

STATE DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES

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WHAT IS THE ANSWER?

In the Wall Street Journal under date of June 25 it was stated that more chrome will soon be coming from the French Pacific island of the colony of New Caledonia as the result of a boost in Marshall plan aid. The item stated that the Economic Cooperation Administration is financing a loan to the territory of \$737,000 plus a like sum to France from "counterpart" funds - the local money equivalent of dollar aid which each Marshall plan nation puts aside for investment. The loan is to be made in return for chrome concentrates for the United States stockpile. It is stated that this help will probably allow New Caledonia mines to double prewar production.

This news item brings to mind several thoughts connected with our strategic minerals program. Miners in Oregon and northern California, where the greatest domestic reserves of metallurgical grade chrome occur, have been trying to get a government chrome-buying program set up, laboring through DMA, DPA, GSA, and other agencies over a period of more than a year. The buying depot has not yet been established but a program has been finally approved and it appears now reasonably sure that after a few more ponderous moves the government purchasing machinery will begin to function. We wonder if ECA consumed an equivalent amount of time in granting the loan to New Caledonia. We wonder also if, like Oregon and California miners, New Caledonia had to send representatives to Washington, D.C., at their own expense to point out to ECA the need for stockpiling chrome and to petition for the loan. We wonder if they had to present expert technical evidence to ECA concerning the mineral deposits and to give assurance that ore was available and the loan essential in the public interest. We wonder if United States experts were sent to New Caledonia to explain the program to the chrome producers.

Why are obstacles placed in the way of domestic strategic mineral production and why are our miners looked upon with suspicion as trying to gyp the government just because they realize the seriousness of the lack of essential minerals for the government stockpile? This question is insistent because we hear of the ease with which foreign mines are able to obtain huge loans to be paid back (we hope) from future production. The Oregon and California miners didn't ask for loans; all they asked was a price that would make mining of chrome worthwhile.

Nobody can question the need of stockpiling strategies from any place they can be obtained because quantity of some of these critical materials is undoubtedly dangerously low in our national stockpile. But considering the vital need of having domestic sources of supply available wherever at all possible, why has there been such an evident lack of enthusiasm among the people who make the decisions to put domestic deposits in a position to produce? Have the monkey wrenches been cast into the machinery of execution by people who don't know, don't care, or by design?

We know that there are many qualified, loyal men in the departments connected with procurement of strategic materials. Perhaps some of them are overly imbued with either the big government or the big company operating complex but they wouldn't knowingly allow such a vital program to bog down. But in the face of a tense international situation there have been hesitation, procrastination, alibis, "passing the buck," and delay in execution of the provisions of the Defense Production Act of 1950. What is the answer?

The tungsten-buying program as set up will not help the small operator or promote discovery and development of new deposits. The catch is that the government demands a minimum of 60 percent  $WO_3$  concentrates. A miner lacking a mill must ship crude ore to a customs mill. He must obtain 60 percent concentrates from that mill and thereby probably must accept a large drop in recovery which is a charge against his ore. If he cannot make the 60 percent grade, all of his expenses have been lost. What incentive is there for him to take all the chances of loss in order to turn over most of his receipts to pay for transportation and milling? The object of the Defense Production Act under which the tungsten buying program was set up was to increase production and stimulate prospecting and development. The tungsten program will benefit the large producing companies but it is a dud as far as the little fellow is concerned.

Of all the war minerals necessary to our security, manganese is the most important and most critical under emergency conditions. What is the story on increasing domestic manganese production? For years since the end of World War II we have heard of the extreme need of stimulating domestic manganese mining. Everybody realizes the hazard to steel production of the present situation if imports were cut off. Aside from the Bureau of Mines projects what progress has been made over the years? Reportedly an incentive price program has been considered by government agencies but moss must be thick on the program, judging by the delay. An incentive price is the simplest, quickest, and most effective method of getting production but it is too simple, too easy to administer, to suit the alphabetical agencies. Let us hope we don't get into more of an international jam before the manganese program gets straightened out. We are now producing only 10 percent of our total needs.

Chromite, tungsten, and manganese are only three of the materials vitally needed to insure national security, but they are three which could be produced domestically in substantial amounts if realistic prices for them are established - prices which take into consideration high exploration costs, high production costs, and the artificial barriers set up against the American miner by high taxes, depreciated currencies, and our promotion of foreign production at the expense of our own. These three war minerals are selected as glaring examples of the dangerous condition we are in should war come. We must import them to keep our war machine in high gear. Despite some pooh-poohing there seems little doubt of Russian strength in submarines. What proportion of the chrome, tungsten (assuming that Korean tungsten would be available, which is speculative) and manganese boats would get through? Adding the cost of convoying, plus insurance (if obtainable), plus original cost of the ores, plus ocean freight, plus losses by sinking, what do you think the per-ton costs of the delivered ores would be?

And still there is caviling about paying a "subsidy" to the American miner to produce for our stockpile, AND THE PROGRAMS DRAG.

F.W.L.

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#### COPPER ORE SHIPPED

Strategic Minerals Corporation, Ltd., Medford, Oregon, has shipped two carloads of copper ore from Grants Pass to the Tacoma Smelter. The ore came from the John Hamlin mine on Onion Mountain located about 30 miles by road west of Grants Pass.

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## ACTIVITY AT GRANTS PASS FIELD OFFICE

A revived interest in strategic mineral prospecting and development in southwestern Oregon is reflected in the greatly increased business of the Department's Grants Pass field office. The increased activity is largely due to revival in chromite prospecting. During the first 4 months of 1951 the office had a monthly average of 159 visitors. In May there were 351 and in June 353 visitors. During the first 4 months of 1951 Mr. Wolfe, field geologist, had a monthly average of 67 special interviews which may be defined as those requiring a discussion of geological, mining, or prospecting problems. In May, he had 124 and in June 132 special interviews. So much time (an average of 52 hours per month for May and June) has been consumed by these interviews that Wolfe has had no time for field investigations requested of him. In order to help relieve the situation David White, geologist of the Portland office, has been transferred temporarily to the Grants Pass office.

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## ASSESSMENT

S. 1726 which proposes the permanent changing of the assessment year from July 1 to November 1 passed the Senate near the end of June but ran into strong opposition in the House Interior and Insular Affairs Committee. At the present time (July 13) action on the bill is still pending in the Committee with rather poor prospects of having it reported to the House.

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## UNDERWATER MAPPING OF BEDROCK BY DEPTH-FINDING EQUIPMENT

The U.S. Geological Survey has announced completion of a mapping program tracing the depth of bedrock along a part of Chicago's lake front. This program was conducted by the Survey for Chicago's Department of Public Works using electronic depth-finding equipment supplied by the Edo Corporation. The technique used is believed never to have been used before in this type of work.

A new water filtration plant and distribution system is planned by the City of Chicago and the plan includes a distribution tunnel more than 5 miles long and 16 feet in diameter to be driven beneath the harbor bedrock paralleling the water front. In order to drive the tunnel safely and to have it secure as a part of the distribution system, it was necessary to locate it in bedrock 50 feet below the top of the lowest part of the rock bottom. Depth-finding equipment involving sonar depth finding was arranged for with the Navy Bureau of Ships, Electronic Division. The equipment was made by the Edo Corporation and operated by one of its engineers. The equipment measured depth to the top of the mud and gravel layers and also the depth to bedrock. Distance to these layers is automatically computed by the instruments, and soundings are recorded continuously on graph paper.

Many interesting details of the geology of the cross section of the area worked were discovered in the course of the survey. By using this depth-finding method, the time required for construction of the map and cross section was greatly shortened compared to standard methods of drilling out the area to be penetrated. The preliminary map outlining the project has been placed in open file at the Geological Survey, General Services Building, Washington, D.C.

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## LIQUIDATION SALE

Ida mining property located on Louse Creek 1 mile above the Granite Hill mine in secs. 25 and 26, T. 35 S., R. 5 W. Equipment includes diesel engine, power plant, concentrating mill with flotation equipment, assay office, blacksmith shop, and various other pieces of mining equipment. Interested persons should get in touch with Mr. C.F. Pruess, guardian, 138 S.W. "H" Street, Grants Pass, Oregon.

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## LETTER

State Dept. of Geology  
& Mineral Industries  
702 Woodlark Building  
Portland, Oregon

Mr. Niel R. Allen  
Mr. Fay Libbey  
Mr. Mason L. Bingham  
Mr. H. E. Hendryx

Gentlemen:

The Oregon Mining Association wishes to extend its thanks and great appreciation to you for your aid and effort on their behalf, in obtaining a chrome program for Southern Oregon and Northern California.

Sincerely,

Oregon Mining Association,  
Chrome Committee

/s/ Wm. Robertson.

June 14, 1951

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## POZZOLAN TESTING PROJECT

Oregon State College, in cooperation with the Raw Materials Survey, some Bend pumice producers, and the Department, is continuing testing work on pozzolanic materials using new samples recently obtained. The work is being done under the supervision of Prof. C.O. Heath. Emphasis is on volcanic ash but other materials are being tested. Pumice producers of Bend supplied volcanic ash samples; the Department collected a volcanic ash sample in Gilliam County, volcanic tuff and diatomite samples in Baker County, silt from Multnomah County, and bauxite from Washington County. Testing will continue over a year's period.

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## MOST NONFERROUS METALS IN TIGHT SUPPLY, NPA SAYS

Virtually all of the important nonferrous metals are listed by the Department of Commerce's salvage and reclamation division, National Production Authority, as being either in very short supply or in tight supply.

In reference to the metals in very short supply, the authorities suggest that alternates should be selected whenever possible.

Listed in Group I-A as metals in very short supply are the following items:

Aluminum, copper, magnesium, lead, selenium, tin, zinc, iridium, osmium, platinum, rhodium, silver, cobalt, columbium, molybdenum, nickel, tantalum, titanium, and tungsten.

Group II-A, metals in tight supply: antimony, bismuth, cadmium, germanium, tellurium, chromium, manganese, silicon, and vanadium.

Group III-A, metals in fair supply: palladium, boron, calcium, titanium (ferro); and zirconium.

Miscellaneous materials in very short supply include asbestos (textile fibers); beryllium ore; corundum; crucible flake and Madagascar flake graphite; industrial diamonds; kyanite; sheet and bookform mica splittings, better than stained; monazite sand; rare earths; block talc.

Miscellaneous materials in tight supply include: asbestos, short fiber; diatomite; acid and metallurgical fluorspar; magnesite; phlogopite and muscovite mica, block and film, stained and poorer grades; grades 1 and 2 quartz crystals; talc, ground, including steatite.

Products in the miscellaneous classification that are in fair supply: Fuller's earth, pyrophyllite, rutile, and zircon. (From E&MJ METAL AND MINERAL MARKETS, June 28, 1951.)

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#### THE CURRENT NEED FOR ENGINEERS AND SCIENTISTS

A June 1951 survey of the needs of 378 companies and government agencies shows that about 80,000 engineers are needed now exclusive of the needs of the military. When the current graduating class of 38,000 is absorbed there is still an unfilled demand for 42,000 engineering graduates. However, a recent study of the 1951 class of engineering graduates showed that the military, through R.O.T.C. and reserve programs, and through the Selective Service System, will siphon off about 19,000 engineering graduates. The actual unfilled demand will then be for more than 60,000 engineers.

Thus, the urgent need for engineers cannot be met through the current sources of supply. The 1952 graduating class will be only about 26,000; 1953 about 17,000; 1954 about 12,000.

The increased complexity of our industry and the impact of new technological areas such as atomic energy, the development of antibiotics, jet propulsion, electronics, etc. have made a definite upturn in the use of engineers and scientists quite independent of mobilization. The ratio of gainful workers has been increasing steadily since 1890. It now stands at about 1600 engineers per 100,000 workers according to the Bureau of Labor Statistics. There is no sign yet that the ratio of engineers to gainful workers has commenced to level off.

(From News Letter, June 28, 1951, issued by Engineering Manpower Commission of Engineers Joint Council, New York City.)

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#### GEOLOGICAL SURVEY BULLETINS ON OREGON GEOLOGY

Three new U.S. Geological Survey bulletins concerned with Oregon mineral deposits have just been issued. These are: No. 955-F, "Quicksilver Deposits of the Bonanza-Nonpareil District, Douglas County, Oregon"; No. 969-E, "Quicksilver Deposits of the Horse Heaven Mining District, Oregon"; and No. 973-A, "Magnetic Exploration for Chromite." The first two bulletins named are the result of wartime Survey investigations of well known quicksilver districts in the State. The third bulletin summarizes results of magnetic exploration for chromite and includes results of studies made in central and southwestern Oregon as well as results of magnetometer work on the black sands of the southern Oregon coastal region. These bulletins are for sale by the Superintendent of Documents, Washington, D.C. Price of 955-F is \$1.00; of 969-E, not announced; of 973-A, 15 cents.

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#### DEPARTMENT GEOLOGISTS ON MAP WORK

Mr. Hollis Dole, Department geologist, is mapping the geology of the Dutchman Butte 15-minute quadrangle during the current field season. He is assisted by Mr. Len Ramp, a recent graduate of the University of Oregon.

Mr. Norman Wagner, field geologist stationed at Baker, has been doing reconnaissance mapping in southern Umatilla County where some windows of older rocks in Tertiary lavas are known to occur. Further work in this area will be done.

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## IMPORTANT PAPER ON SOIL FERTILIZERS

"Industrial Minerals and Rocks as Plant Nutrient Sources" is the title of a paper prepared for the Maine Development Commission by W. D. Keller, Professor of Geology, University of Missouri, and a consultant to the Maine Geological Survey. Dr. Keller's paper is a part of the Report of the State Geologist 1949-50, Maine Geological Survey, Augusta, Maine. Abstract of the paper reads as follows:

"Industrial minerals and rocks constituted most of the raw materials for the 750 million dollars worth of soil fertilizers sold in 1948. The demand for fertilizers is expanding. Hitherto unused rock products are potential sources of plant nutrients. Geologists will be better equipped to develop new and additional industrial rock sources as fertilizers when they understand the underlying requirements for soil rebuilders."

Chapter titles, besides the Introduction, are:

The Ionic Exchange Concept Common to Both Plant Nutrition and Rock Weathering; Trace Elements, and Native Rocks as Fertilizers; Minerals Serve in Soil Restoration rather than as Starter Fertilizers; Geological Sources of Calcium; Magnesium Sources; Potassium, Phosphorus and Sulphur; Trace Elements; Non-obvious Sources Need to be Explored.

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## IRON IS ABUNDANT ON OCEAN FLOOR

The oceans of the world are "liquid mines." Among other elements they contain an iron-bearing mineral called glauconite, which is a close chemical relative of the taconites found in the sedimentary rock deposits of the Lake Superior Region.

Glauconite, a greenish, granular mineral, is deposited slowly near the mudline along sea-coasts at depths of 600 to 5,000 feet, away from large or swiftly flowing rivers. That mineral, which contains about 23 percent iron, is formed when shell fish, after death, become filled with fine mud which contains iron leached from rocks on the land.

The sulphates in sea water react with the flesh of the shell fish to form iron sulphide which in turn reacts with dissolved oxygen to form ferric hydroxide. This, with silica and potassium contained in the sea water, forms glauconite, the iron-bearing mineral of the sea. It is thought that bacteria play an important part in the reaction.

Tiny plants, animals take iron

Iron is also present in sea water in organic form, that is, in a form produced by animal or plant action. The iron, originally in inorganic form derived from the leaching of rocks, is removed from solution by plankton. These are primitive, usually minute, marine or fresh water plants and animals, often found in colonies. They are basic foods for fishes and marine animals in whose bodies relatively high concentrations of many elements may be found.

In addition to concentrating silicon, calcium, and phosphorous, some sea creatures concentrate alloying metals used in steelmaking. That concentration is so low, however, that it is improbable that commercial use will be made of any of them in the foreseeable future. Lobsters, for example, concentrate cobalt; oysters concentrate copper; scallops concentrate nickel; sea slugs and a sea animal called an ascidian concentrate vanadium, while mussels and plankton concentrate manganese. Marine plants also concentrate steelmaking elements such as boron and molybdenum while aluminum, selenium, titanium, and tungsten remain largely dissolved in the water.

Manganese has been found in thick layers on the ocean floor but its origin and mode of formation are unsolved puzzles. More frequently manganese is found in rough, round nodules or balls about the size of a walnut. These nodules, which are nearly pure manganese dioxide, invariably form around a nucleus of pebbles, whale or shark teeth, or other small skeletal bones.

(From Steel Facts, June 1951, published by American Iron and Steel Institute, New York City.)

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