Monthly Review

FEDERAL RESERVE BANK OF SAN FRANCISCO

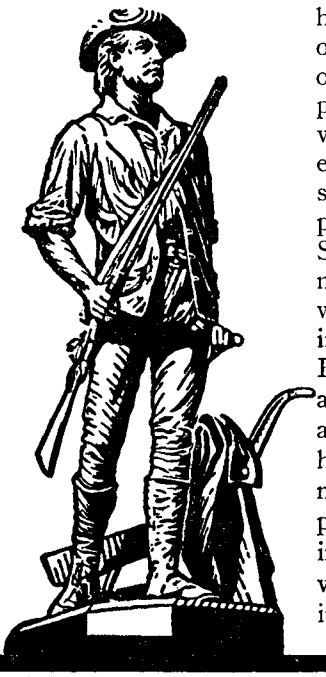
NOVEMBER 1, 1942

## The Precious versus the Critical Metals

THE demands of total war have forced a reappraisal of the values which have long been placed upon particular commodities and services. In no instance is this better demonstrated than in recent orders and regulations of the WPB affecting the production and use of gold and silver. The most drastic of these orders was announced on October 8 and will result in the virtual suspension of gold mining in the United States. This action was preceded by several others, the effect of which was to curb gold output and divert silver from customary channels to uses more directly related to the war effort.

For centuries the traditional precious metals, gold and silver, have been used chiefly for monetary purposes, with silver playing a less and less important role and shifting gradually into more general use in the arts. Under the stress of war, however, gold and silver, and particularly gold, have become less precious when evaluated in terms of scarcity and direct and indirect effectiveness in the production of war materials. It may almost be said that the real precious metals at the present juncture of history are those which are now described as "critical" and "strategic" such as copper, tin, tungsten, and zinc.

Men and equipment can no longer be spared to engage in mining operations which do not provide metals for military or essential civilian products. Suspension of gold mining in October, previous denial of priority ratings to gold and silver mines, and steps taken by the Treasury and the WPB to increase the silver available to war industries all reflect the changing values dictated by war. Gold can be sold to the Treasury for $35 an ounce while the ceiling price on copper is 12 cents per pound plus a 5 percent per pound premium for output in excess of base period quotas, but it is to copper and other base metal mining that gold miners are being urged to shift.



### *WPB and WMC Gold Mining Orders*

In order to conserve scarce materials, the WPB early in 1942 denied gold and silver mines the use of blanket priority ratings under Order P56 unless they also produced appreciable amounts of essential metals. (Order P56, assigning serial numbers to mines eligible to use blanket ratings, was originally issued in September 1941 to aid mines in obtaining equipment and materials necessary for repair and maintenance.) This action was followed by the October 8 order providing that in any mining enterprise producing gold, no new ore could be broken on or after October 15, and all operations except those necessary for maintenance are to cease on December 8. The order does not apply to gold producing mines holding serial numbers under Order P56, i.e., mines also producing substantial amounts of essential materials. Lode and placer mines which produced less than 1,200 tons of commercial ore or treated less than 1,000 cubic yards of material in 1941 are also exempt, but these small mines may not expand their operations beyond a monthly rate of 100 tons of ore or 100 cubic yards of material.

The October 8 order is the first instance of a limitation order being issued by the WPB primarily because of manpower rather than material shortages. Needed equipment, however, will also be released. Miners and maintenance workers are being urged to shift to copper, zinc, tungsten, and other critical nonferrous metal mines. The War Manpower Commission has issued a directive instructing employers not to "hire in, or hire for work in, Alaska or any state west of the Mississippi River, any person who on or after October 7, 1942, has left employment as a production or maintenance worker in connection with gold mining except upon referral of such worker to such employer by the United States Employment Service." Further, the United States Employment Service is instructed not to refer such workers to any other work than essential nonferrous metal mining, milling, and smelting and refining. Exceptions may be made when referrals are in the best interests of the war effort, and when denials would result in undue hardships for the individual. The Commission has also announced that transportation expense for workers, and in some instances for their families, will be provided where transfers to new locations are involved. The WPB estimates that the

order will release 3,000 to 4,000 men for other work, of which about 20 percent are miners and muckers.

Canada, now the largest gold producing country in the Americas, has not gone as far in limiting output as the United States, but restrictive measures have been taken. The opening of new gold mines and the expansion of existing mines is prohibited, and production is limited to the average rate during the first four months of 1942. Canada is attempting to shift gold miners into nickel mining, but the less drastic action to date in that country is explained largely by the much greater relative importance of gold mining to the Canadian economy. Not only is a considerably larger proportion of resources devoted to mining gold in Canada, but gold provides that country with one means of obtaining much needed dollar exchange with which to purchase essential materials in the United States.

### *Silver Mining Regulations*

Direct regulation of silver mining has been confined to the denial of blanket priority ratings for machinery and materials. This less severe treatment has been prescribed because the silver situation differs from that of gold in two important respects. Silver is used more widely in industry, and because of the extreme scarcity of other metals is being adopted increasingly as a substitute, principally for tin and copper. Silver is well adapted for use in bearings, solder, and brazing alloys, and as a conductor of electricity. Second, about one-half of the silver produced in the United States is a by-product of the mining of other metals. In 1939, copper, lead, gold, and zinc mines and mills produced 21, 15, 11, and 3 percent respectively of the total silver output. In addition, almost all silver mines produce appreciable quantities of other metals. A silver mine in which a substantial amount of gold is produced is subject, of course, to the shut-down order unless it has a P56 rating.

### *Diversion of Silver to Industrial Use*

Recent actions affecting silver have been taken not to restrict output but rather to increase available supplies and to assure the allocation of such supplies to essential industrial uses, largely in substitution for scarce base metals.

By March 1942, the base period for the General Maximum Price Regulation issued on April 28, 1942, all imported silver was flowing to the open market, where industrial users were offering a slight premium over the 35 cent price established by the Treasury for its purchases of foreign silver. On the other hand, domestic silver production was flowing entirely to the Treasury in response to the special terms which by law apply to the Treasury's acquisitions of newly-mined domestic silver, giving the producer a net price of about 71.11 cents per fine ounce.

By early summer, industrial demands for silver so far exceeded imported supplies that the leading dealers in the market attempted to ration their customers on the basis of the essential nature of their need. This informal allocation plan was soon circumvented, however, as large consumers commenced importing directly from foreign producers at prices up to double the frozen domestic price. In July 1942, this speculative movement was brought to a halt as the War Production Board issued an order restricting domestic consumption of foreign silver to essential uses, and the Office of Price Administration declared silver import transactions subject to the General Maximum Price Regulation. The maximum price of 35⅜ cents thus established for all domestic and import transactions in foreign silver was raised by the OPA to 45 cents on August 31, pursuant to an agreement between the United States and Mexican Governments; the market price immediately moved up correspondingly. This rise may induce somewhat greater production in western hemisphere countries, although its effect in Mexico was largely offset by the imposition of new taxes on silver production.

On September 3, the OPA fixed the ceiling price for transactions in newly-mined domestic silver at 71.11 cents per fine ounce plus transportation charges. This latter margin permits industrial consumers to outbid the Treasury for such silver, and that department has made further domestic silver supplies available by postponing deliveries on its forward purchases of such silver. All newly-mined domestic silver is now being absorbed by the open market, and in general the industrial users have to bear the increased costs which they thus incur. Up to date no order has been issued limiting consumption of domestic supplies by nonessential users.

### *Use of Treasury Silver in Essential War Production*

The largest stockpile of silver in the nation is now held by the Treasury. On August 30 of this year that agency's holdings approximated 2,900 million ounces, 45 times as great as this country's output and 11 times the world output in 1939. Existing legislation has made it necessary to segregate this stock into three parts so far as its availability for use in industry is concerned. Least important is some 5 million ounces classified as "silver ordinary" and comprising items such as silver purchased prior to the Silver Purchase Act of 1934, and recovered bullion which had been lost in melting and coining. This silver, the sale of which is not subject to limitations under the Silver Purchase Act of 1934, is being sold outright at 45 cents an ounce for essential war uses. A second category is the "monetized" silver behind the silver certificates, amounting to 1,550 million ounces. Silver certificates are issued in an amount corresponding to the net cost to the Treasury of silver acquisitions, and are fully covered by silver valued at its monetary value of $1.29 an ounce. However, since silver is acquired at a net cost to the Treasury of much less than $1.29 an ounce, a large portion of silver purchases is not required as cover for outstanding silver certificates. This so-called free silver is the third category, corresponding to the amount of the Treasury's seigniorage on silver purchases and now aggregating some 1,350 million ounces. This "free" silver

cannot be sold by the Treasury at less than $1.29 an ounce under the terms of the Silver Purchase Act of 1934, but in order to make this silver available where it is vitally needed in the war effort, a "lend-lease" arrangement has been devised whereby it may be obtained by plants engaged in war production for *non-consumptive use only*. Such silver must be returned after the war, and its primary use under such conditions is as a substitute for copper in electrical conductors, such as bus bars, a use which does not destroy or consume the metal.

### *Output of Gold and Silver in the Twelfth District*

Since a large share of this country's output of gold and silver is mined in the Twelfth District, developments affecting production and use of those metals are of particular importance to the area. In 1941, California led all other states in gold production, mining 1.4 million ounces of the 5.9 million ounces produced in the entire United States. Idaho ranked first in silver production, contributing 16.6 million ounces to the national total of 67.1 million ounces. In the seven western states included in the Twelfth District, mine production of gold and of silver was 47 percent and 66 percent of the national output. Although gold and silver mining are not major industries in terms of the number of persons employed, many smaller communities have long been associated with and are primarily dependent upon those activities.

The Grass Valley-Nevada City area in California has been the largest gold producing locality in the district. Other important areas in California include the Mother Lode counties of Eldorado, Amador and Calaveras, the foothill counties of Sacramento and Yuba, where dredging is the chief method of producing gold, and, farther south, Kern County. The remainder of the district yielded about the same amount of gold in 1941 as did California, the other principal producing states being Arizona, Utah, and Nevada. The Coeur d'Alene region in Northern Idaho is the principal silver producing area in the district, furnishing between 80 and 90 percent of Idaho's and one-third of the district's output. The bulk of the remainder is mined in Utah, Arizona, and Nevada, which ranked in that order in 1941.

### *Decline in Gold Production Prior to October 8*

Gold production increased considerably during the thirties, stimulated by the increased price of gold which became effective in 1933 and early in 1934. In 1941, however, output declined slightly and has been reduced further in the current year. Through July of this year, production in the continental United States was estimated to be 14 percent below that of the first seven months of 1941. Miners have been attracted to war industries by higher wages, and equipment and materials have become increasingly difficult to obtain. For a year or more, a steady decrease in gold mining employment has been reported. In 1939, there were about 13,000 men engaged in gold mining in the Twelfth District (not including those in other operations where gold is a by-product), but the WPB estimates that in October only about 4,000 to 5,000 men were employed throughout the country in mining gold. Based upon the assumption of no change in the proportionate distribution of workers among the states since 1939, the estimated number employed in Twelfth District gold mines last month was between 2,500 and 3,500, two-thirds of whom were in California. Of the 25 mines which were the largest producers in California in 1941, nine were shut down prior to October.

### *Effect of the October 8 Order Curbing the Mining of Gold*

Gold is mined largely as a primary operation. The metal is not generally produced in quantity as a by-product of other metal mining, except copper mining which accounted for 11 percent of the total gold output in 1939. Gold mining operations yield some copper, lead, and zinc, but the amount is relatively small.

While the WPB order of October 8 exempts properties producing substantial quantities of vital metals, few of the mines producing gold came under this exemption when the order was issued. In California, only six lode and no placer mines producing gold had received ratings under WPB Order P56 as producers of other needed materials. Most of these mines produce ore used as a flux in smelting base metals. Small lode mines will be able to continue limited operations. Nearly all placer gold mining operations will be shut down, however, as such mines operate on a scale larger than the allowable minimum.

Lode production will be less severely affected in Arizona, Nevada, and Utah than in California. A much larger proportion of the gold produced in those states is associated with production of critical materials, particularly copper. In Nevada, for example, the three largest gold producers hold serial numbers under WPB order P56 because of their tungsten and copper output; and in Utah and Arizona, half or more of the total gold produced in 1941 was a by-product of copper mining.

Since silver is not a product for which a P56 rating is granted, silver mining will also be affected by the gold limitation order in those instances in which silver is produced in conjunction only with gold. In California, where most of the silver output is a by-product of gold mining, silver production will be substantially curtailed. In the more important silver states, much of the silver output is a by-product of copper, lead, and zinc mining and will be unaffected. Silver mining in Nevada, however, is expected to be restricted noticeably, although to a lesser extent than in California. Silver produced neither with gold nor with appreciable amounts of critical base metals, a situation which obtains to a considerable extent in Idaho, is of course not subject to the gold limitation order, but neither are priority ratings granted for equipment for such operations.

### *The Present Position of the Monetary Metals*

The WPB order of October 8 curtailing gold mining operations and the program of diverting silver into essen-

tial war uses illuminate the obvious truth that wars are fought with men and weapons. Nevertheless, an efficient monetary system is as essential to the development and maintenance of maximum output in war as in peace. Today, however, no gold and but little silver is used as a circulating medium, and the gold reserves now held are adequate to permit any forseeable necessary expansion in currency and bank deposits. It appears, moreover, that little if any gold or silver will be needed during the present conflict to finance purchases abroad. These metals have long been considered the essence of wealth but, paradoxical as it may seem, this country cannot afford during the present crisis to have men and machines engaged in the production of gold and silver solely in order to add to already abundant monetary stocks of those metals.

## Review of Business Conditions—Twelfth District

THE number of workers gainfully employed in the Twelfth District continued to increase during September, and this bank's seasonally adjusted index of Pacific Coast factory employment advanced 2 percent over the preceding month. More complete data for August, available from the United States Department of Labor, indicate that the number of employees in manufacturing in the entire district totalled 1,396,300, representing a year-period increase of 412,400 or 42 percent.

For all non-agricultural activities combined, it is estimated that 4,020,000 persons were at work during August compared with 3,419,800 a year earlier, an increase of 18 percent. Two years ago, in August 1940, the figures stood at 2,812,000. The largest year-period gain was recorded in Utah where the number of employees increased 26 percent. The increase in Oregon was 25 percent, in Washington 22 percent, in California 16 percent, and in Arizona 14 percent; while in the remaining Twelfth District states of Idaho and Nevada slight losses were recorded. For the United States as a whole, the year-period gain amounted to 7 percent.

Throughout the nation, 227 communities and areas were recently classified by the War Manpower Commission as areas (1) in which labor shortages exist, (2) in which labor shortages are anticipated in the near future, or (3) in which there are labor surpluses. No Twelfth District locality is listed among the 97 labor-surplus areas; Los Angeles and San Francisco are designated as areas in which labor shortages are anticipated; and labor shortages are indicated in Phoenix, Arizona; San Diego, California; Las Vegas, Nevada; Portland, Oregon; Ogden and Salt Lake City, Utah; and Seattle-Tacoma-Bremerton, Spokane, and Vancouver, Washington.

### *Efforts to Alleviate Labor Shortages*

Several steps have been taken during the past month to alleviate the acute manpower shortage in mining. The War Department has authorized the furloughing from the Army of men competent to work in the copper mines. One aim of the order halting gold production is to release workers for mining operations more essential to the war program. On October 16, the National War Labor Board granted an increase of $1.00 a day to 10,000 copper, lead, and zinc workers in Idaho and Utah, with the provision that half of the increase be withheld from those workers whose continuity of work and output does not come up to certain standards. Wage increases ranging from 2½ to 12½ cents an hour were also granted employees of six western metal mills and smelters. Wage increases ordered by the Board, however, are not to become effective until approved by the Economic Stabilization Director. A five-man Nonferrous Metal Panel was established at the same time by the War Labor Board "to recommend to the Board specific plans and policies for the stabilization of labor relations throughout the industry, to the end that a maximum production of nonferrous metals for the duration of the war may be promoted."

Difficulties of securing and retaining adequate supplies of labor in most other district war activities continue serious. In October, labor unions and shipyard operators in the San Francisco Bay Area voluntarily executed an agreement designed to prevent the migration of workers from one shipyard to another without clearance papers. The National War Labor Board during October conducted negotiations in Los Angeles aimed at stabilizing labor conditions in the California aircraft industry. Employment of women in this activity increased further in August to 31,700, an increase of 34 percent over the July figure of 23,600.

### *Recent Construction Trends*

To an appreciable extent the increase in employment in Twelfth District industry during recent months has been to man new or expanded plant facilities. Construc-

**Production and Employment—**

| Index numbers, 1923-25 average=100 | With Seasonal Adjustment | | | | Without Seasonal Adjustment | | | |
|---|---|---|---|---|---|---|---|---|
| | 1942 | | | 1941 | 1942 | | | 1941 |
| Industrial Production[1] | Sept. | Aug. | July | Sept. | Sept. | Aug. | July | Sept. |
| Lumber[2] | p136 | 136 | 153 | 144 | p159 | 163 | 165 | 168 |
| Refined oils | — | — | — | — | 194 | 184 | 170 | 176 |
| Cement | 214 | 203 | 198 | 180 | 226 | 226 | 217 | 191 |
| Wheat flour | 99 | 117 | 148 | 106 | 118 | 117 | 131 | 126 |
| Petroleum | — | — | — | — | p110 | 110 | 104 | 98 |
| Electric power | p344 | 304 | 304 | 269 | p361 | 333 | 339 | 281 |
| Factory Employment and Payrolls[3] | | | | | | | | |
| Employment | | | | | | | | |
| Pacific Coast | p289 | 283 | 273 | 186 | p302 | 292 | 276 | 194 |
| California | 326 | 324 | 313 | 225 | 338 | 334 | 315 | 233 |
| Oregon | p260 | 245 | 231 | 136 | p281 | 255 | 240 | 147 |
| Washington | p230 | 220 | 215 | 133 | p242 | 227 | 217 | 140 |
| Payrolls | | | | | | | | |
| Pacific Coast | p486 | 456 | 439 | 237 | p505 | 480 | 435 | 245 |
| California | 535 | 505 | 489 | 284 | 544 | 525 | 483 | 289 |
| Oregon | p426 | 410 | 389 | 173 | p473 | 455 | 397 | 192 |
| Washington | p413 | 378 | 361 | 171 | p438 | 397 | 354 | 182 |

[1]Daily average.
[2]Converted to 1935-39 base. Back figures will be supplied on request.
[3]Excludes fish, fruit, and vegetable canning.
pPreliminary.