STATE DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES
Head Office: 702 Woodlark Building, Portland 5, Oregon

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PREPAREDNESS

By

F. W. Libbey

Preceding the United States' entry into World War I the European conflict brought home the great need for strategic minerals in prosecution of a war because of their essential use in building mechanized war equipment and munitions. However, the long delay before active participation by the United States gave us time to build up domestic production in supplying the Allies with these materials.

The importance of strategic minerals became well recognized, and it was fully realized that another world war could not be prosecuted successfully without huge supplies of such material. Several years before World War II, when all signs pointed to the gathering storm of another conflict, the government was urged continually by engineering societies and experienced individuals not to delay in assembling large stockpiles of essential minerals, and above all to encourage in every way possible the building up of a healthy domestic mining industry.

Dilatory planning and execution found us at the beginning of World War II with inadequate supplies of war minerals, especially the vitally important minerals: manganese, chromite, tungsten, tin, and antimony. Many boats carrying critical mineral supplies were sunk by German submarines, and it was not until the submarine menace was overcome that the country really was safe from a major disaster. Everyone in authority realized the situation and there were innumerable published recommendations that the government should without delay start a realistic program to build up an adequate strategic minerals stockpile after the close of World War II as insurance against another emergency. Every thoughtful person appeared to realize the need, and Congress made various appropriations for this purpose. A board was established in Washington with authority to purchase supplies for a national stockpile.

After five years of operation by the government agencies set up for the particular purpose of stockpiling, the program to insure the country against the lack of adequate preparation felt in two previous world wars is less than 50 percent complete. It has been stated that an estimated $4,000,000,000 worth of material would be needed to make up the planned-for stockpile. The various classifications and amounts in each classification are secret. However, it has been reported that beginning July 1950 material in the stockpile was valued at a little more than $1,550,000,000 and that nearly $500,000,000 worth of stockpile materials are on order.

The knowledge that the stockpile is perhaps nearly 50 percent complete after 5 years does not give a true picture by any means. Possibly the stockpile contains 100 percent of the required amount of some material which would be far less essential than another material

of which the stockpile contains 10 percent of the required amount. For example, it seems doubtful if the stockpile contains a year's supply of manganese required in a war year, and steel cannot be made without manganese.

Following are brief statements concerning the status of some of these essential war minerals:

Chromite. There is no domestic production. In peacetime the domestic metallurgical and chemical industries import all their requirements, and low-grade domestic deposits are unable to compete in price with foreign chrome. Wartime needs would probably be over a million tons a year. Foreign sources are Turkey, South Africa, and the Philippines. So far as domestic production is concerned the government has taken practically no action.

Manganese. Domestic production is about 140,000 tons a year, practically all from Montana. Peacetime requirements are about 1,400,000 tons a year. Sources are South Africa, Gold Coast, India, and Brazil. The U.S.S.R. has large resources of manganese but has for all practical purposes cut off exports to the United States. There are some large deposits of low-grade manganese in this country and the government has proposed to spend $600,000 in an experimental plant at Artillery Peak, Arizona, one of these low-grade areas. The government has also announced tentative plans to spend a large sum of money on recovery of manganese from smelter slags. Some authorities state that this plan is impractical.

Antimony. Domestic peacetime requirements are 20,000 tons a year. Estimated wartime requirements are 40,000 tons a year. United States and Mexican production at present totals 3,000 tons a year which might be expanded to 15,000 tons a year. Foreign sources are Bolivia and South Africa, but principal supplies from China are cut off completely. No definite government action has so far been taken to increase domestic production.

Tungsten. Russia now controls 70 percent of the world's producing capacity in Korea, China, and Burma. United States peacetime requirements are 50 percent of world production; United States wartime requirements are something like five times that. Available foreign sources are Bolivia and a small amount from Portugal. Domestic mines are under contract to the Munitions Board until late this year. Stocks available for industry - none. Other than Munitions Board purchase of domestic production there has been no government action to encourage domestic production. The price has increased from $18 a unit, a depressed price following tariff reductions, to $32 a unit with small lots bid up to $38 and none available.

Mercury. Domestic production after October 1, 1950, - none. The demise of the mercury industry has been due to government purchases abroad and a complete disregard of the importance of maintaining a small mercury industry in this country as insurance against a war emergency. Domestic producers cannot compete with Spanish and Italian production where high-grade ore is mined with cheap labor. It has been the state department's policy to encourage foreign producers by using ECA funds to buy up large supplies of quicksilver. Domestic peacetime requirements are 40,000 flasks a year; wartime requirements 122,000 flasks a year. Total world production in 1949 is estimated at approximately 110,000 flasks. Time required for domestic production to reach a wartime peak would be not less than three years. Amount in the government stockpile is believed insufficient to last three years. Action by the government to rectify this condition - none.

Nickel. Domestic production is extremely small and consists of some primary nickel recovered in copper refining, but the greatest part of our production is obtained from secondary nickel in scrap such as nickel anodes, nickel silver, and copper nickel alloys. In 1949 domestic nickel production amounted to 6,470 tons. Domestic imports during 1949 were 97,144 tons and consumption was 68,326 tons. Requirements in a war year would probably be in excess of 100,000 tons. This country is wholly dependent upon one source of supply - the International Nickel Company, Sudbury, Ontario. What would happen to us if sabotage should cripple seriously the Canadian output? Considering the great importance of nickel in national defense, the national stockpile should contain several hundred thousand tons, and a conscientious effort should be made to build up a nucleus of a nickel-producing industry in

this country. Some sulphide deposits are known in Alaska and both oxidized and sulphide deposits have been explored in Oregon. Probably the largest known domestic deposit is at Nickel Mountain, Douglas County, Oregon, which the M. A. Hanna Company has recently leased and on which the company is carrying on metallurgical testing work. Every encouragement should be given to this project by the government even though commercial operation may not be economic in peacetime in competition with the Canadian deposits.

It seems as if the preparedness lesson learned the hard way in World War I and World War II must be learned all over again. Every mistake made in preparing for two world wars has been made in getting ready for a third one. Probably the major stockpiling policy was governed by the state department's policy of encouraging foreign mineral production without regard to the effect on our own economy. This policy has been pushed down the throat of other government agencies having to do with the strategic stockpile in conjunction with another mistaken idea current in important circles in Washington that our strategic minerals should be conserved by leaving them buried in the ground.

Certain truisms will here bear repeating. Mines are not found ready to turn out metal overnight. They are the result of long-continued development, together with proper design and construction of plant. Since the time element is so vital in modern war, planners for a program of war mineral production should be fully aware of all the time-consuming steps required to make a raw prospect into a producing mine. Another thing - mines once shut down and lacking constant underground maintenance may be lost. Reopening mines is likely to be a long, expensive process, since often the required repair work is as expensive as opening a new mine. And still another thing - mines have wasting assets. Receipts should be sufficient to cover amortization of capital and interest on the investment in addition to a fair profit. Otherwise the mine is a losing enterprise. If we are to have a mining industry under free enterprise, there must be not repressive but understanding taxation and metal prices high enough to attract mining capital; otherwise a sick industry.

For the security of the country those in authority should be urged to formulate definite policies immediately to provide an incentive for domestic production of strategic minerals. The simplest and most effective plan would probably not meet with favor in government circles because it is too simple - that is, to offer a price that would attract miners irrespective of what the normal market price is. In this way immediate action could be obtained and the country as well as those states having the strategic minerals would benefit in putting new life into manganese, chrome, mercury, tungsten, and antimony mining. If we continue to rely entirely on foreign strategic minerals for stockpiling without regard to the need for a live domestic industry we are headed for disaster.

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STRATEGIC ANXIETY

In recommending legislative steps at the Federal levels to stimulate production of strategic metals, a special mining committee of the San Francisco Chamber of Commerce states that: Mercury mining has declined by 95 percent; less than 10 percent of manganese used is produced in this country; no chrome is being produced domestically; less than one-quarter of our wartime production of antimony is left; and tungsten production is still far less than one-half of our wartime production.

(From Iron Age, West Coast Edition, San Francisco, August 24, 1950.)

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SOUTHERN OREGON MINE LEASED

The Little Arctic gold mine has been leased by Harmon Gold Mines, Inc., from McTimmons and Associates. B. P. Harmon of Roseburg, Oregon, is the president and engineer of this newly organized corporation. At present five men are employed and development work is being done. The Little Arctic mine is located near the summit of ~~Green~~ King Mountain in Jackson County, Oregon. The ore consists of free gold in serpentine.

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DEFENSE PRODUCTION ACT

The Defense Production Act of 1950 contains the following provisions directly relating to procurement of minerals.

Title III - Expansion of Productive Capacity and Supply

Sec. 302. To expedite production and deliveries or services to aid in carrying out Government contracts for the procurement of materials or the performance of services for the national defense, the President may make provision for loans (including participations in, or guarantees of, loans) to private business enterprises (including research corporations not organized for profit) for the expansion of capacity, the development of technological processes, or the production of essential materials, including the exploration, development, and mining of strategic and critical metals and minerals. Such loans may be made without regard to the limitations of existing law and on such terms and conditions as the President deems necessary, except that financial assistance may be extended only to the extent that it is not otherwise available on reasonable terms.

Sec. 303. (a) To assist in carrying out the objectives of this Act, the President may make provision (1) for purchases of or commitments to purchase metals, minerals, and other raw materials, including liquid fuels for Government use or for resale; and (2) for the encouragement of exploration, development, and mining of critical and strategic minerals and metals: Provided, however, That purchases for resale under this subsection shall not include agricultural commodities except insofar as such commodities may be purchased for resale for industrial uses or stockpiling, and no agricultural commodity shall be sold for such purposes at less than the higher of the following: (i) the current market price for such commodity, or (ii) the minimum sale price established for agricultural commodities owned or controlled by the Commodity Credit Corporation as provided in section 407 of Public Law 439, Eighty-first Congress.

(b) Subject to the limitations in subsection (a), purchases and commitments to purchase and sales under such subsection may be made without regard to the limitations of existing law, for such quantities, and on such terms and conditions, including advance payments, and for such periods, as the President deems necessary, except that purchases or commitments to purchase involving higher than currently prevailing market prices or anticipated loss on resale shall not be made unless it is determined that supply of the materials could not be effectively increased at lower prices or on terms more favorable to the Government, or that such purchases are necessary to assure the availability to the United States of overseas supplies.

(c) The procurement power granted to the President by this section shall include the power to transport and store, and have processed and refined, any materials procured under this section.

(d) When in his judgment it will aid the national defense the President is authorized to install additional equipment, facilities, processes, or improvements to plants, factories, and other industrial facilities owned by the United States Government, and to install Government-owned equipment in plants, factories, and other industrial facilities owned by private persons.

Sec. 304. (a) For the purposes of sections 302 and 303, the President is hereby authorized to utilize such existing departments, agencies, officials, or corporations of the Government as he may deem appropriate, or to create new agencies (other than corporations).

(b) Any agency created under this section, and any department, agency, official, or corporation utilized pursuant to this section is authorized, subject to the approval of the President, to borrow from the Treasury of the United States, such sums of money as may be necessary to carry out its functions under sections 302 and 303: Provided, That the total amount borrowed under the provisions of this section by all such borrowers shall not exceed an aggregate of $600,000,000 outstanding at any one time. For the purpose of borrowing as authorized by this subsection, the borrower may issue to the Secretary of the Treasury its notes, debentures, bonds, or other obligations to be redeemable at its option before maturity in such manner as may be stipulated in such obligations. Such obligations shall bear interest

at a rate determined by the Secretary of the Treasury, taking into consideration the current average rate on outstanding marketable obligations of the United States as of the last day of the month preceding the issuance of the obligations. The Secretary of the Treasury is authorized and directed to purchase such obligations and for such purpose the Secretary of the Treasury is authorized to use as a public-debt transaction the proceeds from the sale of any securities issued under the Second Liberty Bond Act, as amended, and the purposes for which securities may be issued under the Second Liberty Bond Act, as amended, are extended to include any purchases of obligations hereunder.

(c) In addition to the sums authorized to be borrowed under subsection (b), there is hereby authorized to be appropriated to carry out the purposes of sections 302 and 303, such sums, not in excess of $1,400,000,000, as may be necessary therefor.

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FORT KNOX DEPOSITORY

By

Edward L. Weikert, Jr.

Monetary gold stocks of the United States now exceed $24,000,000,000 - of this amount more than $14,000,000,000 is stored in the vault of the Fort Knox gold depository, one of the institutions under the supervision of the Director of the Mint, an officer of the United States Treasury.

Virtually impregnable from attack the United States Depository was completed in December 1936 at a cost of $560,000. It is located approximately thirty miles southwest of Louisville on a site which formerly was a part of the Fort Knox military reservation. The first gold was moved to the depository by railroad in January of 1937. That series of shipments was completed in June 1937 when approximately $5,500,000,000 in gold was stored there. Another shipment was begun in June 1940 and completed in February 1941, bringing the present stocks of gold stored at Fort Knox to the $14,000,000,000 figure. This consignment was also transported by rail.

The two-story, basement and attic building is constructed of granite, steel, and concrete, based upon a 10-foot foundation of concrete. Its exterior dimensions are 105 by 121 feet. Its height is 42 feet above the first floor level. It was constructed under the supervision of the then Procurement Division of the Treasury Department, now the Public Buildings Administration of the Federal Works Agency. Upon its completion, it was placed under the supervision of the Director of the Mint.

Within the building is a two-level steel and concrete vault, 40 by 60 feet, with fourteen compartments in the subterranean level and a like number on the ground level for the storage of gold. The vault door weighs more than 20 tons. Roofs of the vault as well as the depository are of bombproof construction. No one person can open the vault door; various members of the depository staff must dial separate combinations. The vault casing is 25 inches thick. Its construction includes steel plates, steel I-beams and steel cylinders laced with hoop bands and encased in concrete. The vault roof is of similar construction and is independent of the bombproof depository roof.

As an added protection, the corridor encircling the vault is fitted with mirrors which provide a constant view of the space between the two roofs. Between the corridor and the outer wall of the depository is space utilized for offices, store rooms, and other purposes. The outer wall of the depository is of Tennessee granite lined with concrete. Included in the materials used in construction were 16,500 cubit feet of granite, 4,200 cubit yards of concrete, 750 tons of reinforcing steel and 670 tons of structural steel.

Over the marble at the front of the building is the inscription "United States Depository" with the seal of the Treasury Department in gold. Offices of the chief-clerk-in-charge and of the Captain of the Guard open upon the entrance lobby. At the rear of the building is another entrance, for the reception of bullion and supplies. Facilities for weighing the bullion and for an accounting force occupy other rooms.

Outside the building, but connected with it by passages from the basement of the depository, are four guard boxes, one at each corner of the building. A driveway encircles the building and a steel fence marks the boundaries of the site. The driveway leads thru an entrance gate opening on the Dixie Highway. Sentry boxes, similar to the guard boxes at the corners of the depository, are located at the entrance gate.

An automatic electric signal system telephone, a radio, and microphone equipment have been installed among the mechanical safeguards in the building. The nearby Army post gives additional protection. The depository is equipped with its own emergency power plant, water system and other facilities. In the basement is a pistol range for the guards.

The gold in the depository is in the form of standard mint bars of almost pure gold. In form these bars are similar to an ordinary building brick, but are somewhat smaller. The approximate dimensions are $6\frac{3}{4} \times 3\frac{1}{2} \times 1\frac{3}{4}$ inches. Each bar contains approximately 400 troy ounces of gold, worth $14,000. The avoirdupois weight is about $27\frac{1}{2}$ pounds. They are stored without wrappings in the vault compartments of the depository. When they are handled great care is exercised to avoid abrasion of the soft metal. When gold coin was in circulation the loss to the Government by abrasion was substantial.

While all of the physical gold stock is stored in the various institutions of the Bureau of the Mint, it is not, as sometimes supposed, "kept out of circulation." Most of it is made a part of the money stream thru the medium of gold certificates or gold certificate credits, which are issued only to the Federal Reserve Banks. The Federal Reserve Banks may obtain gold by redemption of the certificates when necessary for the settlement of international balances. This process, coupled with the fact that the Treasury will receive gold imported from other countries, and pay legally determined monetary value thereof, (less handling charges) maintains the value of the dollar in the world exchange. The amount of the gold certificated or gold certificate credits currently outstanding is approximately twenty billions of dollars.

The chief-clerk-in-charge at the Fort Knox Depository is Russell T. Van Horne, an officer of many years' experience in the field service of the Bureau of the Mint. The guard force is made up of men selected from various government agencies.

(From The Numismatic Scrapbook Magazine, Chicago, August 20, 1950)

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NEW USE FOR OREGON VOLCANIC GLASS

A new use for Oregon volcanic glass has been developed by the State Department of Geology and Mineral Industries. The volcanic glass when used as a feldspar substitute in a ceramic glaze produces a glaze suitable for stoneware, artware, and terra-cotta products. Finely ground pumice, volcanic ash, and perlite, forms of volcanic glass found mainly in the central and eastern parts of the State, can be used to replace more costly material shipped into the area from considerable distances. The glaze was perfected after nearly two years of research by Mr. C. W. F. Jacobs, Department Ceramist, who experimented with numerous nonmetallic products found in Oregon. Results and test data have been published in a short paper entitled "Glazes from Oregon Volcanic Glass," and may be purchased from the Portland office, 702 Woodlark Bldg., or in the field offices in Baker and Grants Pass. Price postpaid is 20 cents.

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PAINT PIGMENT SHIPPED

Mr. Orrin Petersen, consulting engineer for the C. K. Williams Company, Emeryville, California, has supervised the mining and shipping of about 900 tons of limonite from county-owned land west of Scappoose, Columbia County, Oregon. The limonite will be used as paint pigment. About the same quantity of this iron ore has been mined annually by the C. K. Williams Company for the past four years.

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SUCTION DREDGE ON STATE LAND BOARD LEASE

Hellickson and English are operating a suction dredge on the Rogue River just north of Grave Creek, Josephine County, Oregon. The dredge is working under a lease from the State Land Board.

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