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Head Office: 702 Woodlark Bldg., Portland 5, Oregon

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STOCK PILING

The last Congress passed a Surplus Property Act (Public Law 457, 78th Congress) which left unsettled problems connected with disposal of surplus minerals and metals. In Section 22(d) of the Act, Congress directed

> "Within three months following the enactment of this Act the Army and Navy Munitions Board shall submit to Congress its recommendations respecting the maximum and minimum amounts of each strategic mineral or metal which in its opinion should be held in the stock pile authorized by the Act of 7 June 1939. After one year from the submission of such recommendations, unless the Congress provides otherwise by law, the Board may authorize the proper disposal agencies to dispose of any Government-owned accumulations of strategic minerals and metals including those owned by any Government corporation when determined to be surplus pursuant to this Act."

The recommendations of the Army and Navy Munitions Board have been submitted to Congress in a report entitled "Strategic Materials," dated January 6, 1945, printed in Senate Document No. 5, 79th Congress, 1st Session.

This document is partially abstracted below under the headings as given in the report. Although much of the information having to do with the need of stock piling in the early part of the report was fully understood and voiced by the mining industry before the War, some of the ideas will bear repetition because they should not be forgotten.

I Necessity for stock piling:

(A) War shipping:

At the beginning of a war emergency, the great need for allocation of shipping to meet requirements of the armed forces makes it urgent that adequate supplies of strategic materials be kept stored so that shipping need not be diverted from direct war needs in order to import such materials. To illustrate this point from conditions existing at the beginning of the present war, the report states:

> "While the Far East was completely shut off, other areas became inaccessible in varying degrees as the result of enemy action. Shipping routed to India, the east and west coasts of Africa, and to South America became endangered and the Mediterranean was practically closed to traffic. Consequently, supplies of material had to go by circuitous and hazardous routes, and large shipping tonnages were thus tied up for long periods of time. In an effort to shorten the time lag in transportation from foreign countries to the war plants in the United States, substantial tonnages of certain heavy materials had

to be flown from China, Africa, India, and South America. As another example, we note that in the winter of 1942-43 substantial tonnages of bauxite from the Guianas were lost due to submarine sinkings; these losses, in turn, threatened to curtail aluminum production, placed an additional burden upon domestic mining facilities, and drew labor from other important war production."

Also it is mentioned that shipping used in transporting vital war materials must be convoyed, thus using Naval vessels needed for direct military operations.

(B) Expanded requirements in war:

The problem of expanding production of raw materials quickly enough in time of war is discussed, and it is stated that "considerable time is required to develop new sources of supply and to increase the production of existing mines and smelters."

(C) Wartime efficiency:

Adequate stock piles insure efficient allocation and the elimination of competition among procurement and consuming agencies such as prevailed to some degree in 1941 and 1942. It is obvious that labor and equipment could be more advantageously used than in accumulating materials that should have been stock-piled.

(D) Depletion of domestic reserves:

Because of the enormous demands for certain minerals and metals during this war, domestic reserves have been greatly depleted. Quantity of minerals produced in 1943 was 57 percent greater than the output in 1918 and 23 percent above that in the boom year 1929. It is stated that, "the continuance of the existing domestic program of exploration of natural resources is clearly imperative. In addition, the rapid depletion of our domestic reserves emphasizes the extreme importance of developing a program for obtaining information on the location and extent of world resources and for acquiring stock piles of raw materials in which this country is largely deficient." *

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* No one will deny the crying need for development of new ore reserves, but no mention is made of the inability of the mining industry to prosecute new development work because of lack of manpower, nor is mention made of the serious lack of exploration for new mineral deposits by private capital owing to Federal Government regulations, including taxes. It is perfectly obvious that mineral reserves must be seriously depleted if mining is carried on at an unprecedented rate and at the same time development work in existing mines is reduced, and no systematic exploration is undertaken by private capital. It should be pointed out that in this country the individual prospector cannot secure supplies, and the small mine producer is discouraged by restrictive taxes. Venture capital which is needed for new mining projects has disappeared owing to severe regulations which control issuance of new securities, and Government competition in loaning money. The exploration programs undertaken by Government bureaus are wholly inadequate for discovering and developing new mineral supplies in the magnitude required to maintain mineral reserves. These programs may supplement in small measure but they cannot successfully replace projects by experienced private companies. (Ed.)

(E) General considerations:

It is stated that under the stock-piling act of 1939, stocks of manila fiber, quinine, and crude rubber, as well as the purchases by Reconstruction Finance Corporation of manganese and tin, were of incalculable value in prosecuting the war. Credit is given manufacturers of the nation in building up stocks of needed materials before the war. It is noted that "Much effort and time could have been saved for other important tasks had a program been started well in advance of the war to accumulate strategic raw materials and to plan for the expansion of facilities for their production. Moreover, during the last two major conflicts this country has been fortunate in having access to large foreign sources of raw materials in friendly countries. A different alinement of nations in a future war, involving enemy control of different geographic areas, might drastically curtail the movements of such materials into the United States."

II Recent stock-pile history and legislation:

The acts authorizing purchase of strategic and critical materials are enumerated, the amount of the appropriations are given, and the amounts expended are tabulated. Finally by the act of June 25, 1940, the Reconstruction Finance Corporation was given broad powers "to produce, acquire, and carry strategic and critical materials as an aid to the Government in its national defense program." (The figures given show the striking inadequacy of the prewar stock-piling program. Even when war was seen to be inevitable, there was a definite lag in stock-piling results. Ed.)

III Development of stock-pile policy:

In the early period of the war, it is stated that estimates of strategic materials for war needs had to be constantly increased.

> "Until August 1943 stock-pile objectives remained in general, on a 3-year emergency basis, but at that time the War Production Board adopted a policy establishing stock-pile objectives at 1 year's requirements. This was not, in most cases, a policy of retrenchment, for it had been impossible even to approach the desired goals. The Joint Chiefs of Staff, who had been asked to approve such a program, emphasized the importance of using the figure set for 1 year's requirements merely as a guide to over-all policy, and of considering specific materials on the basis of the particular circumstances affecting the supply of each material. This decision, in part, reflected an awareness of the adverse psychological effect of large stock piles on industry, which was anticipating with misgivings the effect of these accumulations at the end of the war. The War and Navy Departments indicated that they favored legislation which would give assurance to industry that the stock piles existing at the end of the current war would be sequestrated for future national emergency or otherwise frozen to prevent disruption of industry."

Definitions of strategic and critical materials are revised and are quoted below:

> "Strategic and critical materials are those materials required for essential uses in a war emergency, the procurement of which in adequate quantities, quality, and time is sufficiently uncertain for any reason to require prior provision for the supply thereof.
>
> "The adoption of one broad definition with emphasis upon the importance of 'prior provision' and the recognition that physical stock piling represents only one of the several media for assuring adequate supplies of strategic and critical materials led to classifying such materials into three major subdivisions, based on the following corollary definitions:

"Group A comprises those strategic and critical materials for which stock piling is deemed the only satisfactory means of insuring an adequate supply for a future emergency.

"Group B comprises additional strategic and critical materials the stock piling of which is practicable. The Army and Navy Munitions Board recommends their acquisition only to the extent they may be made available for transfer from Government agencies, because adequacy of supply can be insured either by stimulation of existing North American production or by partial or complete use of available substitutes.

"Group C comprises those strategic and critical materials which are not now recommended for permanent stock piling because in each case difficulties of storage are sufficient to outweigh the advantages to be gained by this means of insuring adequate future supply.

"In addition to the materials included in the above groups, the conduct of a war requires the use of an encyclopedic list of semi-processed and processed materials, such as aviation gasoline, synthetic rubber, chemicals, drugs, ferro-alloys, steel, light metals, and the like. In order that peacetime production may be quickly expanded to a wartime footing, a constant review of the facilities available to meet anticipated requirements will be necessary, together with continuing studies of new processes."

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The remainder of the Army and Navy Munitions Board report is concerned with recommendations. Some information on minimum and maximum quantities of materials which the Board believes should be stock-piled is considered confidential and is not pointed.

An appendix is attached to the report which contains (1) tabulation of stock-pile activity under act of June 7, 1939, and (2) lists of strategic and critical materials. (1) and part of (2) are reproduced below:

Table 1: Statistical summary of stock-pile activity under act of June 7, 1939.

Material	Unit of measure	Quantity purchased to Oct. 31, 1944	Quantity released to Oct. 31, 1944	Balance in stock pile Oct. 31, 1944
Cadmium	Pound	399,672.47	399,672.47	None
Chrome ore	Long ton	239,839	None	239,839
Industrial diamond	Carat	1,089,146.19	None	1,089,146.19
Manganese ore	Long ton	128,666	None	128,666
Manila fiber	Bale	146,057	146,057	None
Mercury	Flask	20,010	None	20,010
Mica:				
Block	Pound	700,646.5/8	700,646.5/8	None
Splittings	Pound	5,000,512.1/2	None	5,000,512.1/2
Monazite sand	Metric ton	2,934	None	2,934
Optical glass	Pound	12,176.75	12,176.75	None
Quartz crystals	Pound	52,413	14,718	37,695
Quinine hydrobromide	Ounce	1,491,457	None	1,491,457
Quinine sulfate	Ounce	7,194,749	4,917,382	2,277,367
Tin (pig)	Short ton	11,457	None	11,457
Tungsten ore	Short ton	5,830	None	5,830

CURRENT LIST OF STRATEGIC AND CRITICAL MATERIALS

Group A: Materials for which stock piling is deemed the only satisfactory means of insuring an adequate supply for a future emergency.

Agar
Antimony
Asbestos:[1]
- Rhodesian chrysotile
- South African amosite

Bauxite
Beryl
Bismuth
Cadmium
Castor oil[2]
Celestite
Chromite:
- Metallurgical grade
- Refractory grade:
  - Rhodesian origin
  - Other origin

Jewel bearings:
- Instrument jewels, except V jewels
- Sapphire and ruby V jewels
- Watch and timekeeping device jewels

Kapok[2]
Kyanite, Indian
Lead
Manganese ore:
- Battery grade
- Metallurgical grade

Mercury
Mica:
- Muscovite block and film, good stained and better
- Muscovite splittings
- Phlogopite splittings

Monazite
Nickel
Opium[1] [3]
Optical glass
Palm oil[2]
Pepper
Platinum group metals:
- Iridium
- Platinum

Cobalt
Coconut oil[2]
Columbite
Copper
Cordage fibers:[2]
- Manila
- Sisal

Corundum
Diamonds, industrial
Emetine
Graphite:
- Amorphous lump
- Flake

Hyoscine
Iodine[1]
Pyrethrum:[2]
- Quartz crystals

Quebracho
Quinidine
Quinine[1]
Rapeseed oil[2]
Rubber:[1] [2]
- Crude rubber
- Natural rubber latex

Rutile
Sapphire, and ruby
Shellac[2]
Sperm oil[2]
Talc, steatite, block or lava
Tantalite
Tin
Tung oil[2]
Tungsten
Vanadium
Zinc
Zirconium ores:
- Baddeleyite
- Zircon

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[1] Require special storage conditions.
[2] Require rotation of stocks.
[3] Stocks to be held by Treasury Department, Bureau of Narcotics.

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GEOLOGIC MAP OF SALEM HILLS

Bulletin No. 15, Geology of the Salem Hills and North Santiam River Basin, Oregon, by T. P. Thayer, is out of print but the Department has on hand a few extra copies of the geologic map which accompanied the bulletin. These maps are for sale at 702 Woodlark Bldg., Portland. Price is 25 cents postpaid.

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UNIT ODDS AND ENDS

The standard U.S. liquid gallon contains 231 cubic inches. The Imperial gallon, standard in Great Britain, is the volume of 10 pounds of pure water at 62° F. with barometer at 30 inches, or 277.4 cubic inches. The U.S. gallon is therefore 83.3 percent of the Imperial gallon.

1 U.S. liquid gallon equals 3.785 liters equals 3785 cubic centimeters.
1 fathom equals 2 yards equals 6 feet.
1 furlong equals 660 feet equals 1/8 mile.
1 nautical mile equals 6080.2 feet equals 1.1516 statute miles. It is defined by the U.S. Coast and Geodetic Survey as the length of one minute of arc of a great circle of a sphere the surface of which equals the earth.
1 knot equals 1 nautical mile per hour equals 1.8532 kilometers per hour.
1 league equals 3 nautical miles.
1 acre equals 43,560 square feet equals 4046.9 square meters equals 208.71 feet square.
1 hectare equals 1000 centares or square meters.
1 short ton equals 2000 pounds equals 907.18 kilograms.
1 long ton equals 2240 pounds equals 1.12 short tons equals 1016.1 kilograms.
1 metric ton equals 1000 kilograms equals 2204.6 pounds.
1 horsepower equals 550 foot pounds per second equals 745.7 watts or 0.7457 kilowatts equals 0.7066 B.t.u. per second.
1 British thermal unit equals heat necessary to raise 1 pound of water 1° F., 0.0002932 kilowatt hours equals 778 foot pounds equals 0.252 calories.
1 calorie equals heat necessary to raise 1 kilogram of water 1° C.
1 board foot equals volume of a board 12 inches square and 1 inch thick.
1 unit of sawdust equals 200 cubic feet.
1 verst (Russian) equals 3500 feet equals 0.6629 mile equals 1.0668 kilometer.
1 sagene (Russian) equals 7 feet.
1 pood (Russian) equals 0.01806 short ton.
1 vedro (Russian) equals 3.249 U.S. gallons.
1 pu (Chinese) equals 1.6 meters.
1 sheng (Chinese) equals 1.0355 liters.
1 liang (Chinese) equals 37.3 grams.
1 arroba (Spanish-American) equals 25.4 pounds.
1 vara equals 2.75 feet (Peru).
1 fanega equals 1.65 acre (Peru).

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