materials, including petrified wood, from public lands specified by the Secretary of the Interior. The Act also provides that the Secretary of Agriculture shall dispose of materials from lands [U.S. Forest Service] administered by him.

"As a result of the act of September 28, 1962, a notice was published in the FEDERAL REGISTER as a Proposed Rule Making, to designate all public lands administered by the Bureau of Land Management as free use areas. It also established basic rules for the collection of specimens of petrified wood. [A copy of the Proposed Rule Making appears above.]

"Public Law 87-713 directed the Secretary of the Interior to provide by regulations for the free use of petrified wood. In the case of the act of September 28, he has, to date, merely proposed a set of regulations and these proposals have been published in the FEDERAL REGISTER and publicized through news media. It is the policy of the Department of the Interior to afford the public the opportunity to participate in the rule making process, consequently he had requested interested persons to submit comments or objections by September 7, 1963. Because of the interest shown, this date was extended to October 5, 1963. From all the information available in this office at this time, this is the present status of the establishment of the rules and regulations for the disposal of these materials from public lands."

The law withdrawing petrified wood from location under the general mining laws and authorizing the Secretary of Interior to promulgate rules and regulations for its free use is as follows:

"No deposit of common varieties of sand, stone, gravel, pumice, pumicite, or cinders and no deposit of petrified wood shall be deemed a valuable mineral deposit within the meaning of the mining laws of the United States so as to give effective validity to any mining claim hereafter located under such mining laws: Provided, however, That nothing herein shall affect the validity of any mining location based upon discovery of some other mineral occurring in or in association with such a deposit.

'Common varieties' as used in this Act does not include deposits of such materials which are valuable because the deposit has some property giving it distinct and special value and does not include so-called 'block pumice' which occurs in nature in pieces having one dimension of two inches or more. 'Petrified wood' as used in this Act means agatized, opalized, petrified, or silicified wood, or any material formed by the replacement of wood by silica or other matter. . . . The Secretary of the Interior shall provide by regulation that limited quantities of petrified wood may be removed without charge from those public lands which he shall specify. (Approved 9/28/62)"

It will be recalled that in October 1961 the Bureau of Land Management proposed that 20,000 acres in southeastern Oregon be withdrawn from location of mining claims for petrified wood. Following publication of this notice, a large number of requests for hearings were submitted to the Department of the Interior. However, prior to the time when hearings were to be held, the above law was introduced in Congress and passed, making withdrawals of these lands from mineral entry for petrified wood unnecessary.

It is hoped that when the final rules and regulations are published by the Department of the Interior and the Department of Agriculture, they will reflect the comments of the "rockhounds" and the "rockhound clubs." It behooves these organizations to call their views on this subject to the attention of the Departments of Interior and Agriculture. If the rockhounds do not do this, rules may be forthcoming that could damage rockhounding as a recreational pursuit. It also seems likely that the results of this legislation and its resultant rules could well set a future pattern for disposal of other mineral materials of interest to the rockhounds.

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#### RUSSIAN CHROME PURCHASED

With U.S. - Russian peace efforts stimulated by the recent nuclear test ban treaty, talk of trade deals between East and West has greatly increased.

Topping the Russian list are several minerals and metals the Russians would love to sell the U.S. to pay for wheat and other short food items. These include manganese and chrome ores, ferroalloys, platinum, palladium, asbestos, potassium salt and large quantities of cheap iron ore. In return, they would like to buy some nonferrous metals from the U.S. - such as copper.

The big item the Russians are pushing, however, is chrome ore. Even now, they have practically shut down all the main Western chrome mines with high-grade, bargain chrome ore sales. In Turkey, mines are idle with surplus ore piled high.

American companies such as Union Carbide, have been buying quantities of Russian chrome ore simply because they can't afford not to. Carbide has even closed down some of its South African mines to increase purchases of the Russian ore.

More U.S. companies are expected to "buy Russian" in chrome ore and other minerals if the peace offensive keeps its present pace. Russian ore is considered the best in the world for chrome alloys. It comes in a hard, lumpy form that the metals companies like.

The Russians also want mining and smelting equipment, and have a reported \$10-million order pending to buy automated "continuous miner"

equipment from the U.S. to mine potash. [E&MJ Metal & Mineral Markets, October 7, 1963.]

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#### AMC VIEWS ON LAND LAW STUDY BILL

"The fundamental basic principle of the general mining law is that the citizen may enter upon the public domain, search for, discover if he can, and develop and mine, the minerals discovered by him. Its cornerstone is individual endeavor, endeavor limited only by the industry of the individual. The spirit of that act is private enterprise in its most forthright form." So said W. Howard Gray, chairman of the Public Lands Committee of the American Mining Congress, in testifying October 3 before the Subcommittee on Public Lands of the House Interior Committee. He presented the Mining Congress' view of H. R. 8070 and related bills designed to establish a Public Land Law Review Commission which would study existing laws and procedures related to the administration of the public lands.

Gray said that "it is the hope of the American Mining Congress and the members of the mining industry that the basic principles and tenets of our mining law of 1872 be retained and that the act be touched only for the purpose of facilitating and encouraging private enterprise." Gray suggested that the scope of the commission's study be expanded to include a survey of the regulations promulgated by the various federal agencies administering the public lands.

The proposed legislation would create a commission composed of six members of the House, six members of the Senate and six members of the Executive Branch. Gray suggested that the commission be limited to members of the Senate and House Interior Committees. "We strongly urge that Congress not even intimate that the Executive Branch of our Government have any authority over the public domain except as the same may be given by express legislative enactment. By permitting the Executive Branch to share in duties of the commission, Congress has inferentially, at least, yielded its exclusive constitutional authority." Gray also suggested that the subpoena power given to the commission under the bill should be limited and recommended, as an example, the subpoena power given to the Civil Rights Commission which protects against possible abuses.

Similar recommendations were made by the National Lumber Manufacturers Association, the Independent Petroleum Association of America and the National Association of Manufacturers. While supporting the legislation, the NAM strongly urged that officials of the Executive Branch not be included on the commission. [AMC News Bulletin, October 11, 1963.]

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