

1998



# MAGNESIUM

## by the Hansgirg Process

SIDNEY D. KIRKPATRICK *Editor, Chemical & Metallurgical Engineering*

**H**IGH UP on a hillside, overlooking the fertile Santa Clara Valley of California, about 45 miles south of San Francisco and 12 miles directly west of San José, are two of America's most interesting plants. One produces lime and cement in the world's largest kilns and because of unique engineering and construction features, its costs are said to be lower than those of any other existing cement plant in the United States. Directly alongside is an equally revolutionary venture of the Chemical Engineering Division of the Todd-California Shipbuilding Corporation—this country's first commercial plant for the production of metallic magnesium by the electrothermic reduction of the oxide.

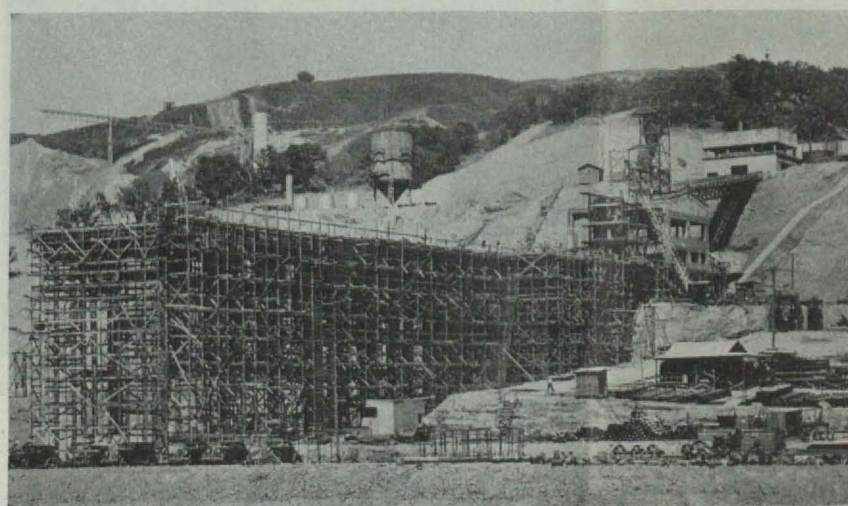
Behind both of these projects is the vision, energy and resourcefulness of the man who is widely known as "America's No. 1 Builder." Henry J. Kaiser, president of the Permanente Corporation, was one of the founders of Six Companies which built Boulder Dam and he has since been identified with many other huge construction and shipbuilding projects of the West. Associated with him as General Manager of both the Permanente cement and magnesium projects is Harry P. Davis, who also has something more than a local reputation for getting results in plant construction and operations as well.

Our chief interest in visiting Permanente on July 18 was to renew

\* Word comes from California of an unfortunate accident and some slight damage to the Permanente plant during initial operations on August 25. Three men were killed and two others burned while working on experimental equipment for loading magnesium dust into the retort for final distillation. Chemical engineers familiar with the process as used abroad and with Henry Kaiser's ability to get results are still confident that the Hansgirg process will be made to work as described in this article. S. D. K.

### Chem. & Met. INTERPRETATION

This country's first commercial plant for the production of metallic magnesium by the electrothermic reduction of the oxide is just beginning to operate in California. Much depends on the success of this operation.\* If results comparable to those obtained by Dr. Hansgirg in foreign plants can be duplicated here, the Kaiser interests will sponsor a tremendous expansion program, both at Permanente and in the Pacific Northwest. Hence unusual interest attaches to this first-hand report of our editor who visited the plant in mid-July. Most of the photographs were made especially for *Chem. & Met.* at the time of and following our visit.—Editors.



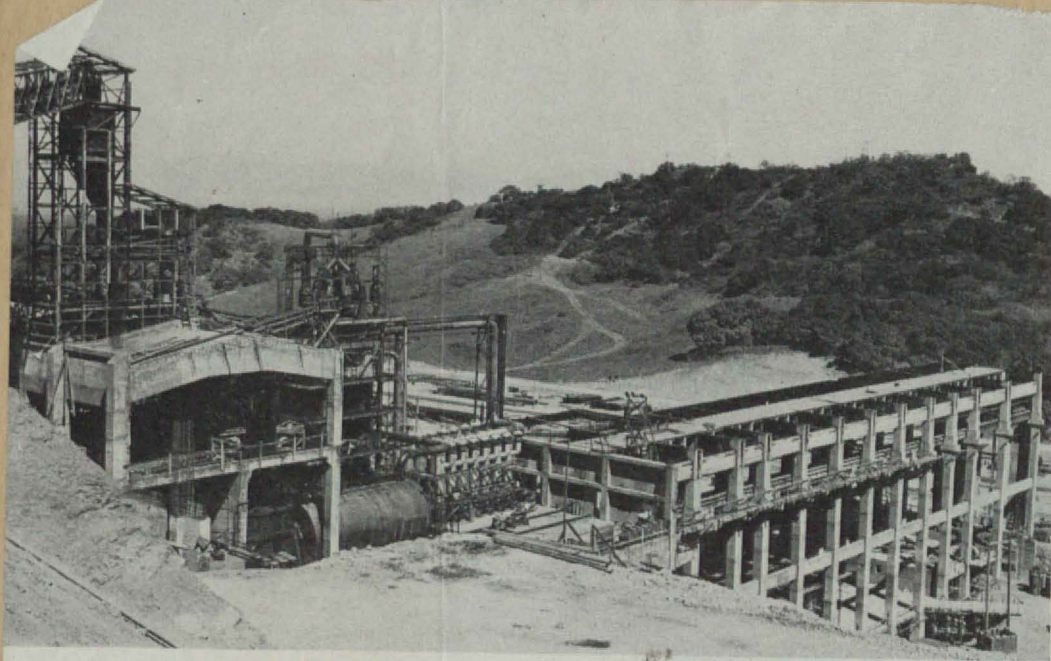
Kaiser's Permanente magnesium plant as of July 15, 1941

acquaintances with Dr. Fritz J. Hansgirg, the eminent chemist, who developed the electrothermic reduction process that bears his name and which is to be used at Permanente. He had begun his early work at Radenthein, Austria, in 1929 and after successfully operating a pilot plant

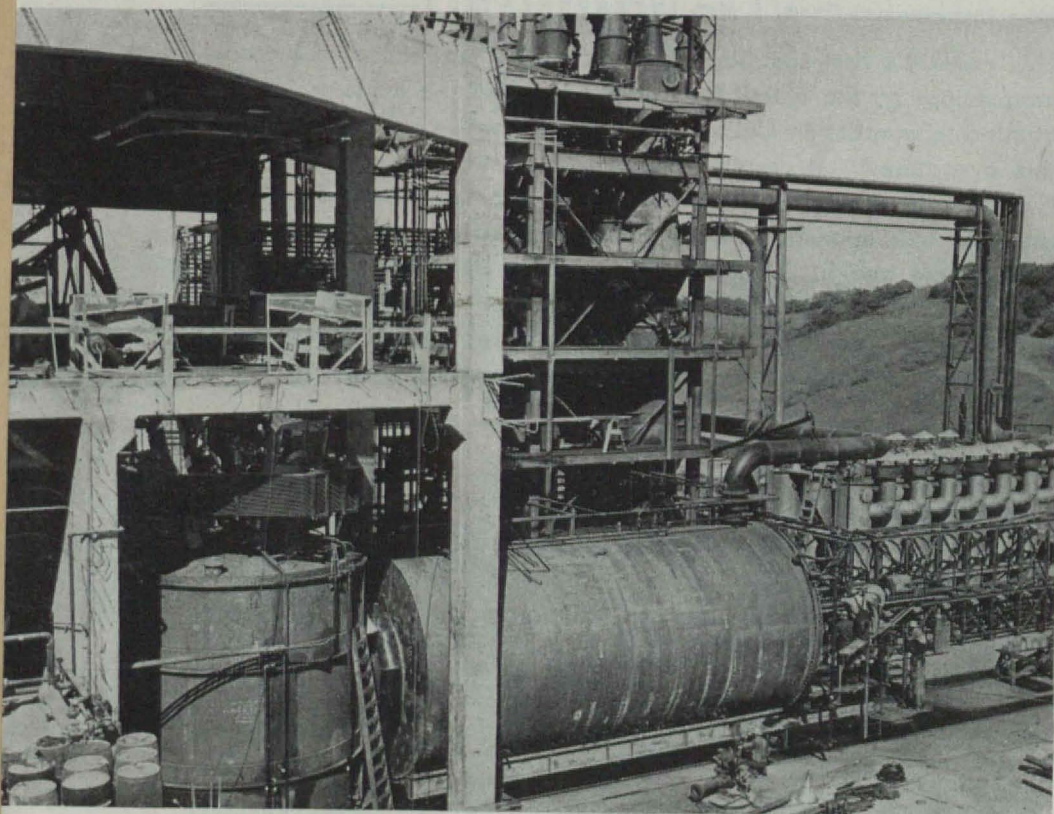
there, commercial plants were built at Konan in Korea and at Swansea in Wales.

Although Dr. Hansgirg had personally directed the design and construction of the Korean plant, he had not been permitted to bring his drawings and technical data to this coun-

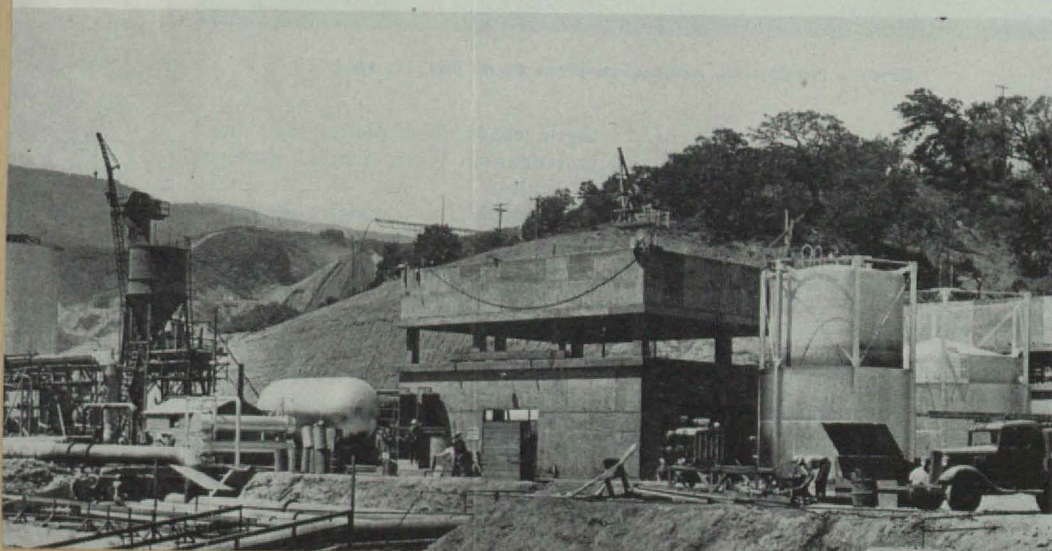




This side view shows multi-level construction looking into the main furnace building and over the roof of the retort house



Reduction furnace with chilling cone, condenser cooler, electric agglomerators and bag filters



try so that, in a sense, the Permanente project had to start from scratch. The amazing progress which has been made in less than six months is evidence that he carried with him sufficient of the "know-how" to guide Kaiser's engineers to a remarkable achievement in plant construction. Some time this month (August), the first unit is scheduled to go into operation and if the initial plant works as successfully as expected by its designer and builders, it is to be the forerunner of a tremendous expansion program that will ultimately be producing at least 24,000,000 lb. (and perhaps even 40,000,000 lb. or 48,000,000 lb.) of magnesium per year.

The Permanente project started in February 1941, when the Reconstruction Finance Corporation approved a loan of \$9,250,000 for the construction of magnesium production and fabricating facilities, which will have a total cost of about \$11,500,000. With the advance of \$3,500,000 in March 1941, construction started on the first 8,000,000-lb. unit, and has proceeded on a 24-hour basis, 7 days a week. With the completion of the first unit, work is to start on the second to be completed by November, and the third by February 1942. Two or three other units are planned which would round out the annual production to 40,000,000 or 48,000,000 lb.

The new plant was built on the hill or mountainside to secure good foundation for the buildings and to take full advantage of gravity flow of materials, which is also an important part of the strategy of the neighboring cement mill. This location likewise permitted an economical use for the natural gas which, after it has served as the cooling medium in the magnesium process, is used as fuel in the cement mill. The plant site was prepared by excavating and levelling off a series of ledges or shelves on which the separate units of the plant were built.

On the very crest of the hill is the water and storage reservoir and the huge redwood cooling tower, the oil storage reservoir, and the large gas-holder for the natural gas. On the next level are the storage bins for the raw materials, magnesite, carbon,

Raw material preparation plant and production and storage facilities for nitrogen and hydrogen

and tar; and the grinding, mixing, and briquetting plant for these raw materials; also the hydrogen and nitrogen plants. The main reduction furnace house is on the next level as are also the condensers, electric agglomerators, cooling chambers, and dust collecting equipment. Finally, on the fourth, or lowest, level are the retorts for the distillation, and the furnace and foundry for melting and fabricating the finished product.

General features of plant construction can perhaps best be discussed in connection with a brief outline of the original Hansgirg process and some of the modifications that are being made in the Permanente installation. It depends, basically, on the reduction of magnesium oxide to magnesium, using finely divided carbon as the reducing agent. The reduction is effected in an electric resistance furnace at a temperature of approximately 2,000-2,100 deg. C. Under these conditions, the reaction proceeds according to the equation:  $MgO + C = Mg + CO$  but unless the products of the reaction are suddenly cooled, the equation quickly reverses itself and little or no metallic magnesium is produced.

#### COOLING WITH NATURAL GAS

In the original Hansgirg process this rapid chilling was obtained by the use of large quantities of hydrogen. At Permanente, natural gas is available for the cooling medium and since it can be readily utilized as fuel by the adjoining cement mill, there is no necessity for the elaborate equipment used in the foreign plants to purify the hydrogen for reuse by removing with ammoniacal copper solution the carbon monoxide that it picks up from the furnace gases. In the California plant, the magnesite (obtained either from calcining magnesite or brucite from Nevada or directly from the nearby plant of Westvaco Chlorine Products Corp.) is mixed with petroleum coke and formed into briquettes, using pitch as the binder. The briquettes are then fed continuously into the reduction furnace—a totally inclosed, carbon-brick lined, 3-phase electric furnace. An atmosphere of hydrogen is maintained in the furnace to prevent the entrance of magnesium powder to the isolated electrode glands. The first furnace to be used at Permanente is of 8,000 kva. capacity but larger ones of 12,000 kva. are being contemplated.

The reaction products from the

furnace are drawn off at one side through a specially designed stainless steel nozzle and condenser. They are immediately chilled by the blast of natural gas, ingeniously injected through the condenser at the rate of approximately 25 volumes of natural gas to each volume of furnace gases. After this initial quenching the magnesium, along with certain impurities, is carried as fine dust into the cooling chamber—a large cylindrical drum equipped with revolving scrapers to prevent caking on the side walls and with a reaming mechanism to prevent any plugging of the furnace nozzle. As the velocity is reduced, some of the magnesium powder drops to the bottom of the condenser and is caught by a screw conveyor that takes it to a dust storage bin.

In the meantime the temperature of the gas has been lowered to about 150 to 200 deg. C. and most of the

dust is carried by the cooling gases to an electric "agglomerator." This is an electrostatic precipitator that serves to increase the particle size of the magnesium dust. The balance of the dust is removed in woolen bag filters and that portion of the gas which is not recirculated (approximately 25 percent) is withdrawn for fuel use in the cement mill.

#### REDISTILLING THE MG DUST

The dust from this primary reduction consists of 60 to 65 percent of metallic magnesium, contaminated with some  $MgO$  and carbon carried over from the furnace. Before it can be purified by redistillation it is compressed without a binder into the form of tablets in a specially designed tableting machine. These tablets are then charged into totalizing inclosed, electrically heated retorts that operate at temperatures

Retort furnaces as they appeared on July 12, 1941. Eighteen more are to be installed in September to bring this unit's production up to about 12 tons a day





of about 750 deg. C. and under extremely high vacuum. These retorts, which are operated on a batch basis, will each hold sufficient tablets to yield slightly more than a ton of metallic magnesium every 72 hours. At the time of the writer's visit in July, 18 retorts had been put into place and 18 more were to be installed in September, which would indicate a contemplated output at that time of at least 12 tons per day for the first unit.

The vaporized metal rises to the upper part of the retort and is deposited there on the water- and oil-cooled steel walls of a removable shell. After the distillation is completed, the top of the retort furnace is removed and an overhead crane lifts out the upper shell on which the metallic magnesium has condensed into a crystal ring shaped like a huge doughnut. This is dumped on the ground floor of the adjoining cooling room and transported from there to the conventional foundry furnaces for remelting and casting into the form of pigs or ingots. The metal in this form is understood to

have a purity of about 99.97 percent.

An important part of the Hansgiring process is the provision of accessory equipment and facilities. For example, a cooling oil system is required to remove excess heat from the reduction furnace's electrode glands and from other equipment such as the electrostatic agglomerator. Nitrogen, produced by burning the oxygen out of air with natural gas, is used for purging apparatus during shutdown periods. The hydrogen used in the reduction furnace and elsewhere in the process is currently produced at Permanente by the electrolysis of water but may ultimately be made by cracking natural gas. A continuous circulation of cooling water is required in the jacket around the first cooling chamber and later around the top sections of the final retorts. A flushing oil system is provided to spray oil on pyrophoric dust whenever certain equipment is opened for inspection or repair.

According to information published by Dr. W. S. Landis in 1937, after visiting the Austro-American

Magnesite Company in Radenthein, Austria, (see *Trans. Electrochem. Soc.* 72, 293-316, 1937), the estimated power consumption for the Hansgiring process per pound of magnesium is approximately as follows:

|                        |          |
|------------------------|----------|
| Reduction furnace..... | 6.6 kwh. |
| Distillation .....     | 1.1 kwh. |
| Remelting .....        | 0.2 kwh. |
| Auxiliaries .....      | 0.2 kwh. |

Total .....

8.1 kwh. However, he points out that an additional 1.8 kwh. per lb. would be required for maintenance of the hydrogen supply, but in case that natural gas is used, as at Permanente, this could probably be reduced to at least 1.4 kwh. making the total power requirement 9.5 kwh. per lb. or about 19,000 kwh. per short ton of magnesium. This figure, as Dr. Landis points out, is substantially lower than the power requirement in aluminum production.

#### A CITY IN ITSELF

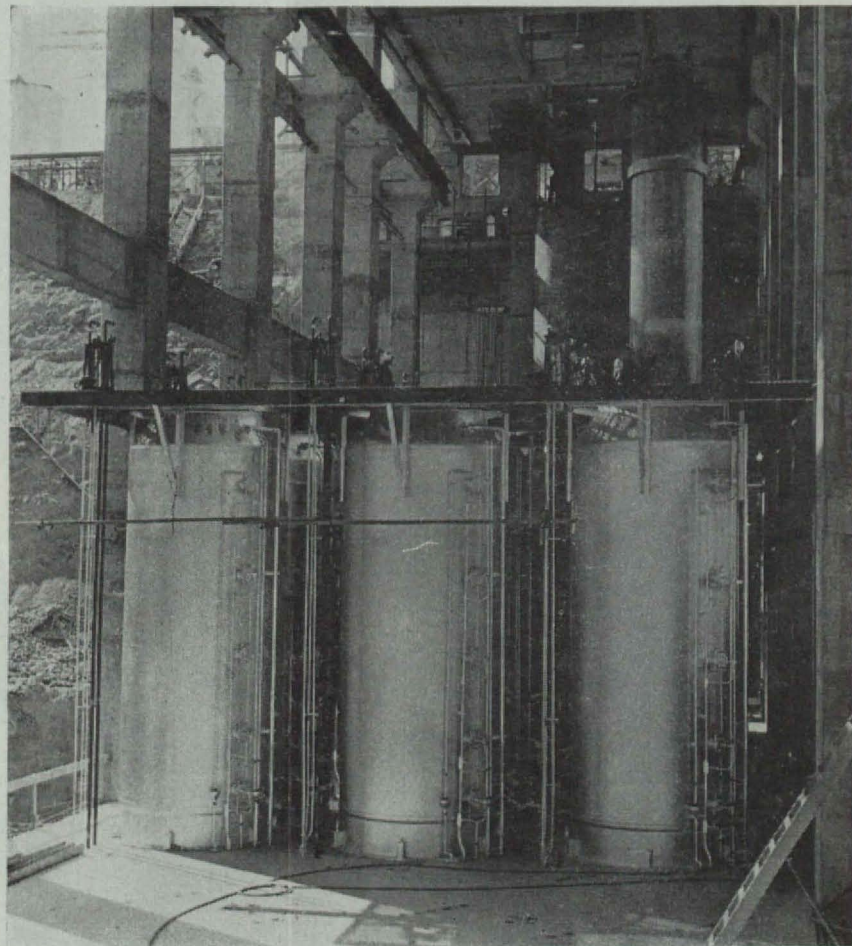
When the Permanente plant is completed and running to full capacity, the Pacific Gas & Electric Co. has estimated that the electric demand will approximate 100,000 hp.—or more than a third of the total required by the entire city and county of San Francisco.

Adjoining the plant is an attractive new office building and alongside of it there will be shortly completed a windowless, completely air-conditioned chemical laboratory.

The tracks of the Southern Pacific Railroad, on the line between Palo Alto and Santa Cruz, come within 2½ miles of the plant site. A branch had been built by the cement company and connects both plants with the main Southern Pacific tracks at Simla Station. Permanente Creek, which runs through the property and from which the plants take their name, is available for cooling water although the principal supply is purchased from one of the utilities in the valley and is pumped to the reservoir at the crest of the hill. A pond formed by damming a canyon near the cement plant gives additional water storage and provides most of the water used in the crushing and grinding operations.

For the privilege of visiting this interesting plant and for the photographs and the data that accompany this brief article, the writer is indebted to Harry P. Davis, general manager of the Permanente plant and to Dr. F. J. Hansgiring of the Chemical Engineering Division of Todd-California Shipbuilding Corp.

Side view of retorts and furnaces as they appeared on August 23, 1941





## SIDELIGHTS

By PETER EDSON

**B**IG, bald, bespectacled, bottle-neck-breaking Henry J. Kaiser, who builds things people say can't be built, breezed into Washington like the western tornado he is, wearing smiles and a double-breasted blue suit, radiating so much confidence he didn't even bother to take off his vest though the temperature and the humidity were terrible. On his first day he appeared before two Senate investigating committees, made a speech at a luncheon, held a press conference for gal reporters, and though he didn't make one specific statement as to how he was going to build 5,000 cargo planes after five minutes with every group he had everyone convinced he could build a ladder to the moon. He had everyone agreeing with everything he said, eating out of his hand, nominating him unofficially to be war production boss. To sultry, befuddled, politician and bureaucrat-ridden Washington, he brought a fresh breath of assurance America could win this war.

What is the secret of Pop Kaiser's success? He denies he is a genius. He disclaims being a miracle man. He isn't much to look at. He says he can't make a speech. Yet he has more personality than a movie star and he could probably talk a lightning rod salesman into buying smoke oil. He has even talked the boiler-makers into believing it will be all right if he builds planes, though that means the boiler-makers lose their jobs. He is enthusiastically personified. He says constantly, "I am thrilled!" He is terrific.

Build cargo planes? "There's nothing to that!" he says easily, and somehow you believe him.

### AN OPEN SECRET

If he has any secret, it is that he can make people do things for him. Take Bonneville dam. Army engineers weren't sure it could be built. Kaiser tackled the project. His associates sat up with him till 4 a. m. to talk him out of taking the job. But he put a couple of kids in charge—one was his son—and they built the dam. "The kids of this country will never be licked," insists Kaiser, and somehow you get to believing the war will not be lost, after all.

Kaiser's other secret seems to be in reducing every problem to its lowest common denominator.

He asks what shipyards have that apply to airplane building, and he answers that they have area. They have terminal facilities to handle 150 carloads of materials a day and they don't have to come in on rubber. They have water and housing and labor supply, and an orderly flow of materials and parts.

Forty per cent of the cost of a ship, he says, is in auditing, servicing, checking. Another 25 per cent is in outside purchases of parts and materials. That leaves only 35 per cent of the job to do in his yards and he ends up with an assembly line operation.

Simple, isn't it. He expects bottlenecks, but "when you're short of something and can't buy it," he says, "you build it. That's the way to break a bottleneck."

Shortage of aluminum? Reynolds Metals told him they'd furnish him with all he wanted. He was thrilled by that.

Shortage of engines? Depend on the automobile industry.

Shortage of labor? Train men—train women for that.

Shortage of machines? Thirty per cent of the machines in the shipyards could be used in aircraft manufacture. For the rest, well, the machinery for his first shipyard was improvised, second-hand, used, picked up everywhere.

### MAKING MIRACLES

"Half of America," he says, "is doing things it never did before, and the other half is waiting to be told to do things it never did before." That thrills him.

When Kaiser started out to build ships, he had never seen a launching. Today he is turning out Liberty ships in 46 days and says he will get it down to 29 days.

When he started out to make cement, they said, "Only God and a few manufacturers can make cement." Yet he built the world's largest cement plant, making cement so cheaply that it can compete with Japanese cement in Hawaii.

He is building a steel plant. He started April 1 and will be making pig iron in December.

He is making magnesium at the Permanente plant in California, 99.997 per cent pure, he says, though the plant has been reported a failure. That thrills him.

He has been awarded a Navy E for making torpedo tubes.

In another month he will be building steam turbines.

He is building reduction gears.

## DAILY NEWS DIGEST

# Kaiser Busiest of Builders

(Editor's note: The bright light of national attention has been focused on Henry J. Kaiser, west coast shipbuilder. In this second of three of their daily columns, devoted to him, Business Writers James Marlow and George Zielke explain that the construction giant is part of a great group of contractors who have performed some of the great engineering jobs of our time. Tomorrow they will illustrate the methods used by the Kaiser group.)

By JAMES MARLOW and GEORGE ZIELKE  
NEW YORK—"I'm just a builder," Henry J. Kaiser, bald and 60, said between telephone calls that tumbled in upon him, "but I'm so busy I don't get much time for it. I'd just like to get off in a corner and play with my blocks."

The west coast's record-breaking shipbuilder was in New York on special business, was shutting this week between here and Washington, was talking of the future and the past, repeated frequently this line from Tennyson's Locksley Hall:

"For I dilt into the future, far as human eye could see."

When he said it, he was thinking of the part he had played in building:

The great western dams, ships, a steel mill and magnesium plant, the world's largest cement plant he had set up against the advice of others who told him he'd "lose his shirt," highways, bridges, war jobs that cannot be mentioned because of military secrecy.

### DREAMS CARGO PLANES

He was thinking, too, of his dream of 5,000 giant cargo planes. The war production board has authorized him and Airman Howard Hughes to build three great planes as test ships.

It had been thought likely two years would be needed to complete those planes, after which the W.P.B. would consider ordering mass production, but when asked repeatedly how long it would take to finish the planes, Kaiser smiled enigmatically and said: "Ask me in six months."

"That magnesium plant is producing," he said. "Fairly soon it will reach its maximum." That maximum would represent several times more magnesium—that shiny white metal which is one-third lighter than aluminum and just as strong—than this country was producing in 1940.

He had fought to build that plant, got the Reconstruction Finance Corp. to make a \$9,250,000 loan to build it in the winter of 1941, and the production figure he mentioned represented in its way a more solid, long-range achievement than his most spectacular recent accomplishment:

### BREAK WORLD RECORD

Construction and delivery of the Joseph N. Teal, 10,500-ton victory cargo ship, in 14 days, a world's record.

That was a special performance, however, that not even Kaiser says will be repeated on every ship.

When he said "far as human eye could see," he was thinking also of his California steel mill which he said would be pouring pig iron on Dec. 20 and by March would be rolling steel.

How can he do so much so fast? Kaiser rubs his head over that one, thinks awhile, says frankly he cannot answer it in a sentence, says he would need to go into details to explain it, then acknowledges:

"I have a beautiful staff. You see, in business you build up an organization at the start and soon you find the men you can depend upon absolutely. They are your key men."

"You pile work on them. They say 'I can't do any more.' You say 'Sure you can.' So you

pile it on and then they're doing more and more. Pretty soon they bring close to them men they can rely upon absolutely. Soon you have an organization that really can get things done."

"I surround myself with people who have faith they can do what normally is considered impossible."

But—and this is an important but—Kaiser is part of an amazingly complex group of west coast builders. He received the public attention and he has some plants of his own. But they are working with him, as they have for years.

### FORMED ORGANIZATION

The association of these men began in 1931 when Kaiser became part of "Six Companies, Inc.," six contractors formed a corporation to build the great Boulder dam. These west coast builders under the name of the Six Companies or otherwise, went on to build with Kaiser the Bonneville dam and the Grand Coulee dam.

"Those Six Companies (the name no longer exists) are closer to 12 companies now," Kaiser says, naming as his own the shipyards at Vancouver, Washington, and Swan Island, Oregon, two yards at Richmond, California, and the steel mill in the same state. There are others with him in operation of the Oregon Shipbuilding Corp. at Portland, the magnesium plant, shipyards at Los Angeles.

"The 'Six Companies,' group," says the Wall Street Journal, "is far larger than any one individual because they represent a combination of the finest technical ability, the know-how, the push and drive that gets things done, and what is most important, perhaps the most impressive reservoir of construction capital in the United States and almost unlimited bonding capacity. They jointly own more than \$10,000,000 in equipment. In combination they can throw some 1,000 of the most competent technicians and engineers in the world into a project. They have about 500 trained purchasing executives, and purchasing agents are key men in starting a construction job."

"The exploits of Mr. Kaiser in speedy ship construction have been given widespread publicity. But it is the group as a whole to whom the credit belongs because it has contributed the men, management, money, equipment and materials to make these feats possible. Individually and as a group they are setting these shipbuilding and other construction records."

### LIST NOT COMPLETE

Here are various jobs undertaken by units in various combinations but not all units in all combinations. The list is incomplete and includes only the larger projects:

Boulder dam, San Francisco-Oakland Bay bridge, Oakland Broadway tunnel, Bonneville dam, Coos bay bridge, Parker dam, Grays Harbor jetty, Montebello water tunnel, Ruby dam, Mare Island drydock, Eagle Rock pipe line, Columbia river jetty, Grand Coulee dam, Delaware aqueduct, Bremerton drydock, Tacoma narrows bridge, Shasta dam, Chicago subways, Pearl Harbor drydock, Corpus Christi naval air station, mid-Pacific naval air bases, New Jersey powder plant, Fort Lewis cantonment, Camp Roberts, Mare Island shore facilities, Permanente cement plant, Permanente magnesium plant (both of the latter in California).

But the spotlight moves along with Kaiser as he races back and forth across the nation, spending an estimated quarter of a million dollars yearly on telephone calls, plugging and plowing to get the ideas that are his own or his associates' into actual operation.

His conception of a day off is to lie on a couch with a telephone beside him so he can restfully put in local or transcontinental calls.

## FINANCIAL POST

Toronto, Canada

AUG 29 1942

### Let's Have Right Name

Commenting on Henry J. Kaiser's search for raw materials with which to build his 5,000 cargo planes, the current issue of Time magazine notes that the Kaiser sponsorship of the Hansgird process for making magnesium "proved a flop," but that miracle-worker Kaiser is now starting production on a new magnesium plant "using the better, safer ferrosilicon process."

What it should have added, to keep the record both straight and complete, is that this "better, safer ferrosilicon process" was developed and perfected in Canada by Dr. Lloyd M. Pidgeon, youthful, brilliant Canadian chemist.

The Pidgeon process is being used by five big American organizations now rushing to completion plants which will produce magnesium at the rate of 50,000 tons a year. One of these plants is the Ford company magnesium development at River Rouge with a rated capacity of 60 tons a day.

The first Canadian plant using the Pidgeon process turned out its first pound of magnesium last week and will be in full production within the next two months. It has a rated capacity of 10 tons a day and will probably better this by as much as 50%. The plant is being operated by Dominion Magnesium Co. and is located at Haley's Corners a few miles from Renfrew, Ontario.

Let this be known as the Pidgeon process; at very least, the Canadian process.

L V Review Journal  
Nov 10 1942

## Ship Construction Record To Be Set

RICHMOND, Cal., Nov. 10 (UP)—The 10,000-ton liberty cargo vessel Robert E. Peary, built by new and speedier methods of pre-fabrication, will be launched at Richmond Kaiser shipyard No. 2 less than a week after its keel was laid to establish a new world's record for ship assembly, it was disclosed today.

The keel was laid at 12:01 a. m. Sunday—six hours after American troops landed on the shores of north Africa.

Sometime between Thursday and Sunday, it was anticipated, the Peary will be christened and sent down the way. Officials of the Henry Kaiser yard estimated the ship could be completely outfitted within two days after the launching.

## DAILY METAL TRADE

"The Newspaper of the Metal Industries."

Penton Bldg., 1213 W. 3rd St.

Cleveland, Ohio

OCT 13 1942

### Olivine As a Source of Magnesium

Olivine, high content magnesia mineral found in large quantities in North Carolina, is reported being studied by Henry J. Kaiser, West Coast shipbuilder, as a possible source for magnesium. Recently, after Mr. Kaiser first proposed construction of transport airplanes on a large scale, his attention was called to the North Carolina deposits of olivine. North Carolina state officials for months have been seeking to promote the development of the deposits and it hoped Mr. Kaiser's interest may result in extensive work. It is said there are hundreds of millions of tons of readily accessible olivine in the state, some 230 million tons with a magnesia content of plus 45 per cent being reported convenient to transportation.

HERALD  
Manchester, Conn.  
OCT 29 1942

# Right Men Help Kaiser In Getting Jobs Done

## West Coast Shipbuilder Loads on Work; Gets Limelight But Is Part Of Huge Group.

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### Represent Technical Ability

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"The exploits of Mr. Kaiser in speedy ship construction have been given widespread publicity. But it is the group as a whole to whom the credit belongs because it has contributed the men, management, money, equipment and materials to make these feats possible. Individually and as a group they are setting these shipbuilding and other construction records."

Here are various jobs undertaken by units in various combinations but not all units in all combinations. The list is incomplete and includes only the larger projects:

Boulder Dam, San Francisco-Oakland Bay bridge, Oakland Broadway tunnel, Bonneville dam, Coos Bay bridge, Parker dam, Grays Harbor jetty, Montebello water tunnel, Ruby dam, Mare Island drydock, Eagle Rock pipe line, Columbia river jetty, Grand Coulee dam, Delaware aqueduct, Bremerton drydock, Tacoma narrows bridge, Shasta dam, Chicago subways, Pearl Harbor drydock, Corpus Christi Naval Air Station, Mid-Pacific Naval Air Bases, New Jersey Powder plant, Fort Lewis cantonment, Camp Roberts, Mare Island shore facilities, Permanente cement plant, Permanente magnesium plant (both of the latter in California).

But the spotlight moves along with Kaiser as he races back and forth across the nation, spending an estimated quarter of a million dollars yearly on telephone calls, plugging and plowing to get the ideas that are his own or his associates' into actual operation.

His conception of a day off is to lie on a couch with a telephone beside him so he can restfully put in local or transcontinental calls.



## DAILY NEWS DIGEST

# Kaiser Plans for Post-War

Editor's Note: Here are new thoughts by, and facts about, that man Kaiser. In an exclusive interview, he explains to Business Writers James Marlow and George Zielke how to get full production after the war. Tomorrow, these writers devote their column to the real story of the much discussed Kaiser achievements; next day, the real explanation of how he makes ships.)

By JAMES MARLOW and GEORGE ZIELKE  
(Associated Press Writers)

NEW YORK, Oct. 21.—Henry J. Kaiser, west coast shipbuilder whose yards have been held up as an inspiration to other builders, today called upon American industry to play for the post-war world on a level never reached before: full capacity.

Impatient at the thought of industrialists afraid that expanded capacity and new plants now might leave them with idle mills and factories when peace comes, Kaiser said in an interview:

"It has to be pounded into Americans that now is the time to make industry great. We have to make up our minds we are going into a new era. I don't have any patience with those who think we are going back after peace to the kind of world we lived in before the war."

As part of the coming change Kaiser pointed to the developments in plywood, magnesium and aluminum which he said would cause the steel makers to produce more high alloys resulting in thinner and stronger steel.

### MANY CHANGES LOOM

"There will be a revolution in transportation equipment, making what we have now obsolete," he said, and explained that he meant this change would occur in all fields of transportation because of the new age in metals: airplanes, trains, ships, busses.

Thinking in the same terms as Vice-President Wallace when the latter said in his address on the "people's revolution" that this must be the century of the "common man" for whom peace should mean a better living standard everywhere, Kaiser said:

"There are millions of impoverished people in China, in India, all over the world. If we raised the living standards of every family everywhere by just so much (with his thumb and forefinger he measured a space of about an inch) we would be busy at top speed for years to come."

"If we just tried to make iceboxes or refrigerators for every family in the world, what a tremendous job that would be."

Again, without mentioning the vice-president, the thoughts of Kaiser and Wallace appeared to overlap, for the latter had said "with international monopoly pools under control, it will be possible for inventions to serve all the people instead of only the few" and Kaiser said:

"Patents? Secret processes? For what?"

Then he added:

"In industry I'd like to see an interchange of ideas and methods so production could rise and a better job be done by all of us."

"If we have been able to build ships fast in our yards and anyone else wants to come and look and find out why, we'll tell him and be glad and we'll tell him anything we know because if we can help anyone else do a better job that's so much the better for all of us."

"We have the whole world to produce for and there is no limit to it if people only realized it."

Kaiser said American industry has three "expedients": initiative, energy and materials.

"We have plenty of all three," he said. "Now American industry for the first time has the chance to produce to capacity. When American industry levels out at its best production, only then can we call the American effort a success."

He added:

"Before we can make plans for the future come true, I know we have to win the war. That's a deal we're working like hell at. But now is the time, not after the war, when industry must be planning for peace."

"Industries must start thinking now about how they are going to get their peacetime products to places like India and China. Industrialists have got to think about not what is going to happen to them as individuals but to their whole industry. Industry by industry should be making its plans."

Asked if he thought shipbuilding would slump after the war because of the great tonnage being turned out now, Kaiser answered:

"There won't be any slump if planning is done now on how to use those ships after the war. I mean, if we plan now for great production of all kinds of materials after the war, we can use those ships and have to build more. But there will be a surplus of ships if we don't plan now for the things to move in them."

Kaiser emphatically stated that leadership in industrial planning for after the war must come from within industry itself.

"It cannot come from the government," he said, "although the government must be recognized in such planning. The government must cooperate in the planning, check and approve it."

### WOULD SELL CHEAPLY

Repeatedly Kaiser said the point to be remembered in industrial planning for peace is that products must be made cheaply and transported cheaply.

"In all my business," he said, "I have tried to get costs down to rock bottom. Why worry about expanding facilities to produce? If you expand and can produce cheaply, you can sell your product cheaply. The market is everywhere."

He cited this as an example:

Some years ago he decided to go into cement-making on a vast scale to fill enormous government requirements in the building of Shasta dam.

When other men in the business warned him that, after completing the government contracts, he would be left high and dry with production facilities that could find no market, he told them:

"When I've finished the government job, I'll ship offshore. And I did, to such places as Hawaii and South America. There was a market there that had been waiting. I was able to ship at a cost of 3 or 4 cents a barrel whereas formerly it had cost 50 cents a barrel to ship. I was able to do it because I had made my costs low."

Reasserting what he had said before—that improved construction methods will not reduce man-hours to the point where labor will be thrown out of work—he explained:

"Japan always had cheap labor and the majority of cement used in Hawaii before the war was sold by Japan. Now we are supplying 5 million barrels of cement a year at less cost than the Japanese could today even though they provided free labor. They'll never be able to get that market again."

# Ship record cut in half by Kaiser

RICHMOND, Calif., Nov. 12.—(UP)—Henry J. Kaiser today cut the previous world record for shipbuilding speed in half.

The Robert E. Peary, 10,500-ton Liberty cargo ship, was launched at Richmond Kaiser Shipyard No. 2 four days and 15½ hours after the keel was laid. The previous record, 10 days, from keel to launching, was set for the Liberty freighter Joseph N. Teal at the Kaiser yards in Portland, Ore.

Mrs. James F. Byrnes, wife of the former United States supreme court justice who is now director of the economic stabilization board, christened the Peary, named for Admiral Peary, first man to reach the North pole.

The Peary, dark gray and sleek, was 91 per cent complete as she slid down the ways. Officials believed she could be completely outfitted and ready to dock within two days, which would be another world record for outfitting.

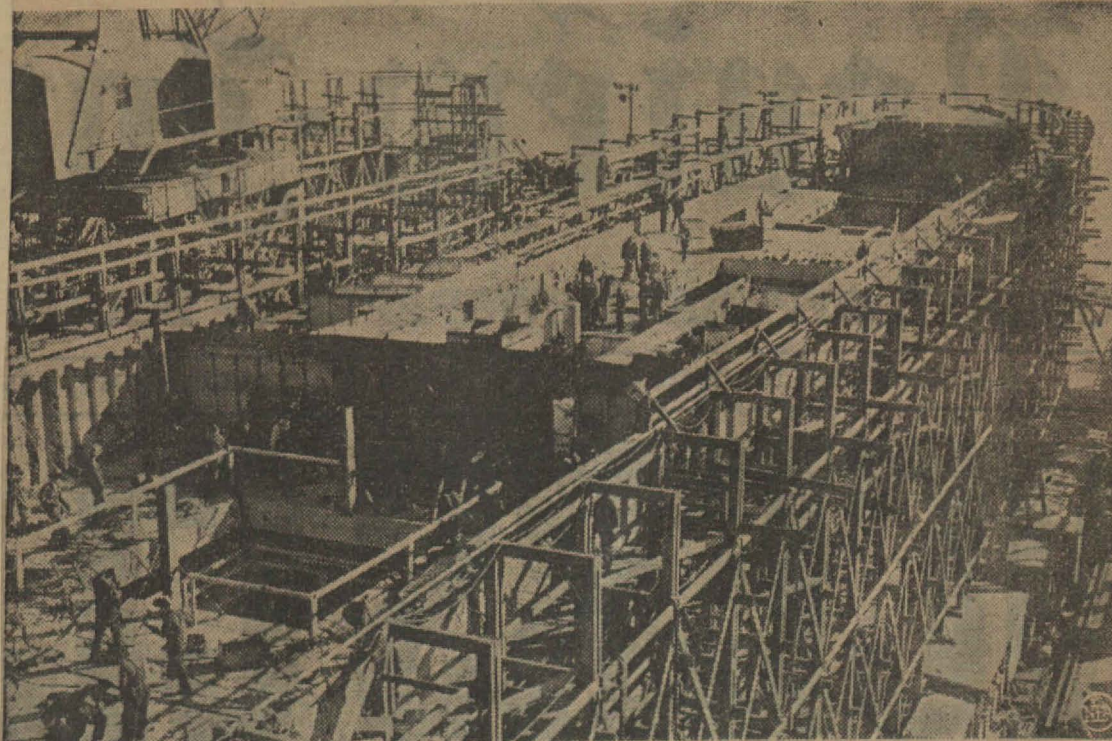
The ship was built by new and speedier methods of prefabrication without sacrificing manpower from other ships or working time from adjacent yards.

A company spokesman said the speed was made possible by hundreds of suggestions from the workers on how to save a minute here, three minutes there on the job.

Mrs. S. Otis Bland, wife of Rep. S. O. Bland of Virginia, was matron of honor at the christening. Radio commentator John B. Hughes was master of ceremonies and Monroe E. Deutsch, vice president of the University of California, dedicated the Peary.

—Buy War Bonds

## Less Than a Week to Launch New Kaiser Ship



The 10,000-ton Liberty ship Robert E. Peary, above, built by new, speedy prefabrication methods at the Henry J. Kaiser Richmond, Cal., shipyard, will probably be launched less than a week after keel laying. It has been announced by company officials. In this photo the vessel is shown after less than two days of work had been completed. This mark would better the record set by the 10-day record of the Joseph N. Teal at Kaiser's Portland, Ore., yard.

## GREEN DECRIES RULING OF NLRB ON KAISER WORK

WASHINGTON, Nov. 20 (UP)—President William Green of the American Federation of Labor said today that the national labor relations board had scored a victory for the axis when it charged Shipbuilder Henry J. Kaiser with unfair labor practices.

"The action of the NLRB in issuing a complaint against three Kaiser shipyards on the west coast is the outstanding axis victory of the month," Green said. The NLRB complaint was lodged yesterday.

"The basis of the NLRB complaint," Green said, "is the fact that Mr. Kaiser signed a closed-shop contract with 16 AFL unions before any appreciable number of employees was hired in three shipyards."

"If such a contract is illegal or reprehensible, then every construction firm in the United States and the government itself stands indicted by the NLRB. How were all our new army camps, naval training stations and airfields built? Government agencies or private contractors working for the government signed agreements with AFL unions to supply the men to do the work."

"Henry J. Kaiser is unquestionably one of the most decent employers in America. He treats all his employees and the trade unions that represent them with utmost fairness."

"Now the NLRB accuses Kaiser of unfair labor practices and threatens to destroy as fine a relationship between employer and employee as exists anywhere in the world."

## Kaiser Company Slowed Up By Ruling of NLRB

### Unfair Labor Use Is Charged to Ship Building Firm

SEATTLE, Nov. 19 (UP)—The national labor relations board issued a complaint today against the Kaiser company, Inc., and the Oregon Shipbuilding corporation, charging the companies engaged in unfair labor practices by helping 16 AFL unions to recruit members.

A hearing was scheduled for December 14 in the U. S. courthouse at Portland.

### Three Firms

The complaint was issued by the 19th regional office of the NLRB against the Kaiser company at Vancouver, Washington, and Portland, Oregon, and the Oregon Shipbuilding corporation at Portland.

It was based on charges filed by the industrial union of Marine and Shipbuilding Workers of America (CIO) and an individual, William King, who was discharged from one of the shipyards and filed separate charges which were later consolidated with the CIO case.

The NLRB said that through aiding the AFL, the Oregon Shipbuilding corporation "discriminatorily discharged" at least 554 employees and refused to reinstate or reemploy most of them. The Kaiser company fired 147 employees and refused to rehire most of them, the complaint said.

### AFL Favored

The complaint also charged that the companies refused to hire any worker not an AFL member or not holding an AFL work permit.

The board said the complaint alleged the companies signed AFL contracts before there were any employees in one yard and less than one per cent of the ultimate crew was at work in other yards.

The Kaiser company had 191 employees at its Vancouver yard and none at Swan Island when it entered into an AFL agreement last April, the complaint charged. The Oregon Shipbuilding corporation signed a contract in May, 1941, when 66 workers were on the job. Six months later, the complaint said, more than 10,000 employees were on the payroll.



## Reward for Outstanding Performance?

Henry Kaiser built a ship last week in four days and 17 hours, breaking all previous records in that field and confounding the experts who have been unable to come close to his sensational performance.

He built that ship as he has built all others, with union labor (AFL), observing the 40-hour week, time and a half for overtime, and all the rest of the approved rules and regulations that go with running any kind of a business these days.

His performance brought joy to the United Nations everywhere, for ships are needed to win this war—needed badly to get supplies to our far-flung armies now fighting on many fronts. And if we can build a ship every four and a fraction days in every shipyard in the land, we'll really have a fleet of merchant vessels that can do the job.

To the man in the street, this was an outstanding feat, one well worthy of congratulations, felicitations and maybe a few Victory citations, for it was just one more proof that American industry and American workmen can win this war on the home front.

It seemed to us all, out in the country, that such a record even was worth a pat on the back from Washington, but instead, what Mr. Kaiser got from a grateful government was a kick in the pants.

Up steps the National Labor Relations Board with: "Yes, Henry, you might have built a ship in four days and 17 hours—you might even be helping materially to win the war, the way you're turning out ships in mass production, for it's admitted we need ships damn badly. But—Henry, there's one thing you overlooked—you didn't call around and kiss the shirttail of Mr. CIO, and because you didn't we're going to have to put you in jail, because after all we just CAN'T offend the CIO, even if we have to quit manufacturing ships — EVEN IF WE LOSE THE WAR."

Mr. Kaiser's crime, it seems, was that he signed a contract with the American Federation of Labor in his shipyards which provided for a closed shop, wherein only AFL members can work. CIO workers were fired, because it was an AFL job.

The CIO, pardon, the NLRB, even charges that the Kaiser company engaged in unfair labor practices by helping 16 AFL unions to recruit members.

Boy, oh boy, ain't it AWFUL. Especially in view of the fact that these workers are building ships so fast you can't count 'em.

The practice adopted by Kaiser is no different than that in vogue throughout the United States. Since the Wagner Act was passed, contractors have been used to calling in union representatives, telling them they're about to get under way, and signing a contract to organize the job.

It was done at the magnesium plant. It has been done at a lot of plants. The employer DOES help the unions obtain members by hiring THROUGH the unions. He virtually becomes a party to recruiting members when he signs a closed shop agreement, for no one can work on that job unless he is a member of the union, and if he isn't, he has to join.

It has certainly been the impression over the United States that this is what the national administration wanted—what Labor wanted—what was intended by the Wagner Act. We have an idea that Kaiser thought he was playing the game according to the rules in vogue at the moment, and that it will come as a considerable shock to discover otherwise.

Meanwhile, Kaiser, who should be devoting ALL his energy and brain-power to building ships AND the cargo airplanes he's projecting, will cut his personal production schedule in half to allow for time to go into court and be harassed by an administration that ought to be tickled to death with what he's doing.

## It Looks Like It, Mr. Frey

Whether it be literally true that the National Labor Relations Board is designedly seeking to create chaos in the shipbuilding industry—has actually planned to bring about internal conflicts which will wreck its efficiency, we do not know.

John P. Frey, president of the American Federation of Labor's Metal Trades Department charges this is the fact, however, and if anyone should know, it is he.

Of all the silly, uncalled for pieces of bureaucratic damphoolery, the suit filed recently against Henry Kaiser's shipbuilding plants charging improper labor relations, takes the cake.

Kaiser entered into contract with the A.F.L. to organize the plant in the spirit of the Wagner Act. He is paying union wages, observing union hours, paying prescribed overtime and all the rest. But the NLRB says he's unfair because he didn't get the blessing of CIO.

Frey says the NLRB is deliberately seeking to break down the production of American shipyards—plans to go into every one in the land on the same basis, for the purpose of disrupting the employer-employee relationships and injecting friction.

NLRB has yet to explain its purpose. From a long way off it has appeared to be beyond explanation. We can conceive of no excuse at all for any such action when we're trying to get ships built to win the war.

It has been charged that NLRB is a CIO institution, pure and simple. By its own acts, it has convinced us. That being the case, we can see no answer in the interest of the American people, except to get rid of the board immediately. We hope the new congress starts off with that objective.

## Why Gang Up on Kaiser?

(Philadelphia Record)

Henry J. Kaiser, the man who gets things done from dams to ships, has just launched a tank-landing craft three days after the keel was laid. He turns out freighters in record time.

You would think that most everybody in this country would be out cheering, trying to help him along.

Instead, almost every organization seemingly has set a "Let's get Kaiser day,"—and gone to work to hamper him.

The big steel companies didn't want to give him steel.

The War Production Board gave the run-around to his program to build big cargo planes by mass production.

The American Medical Association doesn't like his group health plan.

The U.S. Employment Service didn't like his red-tape cutting hiring methods.

Now the CIO is after him.

On complaint of the CIO, the National Labor Relations Board has accused three of Kaiser's West Coast shipyards of making illegal closed shop contracts with AFL unions. Hearings are to begin December 14. The CIO claims the contracts were signed when there were few employees, and now the AFL is claiming the thousands of new men.

We don't know whether the complaint is justified or not.

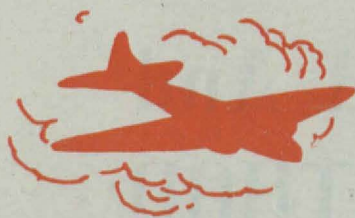
But we think it's time we stopped worrying about what's best for the AFL or the CIO or the AMA or the private interests of any one group and started thinking about what's best for the USA.

It would be best to quit annoying Mr. Kaiser for a while and let him concentrate on building things the U.S.A. needs in a hurry.



## WEST COAST . . .

• Outsiders predict new steel plants in West won't be producing on schedule . . . Kaiser has raw materials for manufacture of alloy steels . . . War contracts show increase.



SAN FRANCISCO—Wagers are being offered freely by bettors in the bridge-jumping category that neither the Kaiser Co. Inc. steel mill at Fontana, Calif., nor the Utah Geneva Works being constructed by Columbia Steel Co., United States Steel Co. subsidiary for Defense Plant Corp. will be complete and producing steel on schedule. Representatives of the corporations are not publicly receding from their original announcement of dates on which production would start, but current comment definitely soft pedals mention of the dates so confidently proclaimed when these plants were in the blueprint stage. Casual inspection of both construction operations seems to bear out the theory that construction schedules, like most western trains, are not in complete accord with the printed time table.

Difficulty at the Kaiser plant is partly attributable to the ebullient optimism with which the project was launched and the subsequent failure to clip the wings of time by getting enough salt on the tail of that fast flying bird. Publicity to the effect that construction was hindered by the War Production Board and that priorities were restricted to a greater extent than for other steel plant construction is completely false. For once, the justly famed Kaiser staff of expeditors found that the key to immediate delivery did not lie in merely getting by the front office. They were stumped by the multitude of

items for which immediate delivery was demanded.

At Provo, both Columbia Steel and Defense Plant Corp. officials discovered that the battle of man versus the wilderness cannot yet be won apparently with anything less than complete accord on matters of military logistics. Last week, over 100 families were living in tents in the desert girdled region of Provo, shivering at night and battling flies in the daytime.

Indications from Washington, D. C., that approval is imminent of a \$27,000,000 expansion of facilities previously approved for the Kaiser Fontana mill are not surprising nor will anyone fall off his seat here if the country's most persuasive borrower succeeds in tapping Uncle Sam's billfold for still another \$52,000,000 which he admittedly is requesting. As originally approved, finishing facilities consisted only of a plate mill which, although catering to an imperative wartime appetite of this region, fails by far to satiate present demand for other products, particularly structural shapes, and makes no pretense of constituting a balanced, long term operation. The entire plant is laid out with one eye on probable substantial expansion including additional blast furnaces, raw steel facilities and a wider range of finished products. As additions are made, they will fit neatly into the general layout providing integration in fact as well as theory. Like the Geneva Works, the Fontana plant, when completed, will be unique in that its final form was visualized before the first foundations were laid.

IF and when approval comes for manufacturing of alloy steels at Fontana, Kaiser will not be lacking in raw material. Already he is in the ferro-alloy business to the extent that he produces his own ferro-silicon for his San Joaquin Valley magnesium plant. Heretofore overlooked in Kaiser biographies is an early predilection for mining enterprise, and few realize that one of country's leading geologists was hired long before Kaiser gained national fame to seek out favorable mining ventures. Currently, the Kaiser staff includes mining engineers who have traveled in various parts of the West showing interest in such varied types of

properties as chrome, tungsten, manganese and copper. Just where the latter fits into the picture is not clear. At least one tungsten property is popularly conceded to be on the roster of Kaiser holdings. Already, approximately 5,000 tons of 45 per cent manganese ore are stockpiled at Fontana, representing the only raw material presently on hand there. Exploration is being conducted on the Pike's Peak, Arizona, deposit of manganiferous ore, reported to run approximately 30 per cent metallic iron and 3 per cent metallic manganese with a view to possible use for a portion of the charge at Fontana.

While all other emphasis was on expansion of Far Western production facilities, Columbia Steel announced complete discontinuance of operation of its small, outmoded tin mill at Pittsburgh, California, due to WPB directives cutting tin plate production to an extent where maintenance of satisfactory work schedules would be impractical. With construction of electrolytic tin plate production facilities at other Steel Corporation plants, the days of the Pittsburgh operation became numbered. Chief significance in its closing lies in the fact that no tin plate now is produced on the West Coast, although in normal times that item is high on the consumption list.

FULFILLING potentialities outlined before the war started, the San Francisco Army Ordnance District, which includes nine western states, has let a total of \$450,000,000 in contracts with 400 prime contractors and principal sub-contractors. Although this district is actually the smallest of 13 into which the United States is divided, products range from tanks, manufactured in the Pacific Northwest, to cartridge cases ranging from 75 mm. to 105 mm., shells from 20 mm. to 37 mm., and include a large capacity devoted to fuses, and flares and powder.

In 1939, when a few educational orders were placed with Pacific Coast manufacturers, personnel of the district was four. When war was declared, about 200 were employed. Now, approximately 1500 are engaged in administering contracts, inspecting, engineering, and keeping the wheels turning.

Contracts are clustered in Pacific

Coast industrial areas without primary regard for strategic locations, mostly within shooting distance of Los Angeles, San Francisco and Seattle-Tacoma. The Portland area has some contracts, but they are sparse in Nevada, Arizona and Montana.

In actual ordnance production, this district lags approximately six months behind sections of the coun-

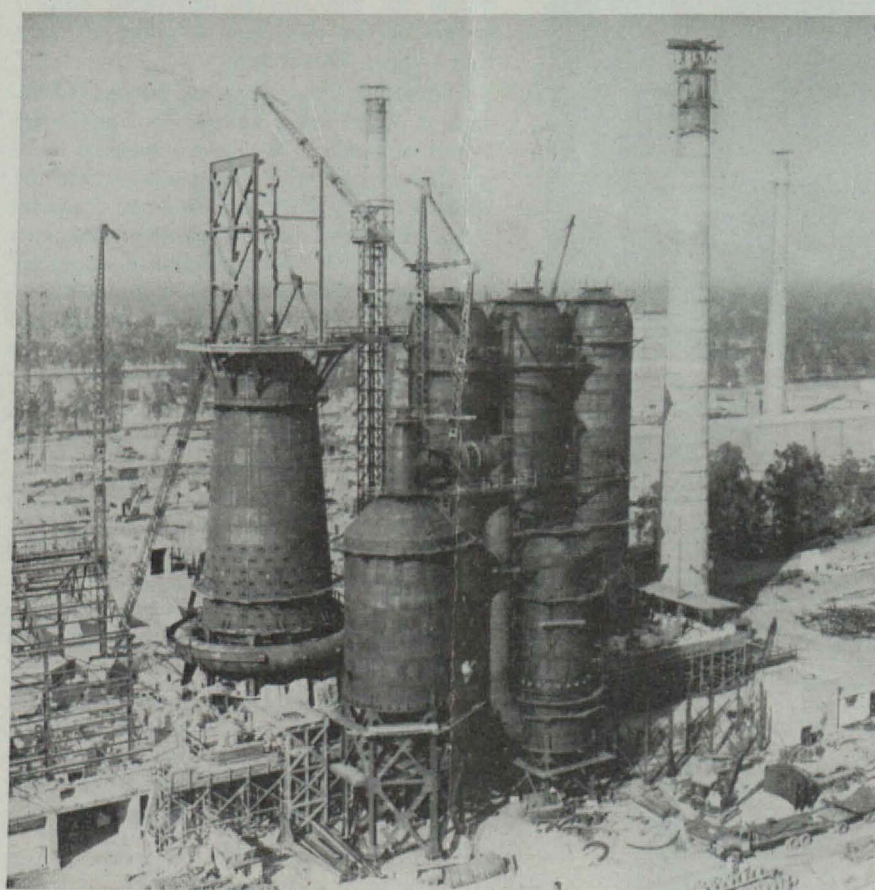
try which were highly industrialized before the war began. Naturally, first contracts let went to central industrial areas in other parts of the country where facilities were ready made or easily converted, and Coast shops, at the end of the line geographically and industrially, had to wait for their share. Some facilities, not yet in full production, still are experiencing labor and materials difficulties. Contracts still are being let, although not as rapidly as when the program first gained momentum. Ordnance dis-

tribut officers are cognizant of difficulties under which Coast industry operates and have proved resourceful expeditors.

PAUL R. PORTER, personable presiding officer of the War Labor Board Aircraft Wage hearing which adjourned in Los Angeles last week, now is masticating what he terms "one of the finest

CALIFORNIA STEEL: This is the new blast furnace and hot blast stoves at the new \$50-million steel plant being built by Henry J. Kaiser (the ship building genius) near Fontana, Cal. It is the first completely new steel plant in the war construction program and is expected to go into operation about Jan. 1. Since this photo was made WPB has granted Kaiser an additional \$26-million expansion which adds two open hearths, a structural rolling mill, a merchant bar mill and larger alloy steel facilities.

Press Assoc. Inc. Photo



records ever submitted to the War Labor Board" prior to submitting his findings to the complete board in Washington, D. C. A formal hearing, which will finally determine wage scales at nine Pacific Coast airframe plants, will commence in Washington about Dec. 1. Porter escaped from the Los Angeles hearing without graying or dropping any of his rapidly thinning locks largely through his pyretic ability to counteract the rising fever of participants in the hearing. Although all hearings

were behind closed doors, labor representatives let it be known that the program offered by Boeing differed widely from that proposed by other Pacific Coast manufacturers. They reported that E. R. Perry, assistant to the president of Boeing, proposed that the Seattle firm boost its minimum wage to 95c per hour, with top pay at \$1.50. This approximated the scale requested by CIO representatives who suggested a 95c minimum and \$1.60 maximum to apply at all nine plants. Boeing, operating in an extremely critical labor area, proposed the wage increase with the suggestion that it was necessary to counteract a labor turnover of nearly 95 per cent in the past nine months. The eight southern California manufacturers, however, were reportedly dubious as to whether "wages . . . control labor turnover and manpower supply."

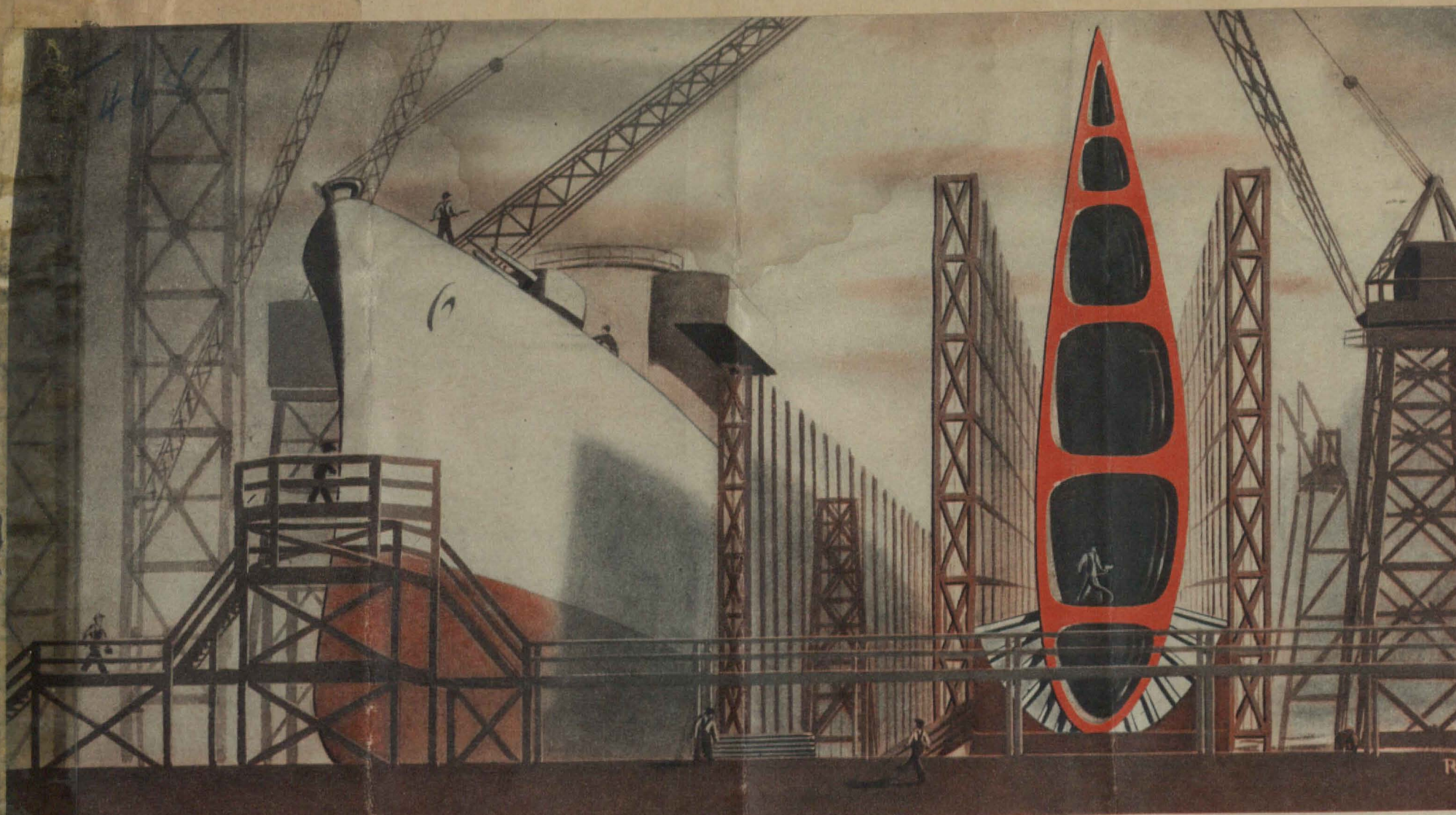
The general management proposal, it is understood, centered on a job classification and devaluation program in which wage rates would be adjusted for more than 114 different types of work. The southern California spokesmen for management regarded Boeing's case as a special problem, although the southern California plants have been plagued with an astronomical labor turnover. To justify a blanket wage increase, the War Labor Board must reconcile its action with the executive anti-inflation order which smiled on increases only where gross inequities or substandard wages are in effect, or where increases would further the war effort. Management recognized the possibility of inequalities within separate plants and within the industry as a whole, but Boeing directly acknowledged that an increase would be in line with the presidential order, it was reported.

#### 48,421,605 Gross Tons of Ore At Furnaces and Docks

Buffalo

• • • A record peak of 48,421,605 gross tons of iron ore, enough to keep blast furnaces in operation six months at the current rate, has been piled up at furnaces and Lake Erie docks, according to a report of the Lake Superior Iron Ore Association. This compares with 43,236,172 tons in September and 40,770,029 tons a year ago.





The standard wing sections demanded by big flying boats might be fabricated in this manner at any one or all of the existing American shipyards figuring in the Kaiser plan to speed victory. Employing regular shipyard workmen, utilizing many existing tool facilities and railroad terminals, Kaiser-built flying boats could transport

three times as much material in a year as Liberty boats consuming an equivalent allotment of steel. That the Kaiser program is partly without refutation is evidenced by the fact that 40% of all war production effort and expense is spent on purchasing and administration departments which are identical in shipyards and aircraft plants.

## IS KAISER CRAZY?

By STANLEY WASHBURN, JR.

HENRY KAISER is just about as crazy as Christopher Columbus who dared the unknown on a hunch in 1492. He's a little more sane than George Washington, who undertook to lead a handful of ragged colonial troops against the well-equipped armies of the world's most powerful empire in 1776. And he's less crazy than the Wright brothers who attempted to fly in 1903 after the best scientific brains of that time had proved that it was impossible for heavier-than-air craft to rise under power. Certainly, today's Kaiser is as crazy as the Kaiser who assured the Maritime Commission in 1941 that he could start mass production of 10,000-ton Liberty ships within a year even though he had never previously built a tug boat. And he's the same screwball who earlier furnished cement for the entire Shasta Dam project, when the cement trust insisted it couldn't be done, and undertook production of steel in California after even the government had brushed him off.

In other words, aviation experts, landplane versus seaplane fanatics, military factions, labor and political groups who now, or in the future, undertake destructive criticism or ridicule of Kaiser's herculean cargo plane effort should be prepared to put up or shut up. Kaiser's previous record, his energy, courage, and practical vision make betting on his failure as unprofitable as betting

against Joe Louis. Briefly, this is the story of Kaiser's crazy plane building plan.

During the third week of July, Nazi submarines in American waters hung up another record by outsinking a full month's production of merchant ships. Approximately 15,000 pounds of material must be set down on a foreign shore for every soldier in an American expeditionary force. With transport facilities diminishing arithmetically while expeditionary troops are increasing almost geometrically, it is obvious that our men would be caught short and the Axis would win the war unless someone did something besides talk about the transport problem—but fast. Tanks, shells, food, artillery, and trucks can do Hitler no harm while they are parked on a quay waiting for a cargo ship that won't come back—or waiting to be loaded on a brand new Liberty ship destined to grace the cross hairs of a Nazi periscope a few days later.

Suddenly, at this darkest moment so far, the American public grabbed onto a war-winning idea—a plan so fantastic, so imaginative that it totally eclipsed Buck Rogers and Superman. The idea, proposed by Henry J. Kaiser, west coast super contractor, called for construction of 5,000 giant flying boats which could land a half-million fully equipped soldiers in England in one day; return to the United States that night and be back in Britain the following day with 70,000 tons of food,

milk, bombs, or gasoline. And the procedure could be repeated as many times as necessary to defeat the Axis—while submarines, at least, would be powerless to interrupt the service.

This kind of talk could always be heard anywhere after three or more beers. But when suggested before two Senate committees by one of the country's outstanding contractors, the idea made news. When Kaiser followed the suggestion with a make-me-prove-it proposal, it really held water. People remembered then, or were reminded, that Henry Kaiser had made the same proposition a year ago and followed with mass production of 10,000-ton cargo vessels at the rate of one ship every forty-six days!

"I propose," Kaiser announced to the Senate committees, "that the Maritime Commission turn over nine shipyards to the mass production of flying boats... the aircraft manufacturers are not in a position to go into an assembly line production of this new type without extensive construction and tooling... but with the aid of the aviation industry and with equipment already in place in shipyards, we can set up an assembly line in six months or less and get into maximum production within ten months."

Nine days after Kaiser had officially announced his plan in Washington, he had talked fast enough, long enough, to enough of the right people, to make a deal. Calculating, unemotional Donald Nelson, head of the all-powerful War Production Board, was sufficiently sold on the idea to give Kaiser the go-ahead to build the first hundred proposed 70-ton flying boats styled after the Navy's biggest patrol bomber, the Martin Mars. If

Kaiser is able to fill his first order, Nelson has assured him the necessary backing to proceed with a five hundred plane order. After that he can build his suggested 200-tonners.

Thus, everything seems rosy for Kaiser and his program for victory—except for the unpublicized but almost unanimous scepticism on the part of the American aviation industry. One of the world's greatest authorities on big airplane construction says it will take at least two years to get a plant ready for quantity production of such planes. Airline engineers, Army and Navy experts think Kaiser is completely mad. They carry the argument further by insisting that he has no idea what his plan entails, that he has sold a bill of goods to the American people and has neither the equipment nor the ability to back up his proposal. Such opposition might have stymied Kaiser's scheme immediately if Donald Nelson had not stated at the outset that Kaiser would have to figure out some way to get materials, engines, aluminum, and aircraft instruments without disrupting in any way the flow of these already scarce materials to present aircraft manufacturers. The general feeling of those in the aviation industry seems to be that Kaiser is going to hang himself very shortly—as soon as he learns enough about airplane building to find out how tough the business really is.

For twenty years, many of these same aviation pioneers now scoffing at Kaiser themselves fought the "it can't be done" school of thought. But they overcame the sneering scepticism of hide-bound public and officialdom always slow to accept the new

Page 15

## MAGNESIUM BONANZA

The ubiquitous Henry J. Kaiser is now operating in North Carolina where, thanks to the alertness of that State's Department of Conservation, an entirely new source of "wonder metal," magnesium, has been discovered. Kaiser's research workers arrived on the scene but a few days after the announcement. Today they are seeking the quickest and most practicable way to make the most of what has been found.

By way of background, it may be said that magnesium, with weight 60 per cent that of aluminum, is used in every fighting plane. As late as 1915 it cost \$5 a pound. Research and resourcefulness devised ways to rescue the metal from sea water and Kaiser was one of the men who erected plants in which huge pumps daily forced 300,000,000 gallons of Pacific waters through intricate apparatus. The price came down from \$5 a pound to 2 cents. Kaiser has an immense plant at Permanente, but he is first on the ground in North Carolina where greater possibilities are envisioned.

The Carolina deposits, possibly described with too much optimism, are within a substance named ovaline which contains more than 45 per cent of magnesium. It is reported that more than one quarter of a million tons has been located close to truck highways and railway lines.

If these reports are true, manufacturing America has found a new Bonanza. It will take time before large-scale developments may be expected, but engineers who look to long-range possibilities are convinced that within the North Carolina deposits of ovaline is assurance that our largest plans of airplane production will be realized.

Moreover, they say, as we produce aluminum and magnesium in quantity we are making ready to work wonders in the manufacture of automobiles, railway coaches, passenger airplanes, and countless public services and conveniences for the future.

L.V.R.J.  
12/26/42

## Blast In Kaiser Plant Damaging

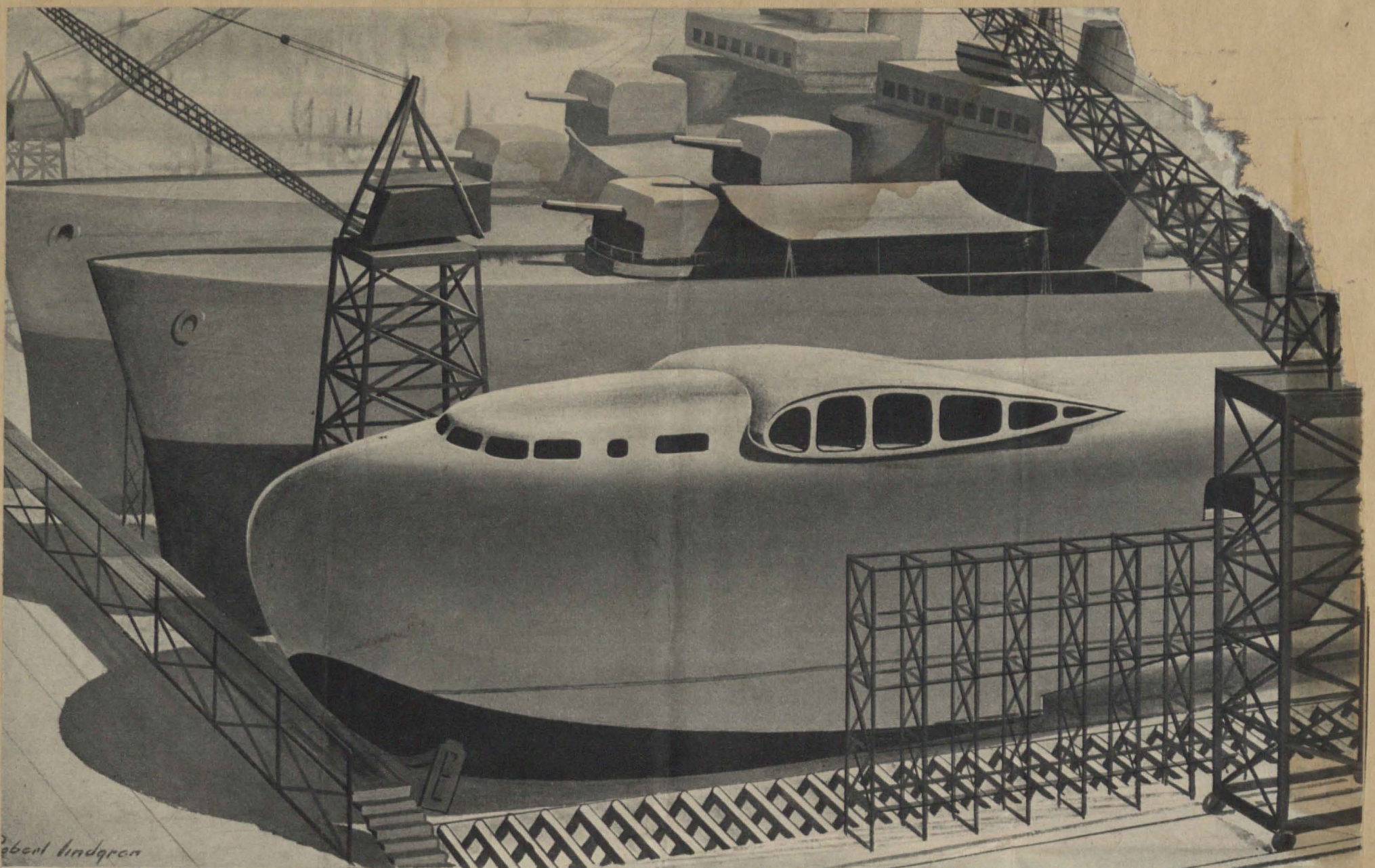
FONTANA, Cal., Dec. 26 (UP)—A Christmas day explosion which caused \$75,000 damage to the Henry J. Kaiser steel mill here will not delay the start of production scheduled tentatively for December 30, company representatives indicated today.

Residents as far away as San Bernardino, nine miles distant, were startled by a bomb-like blast when two butane gas tanks blew up after a hose connection snapped while gas was being fed into the tanks from trucks.

Sheriff's deputies said the heavy steel top of one tank was blown a quarter of a mile. Other damage reported included destruction of two trucks, an automobile and equipment.

Three men engaged in transferring the butane gas fled when the connection broke and no injuries were reported.





**Super-contractor** Kaiser told government committees that "shipyards are 75% ready to build flying boats with their existing railroad terminals, facilities, engineering personnel, organizational set-up, labor force, shops, and some of the needed tools." Artist Lindgren's conception of shipyard plane construction above shows the hull of

a 200-ton flying boat. Grover Loening told Donald Nelson that Mars design is more elaborate than necessary for cargo use, that steel-aluminum weight ratio is offset by elimination of cargo plane flooring and structure when building planes from regular steel. One Liberty ship uses more steel than 200 proposed Mars flying boats.

or radical. Now, singularly enough, the situation is reversed. These same aviation men are sneering at the claims of a man "from the outside" who proposes to outdo them at their own manufacturing game. They say "Where does Kaiser expect to get aluminum when we're short of it now?" Some explain "We couldn't produce sufficient high octane fuel to service such a fleet of transport planes even if Kaiser were to build them." Others insist "You can't build flying boats in shipyards and shipyard workers certainly can't build airplanes." Less critical experts merely say "He can't get engines without robbing the present military aircraft production program." So it goes, ad infinitum.

On the other hand, the man in the street whose mind is untrammelled with section modulus, strength-weight ratio of steel, aluminum, and plastics, reserve displacement, gust loads, or high octane fuel, is all for old man Kaiser. He knows Kaiser has accomplished a great deal in the past and believes he can do it again. He asks only that Kaiser be given some money and a lot of cooperation so he can either put up or shut up. So the entire program is a standoff. Kaiser has enough government backing to get started and Howard Hughes can help him move quickly. The aviation industry generally seems convinced that the whole idea adds up to the greatest farce in the history of aero-

nautics. The tax-paying public is still waiting patiently to see some really big airplanes.

Actually, the greatest scepticism on the part of aviation experts stems from a conviction that without aluminum you can't build big airplanes. In this respect, it is interesting to note that Kaiser has never once mentioned what material he intends to use in constructing his big ships. How can these men be so naive as to imagine that Kaiser, a building contractor, hasn't thought of the aluminum problem and hundreds of other "insurmountable" obstacles during the months preceding his official proposal. Contractors succeed in business only if they consistently figure every angle on every job. It is practically certain that Kaiser has never intended to use aluminum for the hulls and wings of his flying boats, realizing at the outset that current demands will take every available ounce of "alclad," the standard aluminum alloy used in the manufacture of America's 200,000 necessary planes ranging from basic trainers to the Martin Mars. With this obvious shortage, Kaiser has undoubtedly considered the use of thin-rolled sheet steel or plastics or both.

Grover C. Loening, designer of the famous Loening amphibians and one of the nation's soundest, most authoritative aeronautical engineers, is one of the few well-established aviation men on Kaiser's side from the begin-

ning. Vincent Burnelli, inventor of the lifting fuselage, all-wing airplane, is another supporter, even though his own ideas and hopes are aligned on the land-plane side of the transport discussion. Lots more will hop on the band wagon if Kaiser really starts to make good. Loening, who knows most of the aeronautical answers, told the Senate Military Affairs committee that there was no reason why the hulls of big flying boats should not be built of steel. More important, he pointed out the fact that the steel used in manufacture of one Liberty ship would be sufficient for fabrication of 200 sheet steel flying boats. Most other aviation leaders insist that steel is too heavy, will corrode in salt water, and cannot be worked when rolled in sheets thin enough and light enough for aircraft construction. That a highly successful amphibian, called the Fleetwing Seabird, was made from steel seven years ago effectively refutes this latter argument and proves that steel is all right for seaplanes if used properly.

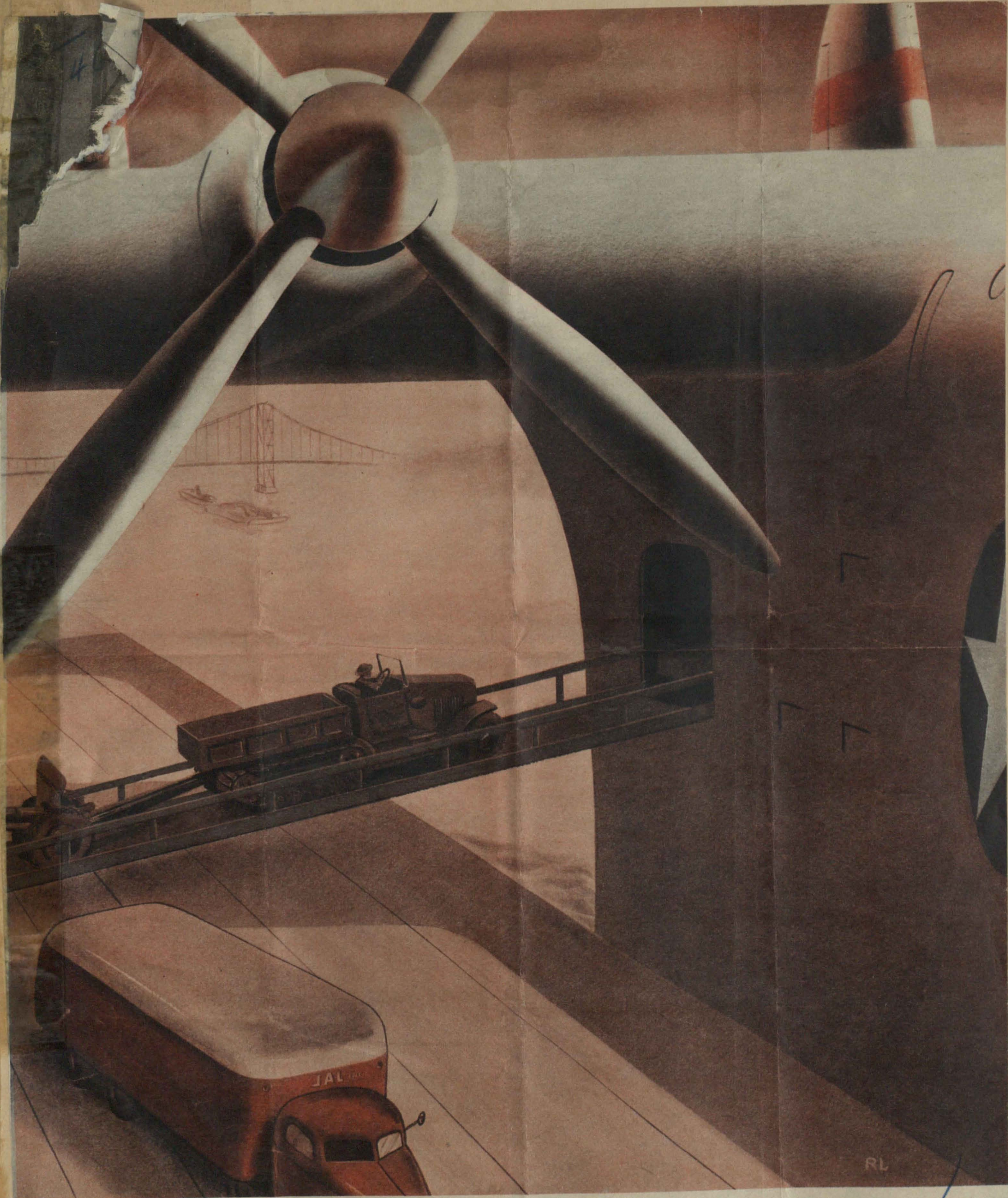
As to the shortage of high octane fuel, the engines will probably utilize premium gasoline only for take-off and will cruise on automobile, or low octane fuel readily available in large quantities without taxing existing refineries. This trick of using high octane gasoline only for take-off has been reported in Germany and was actually used by American air trans-

port operators for many years. The skilled labor problem will bother Kaiser no more, no less than his shipyard labor problem of a year ago when he converted thousands of fruit growers, farmers, salesmen, dockworkers, and high school boys into ship construction crews which have consistently broken all records. Before that, he managed to locate or create both steel and magnesium mill workers for his California enterprises.

As for the necessary re-tooling and the erection of shipyard facilities for building large aircraft, Kaiser claims that most shipyards are 75 per cent ready for the job with existing rail terminals, shop equipment, engineering personnel, organizational set-up, labor force, and plant areas. And Kaiser has already spotted a source which can supply him with enough engines to power the first hundred flying boats. By the time he is ready for more—and long before he gets set to build the 200-tonners—America will probably have a lighter, more powerful Diesel engine than the Maybach which drove 30-foot, 4-blade propellers on the airship Hindenburg.

Thus it may be seen that Kaiser critics, including some aviation men who have long been considered far-sighted, may find themselves among embarrassed members of the "it can't be done" fraternity, when the first big hull splashes down the Kaiser ways, joins its wings, and flies away.





"Two-hundred ton transports will come later," says Kaiser, who has already received tentative backing from War Production boss Nelson to build 70-ton transport planes in his west coast shipyards. To visualize the size of a 200-ton airplane, picture a hull or fuselage placed along the fifty-yard line of a football field, with each

wing extending some twenty yards beyond the goal lines and forming a canopy over almost half the total gridiron area. Most Americans realize that loading of half-track and field gun in painting above must be repeated thousands of times for U. S. victory. Kaiser insists he can start the necessary action in ten months with government help.



## Monopolies On The Wane

Henry Kaiser's new steel plant at Fontana is one of the most important units in the nation's war effort because it is to produce badly needed raw material for the construction of ships.

It is common knowledge that lack of cargo vessels has presented the United Nations' offensive from moving as rapidly as it could. It is also known that thousands of crews are ready and waiting to man the merchant marine, but are marking time waiting for ships.

It would seem, then, that every effort should have been bended toward immediate completion of the Kaiser steel plant which will speed ship construction materially.

This plant, the only new and recent construction of this kind west of the Missouri river, will produce 1,200 tons of pig iron daily when it gets in operation. When the plant was almost completed, the engineers found themselves short some 53 tons of steel.

To get the insignificant quantity of material which had to be released from steel warehouses, no less than 60 transactions with the war production board were necessary—telephone calls, telegrams and conferences. And it wasn't until Donald Nelson himself stepped in—not until 60,000 tons of potential production had been held up, that the necessary priorities were forthcoming.

Maybe it was just the ordinary sluggishness of government agencies. Maybe it was red tape. But Congressman Knute Hill of Washington says Big Steel was responsible. The same Big Steel that didn't want Uncle Sam to experiment with sponge iron at Boulder City—the same Big Steel that has opposed any new development of plants in any section of the country—the same Big Steel that fastened the Pittsburgh plus price system on the nation forcing steel users to pay fictitious freight charges from Pittsburgh, no matter if the user were located next to a plant in Chicago, Los Angeles or Birmingham.

Wm. Jeffers has run up against the same story in synthetic rubber production. President Roosevelt said: Full speed ahead. That meant slashing all the red tape in Washington, which didn't set too well with the manufacturers of said tape. And there might have been a bit of friendly sabotage on the inside, somewhere along the line.

There's no question but that there's a tremendous lot of pulling and hauling behind the scenes by great monopolies that are quite naturally interested in maintaining that monopoly if they can. And unfortunately, some are so short-sighted as to place THAT goal ahead of the war effort.

One thing seems certain, however, that there'll be a far better distribution of production over the land, and fewer complete monopolies like Aluminum Corporation, U. S. Steel, and others.

Kaiser's plant will break the steel monopoly. New magnesium plants will smash Alcoa's hold on the light metal industry. Synthetic rubber is quite likely to replace the raw product and break some more monopolies.

That's one beneficial result of the conflict.

From *Times Union Albany, N.Y.*  
DEC 16 1942

## Kaiser Criticized By Board of CIO

SAN FRANCISCO, Dec. 15 (AP)—A Congressional investigation of California's war production is urged by the executive board of the state CIO. The board especially criticized Henry J. Kaiser's shipyards and Permanent Magnesium plant, charging "improper utilization of labor and materials . . ." and expenditure of "immense sums with almost no results."

RIVERSIDE, CAL., PRESS  
Cir. 7,687 MARCH 8, 1943

## Kaiser Now Eastern Plane Manufacturer

NEW YORK, March 6 (AP)—Henry J. Kaiser entered airplane manufacture in the east for the first time today with the purchase of the stock of Fleetwings, Inc., aeronautical firm of Bristol, Pa.

The Bristol firm, which has two plants and is building a third, is making aircraft for the Army Air Corps, as well as parts for other airplane factories. Its acquisition by Kaiser was negotiated with cooperation of the war department.

Kaiser said he plans no change in the present management or personnel of Fleetwings, which now employs more than 5000 persons, operating under an agreement with the CIO. Chad F. Calhoun, Kaiser's eastern assistant, will be liaison executive for the new property.

The west coast shipbuilder said he plans to build an airfield on the 320 acres surrounding one of the Fleetwings plants. Fleetwings, which has been building airplanes for 15 years, pioneered in stainless steel planes and also developed the use of aluminum, magnesium and moulded plywood. It also developed hydraulic valves for operating retractable landing gear, wing flaps, cowl flaps, bomb doors and gun turrets.

## ENGINEERING AND MINING JOURNAL

"For over three-quarters of a century the outstanding authority of the metal and non-metallic, milling, smelting and refining industries."  
McGraw-Hill, 330 W. 42nd St., New York City

JAN 1943

### ► CALIFORNIA

► A scheelite-bearing ore zone is under development at the Gold Basin property, near Randsburg, Kern County, owned by Clarence A. Barker, of Los Angeles, and the available mill is being remodeled to handle output and custom ores. Plans include sinking the shaft to the 300-ft. level and driving drifts on that horizon to facilitate extraction of scheelite ore in sight. J. B. Nossow, superintendent, is in charge of operation.

► Desert Tungsten, Inc., is installing a 50-yd. tungsten recovery plant on the Walker placer claims at Randsburg, Kern County. The material will be mined and delivered to the plant by a carryall operated by a tractor. William A. Dewitt is manager.

► The Henry J. Kaiser Co., Iron and Steel division, is reported to have optioned from C. Fletcher a group of ten tungsten claims in the Marietta district near Bishop, Inyo County, with development work already in progress. The holdings are known as the Conscript claims, said to contain commercial tungsten deposits. The company is also interested in the White Rock silica deposits near Mariposa, Mariposa County, from which test shipments have been made to the magnesium plant near Los Altos.

► Stripping operations are in progress at the Spud Patch placers near Atolia, Kern County, taken over recently by Hoefling Brothers, of Sacramento, owners and operators of the Surcease gold mine, near Oroville, Butte County, now closed. Equipment used includes a 24-cu.-yd. dragline and a Caterpillar D-8 bulldozer, and the washing plant completed and ready for handling scheelite-bearing gravel has a capacity of 50 cu. yd. per hour. The property was a tungsten producer during the first World War. Allan E. Jones is manager for all company mining enterprises.

## THE FOUNDRY

"Established in 1892"  
Penton Publishing Co.  
Cleveland, Ohio

FEB 1943

## Northern California

ANNUAL Christmas party of the Northern California Chapter of the A.F.A. was held Dec. 22 at the St. Francis Hotel, San Francisco, with 180 men and women on hand to enjoy the festivities. The chapter's past chairman, E. M. Welch, was presented a coat lapel A.F.A. pin, and Charles J. P. Hoehn, Enterprise Foundry Corp., senior past officer, was presented a ring with the A.F.A. insignia. Guest speakers included Herman Weinberger, a prominent San Francisco attorney, who spoke on, "Civil Liberties in War Time", and Lieut. Com. E. J. Demson, U. S. Navy Reserve, whose

subject was, "Whose War?"

The next hour the group was entertained with music and dancing performances and by a magician after which there was dancing for everyone.

First opportunity of the chapter to be host to men from the Henry J. Kaiser Magnesium plant at Los Gatos, Calif., was presented Dec. 29, when 10 men from that organization were on hand to describe operations there. Peter Allen, public relations; Dr. W. O. Wetmore, metallurgist, and Robert Chickering, foundry superintendent, took the leading parts in the up-to-the-present description of construction and development progress at Los Gatos. Methods which had been developed to produce the metal and operate the foundry safely were discussed. The chapter was treated to the first public showing of several reels of colored and sound motion pictures of the Los Gatos magnesium plant. Magnesium pigs as well as castings offered some surprise compared with those made of iron or even aluminum. Eighty members and guests were present at the meeting.—George L. Kennard, secretary-treasurer.

SAN FRANCISCO, CAL., NEWS  
Cir. 107,062  
MARCH 15, 1943

## KAISER STEEL MILL TO START OUTPUT SOON

Fontana Plant Set  
To Begin Production  
Of Ingots in May

BY RUTH FINNEY

The News Washington Correspondent  
WASHINGTON, March 15.—Ingot production will start at Henry J. Kaiser's Fontana steel plant in May and plate mill production a month later.

This latest schedule is contained in a reply prepared by Chad F. Calhoun, of the Kaiser interests, to an article in the January Iron Age ridiculing the entire Fontana project.

The article said ingot production had been scheduled in February and plate in June, but that nothing short of a miracle would permit ingots in August, plate by the end of the year.

The reply shows that the blast furnace was blown in Dec. 30, on schedule. Ingot production would have started in February, it says, except for one item, procurement of a 250-ton ladle crane which was delayed by causes "wholly outside of our control." May is the new date for ingot production.

The reply answers, item by item, ridicule not only of the steel project but of the Kaiser magnesium plant and its shipbuilding record.

Daily Metal Trade  
2-9-43

## PERMANENTE MAGNESIUM PLANT IN CALIFORNIA BEGINS OPERATION

NEW YORK, Feb. 4.—Henry J. Kaiser's Permanente Magnesium plant in the San Jose valley of California is now in production, after many delays. This plant is one of the first of the government-owned Magnesium reduction works to be started.

Perfection of the carbo-thermic process and carelessness of workers are the causes for the delay in getting this plant into production. Other plants using other processes were started later and are in production.

A review of the magnesium program will be published Tuesday by Philip D. Wilson, chief of the production section, Aluminum-Magnesium Division, WPB.



## Union Member Roll Freezing Is Urged By Kaiser

Rule Would Remain For Duration of Builder Plan

WASHINGTON, Mar. 9 (UP)—Henry J. Kaiser, west coast shipbuilder, suggested today that union membership rolls be frozen for the duration, with new workers having the privilege of joining any union they choose or remaining non-union.

Testifying before the senate committee investigating the war effort, headed by Senator Harry S. Truman, democrat, Missouri, Kaiser said jurisdictional disputes within and between unions must be halted because they have a harmful effect on the morale of workers. Kaiser's yards currently are the subject of open warfare between AFL and CIO unions.

### Asked of Threat

Senator Carl A. Hatch, democrat, New Mexico, asked whether it would be under a congressional threat of legislation that the unions would "voluntarily" reach such an agreement.

"No," Kaiser replied, "it would be a matter of cooperative effort just like you've got me up here now."

He explained that under a union freeze, it still would be possible for new workers to join unions or remain non-union.

As a means of combatting absenteeism, Kaiser suggested that war workers be given service bar pins similar to those worn by men in the armed forces. Each month that a worker had no unauthorized absences, he would receive a colored stripe for his pin with a gold star award for a perfect year's record.

"Men in industry are in the nation's army, too," Kaiser declared.

### Offers Suggestions

Kaiser offered these suggestions for increasing the amount of work turned out:

1. Define the individual's exact responsibilities and give him a clear understanding of his part in the total production picture.
2. Secure an uninterrupted flow of materials.
3. Provide adequate housing and transportation facilities for workers.
4. Keep the plant clean and efficiently arranged.
5. Avoid unnecessary changes in designs of products.

He denied that the current bottleneck in production was manpower, declaring rather that it was allocation of materials.

### Not at Limit

"We can produce more ships than at present if we can get the materials," he said. "We haven't reached the limit of our manpower yet."

Senator Ralph O. Brewster, republican, Maine, asked if there will not be a serious manpower problem very shortly when married men are drafted.

"Then we will have to get more women workers," Kaiser replied. He explained that men of draft age were being excluded in recruiting workers for his yards now.

## AFL-CIO Peace Pact Only Scrap Of Paper

By PETE EDSON  
Review-Journal Washington Correspondent

Copyright by NEA Service, Inc.

WASHINGTON, Mar. 10—This is the story of an under-the-table labor deal. It accounts for continuation of jurisdictional disputes in Pacific shipyards, particularly those of the Henry J. Kaiser Co. and unless something is done about it, the deal holds forth possibilities of the United States war production facing an unlimited series of C. I. O. versus A. F. of L. jurisdictional labor disputes.

It is the story of a secret document agreed to by six labor leaders—three from the A. F. of L. and three from the C. I. O.—who met in Washington December 1 and 2 and after negotiations announced that they had reached an agreement providing for arbitration of jurisdictional disputes between the two organizations.

### Unity Hailed

The agreement for unity in the war effort, as made public, and acclaimed by editorial writers and commentators, was short and to the point—less than 250 words in three paragraphs. It referred to the negotiators as the A. F. of L. and C. I. O. "peace committee," provided for the setting up of a joint committee of the two organizations to hear and decide jurisdictional disputes and for the appointment of an arbiter whose decision would be binding in the event the joint committee failed to agree.

It is now possible to reveal, however, that there was a secret paragraph to this agreement, which was not made public. It said in effect:

Nothing contained in the accepted agreement will conflict with either party's legal rights.

The effect of the secret clause

was to nullify the agreement which the peace makers had made public. The "legal right" referred to is to be found in the Wagner Act, which guarantees every workman the right to bargain through union representatives of his own choosing. The clause was initiated by the C. I. O. "peace makers." The A. F. of L. representatives who accepted it defend themselves on the ground that they couldn't see anything wrong in recognizing legal rights, but there are others who are not so happy about it. Those who made the agreement were:

Philip Murray, president of the C. I. O. and Steel Workers' organizing committee; R. J. Thomas, president of the UAW, C. I. O.; Julius Emspack, secretary-treasurer of the United Electrical, Radio and Machine Workers, C. I. O.; William L. Hutcheson, president of the United Brotherhood of Carpenters and Joiners and first vice president of the A. F. of L.; Daniel J. Tobin, president of the International Brotherhood of Teamsters and sixth vice president of the A. F. of L.; Harry C. Bates, president of the Bricklayers, Mason and Plasterers-IUA and seventh vice president of the A. F. of L.

### Legal Excuse

Principally the secret agreement was to develop later as the legal excuse by which the C. I. O. was authorized to continue its raid upon the membership of the A. F. of L. unions in the three Portland, Ore., area shipyards operated by Henry J. Kaiser. A. F. of L. unions had negotiated union shop agreements with the Kaiser yards. But the C. I. O. frozen out of this lucrative field and unable to organize it, had protested to the NLRB and had petitioned for the right to hold an election among the Kaiser employees to determine which union should be the bargaining agent.

A few days after the announcement of the peace and unity

agreement of December 2, James F. Byrnes, director of economic stabilization, called a meeting of another group of labor leaders. The purpose of the second conference was to try to end the jurisdictional dispute over the union organization of three Kaiser shipyards.

With the unity agreement on record, it was the contention of the Byrnes office that the two union organizations should get together on the Kaiser dispute, submit the case to arbitration, if necessary, as their unity agreement provided. The C. I. O. delegation at this conference was headed by John Green, president of the Industrial Union of Marine and Shipbuilding Workers, who had been elected a C. I. O. vice president only a month before. Green's union was the one trying to organize the Kaiser yards and woo the membership from the A. F. of L. to the C. I. O. The A. F. of L. conferees were vice president Charles J. McGowan, of the Boilermakers; president Harvey W. Brown of the Machinists and president George Masterson of the Plumbers and Steamfitters, all of whose unions were directly concerned with the Kaiser dispute.

### No-Raid Clause

This A. F. of L. delegation demanded a no-raid agreement to bring peace to the shipyards. This was naturally to their advantage, since in the entire United States shipbuilding and associated industries, A. F. of L. unions claimed only 260,000. On the West Coast, A. F. of L. claimed 400,000, while C. I. O. had less than 20,000 in a few of the smaller California yards. Green of the C. I. O. said he would have to consult his executive committee.

A second conference was arranged, and Green came back with the report that his executive committee would not authorize him to sign a no-raiding agreement. Then he pulled his trump card. He flashed the under-cover, unpublished unity agreement with the fourth paragraph referring to "legal rights." Under the Wagner Act, C. I. O. had a right to organize any place it wanted to.

There was consternation and confusion among the A. F. of L. Metal Trades delegates. Not having participated in the "peace committee" conferences, they didn't know about the unpublished fourth paragraph.

### Still Rankles

The row at A. F. of L. headquarters following the break-up of the conference called by Byrnes still rankles. The three vice presidents—Bates, Tobin and Hutcheson—stubbornly defended their position that there could be nothing wrong with accepting something that merely protected legal rights. This was answered by the cold, conservative sarcasm of John P. Frey, president of the A. F. of L. Metal Trades Council, speaking to Hutcheson. Said he, "You must have been awfully naive, Bill."

(Second installment tomorrow: How the agreement was ratified by A. F. of L. executive council, Kaiser production efficiency meantime dropping 10 per cent because of labor turmoil.)

## CIO Chief Hits Kaiser Production Mark As "Club"

Said Used To Justify "Unfair Labor Relations"

WASHINGTON, Mar. 25 (UP)—John Green, president of a CIO union now embroiled in a jurisdictional dispute with the American Federation of Labor over employees of the Henry J. Kaiser west coast shipyards, charged today that Kaiser's production record is being used "to justify unfair and undemocratic labor relations."

Green, head of the industrial union of marine and shipbuilding workers, testified before the senate's Truman committee, which is attempting to halt jurisdictional "raiding" which might hamper all-out war production.

### Obtain Promise

The committee yesterday obtained a promise to reopen negotiations seeking to end such quarrels from AFL President William Green and CIO President Philip Murray.

The committee then summoned John Green and John P. Frey, president of the AFL metal trades council which now has a closed shop contract covering the Kaiser employees.

John Green opened his testimony with a complaint that the Kaiser company entered a closed shop agreement with the AFL when only 66 men had been hired. This, he said, "forced every one of the 70,000 to 80,000 workers since hired in Kaiser's three Oregon yards to join a bargaining unit which they had no hand in choosing."

### Said Ballyhoo

Green said he did not wish to detract from Kaiser's record of building merchant ships so badly needed in the war effort, but he charged that "at least 50 per cent of the press accounts of his work are ballyhoo."

"I object to this extravagant praise being used to justify unfair and undemocratic labor relations," Green asserted. "Many of our older yards, unattended by corps of superfluous publicity men, are turning out ships faster and more efficiently."

He cited as examples the Bethlehem Fairfield yard, Baltimore, and the federal yard at Kearney, New Jersey, and said both yards are organized by the CIO "without collusive back-door agreements."

### No Hinderance

Green insisted that CIO efforts to upset the AFL contract at the Kaiser yards would not hinder production. He said he believed, instead, that "unfair labor practices," as represented by what he termed a collusive agreement, seriously lower the morale of the workers.

Another deterrent to full production, Green charged, is the "absence of rationing and price control."

He said the need for getting to the stores before meager supplies are gone is responsible for much of the absenteeism in crowded war production centers, and that ineffective price control leads to demands for higher wages.

William Green told the committee yesterday that production has dropped 10 per cent at the Kaiser shipyards as the result of the CIO's efforts to supplant the AFL closed shop agreement with the management.

## Kaiser May Enter Auto Field Before He Expected To

DETROIT, Mar. 29 (UP)—Shipbuilder Henry J. Kaiser, who recently has encouraged speculation that he will enter the post-war automobile field, may set up shop here sooner than is expected.

Kaiser conferred yesterday with officials of the army's tank-automotive center on the possibility that he may undertake manufacture of a small non-combat vehicle for the army. He refused to confirm a report that he plans to buy a plant in this area, but admitted he would return "within 10 days" to discuss the army project further.

The shipbuilder was asked yesterday whether he would follow through on his announcement that he will build a lighter, cheaper passenger car after the war if present manufacturers fail to do so.

"I prefer not to talk about that right now," he said. "I'd rather not discuss it until we actually have something to offer."

Kaiser refused to compare production of Henry Ford's Willow Run bomber plant with his own record-setting west coast shipyards. But he observed pointedly that "overall production in this country can be increased only by better housing, better transportation and better attention to the workers' health."

"Every industrialist should be giving a great deal of attention to these problems," he said. "We've also got to have more training. The other day I learned that 40 per cent of my workers are subject to draft call. The only way we can replace them is by training women and older men."

Kaiser left last night for Chicago en route to Portland, Oregon, where he will attend launching of his first aircraft carrier Friday. He added proudly that "another carrier will be ready in two weeks, you know."



L.V.R.J. 3/30/43

## The Wonderful Wizards Of Washington—Prove A Point



**BARRON'S**  
"The National Financial Weekly."  
New York City  
MAR 22 1943

Brewster Aeronautical Corp. named Henry J. Kaiser, ship, steel and magnesium maker, as chairman of the board of directors. Only three members of the former directorate are members of the new board, several others being associates of Mr. Kaiser in other enterprises, or Naval consultants. Mr. Kaiser has acquired no stock.

BERKELEY, CALIF., GAZETTE  
Cir. 11,240  
APRIL 6, 1943

## Kaiser Plans Giant Plane Construction

PORTLAND, Ore., April 6 (U)—Henry J. Kaiser revealed last night that he is seeking a government contract to build a new type metal cargo plane 15 tons heavier than the Glen Martin "Mars."

Designed by O. A. Koppen, aeronautical engineer on leave from the Massachusetts Institute of Technology, the plane would be built of metal containing a high percentage of magnesium and would weigh 175,000 pounds, Kaiser said.

Its wing spread would measure 282 feet, he said, more than twice that of a Flying Fortress. Radically new principles of design and operation would give it an efficiency 65 per cent greater than previous planes of its weight class, he said.

The shipbuilder, whose first pocket aircraft carrier was christened yesterday by Mrs. Eleanor Roosevelt, declined to speculate where the plane would be built but said he was ready for immediate production.

CHICAGO, ILL., HER AMERICAN  
Cir. 105,410, Sun. 663,091  
MARCH 16, 1943

## Kaiser Directs Brewster Aero; Heads Board

NEW YORK, March 16.—(AP)—Henry J. Kaiser, ship, steel and magnesium maker, was named today chairman of the board of directors of Brewster Aeronautical Corporation in a new expansion of interests into the field of airplanes.

The move made the nation's No. 1 shipbuilder a major factor in the aircraft industry. He already had acquired control of a smaller plane building concern.

A statement from the new management of Brewster said that a "new board" was taking office effective at once.

Three of the members of the new board were members of the former directorate.

In addition to Kaiser, the new board included T. J. Walsh, Paul S. Marrin, Chad F. Calhoun, William F. Kurtz, Capt. George C. Westervelt, U. S. N. (retired), Frederick Riebel Jr., F. Dean Schnacke and E. E. Trefethen.

Kaiser's statement said: "Mr. Kaiser has not acquired any stock interest in the corporation. It is his intention to make a comprehensive study of the entire Brewster situation in the near future and report fully to the stockholders."

Asked if he contemplated any "drastic" changes in personnel, Kaiser replied:

"I do not think that will be necessary."

CHICAGO, ILL., NEWS  
Cir. 14,204  
MARCH 16, 1943

## Pick Kaiser As Brewster Chairman

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PORTLAND ORE., OREGONIAN  
Cir. 152,181, Sunday 182,514

MAR 20 1943

## Smear Tried, Kaiser States

WASHINGTON, March 19 (AP)—Henry J. Kaiser Friday dismissed, as "merely the latest smear, attempts of jealous rivals," the technical charges of priority violations filed against him in San Francisco.

He told an interviewer: "Due to the fact that we were not permitted to see the subpoena (on the priority charge filed Thursday) until late Friday afternoon, and that Donald Nelson tells me he knew nothing of the case, I can only conclude that it was an effort of someone locally (on the west coast) to smear me."

"But I'm not worried. I've been meeting this kind of opposition from the beginning. You know, a man can't stick his head up out of the crowd without someone taking a crack at it. I'm convinced that the measure of a man's ability to produce, is his ability to take punishment."

### New Projects Hinted

The construction "wizard" of the west spoke in the serenity of a Washington office piled high with pictures and drawings of the Liberty ships, steel, magnesium, concrete, airplanes and assorted other materials and objects of war. He hinted at several news and highly secret projects.

He told how he came to Washington in 1940 and combated suspicion in nearly every office to borrow government money and get contracts to build steel and magnesium plants, how shipbuilders sneered at the landlubber who grabbed off a contract to build cargo vessels for the British and later the United States.

### But—'I Don't Care'

His lip curled when he recalled other "harassments"—an NLRB claim that he violated the Wagner act when he signed up A. F. of L. unions for certain shipyards, an OPA allegation last summer that he bought "black market" steel, and lately charges of inefficiency from "certain quarters" because an experimental tanker broke in half.

The 60-year-old ex-photographer then commented, "but as long as I can produce things to win the war, as long as the responsible officials trust me, I don't care."

### Other Violations Charged

He explained that the priority charges arose from infractions of the production requirements plan, a system of distributing war materials—a plan which Kaiser said "nearly everyone violated because no one understood it, and which the WPB has since abolished."

### Plans Giant Plane

"Tonight, I will tell you that I intend to build now, while the war is still raging, a large metal plane. We have been studying facilities here in the Northwest, where it can be built most efficiently. It is designed on radically new principles, giving new economies of production and operation. Loaded with fuel only, it will fly 17,000 miles without a stop. Loaded with fuel and bombs, it can bring to Tokyo the havoc and destruction that were visited on Pearl Harbor. Loaded with fuel and food, it can bring a new era of commerce and trade to every nation in the world."

"It will be the airplane of the future, I want to build it for the future, but I want to start building it now, for war. It can be built now. Dr. E. O. Koppen, who is here tonight as my chief aeronautical engineer, will tell you some of the details of construction. He is on leave from the faculty of the Massachusetts Institute of Technology."

Dr. Koppen's dissertation follows:

"The heavy cargo plane is bound to assume increasing importance in the world's commerce. At present the accomplishments of air cargo planes tend to be dramatic, with the delivery of sorely needed ammunition or hospital equipment. Such delivery must be rapid, and not necessarily economical."

### Must Prove Merit

"In peacetime air cargo must be flown on its own merit. Such an operation will not be permitted to operate in red ink. The design largely is economic, with low construction cost and high speed with a heavy pay load."

"Airplane design for the entire life of the industry has been a gradual elimination of par-

sitic drag. Non-essentials have been stripped until the only things left are the fuselage, wings and body."

"Now the body is to be removed. By making the machine big enough it is possible to shear off everything but the wing, and we believe 175,000 pounds is the proper size. The principle is not new. Thirty-three years ago a tailless plane was flown successfully in England."

"It is important here to emphasize a basic principle. As you double the size of the wing, you cube the volume of carrying capacity. The wing we are working on is 282 feet from tip to tip. This is twice the size of the Flying Fortress."

"The construction largely will be magnesium. There are four engines, developing 8000 horsepower. The maximum pay load can be 62,000 pounds. The machine will carry 42,000 pounds for 4000 miles, with enough fuel for the return trip."

### Design Proves Feasible

"This flying wing is no Buck Rogers fantasy, but one more step along a clearly defined path of air transport design."

Kaiser offered a four-point program for postwar building which can be launched the day hostil-

ties cease, points which will offer hope and generate enthusiasm, not only for the returning soldiers but in the youth who will reach manhood on the eve of peace.

Housing is the first development. Hundreds of thousands, even millions of dwelling units may be erected if bankers and realtors and thrift savers will have the courage to act.

Highways are the second phase, six-lane thoroughfares crossing and re-crossing the nation, until there are no pockets of isolation and every community is a potential market.

Hospitals, built by industry, financed by those who use them, on a practical insurance basis, certain to be so profitable that they will reward adequately the physicians, and provide them with substantial sums for research is another phase of a post-war economy.

### Speed Shrinks World

Transportation, involving lighter metals, better fuels, abler design, more thoroughgoing knowledge of laws of gravity and motion is the fourth phase.

This involves also an automobile weighing 500 pounds and running 100 miles on a gallon of gasoline. An airplane which can be flown with safety by the average citizen who now drives an automobile is here. One already has hovered in the air above a single spot, 20 feet off the ground, for more than one hour under its own power and without an anchor. Transport planes are a reality which will carry people and merchandise with safety, comfort and speed so that the earth, with its 24,000 miles of circumference will shrink until there are no far corners, no dark continents, no trackless wastes.

APR 6 - 1943  
PORTLAND, ORE., JOURNAL  
Cir. 148,338; Sunday 129,244

## Kaiser Plans Giant Flying Cargo Ship

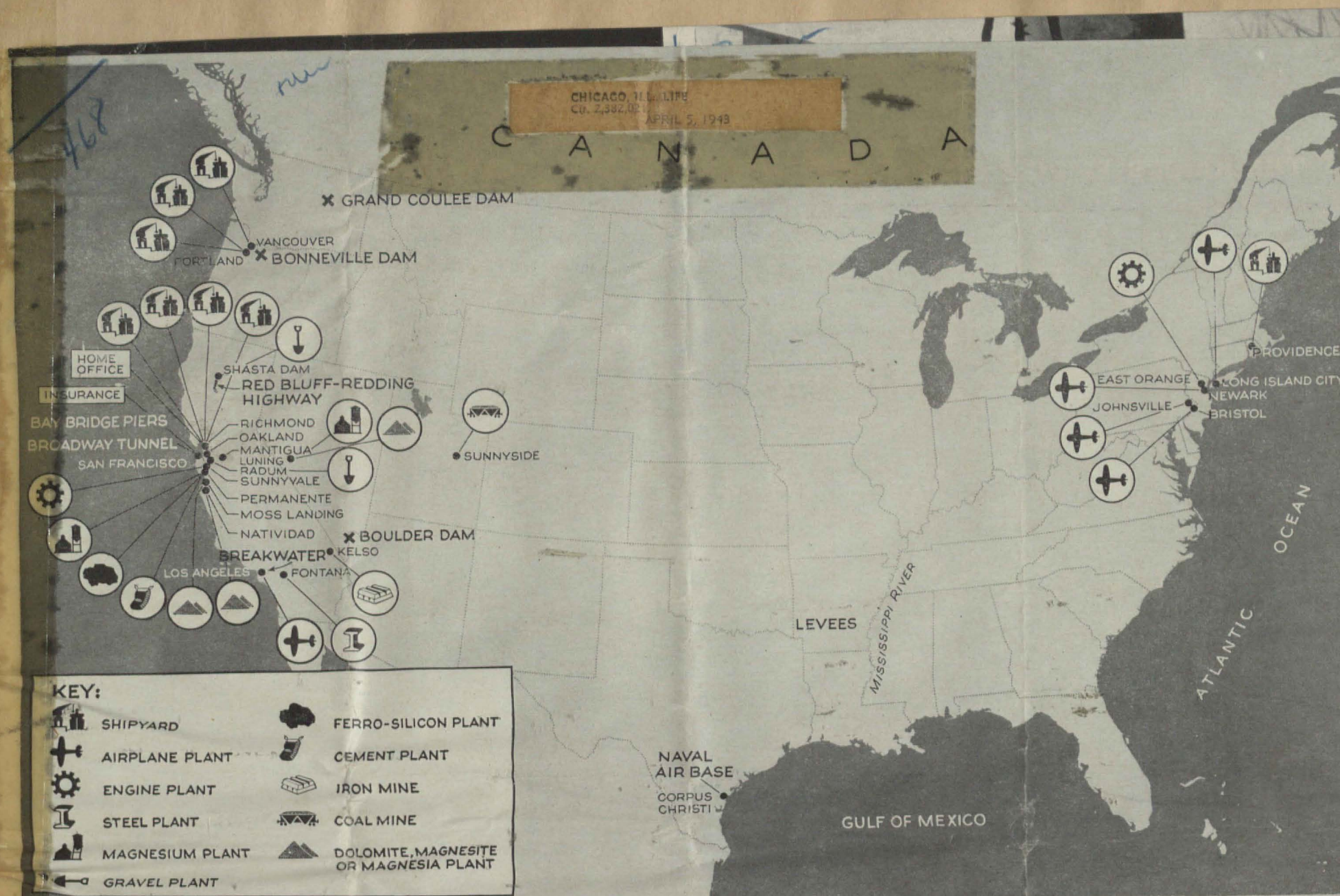
By John M. Richardson

Henry J. Kaiser, America's ace builder, whose shipyards are the outstanding exemplification of the nation's all-out war effort, revealed plans for a giant flying wing cargo carrier at the annual meeting of the Columbia Empire Industries, Inc., late Monday at the Multnomah hotel. At the same time he declared the Kaiser-Hughes company will have huge plywood cargo airplanes ready for trial flights within 12 months.

"Last year," Kaiser said, "I told you of my intense desire to build a large cargo plane, to build a fleet of these planes, which could speed the cargoes of war and the cargoes of peace. When I made that announcement, many pointed out with shock and surprise that no engineers plants or materials were available for the construction."

"Today, three of these giant cargo planes are being fashioned of plywood by the Kaiser-Hughes company, under the personal direction of Howard Hughes. You may have heard the latest false rumors that Mr. Hughes and I have ruptured relations, and that these giant planes never will fly. I think you may be interested to learn that Mr. Hughes and I still are on the best of terms, and the first plane will make its trial flight within 12 months."





SYMBOLS LOCATE HENRY KAISER'S PLANTS, ALL, WITH EXCEPTION OF GRAVEL PITS, BUILT SINCE 1939. ALSO IDENTIFIED IN LARGE LETTERS ARE PRE-WAR KAISER ACHIEVEMENTS

# THE KAISER EMPIRE

## IT NOW REACHES ACROSS THE CONTINENT

The massive enterprise of Henry J. Kaiser now embraces a transcontinental empire (see map). Last month, the West Coast shipbuilder became an East Coast aircraft producer. At the behest of the U. S. Navy, Mr. Kaiser took over the stumbling Brewster Aeronautical Corp., a \$275,000,000 bottleneck of dive bombers and fighters. On his own, he bought up the Fleetwing Aircraft Co., and assumed therewith its \$25,000,000 trainer plane contracts. While thus achieving his fondest ambition, Mr. Kaiser undertook a chore for the Maritime Commission. In Providence, R. I. he and his associates will direct the refurbishing of a shipyard for production of corvettes.

For his fellow citizens, who have witnessed the spectacular development of his war-born empire, Henry Kaiser is an affirmation of the chief reason why they are sure that they cannot lose this war. The U. S. citizen makes no extreme claims for the brilliance of his generals and diplomats or even for the military prowess of his still unbloated armies. But in his capacity to produce, to tackle any kind of industrial production and, in no time at all, bury his enemy under sheer tonnage, he is sure he has no peer. This conviction had weakened somewhat during the past decade. In the current renaissance of U. S. enterprise it has found new life, and Henry Kaiser, Jack of all industries, is its image.

The Kaiser legend is well-known. The dam-building sand-and-gravel man, who laid his first keel in the spring of 1941, has become the world's biggest and fastest shipbuilder. Simultaneously he has swept into such diverse fields as cement, magnesium, steel and aircraft. The map above pins the legend down to its component shipyards, plants, quarries and mines, and locates the major projects of the Henry J. Kaiser Co. when, before the war, it was engaged merely in general construction. Not shown are the projects of Henry Kaiser's "Western Group" partners, who share in Kaiser's interests and share their own interests with Kaiser.

Newest operating unit on the western side of the

empire is the steel mill at Fontana. It is the first complete steel plant, from blast furnace to rolling mill, in California. Ore and coal come from Kaiser mines in Kelso, Calif. and Sunnyside, Utah. The Portland, Ore. shipyards are operated by Kaiser's able son Edgar. One of them holds most of the Liberty shipbuilding records. Another, on April 5, is launching the first Kaiser aircraft transport carrier. Heart of the empire is the San Francisco region, with the home office in Oakland and four shipyards on the bay. To the south in San Jose Valley is Permanente, Kaiser's bright, new industrial center, producing cement, magnesium and the alloy metal, ferrosilicon.

These heterogeneous enterprises make Henry Kaiser one of the nation's biggest employers of labor. With about 250,000 workers, Kaiser maintains uniquely realistic relations. He fights turnover and absenteeism by getting housing, recreation and medical facilities for them. He willingly signs closed-shop agreements, largely with the A. F. of L., but vigorously fights C. I. O. efforts to upset them. While he fights the C. I. O. in the West, he signs up 20,000-plus C. I. O. workers in his new Eastern aircraft plants.

The essence of the Kaiser legend is Kaiser himself. He not only builds ships faster than anyone else does, but says he will beforehand. Bigwigs sometimes object to the amount of space he gets himself in the press as "the can-do man." In neglect of the oak-paneled reserve of U. S. big industry, he goes directly to the public at large to propose that he be commissioned to build cargo airplanes, to suggest that war bonds be pledged for post-war products, to declare that his enemies are smearing him.

There are those, particularly among Kaiser's fellow industrialists, who behold in him not a Paul Bunyan but a P. T. Barnum. Since the Government is his chief banker and customer, they wonder how he will be able to survive in a wide consumer market when the war ends. For that day, as indicated on pages 76 and 77, Kaiser himself can hardly wait.



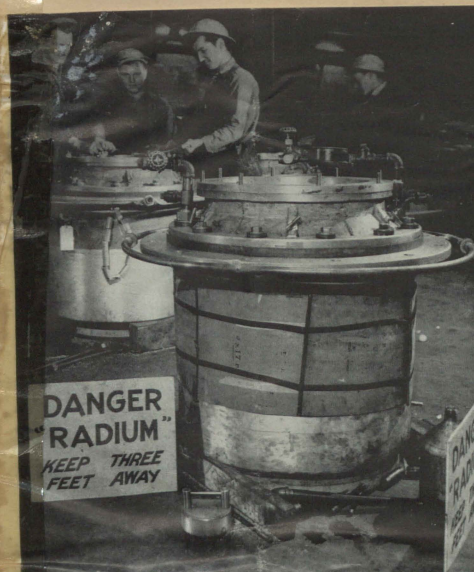
Henry J. Kaiser is here flanked by portraits of his sons, Shipbuilder Edgar (left) and Henry Jr., handy man in the Oakland home office.



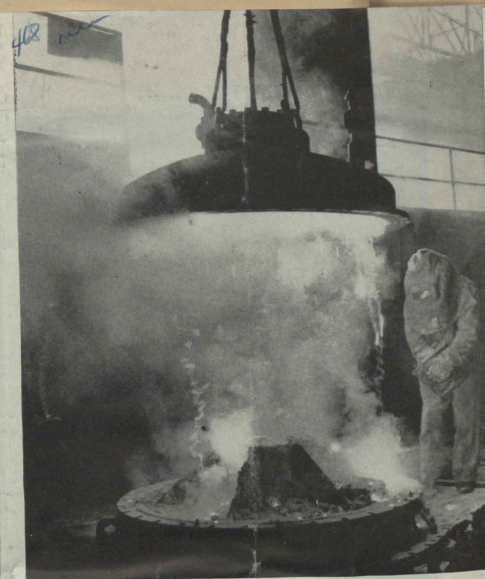
# THE KAISER EMPIRE (continues)



HAMMERHEAD CRANE SWINGS BOTTLE OF MAGNESIUM OVER RETORT FURNACES



ELECTRODE SLEEVE OR GLAND, HERE BEING X-RAYED, KEEPS MAGNESIUM VAPOR IN FURNACE



SPARKS OF SODIUM FLAME BRILLIANTLY AS WORKER OPENS MAGNESIUM BOTTLE

## MAGNESIUM

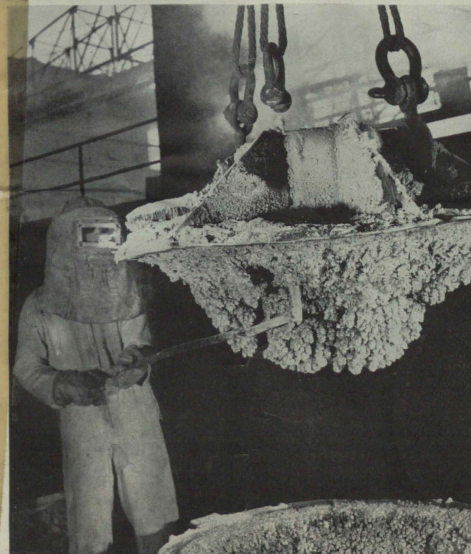
Until his recent arrival in the aircraft business, magnesium was Henry Kaiser's favorite enterprise. This new metal, however, has let Kaiser in for his severest headaches. In his eagerness to get into the field, he staked his operations on a process which was scoffed at by established magnesium producers, and indicated that he would start delivering on the customary Kaiser schedule. That was in 1941. His process had bugs in it which took his engineers nearly a year to lick. The Permanente magnesium plant

did not get into production until last November and is not yet running at capacity.

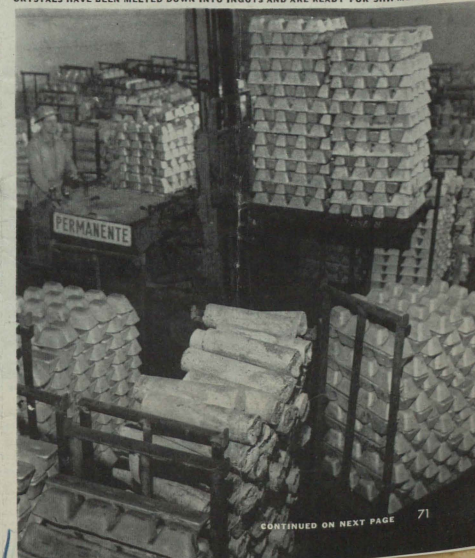
Magnesium is a violent metal, only recently domesticated for purposes other than fireworks and military arson. The first plant built in Austria on Kaiser's Hanging process was abandoned after explosion. At Permanente, Kaiser's engineers got the Hanging process under control and then were held up by failure of a furnace part which broke down in the heat. Permanente now has one that works (above, left).

Henry Kaiser has great plans for magnesium. Its technology dates back only a decade or so, but already in some alloys it challenges aluminum. With aluminum and plywood it will compete in automobile, plane and house construction, wherever a light, strong material is required. It can be extracted from magnesite and dolomite deposits, and it can also be extracted from sea water. The Kaiser set-up covers the field well, with both kinds of quarries and a sea-water plant at Moss Landing, Calif.

SPARKLING CRYSTALS OF PURE MAGNESIUM CLING TO LID AND SIDES (BELOW) OF RETORT



CRYSTALS HAVE BEEN MELTED DOWN INTO INGOTS AND ARE READY FOR SHIPMENT



CONTINUED ON NEXT PAGE

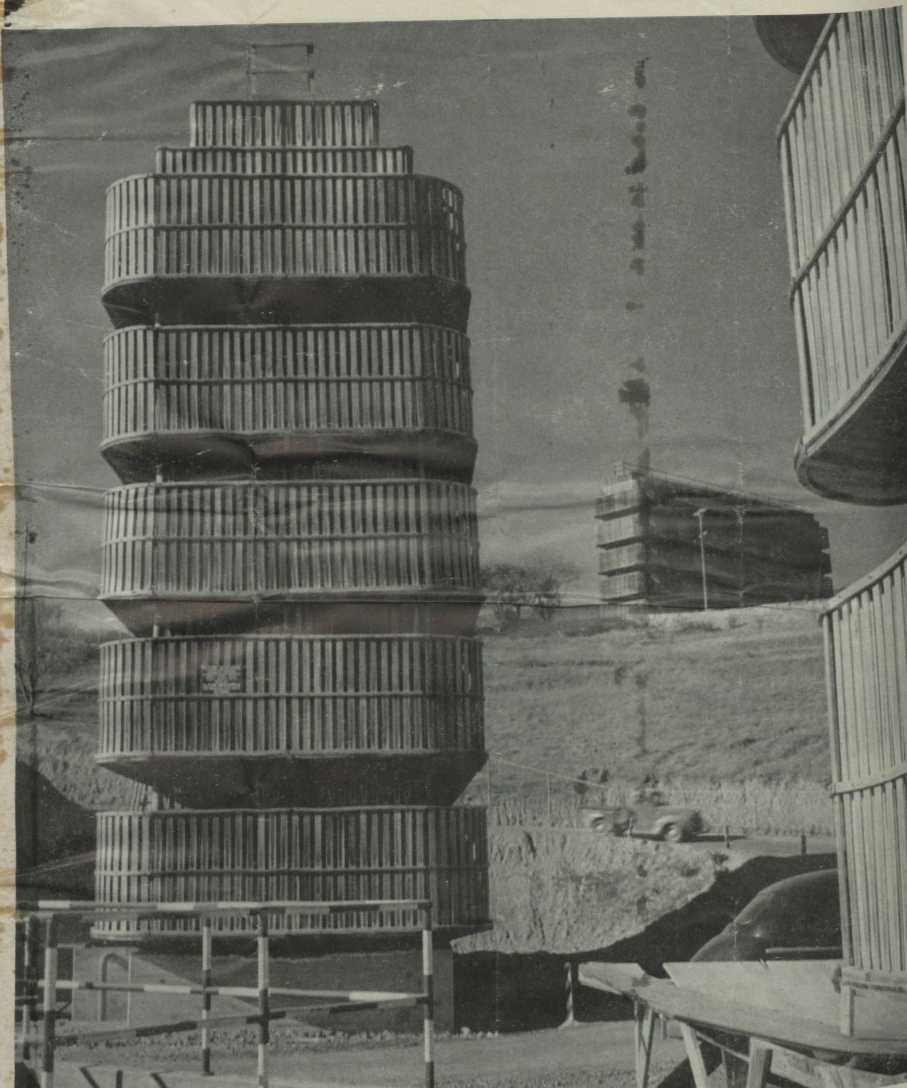




DELIVERY END OF CONVEYOR BELT DISCHARGES LIMESTONE ONTO PILE AT FOOT OF HILL. LIMESTONE WITH CLAY IS CALCINED BY NATURAL GAS IN FOUR ROTARY KILNS (CENTER)

# CEMENT

The Permanente cement mill existed on paper only when, in August 1939, Henry Kaiser bid in the contract to supply 24,000,000 bags of cement for Shasta Dam. Big enough to fill the huge Shasta contract within a year, Permanente was Henry Kaiser's bet that the country was shortly going to need a lot more cement in the course of the next few years. Launched into the war construction boom, Permanente



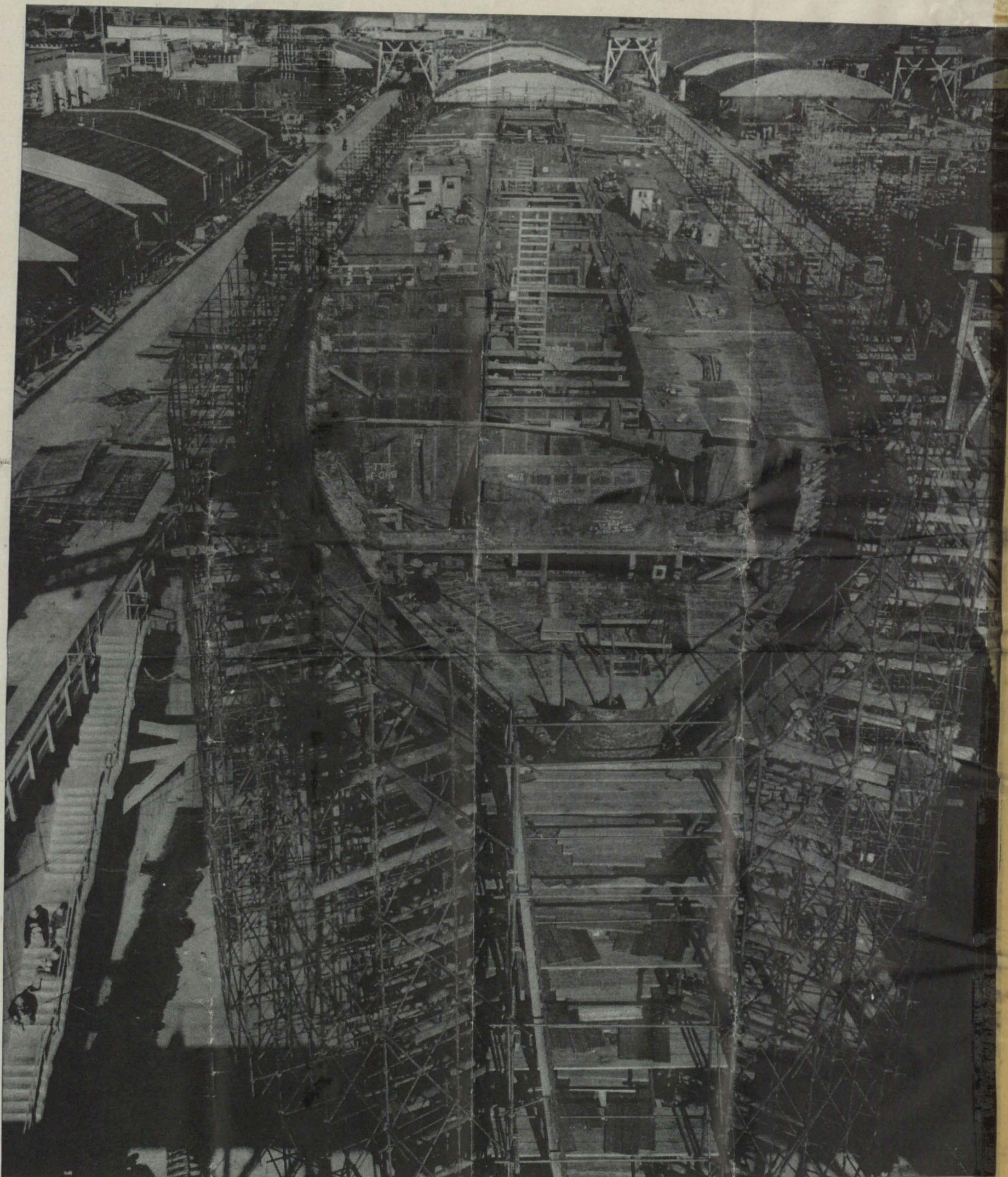
CONDENSER TOWERS COOL NATURAL GAS WHICH CHILLS MAGNESIUM VAPOR INTO DUST AS IT EMERGES FROM FURNACE. GAS, AFTER SEVERAL CYCLES, IS BURNED IN CEMENT KILNS

cement has been going full blast throughout its existence and had to be expanded. Cement yields nicely to the Kaiser impulse to keep materials in motion. Limestone starts from the quarry two miles back in the hills and cascades off the end of the conveyor belt (above, left) into the backyard of the plant. It stays long enough to be crushed and powdered, calcined into cement, sacked or squirted directly into

boxcars and is then on its way to be compounded with sand and gravel into concrete. Permanente, with cement and magnesium plants nestled together, symbolizes the versatility of Kaiser enterprise and reveals its inner logic. Permanent magnesium is precipitated by cold natural gas, chilled in condenser towers above. Permanent cement is calcined by the same natural gas, as a sheet of flame in the big rotary kilns.



# THE KAISER EMPIRE CONTINUED



AT RICHMOND SHIPYARD No. 3, A MERCHANT SHIP TAKES SHAPE IN BASIN WAY, WHICH WILL BE FLOODED FOR THE LAUNCHING. BASIN WAYS MAY ALSO BE USED AS DRYDOCKS

## SHIPBUILDING

The Kaiser name will be indelibly linked to the ships of World War II in the memory of the U. S. Through all the upward revisions of the Maritime Commission program, he has held contracts for one-third of the Liberty ships. His three Liberty shipbuilding yards have established an average of 39.2 days from keel to delivery, against a national average of 52.6 days. The technique that sets this pace is indicated



# WEST COAST . . .

OSGOOD MURDOCK

IRON AGE

Philadelphia, Pa.

MAY 13 1943

• North American Aviation probes employee views . . . Kaiser starts steel production Friday . . . Lockheed notes improved material situation.



LOS ANGELES—Not so many years ago, the opinion held by employees of North American Aviation's Inglewood plant of the company's management was no great secret. One of the bitterest strikes ever faced by any manufacturer in southern California culminated by the locally famous "battle of the bean field," put North American's struggle with the then infant CIO aircraft organization on the front pages of every newspaper in a nation rapidly

This year, however, North American's wages, along with those of other West Coast airframe manufacturers, were settled by edict of the federal War Labor Board, and President J. H. "Dutch" Kindelberger had to pass out questionnaires among his employees to be sure what they thought of the company and its management.

As a matter of strict fact, this was the second year in which employees both at the Inglewood and Dallas, Texas, North American plants had an opportunity to express their views through questionnaires and gripe sheets. The questions asked at both plants were identical.

At Inglewood 65.25 per cent of the handful of employees who returned the questionnaire felt that the top management was competent, but 16 per cent were definitely of the opinion that it was not. The skeptical Texans, who did not have the spectre of a bitter strike in their background endorsed the competence of top management by only 57.30 per cent, but

less than 11 per cent were definitely of the opinion that the show was being fudged. Less than 60 per cent at Inglewood felt the top management was sincere, and less than one-third felt it was interested in them. Only 56.51 per cent of the Texans thought the brass hats were sincere, but, being of a folksy nature, more than 35 per cent thought the front office was interested in them. At Inglewood, 44.76 per cent were definitely of the opinion that the top management was not interested in them.

North American planes have played spectacular roles. The B-25 bombers, besides being constantly in the news from overseas, were used in our raid on Tokio. The AT-6 trainer has been particularly satisfactory in the advanced schools. The North American Mustang is still winning ecstatic notices in the "new goods" column. Yet, less than two-thirds of the workers answering the questionnaire felt the majority of their fellow employees were competent; 68 per cent, sincere; and 45 per cent, doing their best. Less than half of the Dallas workers felt the majority of their fellows were competent; 57 per cent, sincere; and 45 per cent, doing their best.

KINDELBARGER also asked his workers what they thought their chances of continued employ-

ment with the company were after the war. At Inglewood, 17.99 per cent expected to be laid off at the end of the war; 9.73 per cent planned to return to their former businesses; 33.48 per cent hoped the company would need their services, "but had some doubt"; and 39 per cent expected the company would continue to need their services and intended to stay on the job. More optimistic were the Texas workers. Only 10.70 per cent expected to be laid off after the war; 9.10 per cent planned to return to their former businesses; 33.60 per cent hoped, but doubted, that NAA would still want them; and 44.55 per cent expected they would be needed and intended to stick.

On the matter of morale, only 1.64 per cent of the Texans felt that speeches by company or government officials could accomplish most, and only 2.34 per cent of the southern California employees wanted to listen. Some of the fondest illusions of the Office of War Information were blasted—only 3.68 per cent of the Texas and 6.47 per cent of the California workers felt exhilarated by combat stories of North American planes in action; only 1.84 per cent of the Californians and 3.24 per cent of the Texans were spurred by true stories of persecution from conquered countries; only 2.38 per cent at Ingle-

FRESH FOOD: Service men thousands of miles from grocery or meat stores are assured fresh food by portable refrigerators. Installation of interior coils and refrigeration system is shown above at the Weber plant, Los Angeles.





## A SLOWDOWN STRIKE THAT *Workmen* *Did Not Call*



Assembly stopped—men waiting—precious hours lost. This slowdown wasn't called by workmen—nor was it sabotage.

A run of parts that wouldn't fit caused the stoppage. It could have been prevented by an adequate gaging policy and inspection practice.

Parts that don't fit cause losses in production, wasted man hours, excessive scrap and rework time that are many times what adequate inspection would have cost.

\*\*\*  
Sheffield, authorities in Dimensional Control, can help you formulate a sound gaging policy whereby you can gage 100% of your product at a cost insignificant in comparison to the expense of not doing it.  
\*\*\*

**THE SHEFFIELD CORPORATION**  
DAYTON, OHIO, U.S.A.  
Specialists in Dimensional Control



THE IRON AGE, May 13, 1943—87

## NEWS OF THE WEST COAST

wood and 2.51 per cent at Dallas heeded posters urging greater efforts. On the other hand, only 1.35 per cent at Dallas and 4.32 per cent in California felt shorter hours of work and additional conveniences would build morale, and 43.19 per cent at Dallas and 17.22 per cent in California felt longer hours of work and less coddling would be stimulating. Lack of material was blamed by 8.42 per cent at Dallas and 11.2 per cent at Inglewood as the chief morale destroyer, while 19.07 per cent at Dallas and 33.46 per cent at Inglewood said that all the truths about our defeats as well as our victories would do more than any other single factor toward building the will to work to win.

Shortage of materials was agreed upon as the most serious problem Dallas North American had to overcome by 26.58 per cent of the workers; 25.37 per cent thought it was inadequate personnel; and 16.85 per cent listed absenteeism. Of the Inglewood workers, 27.37 per cent thought the company should worry about inadequate retained personnel most; 24.98 per cent, shortage of materials; 18.33 per cent, absenteeism.

JUST four and one-half months after the lone 1200-ton blast furnace was blown in at the Fontana works of Kaiser Co., Inc., steel production will start Friday in the open hearth department. Finished steel production is still several months away, due principally to delayed delivery of heavy material and equipment.

No words could better indicate just how new and mysterious steel produc-

tion is to the West Coast than the description printed by the Los Angeles Times, generally acknowledged to be the Coast's leading newspaper, concerning the inauguration of raw steel production:

"Steel will issue for the first time May 14 from Henry Kaiser's giant new blast furnace at Fontana.

"On that day before employees of the West Coast's first steel mill the industrial wizard will open the hearth to pour the first steel ingots produced since the plant began operation.

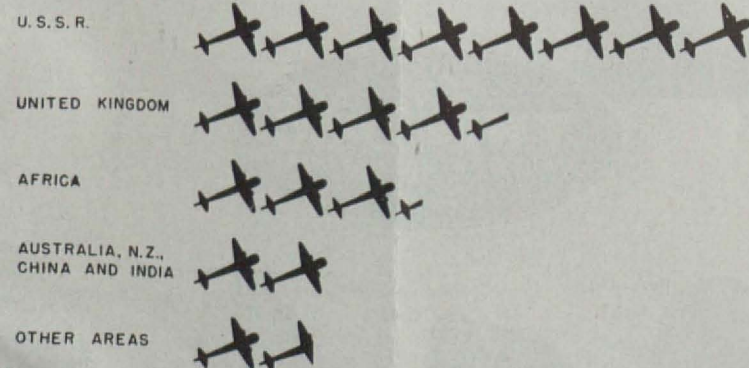
"The blast furnace was 'blown in' on Dec. 30, 1942. Two days later the first pig iron to be cast on the West Coast was poured. Now, with that pig iron, plus scrap and certain raw material, the furnace will spew forth steel."

There is nothing funny, however, from the Kaiser point of view in charges of unfair labor practices filed with the National Labor Relations Board against the company by CIO steel workers Local 2861, which claims to have signed up 85 per cent of the plant's production workers. The CIO group two weeks ago filed for NLRB certification as bargaining agent, but an AFL unit promptly filed an intervening petition.

Ever since the long established Kaiser policy of establishing union relationships in the early stages of any project ran afoul of a snag when CIO objected to Kaiser's early bird agreement with AFL at Portland, the CIO has been on the trail of all Kaiser plants snapping viciously at their employee relationships whenever possible. The Permanente Metals Corp., Kaiser magnesium subsidiary, currently has a case before the WLB as a result of charges by CIO laboratory workers that production was deliberately hindered. Every conceivable opportunity is taken by the CIO and radical press to drag down the Kaiser prestige generally.

LOCKHEED is tooling for a large production program on its big Constellation transport, will deliver several this year, and will go into steady production early next year, Robert E. Gross, Lockheed president told stockholders last week. Moreover, Lockheed's subsidiary, Vega, built more B-17 Flying Fortresses during April than in the last seven months of 1942, indicating that its agreement with Boeing is actually bearing fruit after long delay.

## MOST LEND-LEASE PLANES HAVE GONE TO RUSSIA, BRITAIN AND AFRICA



EACH SYMBOL REPRESENTS 5% OF ALL TACTICAL PLANES EXPORTED UNDER LEND-LEASE

X-14829

90—THE IRON AGE, May 13, 1943



MAY 1943

## LETTERS FROM OUR READERS

READERS ARE INVITED TO SEND THEIR VIEWS ON ANY SUBJECT CONCERNING THE INDUSTRY

CDB Valuable Text in  
Henry J. Kaiser Operations

Gentlemen:

We wish to thank you for the copy of CERAMIC DATA BOOK. The data contained in the book regarding refractories is of considerable value in our studies of refractories. As you probably know, the Henry J. Kaiser interests are now in the production of cement, magnesium, magnesia calcine, dolomite and steel. All of these products require refractories in some part of their process.

It is obvious from the above information that the CERAMIC DATA BOOK is a handy reference to us.

J. Everett Winter

Design Engineer  
Henry J. Kaiser Co.  
Oakland, Calif.

• • •

Recommends Hollow Tile for  
Residential Construction

Gentlemen:

Since many of the clay products plants are doing little at this time, it is a good idea now to look ahead and plan for the future. I have given a lot of thought to hollow tile for house construction—a purpose for tile that has not progressed as it should. I have some ideas for a tile for this purpose, some of which are not new, but some are original with me. I intend making this tile as I consider it the best product that can be made for residential construction.

The lightest form of hollow wall in good construction would consist of an 3 3/4 to 4 in. in thickness, a 2-in. air space and 2 in. of brick or hollow tile inside, well tied together with non-rusting metal ties. For other masonry structures, it may be said that solid walls require furring on the inside, and veneer is not recommended as an improvement except on buildings already constructed. Veneer requires as much scaffolding as an all-masonry job. What is called the ideal wall requires furring and is expensive as to mason's time.

A wall of hollow tile can be as attractive in appearance as a good-looking brick wall, and to obtain this result requires a tile unit of proper proportions, well made, well laid, and it should have slightly thicker mortar joints for best appearance than those used in brick-work.

Hollow tile of width and height of 3 3/4 to 4 in. and length of 11 3/4 in. show the same face proportionately as brick, looks like a large brick, are 1 1/2 times the length and height of brick, weigh 50% more for each unit and cover

125% more wall surface. They are also 2 1/4 times as large as brick. Most wall construction with this tile is equal to brick, but with a possible reduction in costs for the finished wall. Two courses of this tile equal three courses of brick in height.

One of the most attractive bonds in brickwork is the Flemish, which shows a stretcher and header alternately, but requires an 8-in. or thicker wall, unless half brick are used—which is expensive in labor and material. The same attractive results can be had with tile as mentioned above and with little extra cost.

I would put a groove in the tile to show vertically, when laid, of about 3/8 in. in width, same in depth and one-third the distance from the end of the tile. This groove, or recess, to be filled with mortar at the job before being placed in the wall, and thus we would obtain a very desirable effect. I would also put a groove or the same size, or perhaps larger, central and lengthwise on the upper side—this to guide the trowel point in spreading the mortar. This would also help in placing in the wall.

Since this tile is larger than brick, it is desirable to show a wider mortar joint than usually done in brick, and this effect can be had by slightly bevelling the two corners from the opposite side of the lengthwise groove—this bevelling could be done from the die. If tile is bevelled as suggested, it lessens exposed height of tile as much as 1/8 or 3/16 in.

I have some other ideas on this tile that I expect to use in making it. However, if larger or better tile can be made for the purpose stated, I would like to know about it.

J. D. Thompson

Thompson Brick Co.  
Eureka, Calif.

• • •

Wants Brick With  
Low Absorption

Gentlemen:

We have a customer who wants about 10,000 brick with a very low absorption—of about 2%. However, I believe that it is unlikely that any brick with such a low absorption will be found. However, can you inform me of a manufacturer who might supply a brick that is low in absorption.

H. R. Walker

President,  
The Georgia-Carolina  
Brick & Tile Co.,  
Augusta, Ga.

According to tests, the hard burned brick from the following districts come close to the absorption figure you men-

tion: New England, 5-8%; Pittsburgh, 4-7%; Illinois (except Chicago), 5-8%; Southern Indiana, 2-5%; Kansas, 3-5%; Missouri (except St. Louis), 2-5%.

Manufacturers who are interested and who can furnish brick to meet Mr. Walker's requirements are requested to write to him.—ED.

• • •

Douglas Plant Design  
Will Benefit Industry

Gentlemen:

Some months ago I told some of my associates that I felt that the Oklahoma City project (Ed. note: See page 14, April BRICK & CLAY RECORD for story on Douglas Aircraft plant) could do as much for the brick and clay industry as any single building ever erected. It certainly is gratifying to have your confirmation of this view, from one who is so well versed in the problems and background of the industry.

George A. Bryant

President,  
The Austin Co.,  
Engineers and Builders,  
Cleveland, Ohio

## NEWS OF THE TRADE

Robins Conveying Belt Co., Passaic, N. J., designers, manufacturers and erectors of materials handling machinery, announces that it is shortening its name to Robins Conveyors, Inc.

Albert L. Austin, sales engineer, Robins Conveyors, Inc., Passaic, N. J., died May 2, following a long illness.

American Brake Shoe & Foundry Co., New York, N. Y., has shortened its name by dropping "& Foundry" by vote of its stockholders at their 42nd annual meeting.

Elmco Corp., Salt Lake City, announces the establishment of an additional complete filtration laboratory in connection with their Chicago (Ill.) office. The Filtration Engineering staff has been enlarged and Paul Richter has been placed in charge of the Filtration Equipment Dept. replacing C. J. Peterson.

Link-Belt Co., announces the elevation of Frank S. O'Neil, general manager of the company's Indianapolis operations, to the position of vice-president. James S. Watson, Indianapolis, who now fills that capacity plans to retire at the end of this year from active duty. Mr. Watson, who has just rounded out 50 years of service with the firm, will remain a director of the organization.

Barium Reduction Corp., South Charleston, West Va., has announced the election of Thomas B. Jackson as president to succeed the late James B. Pierce, Jr. Mr. Jackson, formerly secretary and general counsel of the corporation, is a member of the law firm of Brown, Jackson & Knight.

BRICK &amp; CLAY RECORD



STEEL  
Cleveland, Ohio  
MAY 17 1943

By A. H. ALLEN

Detroit Editor, STEEL

## MIRRORS of MOTORDOM

*"Pacific Rim" market offers large possibilities for West Coast aircraft plants in postwar era. . . Emphasis may be placed on lighter consumer goods rather than automobiles*

### LOS ANGELES

WITH aircraft manufacturing now the nation's top-ranking industry, and with the West Coast occupying the No. 1 spot for airframe manufacturing, the most pressing question which businessmen ask each other sitting around the luncheon table is: What will these overnight giants be doing after the war? Will they be manufacturing automobiles? How can they keep the hundreds of thousands they now are employing still occupied with some useful productive labor?

No one can vouchsafe a certain answer. The solution is wrapped up in a host of "ifs", the principal one being the date of the war's end. This much can be said for sure, after a tour of virtually all the airplane plants on the West Coast, and after conversation with some of the leading officials in these plants, with workmen in the plants and with people whose life is wrapped up intimately in the West Coast: Every effort is going to be made to keep the best of the West Coast plants going, no matter whether on airplanes, on refrigerators, on stoves, on automobiles or anything else you can figure out.

Hard realism compels the observation that by no stretch of the imagination can airplane production ever be con-

tinued on the present basis, roughly 6000 ships a month. Even assuming a world patrolling job to be undertaken by the U. S. no such quantities of combat craft could possibly be absorbed because, without active combat, losses

The editor of this page for the past six weeks has been visiting industries of the Pacific Coast, from Los Angeles to Seattle, in the attempt to obtain first-hand impressions of industrial activity there—as it is now and as it may affect the postwar world. Until his return to Detroit, regular dispatches from the motor city necessarily are suspended.—The Editors.

from obsolescence and accident could not conceivably reach this total.

Granting this fact, it becomes obvious the vast aircraft plants will have to be converted to some form of consumer

goods manufacture, and the most immediate product is the automobile. There are more words being wasted in print and in conversation about the West Coast aircraft companies going into the automobile business after the war than about any other subject that comes to mind. The idea was suggested in this department about a year ago as a result of discussions in Detroit on the matter; but after a first-hand inspection of practically all the aircraft plants on the Coast, the opinion is offered here for what it is worth that the automobilization of the aircraft plants may not be as easy as it sounds. In the first place, the Coast is practically devoid of engine-building facilities, which would imply the necessity of building engines in the Middle West and shipping them to the Coast. In the second place, aircraft plants, outside of their machining departments, which as a rule are beautifully equipped with the latest and best types of machine tools (in some cases apparently far over-equipped for most efficient utilization), are not particularly suited to automobile manufacture as it is now known. They have the plant buildings—in most cases light structural steel framing covered with corrugated galvanized steel sheeting—and a large assortment of fuselage and wing jigs, usually served by light overhead cranes suspended from

Kaiser's magic isn't done with mirrors: Some of the thousands of shipyard workers, many imported from other areas, watch a launching at a Henry J. Kaiser yard in Southern California. NEA photo



May 17, 1943

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Reno Evening Gazette  
5-17-43

### Kaiser Negotiating With Railroads For Building Equipment After War

SAN FRANCISCO, May 21.—Henry J. Kaiser, ship builder extraordinary, stated here today that he is in process of negotiating plans with several of the country's largest railroads, including "the largest transcontinental lines that serve the West Coast," for the construction of fast, lightweight trains in his West Coast shipyards at the close of the war.

Company engineers, he stated, have been at work on this project for many months developing passenger cars

made of new steel alloys and lightweight aluminum and magnesium. Some of the proposed trains would be super-fast streamlined coaches so light one engine could pull twice the number now possible; others would be lightweight freight cars that could handle the nation's freight at twice the present speed and at approximately half the cost.

While not disclosing the identity of the lines with which he is negotiating, Mr. Kaiser said, "We agree that our railroads must be rebuilt after the war. We agree that millions of shipyard workers must have jobs. This will do both."



## KAISER PLANS POST-WAR RAIL BUILDING

A new chapter in the post-war plans of Henry J. Kaiser, the world's No. 1 shipbuilder and "miracle man" of production, was unfolded today when he announced that he planned to become a builder of fast, light-weight railroad equipment on the very first day of peace.

Kaiser revealed he is negotiating with a group of the nation's largest railroads with the view of building a vast fleet of swift, light trains in the yards now turning out ships.

### DOUBLE PULL

He said his engineers have been at work for months developing passenger cars made of new steel alloys, lightweight aluminum and magnesium. Some of the proposed trains would be so light, he said, one engine could pull twice the number of cars now generally used.

Lightweight freight cars that could handle the nation's cargo traffic at twice the present speed at about half the cost are included in the program.

Three of the railroads involved are the "largest transcontinental lines that serve the West Coast," he said, adding he wanted construction to begin on "the very day of peace."

### DEATH FOR RACKETEERS

Meanwhile, Kaiser—declaring he would not "pussyfoot"—called upon Congress for federal legislation providing punishment for convicted labor racketeers identical to that for kidnaping—including the death penalty.

Kaiser, in a statement asking the nation's legislators to adopt anti-labor racketeering and extortion laws similar to the federal kidnaping statute, declared kidnaping usually involves the life of only one person, "while this involves the lives and safety of many workers and their families."

He said he believed the new racketeering penalties should be in exact parallel to those for abduction, with maximum sentence of life imprisonment in cases where no bodily harm was inflicted and death where personal injury is involved.

## Kaiser to Build Trains After War

Henry J. Kaiser is not content with ship building, cargo plane construction and general construction work—he's now going into the railroad field.

America's "miracle builder" yesterday reported that negotiations are under way with some of the nation's biggest railroads to build post-war fast, lightweight trains in wartime shipyards.

"We agree our railroads must be rebuilt after the war and we agree that millions of shipyard workers must have jobs. This will do both," he said.

Mr. Kaiser said his engineers have been working for some months on the project developing new passenger cars made of steel alloys and the new lightweight metals, aluminum and magnesium.

Not only are these on the drawing board, but also freight cars and engines as well—freight cars so light and speedy that they could speed cargo from Coast to Coast in half the present time at half the cost.

"I want to build these trains on a 'P-day' (the day of peace) basis," Mr. Kaiser said. "I am proposing we complete the engineering studies at once, and get the financing arranged right away."

"Then we can get the contracts signed right now, effective on 'P-day'—and I want to see construction started on that very day. We haven't got time to waste," he continued.

Mr. Kaiser said the construction job should be handled not only in his own shipyards on the Pacific Coast, but in yards all over the country.

If postwar shipbuilding takes its expected drop in production, some yards could be converted into diesel construction, Mr. Kaiser told The News.

"There's no question about the railroads welcoming anything which will help their business," he said. "Furthermore, the postwar employment slack would be lessened by such a program, and this would in turn enable some railroads to do away with obsolete equipment they now have."

"Three or four transcontinental lines are interested in the program," he said. The trains should be the ultimate in lightness with magnesium and aluminum used for every feasible part. He said there was no question that there will be sufficient supplies of the metals after the war.

"It has already been shown," he said, "that our present production of aluminum is enough to rebuild

every freight car in the country three times."

A. T. Mercier, president of Southern Pacific, issued a non-committal statement regarding the proposals.

"We will undoubtedly need new equipment after the war, made of such material and of such design as will offer the most practical and best possible service to the Southern Pacific and its customers," Mr. Mercier said. "We will be interested when such equipment may be needed in the postwar period."

The S. P. has spent 110 million dollars in rails, cars and other improvements from mid-1939 to the first of 1943, spokesmen said. In-

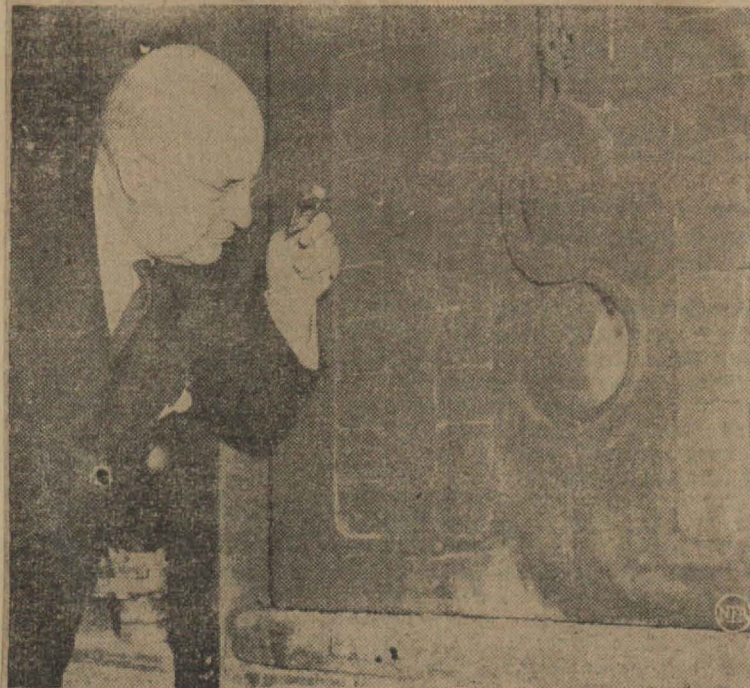
cluded have been the new "Lark," which cost one million dollars, and additional locomotives and streamlined cars.

Mr. Kaiser, famed as a transportation speed-up advocate, said the super-trains he might build would assuredly compete with his giant cargo planes. "That will be just what I'd like to see," he declared.

"That kind of competition would result in lower rates, better service and consequently a need for more trains and planes. The people couldn't help but benefit. More production will bring more prosperity," he said.

R  
L. V. R. Journal  
6-15-43

## New Operation for Miracle Man Kaiser



Shipbuilding record-breaker Henry J. Kaiser gives his new steel plant at Fontana, Calif., the once-over as he looks into a furnace at the first steel produced in his \$100,000,000 plant, the first integrated iron and steel mill on the West Coast.

RIVERSIDE DAILY PRESS  
5/27/43

## Mineral Deposits Abound in Riverside County

Now that the first all-western steel on the Pacific coast has been poured at the Henry J. Kaiser Steel Mill at Fontana, it is a good opportunity to review just how the mineral deposits of Riverside and San Bernardino counties fold into the picture.

From T. A. McCullough of Riverside, we learn that at a hearing of a senate subcommittee studying problems of small miners held last month at the Mission Inn, Senator James Scrugham of Nevada brought to the fore the metal requirements necessary to wage modern combat.

A quarter century ago, he said, three million Yanks in France got along with 89 pounds of iron apiece. Today, Uncle Sam allots each soldier 50 times that weight of highest grade implements obtainable. That is the equal of a 2½-ton truckload that miners and metallurgists must furnish our fighting men.

Copper and tin form bronze, first alloy known to the ancients. Ferrous compound alloys such as tungsten, manganese and chrome combine with iron into the best tool steels and utilities. All these abound within the confines of Riverside and San Bernardino counties and the Mojave desert beyond. Congressman Harry R. Sheppard admonished that now is the time to place these resources in operation. In other words, "strike while the iron is hot."

At the conclusion of the last war,

production contracts were torn up just like tickets at the race track. Apparitions like Blanco's ghost stalked the portals of every tunnel that led to critical ores. For Japan's benefit we sank our battleships and got rid of our scrap hardware faster than Coal Oil Johnny spent his millions.

The Mining Association of the Southwest, with Howard Kegley and his capable staff, affords a helpful effort to get small mines in operation, and our government now realizes it is important to keep them going. Plans are being formulated for full production to furnish war needs, then a continuance to supply industry and build up our reserves.

Metal for California has been flowing from the Mesabi area in Minnesota via Pittsburgh to the west coast while great deposits lie right under our feet. The Iron range, which ties Riverside with San Bernardino, has begun to fuse in the Kaiser blast furnaces at Fontana. Let's keep them glowing.

When mineral resources emerge from their long night, manufacturing will dawn on this favored land, whose shores are washed by the Pacific, affording entry to the greatest markets on earth.

It's the opportunity we have waited for a great many years—an opportunity that sees the opening of the gates of California to the industries of this nation, at least.

## Kelso Mine Steady Shipper Iron Ore To Big Kaiser Mill

The Kaiser Company, Inc., Iron and Steel Division, has been granted an additional loan of \$21,000,000 from the Reconstruction Finance Corporation to be used for the expansion of the company's steel plant at Fontana, California. This brings the total loan from the RFC to \$105,000,000.

Operation of the new unit was started at the beginning of 1943 and it is understood that the company is shipping 2,500 tons of iron ore daily to the plant from its Vulcan mine near Kelso in San Bernardino county.

The ore is transported to the Union Pacific spur, eight miles, by a fleet of six jumbo trucks, having a capacity of 25 cubic yards and a gross vehicle weight of 140,000 pounds.

A crew of approximately 125 men is being employed at the Vulcan project, under the direction of Robert E. Tally, superintendent. Henry J. Kaiser, Oakland, is president of the Kaiser concern and George Havas is chief engineer.

## Life Saver

Something Henry J. Kaiser said recently has given birth to an idea, my men report, which might provide modern transportation at practically no cost—and replace the town's tank-trap streets with smooth pavement for lagniappe. Kaiser said that after the war he would produce railroad cars made of light metals.

Streetscars made of light metals—whether operated on rails or tires—would turn this trick for San Francisco. The Muny's handful of modern cars prove the quality of service possible from "streamliners" of magnesium, aluminum and alloys. And, if they didn't cost too much, light-weight cars would pay their way in saved track-maintenance, street-repairs and power-cost—all inevitably high so long as the behemoths now in operation keep pounding everything to pieces.

In checking around to find out if this makes sense, my agents have stumbled on something even bigger. For one simple reason—which few people know much about—the country may collapse when the war ends. Insiders figure the main hope rests with public works programs such as this would be. Pretty soon, I'll tell you why. Don't kiss off the thought too soon.

As everybody does know, the city and the Market Street Railway are millions of dollars behind with their paving programs. If they weren't needed to repair streets knocked cockeyed by heavy cars, those millions could finance a lot of light-weight cars—provided the new cars didn't cost too much.

Although the Muny's new cars cost \$20,000 each, the last price of a Presidents' Conference Car—from which they were converted—was \$15,000. Experience has just about led to agreement that the conversions weren't necessary. So the question is whether light-metals cars could be built under \$15,000. The answer is yes.

Right now the price of light metals runs around 20c a pound. Steel—which weighs eight times as much—sells around 4c. But the price of light metals is headed down. I can't give you the exact figures, of course, but Permanente alone is producing magnesium in the millions of pounds a month, while the country's aluminum production runs into the hundreds of millions of pounds a month. With peace, the price must further decline.

Now we come to Angle No. 2. The general idea is that after the war the West will become the light

JUN 16 1943

## Henry J. Kaiser's Vast Interest

NEW YORK, June 14. — Henry J. Kaiser in announcing that he was establishing his own personnel office in this city, said:

"It is one of my headquarters because I am here so much of the time, anyway, and because I have so many interests near here, and because the manpower situation is excellent here. Still another reason is because of the post-war situation. I am keenly interested in post-war developments and New York is an excellent spot from which to keep watch over them."

Mr. Kaiser, who estimates that he has at least 250,000 persons now in his employ, in response to a question, furnished the following outlines of his many interests.

"We have the largest cement plant in the world. We have two plants that are making asphalt for air fields. We have at least a dozen or fifteen large concrete plants. We have a calcining dolomite plant—you know that's used in steel. We have a big ferro-silicon plant."

"Then we have the Permanent Steamship Line, with two 11,000 to 12,000 ton cargo ships with passenger accommodations, operating between San Francisco and the Hawaiian Islands; we have two magnesium plants, and we have a couple of chemical by-product plants which make ammonium sulphate, toluol, benzol, naphthylene, tar and heavy oils—in fact, all of the major by-products of coal."

"Then we have a large compensation insurance company. We operate seven hospitals, two of which are on foundations, and we are starting another. As you know, the Office of War Information has just released some information about the 200-ton cargo seaplanes we are building. We own the Fleetwing plant and are now operating the Brewster aviation plants."

"We also have a sand and gravel plant which I think is probably the biggest in the country; we are manufacturing pig iron and fabricating machinery; we have a big industrial equipment company; we are interested in a big iron works, which produces turbines, gears, and ordnance

## BEHIND THE NEWS

metals capital of the Basic Magnesium is centered on the Columbian industry foresees some whole project.

Almost all the big Government money. dough in plant. But payroll. When the war yodel in Congress to companies. The first roll money.

In fact, most payroll—automatically. We'll and a big Navy—if we down from 7000 airplanes building peace-we Unemployment can be imagined. Since most piece as they go along will have any dough—its nose.

Yet the bigshots figure a transition pe everything will be all they can make the shipper. What's wanted the payroll during the age of both employees

The Federal Government enough to meet this e pered and too decent communities all over of Governor Warren set aside funds which on the instant peace

An ideal project decide now that, instead dollars for the Market the money to modern the war is over—will would out-do even Wa take a little legalizin time for both engineer—before Germany col

All this, of course So far as I know, no metals "streamliner" ured out exactly how car maintenance wh weight cars. But that wouldn't need long to Kaiser and his associ



STEEL  
Cleveland, Ohio

JUL 5 1943

By A. H. ALLEN

Detroit Editor, STEEL

## MIRRORS of MOTORDOM

**Communities not serviced by railroads experiencing difficulties with motor transport due to shortage of repair parts, trucks, mechanics and other restrictions. . . Kaiser pictured in "jeepette," prototype of \$400 auto he plans to build**

SAMPLING a cross section of opinion in the nation's communities not served by railroads, the statistical department of the Automotive Council for War Production finds that on the basis of a 25 per cent return of 1100 questionnaires, 49 per cent of these communities are having difficulties with motor transport facilities due to shortage of repair parts, 33 per cent due to lack of vehicles, 33 per cent because of shortage of mechanics, 19 per cent because of shortage of drivers, 13 per cent from shortage of tires and 5 per cent due to other wartime restrictions. Some communities of course report on more than one of these factors. Out of 270 replies received, 104 cited transport difficulties.

In 1930 there were in the United States 48,000 communities without rail service which were almost entirely dependent on motor transport for shipment of goods produced and receipt of supplies. Ten years later, due to railroad abandonments and other factors, the number of such communities had grown to 54,000, representing 40 per cent of all cities in the country and a population of nearly 8,000,000, or 6 per cent of the nation's total nonfarm population. And since they are in rural areas, they serve many times the number within their own boundaries.

### Dependent on Motor Transport

Although it has not been possible to determine exactly the additional population which is thus dependent on motor trucks, it is noteworthy that even within the boundaries of communities not served by rail a great proportion of the population of certain states is without rail service. For example, 30 per cent of the nonfarm population of Maine, and 24 per cent of the nonfarm population of Vermont are located in communities not served by rail. There are 15 states where 10 per cent or more of the nonfarm population is living in these rail-less communities.

An added factor, affecting areas which are served by rail, is the fact that with such a large volume of war goods taking priority on railroads, normal shipping suffers. An example is the case of a small woodworking shop near Detroit whose owner worked out a plan for mass production of mailboxes for new housing projects. He planned to use Oregon plywood and even went so far as to build up his fixtures and line up certain machines. Then he was told that the ODT

would not grant priority for rail shipment of plywood stock from Oregon to Detroit. Apparently mailboxes are considered nonessential items.

Some of the detailed comment in reports to the ACWP are of interest. Polacca, Ariz., population 900, states: "Nearest rail stations are Winslow, 80 miles and Holbrook, 89 miles. Serious shortages of repair parts evident—often unobtainable in either city. Mechanics and mechanics' shops are as scarce as hen's teeth."

Burney, Calif., population 1350, says: "Our only method of transportation is automotive. Lumber is hauled out by truck and supplies brought in the same way. There is a serious shortage of trucks, drivers and repair parts, making

deliveries subject to delays of from one to two weeks. Practically all lumber produced here goes into war work. Often shipments are delayed because of insufficient trucks. This is a serious handicap to sawmills."

Meeker, Colo., population 2000, observes: "The shortage of manpower coupled with restrictions on mileage are handicapping the ranchers very much. All road operations in this country are on rubber. We use a large number of pickups for every purpose imaginable, but cannot show very heavy ton loads. Our distances are tremendous. We helped ranchers last fall to make up questionnaires for gas. Some of these men came as far as 75 miles and spent whole days to answer the bunch of fool questions that were put to them. Few ranchers know how much they haul in a year or their total mileage, or whether they hauled more black calves than white. There is little joy riding here, but we must get out and see a railroad once in a while, and to also have an



"DUCK" UNDERGOES TEST: Amphibian trucks can pull themselves out of mud or quicksand with astonishing ease by means of a power-driven winch. Winch cable is attached to a tree, post or any solid object and the engine-driven winch does the rest. Above, the amphibian is being subjected to the "bathtub" test for water leaks at General Motors Truck and Coach factory



## NEW CAR FOR \$400

Henry J. Kaiser has another great idea which, it is reasonable to suppose, will work.

That is to build a new type of automobile to sell for \$400, cash—no installment financing and no turn-in. Just a plain transaction which can be handled by every gasoline station in the country without any great and expensive selling organization to promote sales.

Quite simple, compared with the old system it seems. Henry declared that there will be ten million people in the United States after the war who will be able and anxious to pay \$400 cash for a brand new car of modern design. That would bring in the tidy sum of \$4,000,000,000—that is four thousand million dollars, a neat sum even in these days of wasteful spending.

The motor for the new car is a two-cycle, 16-cylinder, opposed type, radial type, air-cooled engine projected to develop 80 h. p. The engine, Henry says, is already running on test.

Of interest to us here in Las Vegas is the declaration that the frame of the new car will be tubular magnesium construction.

Henry says that the new car will not interfere with the manufacture of the higher priced cars and says that when Henry Ford put out his Model-T at \$375, he really laid the foundation of the motor car industry.

# ENGINEERS' BULLETIN DENVER COL. 7/43

## PITTSBURGH OF THE WEST?

IN April, The Engineers' Bulletin reported on rather startling developments in magnesium at Thompson, Utah, where it is estimated a 100-year supply has been definitely established.

It was with considerable difficulty that the author of that article restrained himself from calling Thompson the future "Pittsburgh of the West," and even saying that steel one day will be old-fashioned.

Now comes Henry J. Kaiser, that man with an over-supply of American engineering "oomph," to announce that he will take all comers in the automotive industry and in open fight match anything they have to offer after the war. His "piece de resistance" is a \$400 automobile with vastly increased mechanical efficiency, plywood body and magnesium chassis and motor, to be marketed at filling stations on a cash-and-carry basis with no trade-ins.

Kaiser turned to the Rocky Mountain West when he wanted steel in large quantities and wanted it in a hurry. When he goes into magnesium in a big way (and we mean big), where should he get it but in the same place.

Perhaps the Bulletin missed a bet at that by not referring to Thompson as the "Pittsburgh of the West."

L. V. R. Journal  
7-3-43

## Kaiser Denounces Van Zandt Charge

PORTLAND, Ore., July 3 (UP)—Henry J. Kaiser last night denounced as libel against the 90,000 workers at his three shipyards here a statement by Representative James E. Van Zandt, republican of Pennsylvania, that three company-built freighters had broken up at sea.

"I can take it so far as personal criticism is concerned," Kaiser said on arriving here for a congressional subcommittee hearing into maritime shipyard construction.

"But I cannot take it," he said, "when a supposedly informed member of congress walks into this city of ships and in effect tells our 90,000 workers here they are building ships which go down at sea—which are not safe to travel on and are not doing the war job. That is libel."

Kaiser said he believed Van Zandt "made his mistake" through the misreading of a maritime commission report.

## Kaiser Reveals Plan For Light Postwar Car

New York, July 8.—American Machinist reports today that Henry J. Kaiser, in a flying visit to Detroit, left some hints that he was definitely a competitor of the established automotive companies in the lower-price field. Kaiser said that his postwar car would be manufactured out of nonstrategic materials, the body of plywood, the frame tubular and of magnesium and the weight would be held down to a minimum to give it greater economy of operation.

His projected postwar model, he said, would sell for about \$400 and would be marketed through gas stations throughout the country on a cash-and-carry basis; no trade-ins.

## Kaiser Plans to Build \$400 Auto

NEW YORK, July 13.—American Machinists reported today that Henry J. Kaiser, in a flying visit to Detroit, left some hints that he was definitely a competitor of the established automotive companies in the lower price field. Kaiser said his post-war car would be manufactured out of non-strategic materials, the body of plywood, the frame tubular of magnesium and the weight would be held down to a minimum.

His projected post-war model, he said, would sell for about \$400 and would be marketed through gas stations throughout the country on a cash and carry basis, no trade-ins.

## AUTOMOTIVE NEWS

"The newspaper of the industry."

Detroit, Michigan

JUL 12 1943

## FOB Factory

By A. H. Allen

DETROIT SOCIETY NOTE: Mr. and Mrs. Henry J. Kaiser and son Henry jr., boat builders and magnesium producers of west of here, paused in town recently long enough to be photographed in what was described as a "prototype" of a \$400 automobile which the senior Kaiser says he will build after the war and sell through gasoline service stations. The "prototype," from what could be seen of it, appeared to be a single-seat runabout which did not quite succeed in covering the knees of the two male Kaisers as they sat in it. The vehicle appeared to have a windshield and a steering wheel.



A. H. Allen

In an interview with one of the local newspaper scribes, the West Coast contractor said he had lined up 52 subcontractors to produce parts for the car, which in its present form is being offered to the Ordnance department as a lightweight reconnaissance unit in the 1,300-pound class. As remodeled for passenger use after the war, most of the iron and steel in the vehicle will be replaced by aluminum and magnesium, and Kaiser let drop the hint that his engineers somewhere are working on a "16-cylinder radial horizontal-opposed" type of engine.

Turn the calendar now to 1946 at a service station of the Oleaginous Oil Co. in Oleander, Okla. A tourist drives up in a dilapidated prewar Buick, its crankcase dripping and radiator snorting from many thousands of miles of weary travel. The tourist says to the station attendant: "Just give me four gallons to get to the next tourist camp, and throw a couple of those Kaiser Kars in the back seat. I'm junking this wreck."

The station attendant wraps up a couple of the 1,300-pound midgits in some plovfilm left over from shipping Pratt & Whitney engines to Africa, measures out the gasoline and says: "Thank you, that will be eight hundred dollars and 80 cents, including tax; shall we flex the cars a little to fit your family?"

SAN FRANCISCO, CAL. CALL BULLETIN—CIR. 110,440  
JULY 13, 1943

WASHINGTON, D. C. POST  
Cir. 132,069, Sun. 112,573  
JULY 9, 1943

## AIR NEWS

"The Picture Magazine of Aviation."

New York City

JUL 15 1943

## KAISER HEADQUARTERS IN N. Y.

New tenant in the British Empire Building of Rockefeller Center is the nation's number one ship builder, Henry J. Kaiser, who revealed that he has shifted his personal offices from California to New York because of many interests in the city. Said Kaiser, "the manpower situation is excellent in New York and it's a good spot from which to keep watch over post-war developments." He estimated that some 250,000 people are in his employ which covers a vast field of industry. Besides operating eight shipyards, with interests in four others, the shipbuilder boasts a long list of his enterprises. These include a cement plant, two plants making asphalt for air fields, a dozen or fifteen concrete plants, a calcining dolomite plant, a ferrosilicon plant, the Permanent Steamship Line operating two 11,000 to 12,000 ton cargo ships, two magnesium plants, a couple of chemical by-product plants, the Fleetwing and Brewster Aviation plants, a sand and gravel plant. Other operations take in manufacturing pig iron and fabricating steel, an industrial equipment company, interest in the Joshua Henry Iron Works, a powder plant in Washington and a number of construction contracts for breakwaters and other things, operation of a compensation insurance company and seven hospitals. Asked how he keeps track of all his activities, Kaiser claimed it isn't much of a problem if you are willing to give other people responsibility and authority.

## Mining Journal

7-15-43

down operations.

The first car of pig iron destined to Oregon was shipped from the Fontana plant of Kaiser Company, Inc., Iron and Steel Division, to the Western Foundry Company, Portland, Oregon. The ore came from the Kaiser Company's Vulcan mine near Kelso, San Bernardino County, California, and was treated at the Fontana plant, which started operations on December 30, 1942. Henry J. Kaiser, Latham Square Building, Oakland, California, is president of the Kaiser Company, Inc.

## L.V. Review Journal

8/12/43

## Largest War Housing Project Finished Now

PORTLAND, Ore., Aug. 12 (UP)—Vanport City, the nation's largest single war-housing project, was completed today.

With the opening of a theater tonight, the Kaiser company and the federal housing authority will formally place operation of Vanport City in the hands of the Portland housing authority.

The giant project will shelter 40,000 residents, stepping into fifth place in population among the cities of the northwest. It is the most extensive mass housing experiment of all time.

Under the direction of Albert A. Pierson, chief construction engineer for the FPHA, and William H. Harlow, Kaiser company engineer, construction officially started September 14, 1942, on an original plan for 6,022 housing units. This soon was boosted to 9,942 units. The first 400 families were moving into their new quarters in time for Christmas. Provisions for war tenants continued at the rate of several hundred dwelling units a week.

Vanport City covers 650 acres. It consist of 703 apartment buildings and 17 multiple-dwelling structures, totaling 9,942 units. An administration center, a U. S. postoffice, five grade schools, six nursery schools, three fire stations, a motion picture theater, five social buildings, a library, an infirmary with 130 beds, a police station, 10 ice houses, six maintenance buildings and two commercial centers care for the civic, social and service needs of the community.

In the staggering task of raising a modern city of this size from the grass roots, nearly 7,000 men and women were engaged from time to time. Prefabrication and production line technique were among expediting methods used.

L.V. Review Journal  
8/7/43

## Kaiser "Officer" Backs Off Today As He Is Cornered

DETROIT, Aug. 7 (UP)—John Cunningham, who yesterday represented himself as a vice president of the Kaiser Shipbuilding company, retreated today when informed that Henry J. Kaiser had "never heard of anyone named Cunningham."

Cunningham announced yesterday that he was an agent for the west coast shipbuilder and had completed arrangements for purchase of a plant there to manufacture parts for a small Kaiser-built military vehicle.

"Perhaps I was a little over-enthusiastic when I said I was vice president of the company," Cunningham admitted today. "What I meant to say was that I'd like to be vice president. I'm looking for a good job with Kaiser."

Cunningham also conceded that the plant purchase announcement was a little premature. "Actually, Mr. Kaiser hasn't bought the plant," he said. "My job was to come here and look over three plants. Then I was to recommend which one the company should buy. I've made my recommendations. From now on it's Kaiser's baby."

Cunningham was not arrested, although John S. Bugas, Detroit chief of the federal bureau of investigation, disclosed that "we are watching developments closely." Bugas said Cunningham had volunteered to tell FBI and army officials his "whole story."

L.V. Review Journal  
8/14/43

## Kaiser Promises Shipyard Record During September

22 Liberty Ships In Month Is Goal of "Miracle Man"

PORTLAND, Ore., Aug. 14 (UP)—A shipbuilding record to end all records—22 Liberty ships during September—was predicted today by Edward F. Kaiser, son of Henry Kaiser and in charge of Kaiser interests here, as the Oregon Shipbuilding corporation prepared to convert from Liberty ship construction to larger Victory ships.

Kaiser spoke at the launching of the Liberty ship C. J. Jones. He said the proposed record for September would not only eclipse records set by various California yards but help insure the future of the northwest as a shipbuilding center.

## First Keel

The first keel of the new Victory ships will be laid in December, although preliminary work has begun. Kaiser challenged his workers to carry the same shipbuilding drive from Liberty craft to Victory ships.

He said that Rear Admiral Howard L. Vickery, vice chairman of the maritime commission, has advised all maritime shipyards that the commission is looking ahead to the period of curtailment and that "the least efficient yards will be tapered off first in order that the most economical use can be made of manpower, dollar value and facilities."

## Gain Share

The Oregon yards will gain its share of the postwar building program on this basis, Kaiser said, because "our ships are not only the fastest in time from keel lying to delivery but the lowest in man hour and dollar cost . . . speed of production therefore results in low cost . . . the record proves it."

Kaiser added:

"Never let it be said, 'Yes, they build Liberties all right, but when they went into a long range ship, it was different.' Rather let it be said, 'Boy, they went to town when they got a long range ship. Oregon will not only put out ships fast but if you want cheap ships, get them from Oregon.'"

Washington Bulletin  
Nov., 21-42

## C.I.O. "After" Kaiser

Henry J. Kaiser once told a Washington meeting that a smart employer could avoid labor trouble by operating under a closed shop. Now Kaiser's closed shop contracts are getting him into deep water, and he may be prepared to revise his advice.

Before Kaiser even gets a plant built, he signs a closed shop agreement with the American Federation of Labor. Furious, the Congress of Industrial Organizations has asked the National Labor Relations Board to set aside all the Kaiser "sweetheart agreements" (page 119). Charging collusion and discriminatory discharge of men who refused to pay for A.F.L. work permits, the C.I.O. maintains that, in Portland at least, Kaiser has flagrantly violated the Wagner Act.

● Hearing Expected—NLRB has been investigating the charges, and has set a Dec. 14 Portland hearing at which the Kaiser labor policies will be put on trial. If C.I.O. allegations can be proved, contracts will have to be torn up, discharged workers reinstated with back pay, and an election held to determine which union has a majority of employees. All of



MODERN INDUSTRY  
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New York City  
NOV 15

## ★ GOVERNMENT & INDUSTRY

# Where Government Stands on Reconversion Plans

What policies (if any) Washington is formulating on surplus goods, government plants, other key problems.

UNTIL recently, most government postwar planners (and many in industry as well) have been working on the script for the next act without giving much thought to the practical, work-a-day, unglamorous job of scene-shifting — of reconverting industry for the postwar economic drama.

Now, quite suddenly, there is general appreciation of the fact that we face many tough problems in getting industry out of the war before we can progress in any direction toward a stable peacetime economy.

Postwar planning as such — the long range, intriguing type — is officially frowned on because it might make people forget that we have to win the war first. But no matter when, where, or how the war ends, we will have the same problems of reconversion. And the better we plan for them now, the shorter and easier will be the period of transition.

### Here's the problem

Questions that will be smack up against government and industry on armistice day include:

How to settle contracts for war goods no longer needed;

What shall be done with the factories, equipment, and industrial facilities the government owns;

How to dispose of surplus government-owned commodities;

What wartime controls should be continued and for how long;

What capital will be available to industry for reconversion;

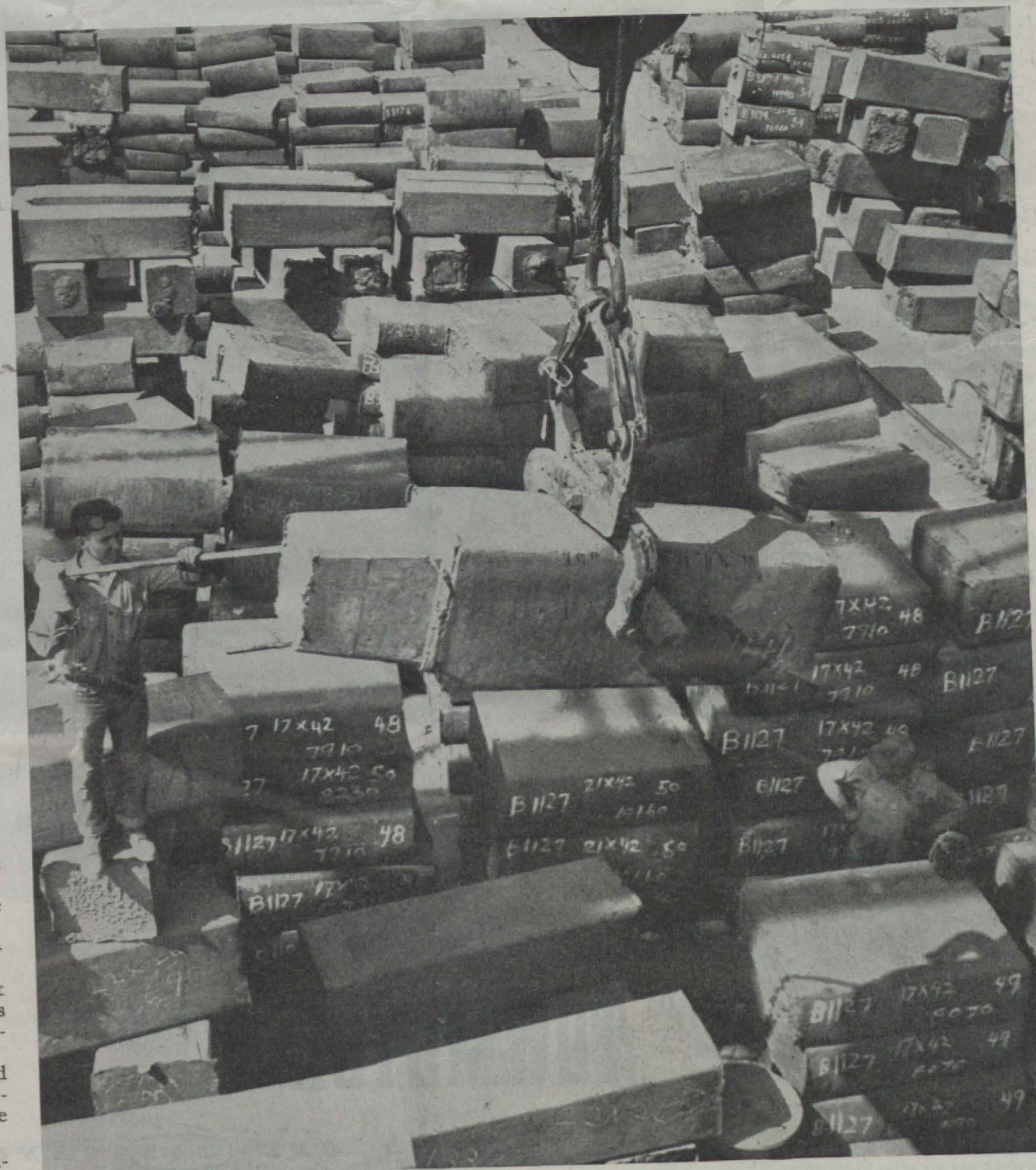
How fast the Army will be demobilized;

How war-plant workers will eat until they find permanent places in the hoped-for high-level production era of the future;

Whether the government should continue purchase of some unneeded war goods to temper the shock of mass unemployment;

Whether industry should be allowed to produce postwar models and products indiscriminately.

The answers to most of these



**NEW MATERIALS-PRODUCING CAPACITY** and its postwar fate is one riddle that makes company postwar planning hard. These acres of steel from Kaiser's new California plant dramatize potentially far-reaching effect of war-built facilities.



## Kaiser's Allies

### Men Who Built Boulder Dam Turn to a Global Industrial War Effort

#### Some 'Six Companies' Projects:

Ships, Naval Bases, Canals,  
Pipe Lines, Steel, Magnesium

#### Alliance of Know-How, Capital

BY FRANK J. KIHM

Staff Correspondent of The Wall Street Journal  
SAN FRANCISCO—The men who got together in 1931 to build Boulder Dam—the famed "Six Companies"—today represent one of the most potent forces in the Pacific Coast war effort.

This industrial alliance is what most people really mean when they speak of Henry J. Kaiser.

Dictates of military secrecy make it impossible to detail all these men are doing. It may be revealed, however, that at present they are building drydocks, tankers, cargo vessels, marine engines, butadiene plants. They are turning out, or soon will produce, steel and magnesium. They are excavating for strategic canal locks and building naval bases, breakwaters, pipe lines and roads.

In one of the employment offices of the so-called "Six Companies" group a sign warns: "THIS IS NO PICNIC!" Applicants for jobs are cautioned that "working and living conditions are as difficult as those encountered on any construction job ever done in the United States or foreign territories. Men hired will be required to work and live under the most extreme conditions imaginable. . . . Men will have to fight swamps, rivers, ice and cold. Mosquitoes, flies, gnats will not only be annoying, but will cause you bodily harm. If you are not prepared to work under these and similar conditions, do not apply!"

That sign expresses the geographical scope of the "Six Companies" group's operations, which by the way, now include more than six major units. By inference, it conveys the magnitude of their contribution to the successful prosecution of the war.

The group is one of the largest single industrial employers of labor in America today. In combination, these construction units hold a huge dollar value of war contracts. Since delivery of the first Victory cargo ship in December of last year, these firms have delivered a total of 215 vessels up to September 30, 1942. They have built or are building ten shipyards with 87 ways. Since start of the program in April of last year they have laid keels for 284 EC-2s, and have launched 234.

#### The "Six Companies"

What are the "Six Companies"? With the emergence of Henry J. Kaiser into the national limelight he has come to symbolize their accomplishments. But the "Six Companies" group is far larger than any one individual because they represent a combination of the finest technical ability, the "know-how," the push and drive that gets things done, and, what is most important, perhaps the most impressive reservoir of construction capital in the United States and almost unlimited bonding capacity. They jointly own more than \$10 million in equipment. In combination they can throw some 1,000 of the most competent technicians and engineers in the world into a project. They have about 500 trained purchasing executives, and purchasing agents are key men in starting a construction job.

Moreover, they have unlimited confidence in their ability to do any job. They are convinced that given the opportunity they can not only lick the Axis by out-producing it, but can rebuild London or any other part of the world that may be devastated by the fighting. Members of the group will tell you with quiet assurance that there is nothing that they cannot accomplish in combination. They are prepared to carry out any assignment the Government gives them.

When you look at the record these men of the "Six Companies" group are making, and what they have done, you are inclined to agree with them. The exploits of Mr. Kaiser in speedy ship construction have been given widespread publicity. But it is the group as a whole to whom the credit belongs because it has contributed the men, management, money, equipment and materials to make these feats possible. Individually and as a group they are setting these shipbuilding and other construction records.

#### Name a Misnomer

The name "Six Companies" is a misnomer but it is used herein for lack of a better description. There are nine large units making up the main group. They are: W. A. Bechtel Co., Bechtel-McCone-Parsons Corp., General Construction Co., Henry J. Kaiser Co., MacDonald & Kahn, Inc., Morrison-Knudsen Co., Inc., Pacific Bridge Co., J. F. Shea Co., Inc. and Utah Construction Co. In addition these companies have in various sections of the United States formed additional combinations with such concerns as Walsh Construction Co. of Iowa; Winston Bros. of Minneapolis; Ford T. Twatts of Los Angeles; Griffith Construction Co. of Los Angeles; Raymond Concrete Pile Co. of New York; Missouri Valley Bridge & Iron Co.; Guy F. Atkinson Co. of San Francisco; the Arundel Corp. of Baltimore; the Hawaiian Dredging Co. of Hawaii and others.

In February, 1931, six of these contractors formed a corporation for the construction of the Boulder Dam with an authorized capital of 80,000 shares to be subscribed and paid for at \$100 a share or a total of \$8 million. Of this amount \$5 million was paid in cash and subscribed as follows:

|   |             |
|---|-------------|
| MacDonald & Kahn, Inc. . . . .                | \$1,000,000 |
| Utah Construction Co. . . . .                 | 1,000,000   |
| Bechtel-Kaiser-Warren (combination) . . . . . | 1,500,000   |
| Morrison-Knudsen Co. . . . .                  | 500,000     |
| J. F. Shea Co. . . . .                        | 500,000     |
| Pacific Bridge Co. . . . .                    | 500,000     |

\* Warren Bros. of Boston, leading black-paving contractors.

First officers of the company were: W. H. Please turn to page 3, column 4

## Men Who Built Boulder Dam Turn to a Global Industrial War Effort

Continued from First Page

Wattis, president; W. A. Bechtel, first vice president; E. O. Wattis, second vice president; Felix Kahn, treasurer; and Charles F. Shea, secretary. Subsequently, W. A. Bechtel became president and upon his death, H. W. Morrison was elected to the post. The executive committee consisted of Henry J. Kaiser, chairman; Felix Kahn, S. D. Bechtel, and Charles F. Shea. Frank Crowe, chief construction man for Morrison-Knudsen and Utah Construction Co., was later chosen to manage construction of Boulder Dam.

Although the sum of \$5 million was paid in there was a written agreement with the surety companies that on call the remaining \$3 million would be provided. The additional financing was never required and the job was completed on time and with a substantial profit. Incidentally it took 26 bonding companies combined to underwrite the largest bond ever written up to that time.

#### Giant Construction Combination

Six Companies, Inc., was a Delaware corporation. After completion of the Boulder Dam the company built the \$5 million Parker Dam. Six Companies, Inc., of California was formed for constructing the Broadway Tunnel in Oakland. Six Companies, Inc., of Washington was formed to bid on a job which it failed to land. Six Companies, Inc. then became inactive as an operating unit in the contracting business and the corporate charter was revoked last year.

Although the name was never used again for corporate purposes the companies forming the combination, and others, have done literally billions of dollars worth of work throughout the world. They have been perhaps the most potent influence on the construction industry.

Various units of the original "Six Companies" combine on particular jobs today and sometimes bid against other companies in the group. The personnel remain on the friendliest of terms. Men representing the original units are in partnership in joint ventures, not always the same partners on the same jobs but in various jobs of tremendous magnitude throughout the United States.

The San Francisco-Oakland Bay Bridge is an example of friendly rivalry. A combination of MacDonald & Kahn, General Construction Co. of Seattle headed by J. A. McEachern, J. F. Shea Co., Pacific Bridge Co., and Morrison-Knudsen formed the Transbay Construction Co. This latter company bid against a combination of Bechtel, Kaiser, Utah Construction Co. and eastern associates. Transbay was awarded the contract for the west crossing from San Francisco to Yerba Buena, the most hazardous part, at a bid \$300,000 less than the other combination. The Bechtel-Kaiser-Utah combination got the crossing from Yerba Buena to Oakland, including the cantilever span. Kaiser, Bechtel, MacDonald & Kahn, Morrison-Knudsen and Utah Construction Co. formed the Columbia Construction Co. for construction of the Bonneville Dam and competed with a combination

of General Construction Co., J. F. Shea and Pacific Bridge. "Six Companies" men agree that competition in the contracting business is always keen, but assert that the toughest competition they ever meet is from members of their own group.

#### Joint Stockholders

Most of the original "Six Companies" group are stockholders in Permanente Cement Co., Permanente Magnesium Co., as well as the Joshua Hendy Iron Works which is one of the leading manufacturers of reciprocating steam engines for Liberty cargo ships. The question of stockholders, relation is never troublesome. A Permanente manager, for example, may discuss a problem with a stockholder who may be a principal in one of the "Six Companies" firms. The stockholder may offer to send one of his own engineers to confer on the problem and devise a solution. There is no charge on the part of the stockholder for his engineer's professional services—it's just a friendly gesture.

It is only natural that the largest factors in wartime construction should be closely identified with the West. Description of the scope of the "Six Companies" group contribution to the war effort must wait until victory. Meantime it can be judged by the peacetime accomplishments of the group. Here are various jobs undertaken by units in various combinations but not all units in all combinations. The list is incomplete and includes only the larger projects:

Boulder Dam, San Francisco-Oakland Bay Bridge, Oakland Broadway Tunnel, Bonneville Dam, Coos Bay Bridge, Parker Dam, Grays Harbor Jetty, Montebello Water Tunnel, Ruby Dam, Mare Island Drydock, Eagle Rock pipe line, Columbia River Jetty, Grand Coulee Dam, Delaware Aqueduct, Bremerton Drydock, Tacoma Narrows Bridge, Shasta Dam, Chicago Subways, Pearl Harbor Drydock, Corpus Christi Naval Air Station, Mid-Pacific Naval Air bases, New Jersey powder plant, Fort Lewis Cantonment, Camp Roberts, Mare Island shore facilities, Permanente Cement plant, Permanente Magnesium plant.



JAN 6 1944

## WEST COAST . .

OSGOOD MURDOCK

• Geneva seems to offer no more conviction nor official assurance for future steel than it did for world peace . . . Gray iron foundries inactive, with unpromising prospects.



SAN FRANCISCO—No less widespread nor irresponsible than speculation on the whether and when of the second European front have been rumors, conjecture, false steers, reports and denials on the whether and when of the \$200,000,000 plate mill at Geneva, Utah, now over 90 per cent complete and which will be ready about March 1 to supply a major share of such ship plates as will probably be required for Pacific Coast Maritime construction after that date.

An apparently entirely unauthorized flash press wire over a week-end from Washington last month produced banner headlines in unsuspecting commercial papers on the West Coast, and in the parentally proud Salt Lake papers to the effect that the mill would not be operated, at least in wartime. Traced to their supposed source with WPB in Washington, the dispatches were denied, but there seemed evidence that this particular war program is still under discussion. Maritime Commission wants the plates. Defense Transportation wants to save freight cars by shipping plates from Utah instead of Chicago or Pittsburgh. War Manpower wants workers, of whom it will take 5000 to 8000 to operate the mill. WPB husbands materials and its steel division is conscious of a generally easier national steel situation. Meanwhile Defense Plant Corp. holds a pretty big bag and is proud of the earnest enthusiasm and competence in

overcoming obstacles which have been reflected in the administration of E. M. Barber, vice-president of Columbia Steel Co., as construction contractors, and Walter Mathesius, president of Geneva Steel Co., as contracted operating organization. Mr. Mathesius personally is sincerely and enthusiastically impressed with the economic and strategic importance of this plant, not only for the emergency but in the long run, and he has dedicated his energy and his organization to prove its present and future value and the wisdom of its creation.

A few weeks ago WPB announced the halting of further construction on the structural mill. Arrangements have been made for storing scheduled materials as received, so that this unit of the plant could be completed later. It represents less than 10 per cent of the entire Geneva operation and is probably 80 per cent complete already. Its urgency for emergency needs is not as great as plate production. Barring political interference or production slowdowns as the result of sniping by arm chair economists, there is now every probability that approximately one-third of the total rated plate producing capacity of the plant can be in full operation about March 1. Plans are tentative to heat the first of three furnaces the first week in January, to be followed soon by operation of three open hearths, so that pig iron, ingots and slabs can be in readiness for rolling.

REALISTIC steel executives in the Far West, both in production and sales, feel that the Geneva plant will operate economically, that it is strategically situated especially for raw materials, that its capacity is no greater than that of the Pueblo operations of C.F.&I. which has proved practical for the past several decades, and that although it is unbalanced and larger than would have been built under normal circumstances, it seems ill advised to consider halting or limiting the operation at this late date, when so much has been spent, within a few short weeks of operation, and particularly when plates are still urgently needed on the West Coast and rail transportation is desperately short.

It is reliably reported that Senator Pat McCarran is arranging February hearings, in southern Califor-

### First Pig Iron Made At Geneva Co. Plant

Salt Lake City, Utah

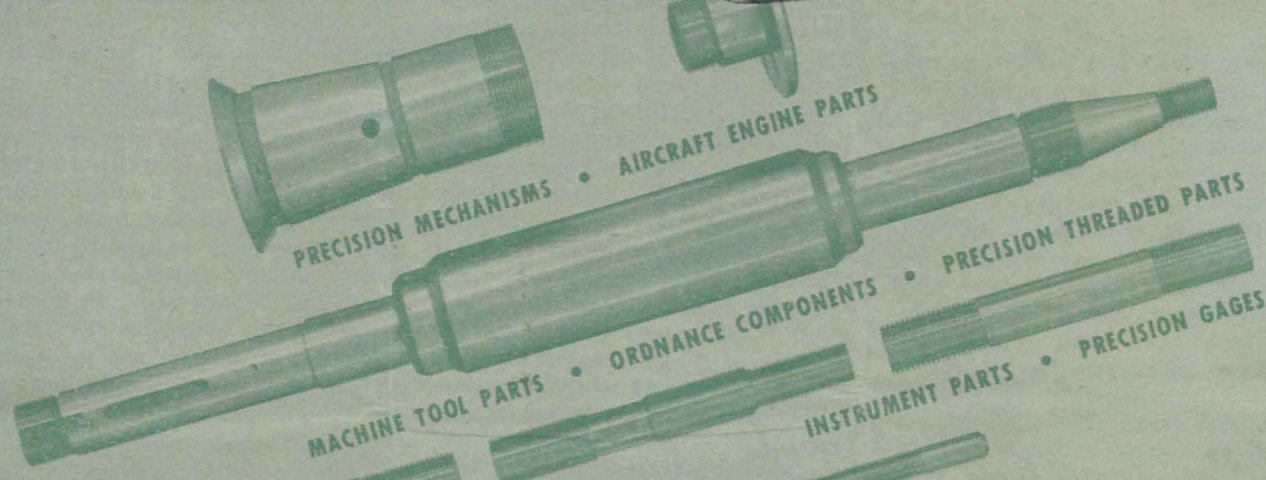
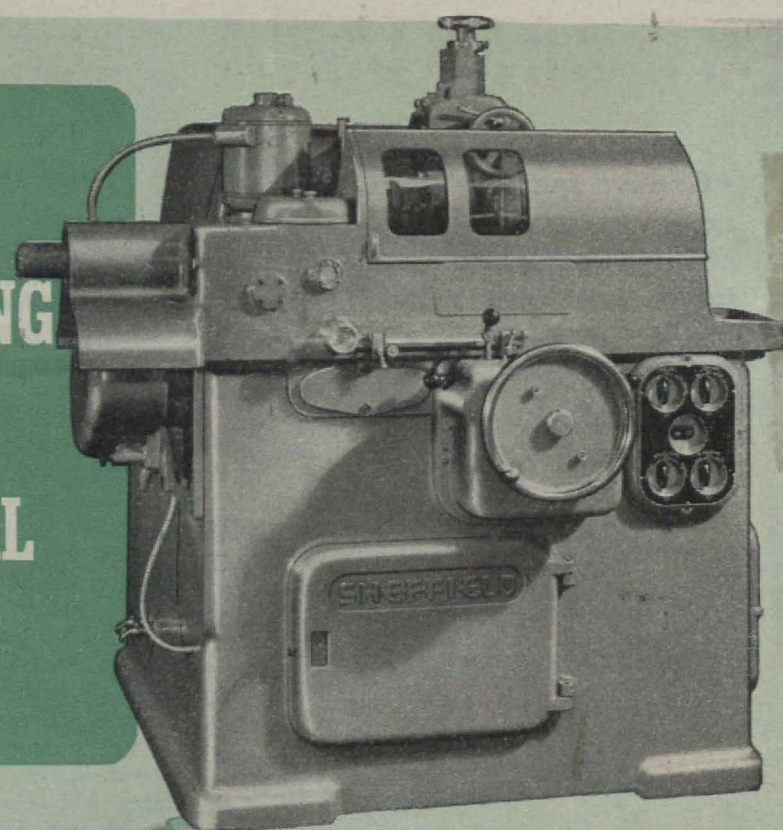
• • • Pig iron production began Jan. 4 at the Government's new \$180,000,000 steel plant near Provo, Utah, with the blowing in of the first blast furnace. This plant is operated for the Government by Geneva Steel Co., U. S. Steel subsidiary. The first iron will be tapped within 24 hr. This furnace is one of three which have been erected at the new plant. Each furnace has daily capacity of 1100 tons of iron. Iron ore was brought to Geneva from Columbia Steel Co.'s open pit iron mine near Cedar City, Utah. Cope production started Dec. 14.

nia and later in Salt Lake, to go into steel plant situation on the West Coast, particularly in connection with the California Commission on Interstate Cooperation of which Attorney General Robert W. Kenny is chairman. This record and forum would undoubtedly offer an opportunity for beating the tom-tom for home enterprise and development of natural resources and especially the decentralization of industry and the machinations of monopolies and trusts. If the West Coast steel production of the future is to depend upon the result of Senatorial or Congressional hearings and decisions resulting from pressures and unseen influences at Washington, prospects are dim indeed.

EYEBROWS have arched and tongues are in cheeks since OPA permitted Kaiser Steel to charge the Maritime Commission, retroactively to October, for plates from Fontana at the rate of \$64 a ton. This is equivalent to the Chicago mill price plus all rail freight to the West Coast. Mill prices on the West Coast hitherto have been based on water freight from eastern seaboard, and on this basis, carbon steel plates would have been sold, if they had been previously produced, for \$53 a ton. Compared with the Sparrows Point, Chicago and Pittsburgh at \$42 a ton, even the former \$11 water rate differential was criticized as an undue handicap to Pacific Coast industry. When the Kaiser plant was established at Fon-



## NEW THREAD-GRINDING ECONOMY ON COMMERCIAL PRODUCTION



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Substantial savings in operating time over conventional machines make it more economical to grind threads with a Sheffield Thread Grinder. Also because of these savings, it is now feasible to grind threads formerly produced by other methods.

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IRON AGE  
Philadelphia, Pa.

JAN 6 1944

### NEWS OF INDUSTRY

#### Structural Mill Parts To Be Stored in Utah

Washington

• • • Representative J. W. Robinson, Democrat of Utah, said last Friday that while the structural mill of the United States Steel Corp. at Geneva, Utah, was not going to be completed, DPC had given permission for the various parts to be finished and stored on the mill site.

Stories originating on the West Coast to the effect that WPB has decided not to permit the \$190,000,000 giant steel installations of the West to operate for the duration were denied by WPB. Steel Division officials said that the Government would hardly spend so much to complete the steelworks, and then turn the key without deriving any benefit from the expenditure. Moreover, it was emphasized that the plate mill was being rushed to completion in the hope that it would be in production late this month or early in February.

To Army and Navy men primarily concerned with getting as much equipment as possible to win the war as quickly as possible, the statement and suggestions were not welcome. Some skeptics and shrewd analysts believed that possibly the statement might be directed indirectly at nearly 200,000 Kaiser employees on the West Coast in shipyards, steel, magnesium, aggregate and general contracting enterprises, to suggest future labor competition and reduced turnover.

**T**URNOVER, terminations and turmoil in essential industrial employment have been greatly reduced this past month, since the severe employment ceiling freeze, but a frightful situation has simply been made better although still bad. Among some 90,000 employees at the Richmond shipyards, in the first two weeks in November there were 4313 terminations, 1556 with clearance, 2135 without clearance and 622 dropped

from the payroll or "sunk without trace." For the last two weeks in the month the terminations dropped sharply to 2877, only 722 with clearance (less than half of the number for the previous two weeks), 1716 without clearance and 439 dropped. In a study of reported reasons for terminations, 21 per cent were discharged and an additional 17½ per cent were for health. Approximately 10 per cent were military and another 10 per cent for personal business. Belying the shrieks and demands of labor leaders and social reformers for housing, transportation, child care and social services, only 1.6 per cent left for child care, only 1.9 per cent for transportation, and 4.6 per cent because they were dissatisfied. Only 1.1 per cent gave "another job" as their reason.

In southern California the Aircraft War Production Council's figures for war plane workers showed even greater turnover. In a year's time approximately 85 per cent of all persons hired left. Of all new hires, less than 6 per cent have ever had previous airframe building experience, proving pretty conclusively that workers don't leave one plant for another. As of late December, the seven major West Coast companies composing the Council were still losing about 17,000 workers a month through turnover, 55 per cent of them for "personal reasons" which may be translated as low morale, lack of ambition or indifference.

#### Sloan Outlines Post-War Plans for American Enterprise

New York

• • • Asserting that "expanding job opportunities are a social, political and economic essential in the post-war era" which can be achieved only by "a virile and expanding system of American enterprise," Alfred P. Sloan, Jr., chairman of the board of General Motors Corp., outlined recently a program to carry that message to the American people.

As chairman of the National Industrial Information Committee, to which 6000 business organizations subscribe and which is sponsored by the National Association of Manufacturers. Mr. Sloan said that every avenue of communication would be utilized fully to bring home to 137 million Americans the post-war ambitions of American enterprise.

#### ... Cited for Awards ...

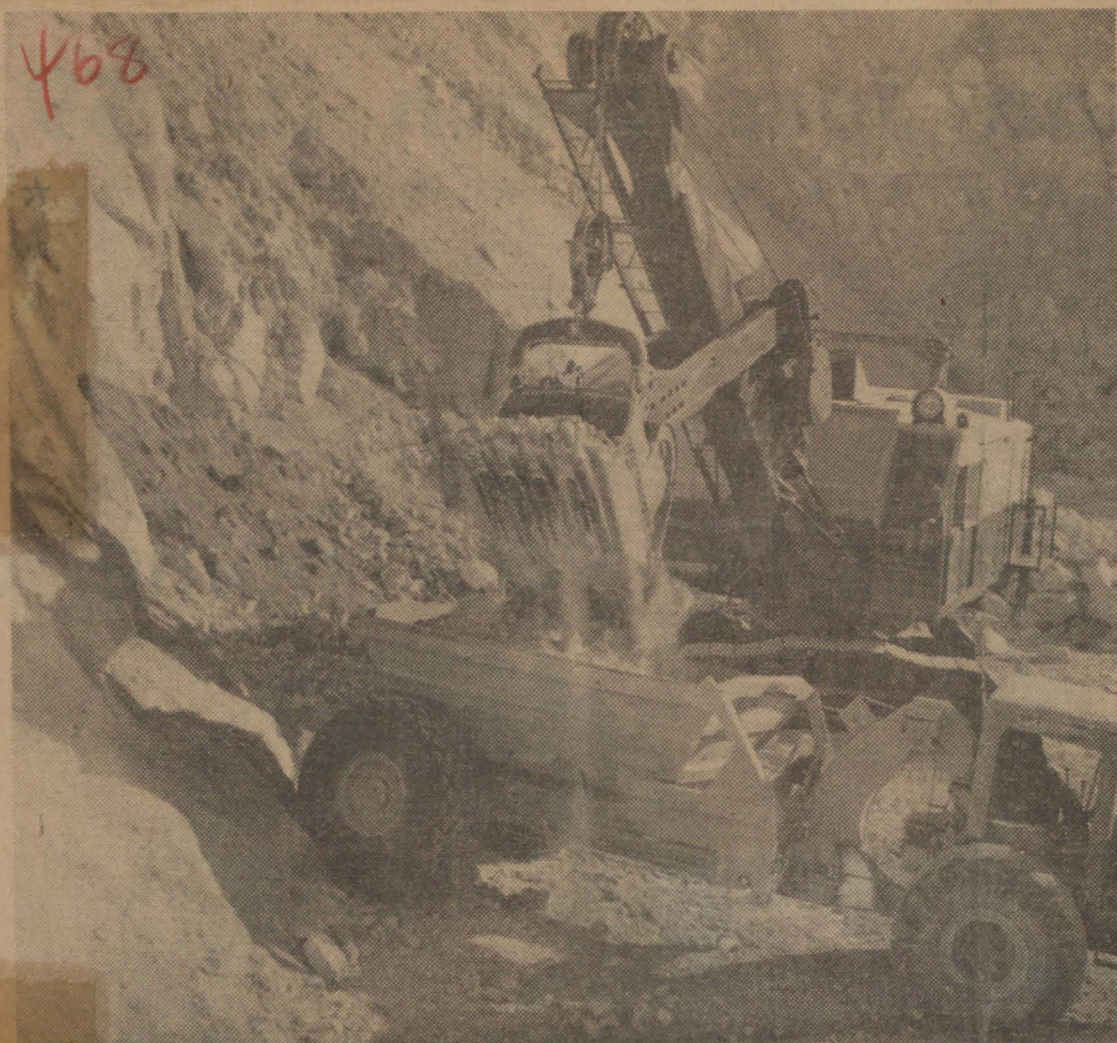
• • • The following companies have received the Army-Navy E award for excellence in war production:

Bell Sound Systems, Inc., Columbus, Ohio.  
American Red Cross, Blood Donor Center, Atlanta, and Portland, Ore.

W. S. Darley & Co., Chippewa Falls and Chicago Avenue Plants, Chicago.  
Outboard, Marine & Mfg. Co., Gale Products Co., Galesburg, Ill.  
Owens-Illinois Can Co., Baltimore Plant, Baltimore.  
Silver Falls Timber Co., Silverton, Ore.



SAN JOSE CAL. MERCURY-HERALD  
JANUARY 30, 1944



## Natividad, Moss Landing Plants Feed Permanente

San Joseans identify Permanente as the big plant nestled in the Los Altos hills, but the name is just as familiar to Salinas and Watsonville folk who have "Permanentes" of their own.

The local magnesium plant is the parent plant of Henry J. Kaiser's magic metal. It is there that strong, lightweight ingots are produced for the nation's air armada and other vital war purposes.

The "Permanentes" near Salinas and Watsonville are equally important. They feed the local plant material to make magnesium, namely, dolomite from Permanente's Natividad quarry and sea water from Moss Landing.

### Crush Dolomite

The operation at Natividad, just north of Salinas, involves the digging, crushing and heating of dolomite, a white rock containing calcium magnesium carbonate.

After the dolomite has been calcined in 302-foot-long kilns at 1800 degrees F., which drives off carbon dioxide, it is trucked to Moss Landing.

The Moss Landing plant, which recently set a record of 365 days without a lost-time accident, treats the sea water—containing magnesium chloride—and mixes it with the calcined dolomite in huge thickener tanks eight feet deep and 250 feet wide.

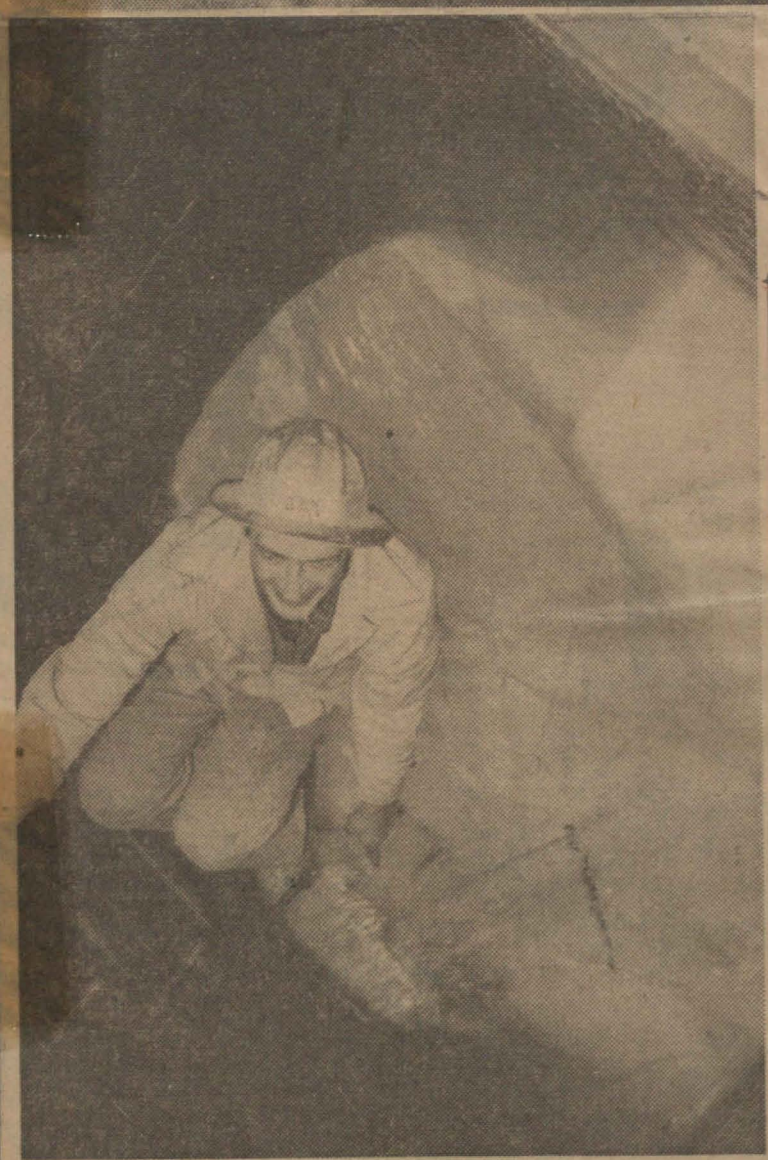
### Heated In Giant Kilns

Here again the combined material is heated in giant kilns at 2200° F. With a white granular substance emerging. The magnesium oxide is then trucked in "blimps" to the main plant for the final metal-making operation.

The broad Pacific is Moss Landing's unlimited stockpile, and it draws 9,000,000 gallons daily from Mother Nature's bountiful bucket. Even if the plant consumed 12,000,000 gallons daily, one cubic mile of sea water would last 251 years.

Unlike heavily drained raw material stockpiles for other metals, the ocean assures Permanente of an endless supply of magnesium. Thus, with war production reaching record heights for the magic metal, the postwar period may well see its greatest benefits.

SEA WATER MAGIC electric shovel and 11-yard tounpull buggy, foreground, above, expedite dolomite digging at Permanente's quarry near Salinas. Below, Fred DeMaestri, Santa Clara university graduate and assistant superintendent at Moss Landing plant, points to flow of 9,000,000 gallons of sea water used daily in magnesium making.





## Kaiser's Engine Plant Destroyed By Fire Last Eve

Officials Puzzled by \$2,500,000 Blaze At Portland

PORTLAND, Ore., Feb. 3. (UP) — Guards today were posted around ruins of the Iron Fireman manufacturing plant — builder of engines for Kaiser Liberty ships — as officials puzzled over the cause of last night's \$2,500,000 fire that destroyed the war plant on the west bank of the Willamette river. It was the most costly fire in Portland's history.

Nearly 400 swing-shift workers fled before rapidly spreading flames as exploding acetylene tanks hastened destruction of the several buildings comprising the plant, site of the territorial prison in the 1850's. One wall of the old penitentiary was still in use as a side for one of the structures.

**Kerosene Explodes**  
Thousands of spectators, attracted by flames that shot hundreds of feet into the sky and spread a glow visible for a great distance, were herded back by police as drums of kerosene on an adjacent sidewalk were exploded by the terrific heat from the flames.

Five persons were injured — two company employees and three firemen — and one of those employees was nearly trapped after he returned for clothing and a tremendous draft created by the heat slammed the main entrance door shut behind him. He was Walter Goodwin, 39, who suffered second-degree burns on the hands as he fought to get the door open barely in time to escape.

The firemen injured were Art Gratiot, who was cut while knocking out a window to save company records; Merrell Wellington, struck by a falling timber, and Bruce Jones, who also suffered cuts. Jack Margeson, 40, an employee, suffered hand injuries while fleeing from the flames.

**DPC Loses**  
Company Vice President E. C. Sammons, who said probably \$500,000 worth of equipment could be salvaged from the \$2,500,000 plant, was uncertain whether the factory would be rebuilt. The defense plant corporation had invested \$700,000 in the shops.

Loss included 24 marine engines, valued at nearly \$100,000 each, and the firm had 79 engines yet to deliver under its contract. The plant employed 1,245 persons.

## Kaiser Turns Eyes Towards South America Industry Now

By NICK BOURNE  
United Press Staff Correspondent  
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OAKLAND, Calif., Feb. 17 (UP) — Henry J. Kaiser and three other unnamed American industrialists are bidding on a project "involving several millions of dollars" of investments of American capital in Venezuela, the west coast shipbuilder told the United Press today.

Kaiser and a three man committee of high officials of Venezuela jointly announced success of negotiations for the investment of American capital in the South American republic, and Kaiser said he is sending a group of experts to South America within two weeks to study development possibilities.

The negotiations may include a reciprocal arrangement whereby Venezuela may be able to purchase merchant ships and possibly warships from the United States before the war is over, if the U. S. government is willing, Kaiser said.

Selling of ships to Venezuela and other nations would provide a post-war market for American shipyards, Kaiser pointed out.

and would meet the current situation in west coast yards, which already have discharged many unskilled workers and have increased supplies of steel, except for steel plate.

Kaiser evinced interest in Venezuela's cement, iron, natural gas, oil, and power resources, commenting "we are working out our cement problems together."

Harry Morrison, Kaiser associate in the Six Companies which built Boulder dam, and George Havas, chief Kaiser engineer, will leave for Venezuela within two weeks. Kaiser himself will visit the South American country next summer, he said.

Commander Antonio Picardi, Venezuela's director of the ministry of war and navy; Eugenio Mendoza, former minister of development, and Roberto Diaz, representative of the ministry of public works, made the announcement of the negotiations with Kaiser following their tour of west coast shipyards and war plants.

"It is one of the biggest things that has ever happened to Venezuela," Picardi said. Picardi will leave here tomorrow to report back to Venezuelan President Isaías Medina on the success of the mission to obtain development capital.

## Boom Town in California Is Reporting Exodus of Workers

RICHMOND, Cal., Feb. 17. (UP) — An estimated 10,000 persons a month are quitting this wartime boom-town, the majority apparently leaving jobs in the huge Kaiser shipyards and other San Francisco bay area war industries, a survey by the Richmond, California Record-Herald revealed today.

The paper said about 525 families are leaving each week by automobile, the majority returning to homes in Minnesota, Wisconsin, Michigan, Mississippi, Kansas, Illinois and Texas.

The first large scale exodus from west coast war centers followed recent announcements that the shipbuilding program was "over the hump," the laying off of many unskilled workers at the Kaiser yards, and the discharge of nearly 500 men at the Joshua Hendy iron works at Sunnyvale, California.

Part of the emigration was blamed on "intolerable living conditions" by city officials, who cited the fact that several disastrous fires have swept Richmond housing projects in recent weeks.

Data for the survey was obtained primarily from records of gasoline allotments issued by local ration boards, two boards reporting issuance of a combined average of 75 special allotments a day for out-of-state trips, the paper said.

Applicants must present job

clearances to prove they are free to leave the areas before special gas allotments are issued, the board pointed out. More than 500 individuals are buying bus tickets weekly, the paper reported, two-thirds of them being one way tickets out of the state.

## Kaiser to Aid Venezuela



Industrialist Henry J. Kaiser (right) and Commander Antonio Picardi, Venezuela's director of Ministry of War and Navy, enjoy a good laugh together after they announced preparations for investment of "substantial" American capital in Venezuela development.

## Kaiser Forecasts Great Airplane Use After War

SAN FRANCISCO, Feb. 22. (AP) — Henry Kaiser today forecast a great era of transportation after the war.

The shipbuilder envisioned aircraft companies doing not only a big peacetime business in manufacturing civilian-service airplanes, but turning out automobiles from their assembly lines.

Taking up the questioning as well as the answering in an interview, he asked:

"What are the three million young men in our air forces going to do when they get home?"

"They're going to want to fly. They'll want to make their living that way. We'll need great airports. Planes will be taking off from San Francisco Bay for Hawaii on the hour. It will take a lot of planes and make a lot of commerce."

## Soldiers' Postwar Future Symbolized by H. Kaiser

NEW YORK, March 8 (INS) — Men in the front line trenches are thinking most these days — when they have the time — of what plans America is making for their postwar future, and they look to industrialists like Henry J. Kaiser for the answer.

So said Sergt. Jack Foisie, an army correspondent for the Mediterranean edition of Stars and Stripes, who recently returned to this country. In New York today, before making a country-wide survey of the United States for the army newspaper, Foisie said that Kaiser's name is one of the few, aside from the military, that has fired the imagination of the fighting men of this war.

"The other things the boys want to know is whether or not the folks at home realize their hardships at the front," the youthful veteran correspondent said.

## Kaiser Men Move On South America

FONTANA, Cal., Mar. 9. (UP) Advance men for Henry Kaiser were en route to Venezuela today to study possibilities for extending the miracle builder's industrial empire to the South American country.

Tom Price, Kaiser steel mill works manager, and Chief Engineer George Havas said they would confer with Venezuelan government and industrial leaders in Caracas "to see what we can do for them and what they can do for us."

Eugenio Mendoza, former Venezuelan minister of natural development, and Commander Antonio Picardi, Venezuelan navy chief, talked to Kaiser here last month about American investment in their country's vast natural resources.

Kaiser said he was "very much interested" in the development. Venezuela also abounds in cement, diamonds and mineral magnesite, Mendoza told Kaiser on his visit.

## Kaiser Steel Mill Strike Is Called

FONTANA, Cal., Mar. 17. (AP) Approximately 300 A. F. L. employees at Henry J. Kaiser's steel mill failed to report for work today in what company executives and union officials said was a dispute over classification of certain workers.

Union representatives announced they had previously notified the company that 500 to 600 men classified as construction workers would no longer do operations jobs, as of 8 a. m. yesterday.

A company spokesman said the men were immediately released and offered reemployment as operations employees, at the operations rate, but that it will not be known for several days how many will accept.

## Kaiser To Build Cargo Ships For Netherlands

WASHINGTON, Mar. 23. (AP) In a major move to cushion the impact on industry and labor of converting from war to peace production, Henry J. Kaiser today announced plans to build 30 coastwise cargo ships for the Dutch East Indies government for war and peacetime use among the South Pacific islands.

The contract is a cash deal with the Netherlands Indies government and therefore does not require approval of lend-lease officials. Kaiser told reporters he expects men and materials will be available when the time comes to start building the vessels, probably before the first of the year.

All will be constructed at Kaiser's Yard No. 4 at Richmond, Calif., where Kaiser said he will be finished in a relatively short time with government contracts on a number of larger type coastwise ships.

Declaring he has long been interested in preventing unemployment in switching industry from war to peace production, Kaiser said the change-over can take place gradually as manpower, materials and facilities become available.

"The government is cancelling some war contracts and stock piles are beginning to appear," he told reporters. "We must use available facilities, and foreign governments are as good a market as domestic if it will keep our men at work."

## Kaiser Says Only One Failure In 97 Ships Launched

SEATTLE, Mar. 28. (AP) — Edgar F. Kaiser, general manager of the Oregon Shipbuilding Corporation, testified before the Truman Senate investigations committee today that only one minor failure had been reported in the last 97 Liberty ships built by his plant.

"And it must be remembered," he declared, "that these were ships turned out at the peak of our high-speed production — about 17 and one-half per month."

There have been 59 officially-recognized failures in the 300 Liberty ships constructed at the Portland shipyard. Kaiser yards have turned out about 900 of these ships altogether.

In testimony today at the final session of the group investigating Liberty ship construction.

## CIO Is Certified At Kaiser Plant

WASHINGTON, Feb. 16 (UP) The national labor relations board today certified the CIO's United Steelworkers of America as collective bargaining representatives for production and maintenance employees of the Kaiser company's iron and steel division, Fontana, California, and at the Moso clay pit.

The board sustained challenges of 1141 ballots cast by construction workers, specifically barred from the election.

## Boom Town in California Is Reporting Exodus of Workers

RICHMOND, Cal., Feb. 17. (UP) — An estimated 10,000 persons a month are quitting this wartime boom-town, the majority apparently leaving jobs in the huge Kaiser shipyards and other San Francisco bay area war industries, a survey by the Richmond, California Record-Herald

revealed today. More than 500 individuals are buying bus tickets weekly, the paper reported, two-thirds of them being one way tickets out of the state.

## KAISER NEEDS 16,000 WORKERS, HE ANNOUNCES

PORTLAND, Ore., Feb. 17 — (INS) — Sixteen thousand workers were said today to be needed by the three Kaiser shipyards in the Portland area, according to Edgar F. Kaiser, vice president and general manager of the yards.

"Something has got to be done about it right away," Kaiser stated upon his return from Washington, D. C. He said that 96,674 people were on the Kaiser payrolls December 11 and 87,056 employees on February 6, a decrease of 9,517 workers.

Henry J. Kaiser's Permanente plant, using magnesite obtained from brine on magnesite ore, mixes it with coke in an electric arc furnace. Original costs of this metal were over a dollar a pound, but this has been reduced to 35 cents per pound or cost of production, which is less.



APR 1944

APRIL, 1944

## DAVIES APPOINTED LINCOLN REPRESENTATIVE

ANNOUNCEMENT has just been made by The Lincoln Electric Company, world's largest producers of arc welding equipment, of the appointment of R. H. Davies as welding engineering representative in Washington, D. C. He will be located at 410 Hill Building.

Davies has had wide experience in the industrial engineering field. He received his college education at the University of Minnesota after which he was employed by The Lockheed Aircraft Corporation where he worked as production engineer on the Lockheed "Hudson" and the first Lockheed "Lightning" aircraft.

He later became connected with Northrop Aircraft, Incorporated, starting at their new plant at Hawthorne, California, where he did considerable development work on the Northrop patrol bomber and "Flying Wing." He was given the assignment of developing all production and tooling methods for experimental and prototype aeroplanes and took an active part in the building of several confidential aircraft components of magnesium. Here he collaborated with Mr. V. H. Pavlecka in the development of the Heliarc welding process for magnesium.



"I wish Mom had stayed here and a farmer!"



Kaiser's large magnesium plant, the alloy plant, the ferro-silicon plant and the magnesium sand casting foundry at Permanente, California. After the construction period he was made superintendent and was also in charge of production and plant development.

JUN 1944

S. D. KIRKPATRICK Editor, Chemical & Metallurgical Engineering

# Kaiser's Stake in the MAGNESIUM INDUSTRY

Returning this Spring to the West Coast after almost three years, Mr. Kirkpatrick found evidence of many changes in the magnesium projects on which the Kaiser interests had embarked so auspiciously in the early days of the defense program. Many costly lessons have been learned as his engineers have struggled to work the "bugs" out of the carbothermic process. Meanwhile vast new raw material sources have been uncovered and several valuable products and byproducts developed for war uses. Now, at long last, the whole enterprise seems to be moving in the right direction, i.e., toward producing a purer metal at lower cost.—Editors

HAVING for so long been on the receiving end of so many rumors regarding the ups and downs of Mr. Kaiser's magnesium enterprises, this writer welcomed an opportunity afforded earlier this Spring to make a first-hand inspection of the California operations. He was particularly interested in the installation at Permanente of the country's first and only plant to use the often-debated carbothermic process which was introduced here in 1940 by Dr. Fritz Hansgig, the Austrian expatriate chemist who is now teaching in Black Mountain College, N. C. That plant has had a stormy career since it was first described in Chem. & Met.'s September, 1941 issue. It is not yet on "easy street," even after three years of intensive and costly experimentation, but sufficient progress has been made to prove that it is at last moving in the right direction. Valuable products have been developed for war uses and new sources of raw material are being exploited not only for the carbothermic process at Permanente but also for the silico-thermic process at Manteca.

An interesting cartoon-map of Kaiser's many projects for magnesium production appears on the opposite page and should be consulted in connection with the following discussion.

Dolomite is quarried at Natividad, which is not far from Salinas, the nation's salad bowl and the California home of guayule rubber. A virtual mountain of rich (13 percent Mg) ore is being shot down and picked up by several 3-cu-yd. drag shovels to be loaded into Tournapull buggies that

carry it to the primary crusher and screens. Here all material of less than 1/2 in.—largely sand and granite—is rejected while the oversize finds itself on a typical Kaiser belt conveyor that delivers it to the kilns several hundred yards below in the valley. There are two 308 ft. kilns of Smidth design, fired with natural gas. One normally produces a soft burned, fine, fluffy MgO·CaO for use in the seawater process at Moss Landing and, ultimately, for metal production at Permanente.\* The other kiln is generally used for producing a hard burned material to which some fluorspar has been added. This goes to the silico-thermic magnesium plant at Manteca.

Trucks carry the soft-burned "dolime" from Natividad down to the ocean at Moss Landing, which is on Monterey Bay. Here is a beautifully constructed, modern chemical plant that utilizes seawater not only for its own magnesium content but also for processing the calcined dolomite to free it from calcium.

The calcined dolomite from Natividad is first slaked and enough of the slurry is added to the incoming seawater to remove the carbonates and bicarbonates. This pretreatment is effected in two 75-ft. and one 125-ft. hydrotreaters and the resulting precipitate of calcium carbonate is pumped to waste. The overflow goes to a 50-ft. reactor tank where the bulk of the calcined dolomite is introduced. Here the major reaction takes place with the precipitation

of magnesium hydrate and the release of calcium chloride to the solution. From the reactor tank the Mg(OH)<sub>2</sub> slurry goes to a series of four 250-ft. Dorr thickeners where the hydrate underflow is pumped counter-currently to each succeeding tank while the fresh water is flown currently through each of the tanks. The precipitated washed magnesium hydroxide is pumped from the last thickener into a slurry tank, from which it is fed to five large 14x18-ft. panel type Oliver vacuum filters. (The operators call them "G-string" filters because the cake is removed by a string that stretches across the belled panels on the discharge side).

The magnesium hydrate is finally burned to the oxide in a Smidth rotary kiln which, under different operating conditions, is also used for burning the refractory grade of magnesia known as artificial periclase. It is of passing interest to note that Kaiser uses this material to produce refractory brick for his steel plant at Fontana and cement plant at Permanente and has sufficient magnesia capacity as well to supply the needs of other manufacturers and processors. Approximately one-half of the magnesia shipped to Permanente from Moss Landing comes from the seawater and the other half from the dolomite.

Since the writer's prior visit to Permanente in July, 1941, some tremendous changes have taken place. The great cement plant continues to be one of the country's largest—if not most unique—producers. Whole mountains of rock have passed through its kilns en route to war

\*A Chem. & Met. pictured flowsheet of the operations at Natividad, Moss Landing and Permanente will be found in pp. 128-131 of this issue.

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## Kaiser Buys Power to Last For Five Years

SAN FRANCISCO, Oct. 4.—(INS)—Indicating its confidence in the future of steel in the West, the Kaiser Company, Inc., today obtained permission from the State Railroad Commission to buy a minimum of a million and a quarter dollars' worth of power from the Southern California Edison company for the next five years to operate the Fontana steel mill in San Bernardino county, California.

B. C. NEWS  
10-5-44

## Kaiser Makes 5-Year Deal With So. Calif.-Edison

SAN FRANCISCO, Oct. 4 (INS)—Indicating its confidence in the future of steel in the West, the Kaiser Company, Inc., today obtained permission from the state railroad commission to buy a minimum of a million and a quarter dollars' worth of power from the Southern California Edison company for the next five years to operate the Fontana steel mill in San Bernardino county, California.

The contract will run until May 1, 1949, and during this period the power company agrees that if 7,500,000 kilowatt-hours are used, the bill will run \$46,000 per month. The order provides that the Kaiser company may cancel any time on nine days' notice, but upon cancellation will have to pay \$7,500 per month for the five-year period covered in the contract.

L. V. TRIBUNE  
10-5-44

REVIEW JOURNAL  
3-6-45

## KAISER PLANS MAGNESIUM USE

WASHINGTON, March 6 (AP)—Henry J. Kaiser, today described the potentialities of magnesium and aluminum as "enormous" but warned "unless we take off our coats and go to work they cannot be fully achieved."

Testifying before the senate small business committee, the west coast industrialist predicted the two light metals will be more extensively used in the post-war world in the fields of aviation, naval combat ships, merchant ships, terminal shipping facilities and truck bodies and busses.

Referring to the latter field, Kaiser declared:

"I know what savings can be effected by using light metal in the construction of these trucks.

"Much work has already been done by my organization along these lines. When aluminum and magnesium become available, I predict that many others will take advantage of similar savings on freight hauling costs."

He added his organization had made detailed preparation for the post-war manufacture of "superior trucks and busses."

## Millions Dropped in Mr. Kaiser's Lap!

BY ROBERT C. ELLIOTT

One millionaire has just dropped 50 million dollars worth of gypsum and a 20-million-dollar corporation into the ample lap of another millionaire!

It's a bizarre San Francisco drama of industry. One character is a fabulous "Cappy Ricks," 80 years old, but you'd think from his wiry, spunky, direct-talking manner that he's in his early sixties. He is a S. A. (for Samuel Albert) Perkins, president of the Standard Gypsum Co., owner of gypsum quarries in Mexico, Alaska and Nevada, and plants at Long Beach and Seattle. At the turn of the century he was secretary to the President-maker, Mark Hanna.

You've heard of the second man of fabulous millions, Henry J. Kaiser, who happened to defend himself by saying, "Why, we did around a 200-million-dollar volume of business up to the war, without using Government funds, not even for cement."

Mr. Perkins just up and handed over, on a 50-50 partnership lease, to Mr. Kaiser the Standard Gypsum Co. to operate and expand.

"We've got 500 million tons of gypsum above ground," exclaimed Mr. Perkins, who has headquarters in San Francisco and homes "wherever by hat is—in Tacoma, Seattle and Santa Barbara." He owns three papers in Bellingham and Olympia, Wash., and is chairman of the board of Alaska-Mexico Transportation Co. Gypsum is worth 10c a ton—as a white mineral, which is ground up to be plaster of paris, a retarder in cement, a soil conditioner for farms, or rolled into wall boards and used as interiors of houses. Figure it out: it comes to 50 million dollars worth of gypsum, "besides enough for centuries in the ground," and suddenly it was offered to Mr. Kaiser on a platter.

"I've looked you over from A to Z," Mr. Perkins told Mr. Kaiser the minute he met him.

"I'm 80—just a kid. But I've lost my boy, and I don't feel like building new plants at my age. This Standard Gypsum is too big a thing, with too big a future, not to put it in proper hands to carry on, and so I investigated the Kaiser organization thoroughly. The two Kaiser boys (Edgar and Henry Jr.) will be better men than their dad, and the company has stars all down the line. I admit I've given away a lot, but watch it go."

Mr. Kaiser discovered that he was being offered a company with whole mountains of

A Story  
About  
TOMORROW'S  
JOB

gypsum—San Marcos Island in the Gulf of California, where they just dig a glory hole or tunnel, start a conveyor and load a 12,000-ton ship in 11 hours. "Write your own ticket," Mr. Kaiser snapped up the offer.

The Kaiser post-war job scheme was revealed by the shipbuilder in five words: Housing, highways, shipbuilding, medical clinic centers, transportation. He said he expected hundreds of thousands of jobs to be created in those fields.

For the first time he disclosed some revolutionary thinking he's doing on the post-war house, which he now expects to sell through contractors, small manufacturers, real estate men, and other dealers. He'll just sell interior wall panels, whole sections like the kitchen, laundry and bathrooms. He is making a new plastic cement that looks like stucco, but which he boasts is more durable and crackproof.

In other words, he said, Kaiser Co. will mass produce and sell "the core of the house" and will aim at creating every imaginable variety of design, offering a gypsum house, for instance, at "23 per cent less cost for a fire-proof, sound-proof, bug-proof dwelling" (as Mr. Perkins volunteered). The house can be done by conventional methods through architects, but with the new materials; it can be built by site fabrication, or by factory prefabrication, or by prefabrication of sections.

This is new; Mr. Kaiser now counts on "the very promising prospect" of using Fontana steel to make "extremely lightweight steel trusses, joists and rafters for the post-war house, considerably cheaper than the frame house. People will buy finer homes at the same or less money. That's the way to achieve the economy of abundance—cut costs."

The Kaiser hunt for materials to round out his post-war industries is not yet over, he said, naming the fact that he has magnesium and steel to get into the alloys and to make stainless steel for his houses. But, perhaps significantly he mentioned aluminum; because aluminum can be used in post-war houses; several Western refineries can be picked up from the Government, and Mr. Kaiser may need an aluminum refinery to build window sills, lightweight boxcars and ship superstructures.

He's hard at work trying to sell Washington on continuing big-scale shipbuilding after the war, to meet world tonnage needs, "bring the boys home from war as fast as they'll want to come," and develop a big world trade.



## Kaiser in Person Bids to Operate Plants in Post-War

BY ROBERT C. ELLIOTT

Henry J. Kaiser today personally took on the job of dickering to operate several of Uncle Sam's great factories after victory.

Secy. of Commerce Jesse Jones asked him to designate an official of the Kaiser companies to negotiate for the purchase or lease of certain Government-owned war plants.

Mr. Kaiser's immediate reaction was that post-war operation of war plants is too important to be left to subordinates. He didn't propose to pass Mr. Jones' wires and letters over to an underling and then forget it. "I've assigned myself," Mr. Kaiser declared. "I want to see Mr. Jones after reaching Washington the last of this week."

But he is taking six of his highest officials and advisers with him, prepared to make definite offers.

Jesse Jones, as chief of RFC and Defense Plant Corp., specifically asked Mr. Kaiser to settle financial affairs for post-war operations of Permanent Magnesium Works in the Bay Area and the Kaiser Cargo, Inc., plant at Bristol, Pa.

Mr. Kaiser indicated he wants to make definite arrangements at the earliest possible moment to assure post-war operation not only of the magnesium works and his aircraft plants in the East, but also of several West Coast shipyards and Fontana Steel plant, which is in his own name but hooked to RFC. He may bid to lease other Government plants.

"In order to reach our objective of providing 10 million more jobs than in any prewar year, the United States will need more manufacturing facilities than ever before. Gov-

ernment plants must be placed promptly in the hands of operators who will use them to create employment. Billions of public money is tied up; some of the plants are the most modern in the world.

"So I join Mr. Jones in favoring the leasing of such plants as are not sold, in order to shift every plant possible over from war to civilian production."

It would be intolerable, Mr. Kaiser said, to see the country dotted for years with hundreds of idle, Government-owned factories, causing scandals such as Muscle Shoals did years after the last war. He advocated that the Government wring excessive war costs out of sale or lease contracts and reach without delay disposal arrangements that will be fair to the public, to competing companies and the operators.

"What companies have the surplus millions to buy four billion dollars worth of plants that Mr. Jones seeks to dispose of?" Mr. Kaiser asked. "Outright sales are not essential. The vital thing is to keep them running. The Government can enter lease contracts with private operators that will assure the people obtaining a return on the gross revenue."

At stake are about one-fourth of the manufacturing plants and machinery of the entire United States; some 18 billion dollars worth of productive plants, part of which will not be converted to civilian production. Mr. Kaiser was speaking specifically about the fact that the Government owns more than half the aluminum processing facilities of the nation; has 10 per cent of steel, with an investment of a billion dollars in ultra-modern steel mills, especially in the West; owns the synthetic rubber industry and many petroleum plants; owns three-fourths of the shipyards and an unprecedented merchant marine, a big share of the aircraft industry, magnesium works and a host of other factories.

"It would be a crime to deprive the American people of the jobs

and products these plants could create," Mr. Kaiser declared.

The Government might lease the 200-million-dollar Geneva, Utah, steel mill or the 130-million-dollar Basic Magnesium plant to competitors, who would put up a stiff battle against the Kaiser steel and magnesium works in California. Leased plants might compete against long-established factories.

"The leasing of Government plants must be equitable, of course," Mr. Kaiser said. "The operator who did not put up the capital to build the plant should not be given an unfair advantage over companies running their wholly owned plants. The Government should charge as much interest as must be paid by operators of privately built plants. But just because the Government made the original investment is no excuse for shutting the people off from the employment these Government plants can create if put promptly into private hands."

Mr. Kaiser has relentlessly been investigating post-war possibilities of mass production of housing, networks of private flying fields across the country, lightweight freight cars, helicopters and other planes, the manufacture of steel and magnesium products, cement and major public works, and civilian jeeps. Already he has met obstacles in some of these fields, so that he realizes he wouldn't be able to have certain ones ready to create hundreds of thousands of jobs in the immediate transition.

He revealed a unique test he has placed on his post-war ventures:

"I should only take on those projects that others won't do."

Reminded that the auto industry condemns his talk of producing an extremely lightweight auto to sell for \$400 to \$500, Mr. Kaiser said, "The nation must have a cheap post-war auto. Either autos must be sold cheaply or wages will have to be raised in order to give people the purchasing power to buy our tremendous productive capacity."

Declaring that home building can

be the nation's greatest post-war industry, he said he had been gratified to discover "thousands of enterprisers working on housing," and that he didn't propose to do what others in the construction industry could and would do.

"In order to make it possible for millions of more Americans to own their own homes," Mr. Kaiser said, "the cost of construction must be reduced by saving a dollar everywhere we can. But it must be a better house, complete with the finest factory-built kitchens and bathrooms, and finished with the lawn, the flowers and all the little touches that make it more than just a house. I believe I can make a contribution, but the home-building boom will be an industry that a great many established enterprisers can profit by and accomplish."

"Employment's the No. 1 concern. A high percentage of women in war industries have signified that they want to continue employed, in order to maintain their new purchasing power."

Hence, in disposing of war plants, prompt action is required so that industries can begin forthwith planning post-war employment and production.

"Leasing arrangements as suggested by Mr. Jones and Mr. Byrnes provide the first great evidence that we will keep Government plants running after victory. If they can't be sold, lease them. That program can mean jobs for millions!"

He advocated that the same urgency be given by the Army, Navy and U. S. Maritime Commission in disposing of their surplus facilities.

"There'll be nothing much for Kaiser workers to do when war ends, unless every industry in the country is ready to run full tilt," Mr. Kaiser said. "So I want to see the selling and leasing of Government plants roll right down to line. Private industry can't plan post-war operations with assurance until disposal of the Government plants is decided. The way to avert a terrific transition lag is to assure right now the uninterrupted operations of every possible Government plant."

REVIEW-JOURNAL  
7-26-45

## Kaiser Enters Automotive Field

DETROIT, July 26 (AP)—The oft-rumored entry of Henry J. Kaiser, west coast shipbuilder, into the automobile field became a fact today with announcement that he and Joseph W. Frazer, president of Graham-Paige Motors corporation, had affected a partnership for manufacture of a low and a medium-priced automobile.

The announcement made here by Frazer disclosed that a new firm, to be known as the Kaiser-Frazer corporation, will produce a full-size, light-weight, low-cost car on the Pacific coast to be known as the "Kaiser." Another, in the medium-priced field, will be built in Detroit and will be known as the "Frazer."

The new corporation, with an authorized capitalization of \$5,000,000, is to be owned jointly by Kaiser interests and Graham-Paige Motors corporation.

In preparing the way for the new partnership, the Graham-Paige board of directors Wednesday accepted the resignation of R. J. Hodgson, a former official of the Reconstruction Finance corporation, as president, and named Frazer to succeed him. Frazer has been chairman of the Graham-Paige corporation. He will retain that office and at the same time become president and general manager of the new Kaiser-Frazer corporation. Kaiser will be chairman of the new concern.

L. V. TRIBUNE

Wednesday, August 29, 1945

## Kaiser Jr. Plans Purchase of Ford Car Plant

CHICAGO, Aug. 28. — (INS) — Henry J. Kaiser, Jr., 30, son of the west coast shipbuilder, was on his way to Detroit Tuesday with the announced intention of leasing "the Willow Run bomber plant to make automobiles."

The younger Kaiser arrived in Chicago, from Oakland, Calif. He told reporters:

"I don't know what the outcome of my trip will be, but I'm going there (to Detroit) to lease the plant."

His father already had announced plans to join Joseph W. Frazer, president of Graham-Paige, in the manufacture of a low-cost automobile. Asked when the autos could be expected, Kaiser, Jr., said:

"Soon as possible. The sooner the better. We want to create a lot of jobs for returning servicemen and war plant workers who have lost out because of the end of the war."

Plans announced by Kaiser, Sr., include plants in the middlewest and on the west coast for the car manufacturing program.

L. V. TRIBUNE  
7-26-45

## Kaiser Enters Light Auto Manufacturing

SAN FRANCISCO, July 26 (AP) — Henry J. Kaiser announced Wednesday he was definitely going to produce a "Kaiser" light automobile.

Kaiser said he and Joseph W. Frazer, newly named president of Graham-Paige Motors Corp., had set up the Kaiser-Frazer corporation with 5,000,000 shares of \$1 par stock as authorized capitalization to make the Kaiser car on the west coast.

Frazer made a similar announcement in Detroit at the same time.



## Purchase of Cienega Property by Permanente Company Raises Hopes For New Defense Industry Here

● PURCHASE yesterday of a 237 acre tract in the Cienega district by the Permanente company, raised hopes that San Benito county may become the site of a defense plant that will supply dolomite for Permanente's magnesium plant near San Jose. Price of the property was \$25,000.

The company recently completed a series of tests to determine if the white rock is available in quantities that would make feasible the construction of a roasting plant to process the material.

There have been no official announcements, but it is rumored that Permanente has changed its plans and is now negotiating with the Bethlehem Steel company to get dolomite from quarries near Salinas.

If the deal goes through, Bethlehem would get its dolomite from the Cienega quarry and there would be no roasting plant constructed there, since the steel industry uses dolomite in its natural form.

Reason for the trade would be to shorten the haul to the sea-

water plant which Permanente would construct on the coast near Salinas to reduce the burned dolomite to a purer form before the magnesium is extracted.

At present magnesium ore is being shipped from Nevada, and the company has been prospecting in this district to find a closer supply that would reduce freight rates. It had previously announced that a deposit of 3,000,000 tons must be found before it would consider the purchase of the Cienega property. It had been expected that the plant which would be built here would employ more than 100 men.

Since the outbreak of the war, defense activities may have altered the company's plans, and because of the importance of magnesium in national defense, the details of the program are reported to be a military secret.

An engineer from Permanente is expected here next week to go over the property with Howard Harris who also has an interest in the sale.

## Magnesium output up to schedule

The Permanente magnesium plant produced 1,000 pounds of metal more last week, right up to schedule, Superintendent Harry P. Davis reported today.

The Pacific Gas and Electric Company, which is stringing a new power line of 100,000 KVA from its Newark substation in order to make expansion of the plant possible, has put in a temporary line that is bringing the plant an added 32,000 KVA now. The new power installation is scheduled for completion in March.

At Redwood City, where dock facilities are being built to handle a greater part of the Permanente Metals Corporation's cement output, piles are being driven now and pouring of concrete will start about January 15, Mr. Davis said.

Dr. Fritz J. Hansgirg, research director and consultant to the corporation, is still in the San Jose county jail awaiting the outcome of investigation by the Federal Bureau of Immigration. Dr. Hansgirg is an Austrian.

## Magnesite Ore Is Shipped to Coast

Notwithstanding deep snows and stormy weather which prevails in the district, operators for the Sierra Magnesite company are not falling far behind its usual shipments of two thousand tons of magnesite which has been its weekly output sent to Permanente magnesium recovery plant near Palo Alto, California. Fifteen hundred tons were shipped last week.

Wells Inc., of Reno, has the contract to truck the ore from the district to Luning, where it loaded on the cars and sent, via Hazen and Reno, to the coast. Each truck carries from twenty-five to thirty tons each trip.

Word from the district is to the effect that the MacDonald Construction company, which is preparing to build the three million dollar calcining plant, for the Basic Magnesium company is now very active, and the road, which each of the corporations mentioned use, is becoming crowded with traffic.

## Permanente Plant Rocked By Blast

SAN JOSE, Cal., Jan. 19 (UP) —A small amount of magnesium burst suddenly into flame at the Permanente magnesium plant at Los Altos today, burning Nino Bongiovanni, 30, San Jose, former major league baseball player, and Marvin Peters, 40, a Santa Clara laborer.

Both Bongiovanni and Peters suffered burns of the hands and face.

## Permanente Plant Will Be Enlarged

A second unit of Permanente magnesium plant near San Jose, Calif., designed to increase potential output 100 per cent, will be constructed in the near future with \$11,000,000 loan recently authorized for the purpose by Reconstruction Finance Corporation. Additional RFC advance will bring to \$21,000,000 the total RFC investment in the magnesium operation, \$10,000,000 having been advanced for building of present unit. First unit went into production in October, operating on raw material shipped from Luning, Nevada.

Henry J. Kaiser, Latham Square Building, Oakland, Calif., is president of Permanente Corporation, which also operates large cement plant near magnesium plant at Permanente. Mr. Kaiser is also an official of Todd-California Ship Building Corp. Plant superintendent is H. P. Davis, P. O. Box 29, San Jose, California.

### METALS AND ALLOYS

New York City

FEB 1942

1b. Non-Ferrous

### Magnesium by the Hansgirg Process

"MAGNESIUM BY THE HANSGIRG PROCESS," S. D. KIRKPATRICK (Staff)  
Chem. & Met. Eng., Vol. 48, Sept. 1941, pp. 91-94. Descriptive.

At Permanente, Cal., Henry J. Kaiser has built for the Todd-California Shipbuilding Corp. an [experimental] plant for the production of metallic magnesium by the electrothermic reduction of the oxide—the process of F. J. Hansgirg, who is also personally associated with the American enterprise. [This is part of the huge expansion program planned by the government, which may eventually boost magnesium production to 400,000,000 lbs. annually, although at present a production of only 200,000,000 lbs. per yr. is in sight.—H.R.C.]

The Hansgirg process depends, basically, on the reduction of magnesium oxide to magnesium, using finely divided carbon as the reducing agent. The reduction takes place in an electric resistance furnace at approximately 3630°-3810° F. The reaction is:  $MgO + C = Mg + CO$ . The products of the reaction must be suddenly cooled, since the equation quickly reverses itself. Whereas in the original Hansgirg process rapid chilling was obtained by the use of large quantities of hydrogen, at Permanente natural gas is available for the cooling medium.

At the Permanente plant, the magnesia is mixed with petroleum coke to form briquettes and these are fed continuously into the reduction furnace. An atmosphere of hydrogen is maintained in the furnace to prevent the entrance of magnesium powder to the isolated electrode glands.

The reaction products are drawn off at one side of the furnace through a specially-designed stainless steel nozzle and condenser. They are immediately chilled by the blast of natural gas. After the initial quenching, the magnesium is carried as fine dust into the cooling chamber, a revolving cylindrical drum. As the velocity is reduced, some magnesium powder drops to the bottom and is taken by a screw conveyor to a dust storage bin.

Meanwhile, the temperature of the gas has been lowered to about 300°-390° F.,

and most of the dust is carried by the cooling gases to an electric "agglomerator." The balance of the dust is removed in woolen bag filters.

The dust from the primary reduction consists of 60-65% metallic magnesium, contaminated with some magnesium oxide and carbon. It is compressed without a binder into tablets by a specially-designed tableting machine. The tablets are charged into enclosed, electrically heated retorts that operate at about 1380° F. under an extremely high vacuum. [Since the product is pyrophoric all this has to be done in a nonoxidizing atmosphere. Use of oil as in the method being studied by the Bureau of Mines could avoid some of these difficulties.—H.R.C.]

The vaporized metal rises to the upper part of the retort and deposits on the

water and oil-cooled steel walls of a removable shell; the shell is later removed to obtain the metallic magnesium, which has condensed into a crystal ring. The metal is taken to the conventional foundry furnaces for remelting and casting into the form of pigs or ingots. The metal in this form is said to have a purity of 99.97%.

Important among the accessory equipment and facilities are: a cooling oil system to remove excess heat from the reduction furnace's electrode glands and the electrostatic agglomerator; facilities for a continuous circulation of cooling water in the jacket around the first cooling chamber and around the top sections of the final retorts; nitrogen for purging apparatus during shutdown periods; and equipment for producing hydrogen by electrolysis of water. (1b)



## Permanent Activities To Remain Secretive

Future construction activities of Permanente corporation which operates cement facilities at the Port of Redwood City will be secret, announced superintendent, Harry Davis of Permanente this week. He said no figures on production of cement or magnesium will be released and location of new units, size of the plants, and progress

Hays Kans News  
2-5-42

## ZINSZER ENGINEER WITH MAGNESIUM CORPORATION

Bill Zinszer, '37, is Production engineer with the Permanent Magnesium Corporation in Palo Alto, Calif.

In a recent letter concerning his work, Bill says "For a week, now, I have been working on some special research work at Stanford, at the Ryan high voltage laboratory. We are working on a high voltage static precipitator. The MgO has to be conveyed in an oil vehicle to keep it safe; and must naturally be separated later. "I expect to be on this for several weeks now that we are really setting up a small pilot plant. After this is over I hope to get into the Mett. laboratory and help with the job of making alloys."

Bill's address is Apt. No. 8, 555 Forest avenue, Palo Alto, California.

## Permanent Names Davis Successors

Ralph E. Knight and D. A. Rhodes today had been named to succeed Harry P. Davis, late superintendent of the Permanente magnesium and cement plants at Los Altos and the company's new shiploading facilities at Port Redwood City.

Funeral services for Davis, who was killed in an automobile accident yesterday by the Palo Alto Elks lodge. Hundreds of Permanente employees attended the rites. Cremation followed at Alta Mesa cemetery.

Knight, who was assistant to Davis, will have charge of engineering and construction and Rhodes of plant production and operations, it was announced by Henry J. Kaiser Sr., president. H. V. Lindbergh was named head of the Permanente police force to succeed Henry J. Monsees, who was fatally injured in the crash.

## Firm Resumes Drilling Of Magnesite Deposits

LUNING (Nev.), March 31.—Diamond drilling of its extensive magnesite deposits in the Mammoth district will be resumed immediately by the Standard Slag Corporation. Richard C. Smith, engineer for the company, announced this, here, explaining the property has been explored and developed sufficiently to demonstrate the presence of large ore bodies.

It was recently reported that the Permanente Corporation had optioned a large acreage controlled by Standard Slag. The property is adjacent to the magnesite mines operated by Basic Magnesite, Inc. and Sierra Magnesite Company.

The Permanente Metals Corporation, Latham Square Building, Oakland, California, has purchased a 237-acre tract of ground in the Cienega district of San Benito County, California, at a reported price of \$25,000. The company has been conducting tests of dolomite deposits, which have a high magnesium content, in this district. Roger K. Kirkpatrick, Hollister, California, has been in charge of the testing operations. Henry J. Kaiser, Latham Square Building, is president of the corporation, which has a new magnesium plant in operation near Los Altos, California.

According to reports, a manganese reduction plant will be constructed at Livermore, California, provided a supply of at least 500 tons of ore daily can be assured. The project would entail an expenditure of more than \$100,000. Extensive deposits of manganese ore are known to lie close to the surface of the Livermore Mountains, but the major portion of the ore is low-grade. However, at the present price of the mineral and with new reduction processes, it is thought that the ore can be handled profitably. J. O. Pulse, Box 14, Livermore, is owner of extensive manganese properties which would be included in the deal.

## Hansgirk Barred From Permanente

Dr. Fritz Hansgirk, former San Mateo resident and inventor of the process used in the Permanente magnesium plant, today was banned by federal bureau of investigation agents from visiting the plant.

Held as an enemy alien since shortly after the outbreak of the war, Dr. Hansgirk had been allowed to leave the Santa Clara county jail under custody of a deputy sheriff to go to the plant to assist in solving operating problems.

FBI agents also said his wife, who lives near the plant, may be forced to reside elsewhere because she had been corresponding with a son by a former marriage who is a soldier in the German army.

## NEW ENTERPRISES BEING DEVELOPED BY PARR, KAISER

The Parr Terminal Company of San Francisco has leased valuable waterfront properties at Moss Landing on Monterey Bay, near Watsonville, and is working out plans there for the construction of fish reduction and canning plants, Fred Parr, president, announced yesterday.

The properties were leased from Minnie Sandholt for 50 years.

Dredging to make the harbor suitable for the development will amount

to approximately \$625,000, based on estimates by local engineers but not yet approved in Washington.

### Moran Manager

Andrew A. Moran will become general manager for the company. Moran is widely known in Pacific Coast shipping quarters. He was mentioned last year for a post on the United States Maritime Commission.

At the same time, the Parr Terminal Company has acquired certain waterfront rights at Moss Landing which will enable the new \$2,000,000 Permanente magnesium plant, now under construction in that area, to acquire sea water from

which to make magnesium, it was learned from other sources.

### Kaiser Builds Plant

The Permanente magnesium plant is being built by Henry J. Kaiser, Bay area industrialist, and is expected to be completed in about four months. It will produce magnesium from sea water by using a chemical process which requires dolomite. Deposits of this mineral are found in the hills back of Moss Landing. It is a compound of calcium and magnesium.

### Dredging Operation

Considerable dredging and preliminary work within the harbor at Moss Landing will have to be done before construction on the fish reduction and canning plants can begin, Parr said.

## Magnesite Ore Moves to Mill

Red Mountain Product  
Going to Permanente

PATTERSON, March 8. (Exclusive)—The Magnesite Products Co. is shipping magnesite from its Red Mountain deposit in Stanislaus County to the plant operated at Patterson by Westvaco Chlorine Products Co. Equipment has been installed at the mine following retimbering of old workings, and ore production is reported to be averaging over 750 tons per month.

Concentrated magnesite is sent from the Patterson mill to the huge magnesium plant operated near San Jose by the Permanente Corp.

Shipments of magnesite are also being made to the Patterson plant from another property operated by Magnesite Products Co. 10 miles west of Sonoma. Westvaco Products is working a magnesite deposit 33 miles south-east of Livermore.

## Magnesium Plant Chief Dies in Crash

Car Plunges Off Road;  
Two Others Injured

PALO ALTO, March 24. (P)—Harry P. Davis, 42, superintendent of the Permanente Magnesium Corp. plant at Los Altos, was killed today in an automobile accident.

His car missed a curve, careened into a field and crashed into an oak tree. Physicians said death came instantly from a broken neck.

Henry J. Monsees, 59, chief of police at the Permanente plant, and Mrs. Betty Massey, 25, an office employee, were injured critically.

## KAISER SPIKES PROFIT RUMOR

The only aim of Henry J. Kaiser's shipyards "is winning the war," Mr. Kaiser declared today in a statement intended to spike rumors regarding profits of the companies he heads.

Those rumors—and one that workers could make more money at another Bay Area shipyard—caused 1000 men to leave Mr. Kaiser's Richmond No. 1 shipbuilding plant Wednesday night. Practically all had returned last night, after Government and union officials denounced the walkout.

All profits from his two Richmond yards are being paid to the RFO to amortize a loan made to his Permanente Metals Corp. for construction of a huge magnesium plant at Los Altos, said Mr. Kaiser. And because the Government has authorized investment of funds for Government-owned magnesium plants, at the end of the war he feels the Government plants will have forced the closing of privately owned projects, such as his own.

Thus, he explained, he could not be accused of a profit motive for instituting a seven-day work week in his shipyards.

Under that plan, the shipyards operate every day, but men work the usual five days, with no extra pay for Sunday if it is one of their regular workdays. Any man working six days in a week receives time and a half for the sixth day.

## SHIPPING REGISTER & WORLD PORTS

"Devoted to Harbors, Waterways  
Waterfront Operations Officials."

A9-No. 2 Broadway  
New York City

MAR 21 1942

## NEW ENTERPRISES FOR PARR, KAISER

Fred Parr, president of the Parr Terminal Company, announced Thursday that his organization has leased valuable waterfront properties at Moss Landing on Monterey Bay and is working out plans there for the construction of fish reduction and canning plants.

It was reported that the properties were leased for a duration of 50 years from Minnie Sandholt.

Dredging to make the harbor suitable for the development will amount to approximately \$625,000, based on estimates by local engineers but not yet approved in Washington.

Andrew A. Moran will become general manager for the company. Moran is widely known in Pacific Coast shipping quarters. He was mentioned last year for a post on the United States Maritime Commission.

At the same time, the Parr Terminal Company has acquired certain waterfront rights at Moss Landing which will enable the new \$2,000,000 Permanente magnesium plant, now under construction in that area, to acquire sea water from which to make magnesium, it was learned from other sources.

The Permanente magnesium plant is being built by Henry J. Kaiser, Bay area industrialist, and is expected to be completed in about four months. It will produce magnesium from sea water by using a chemical process which requires dolomite. Deposits of this mineral are found in the hills back of Moss Landing. It is a compound of calcium and magnesium.

Considerable dredging and preliminary work within the harbor at Moss Landing will have to be done before construction on the fish reduction and canning plants can begin, Parr said.

## Magnesium Plant Chief at Los Altos Killed in Crash

SAN JOSE, Cal., March 24 (UP)—An automobile crashed into a tree on San Antonio Road near its junction with highway 101 early today, killing Harry P. Davis, superintendent of the Permanente magnesium and cement plants at Los Altos, and injuring two other persons severely.

The injured, taken to Palo Alto hospital, were identified as Henry Monsees, 59, Los Altos, chief of guards at Permanente, and Mrs. Jack Massey, wife of a plant employee. Their condition was critical.

Davis, who was 42, was an outstanding engineer. His home was in Palo Alto.

Information received by the coroner's office here said Davis was driving the car in which the party was returning from the Permanente plant. Apparently he missed a turn and the car shot off the road into a tree. Davis suffered a broken neck.

## AT PERMANENTE

## War Bond given for suggestion boosting output

A \$50 War Bond has been presented to John Kimball, an area foreman at the Permanente Metals plant, for a suggestion that will enable Permanente to increase its production of magnesium for the aircraft industry, company officials announced today.

The award was made on behalf of the company by D. A. Rhoades, project manager at the Permanente plant.

Kimball's bond-winning idea was for a mechanical reamer for keeping clean the charge hole through which pellets of raw material are introduced to the 4,000-degree F. atmosphere of Permanente's giant reduction furnaces.

This job was formerly done by hand, a tedious process requiring several men. Kimball's mechanical reamer does the job better and quicker, saving considerable operating time.

Helping Permanente turn out more magnesium is a sort of family matter with Kimball. His younger brother has been in combat as a sailor in Uncle Sam's navy, his older brother answered a call for volunteers and is doing reconstruction work at Pearl Harbor, and his sister works in a San Bruno war plant.

Kimball, formerly a maintenance man for Food Machinery, lives in Los Gatos and has been with Permanente since construction of the magnesium plant began in the hills near Los Altos.

## PACKINGHOUSE WORKER 3/12/43

Chicago, Ill.

## INVESTIGATION

San Francisco (FP)—A federal investigation of Henry J. Kaiser's permanent magnesium plant at Los Angeles was demanded by the California CIO Council, which furnished to high U. S. authorities evidence that the \$25,000,000 government-financed plant is a "spectacular flop."

## FREAK TRAGEDY

## Permanent truckman dies in leaping flames

After leaping from his burning truck, a human torch with clothing and hair ablaze, Charles Rabella, 38, a truck driver of San Jose, died early this morning in a San Jose Hospital from burns suffered in the sudden holocaust.

Rabella had hauled a load of excavated material from the Permanente magnesium plant to the dump ground a half mile up Permanente Creek canyon. The load of debris as it fell from the truck struck with force on a pile of magnesium-carbon residue which had been put there a few minutes before.

Instantly a flash of flame shot from the magnesium to envelop the truck, igniting the gas tank and the grease that coated the motor. Rabella leaped from the cab of the vehicle, but before he reached safety his clothing was ignited, blazing high above his head.

J. E. Shreve, a laborer at the dump, extinguished the flame in Rabella's clothing with a hose. The seared victim, still conscious, was removed to the San Jose hospital by the Permanente ambulance.

Rabella has worked at the plant since April, 1941.

## MINING JR'L. PHOENIX ARIZ. 3/15/43

The Permanente Metals Corporation is reported to be producing at the rate of 4,500 tons of magnesium annually at its \$6,000,000 plant near Los Altos, California. Although this production is only one-third of that originally scheduled in 1941, it is expected that Permanente will double present output very shortly. Henry J. Kaiser heads the Permanente Metals Corporation and headquarters are maintained at the Latham Square Building, Oakland, California.

## MINING JR'L PHOENIX ARIZ. 3/20/43

Officials of the Permanente Metals Corporation have announced that the February output of the Los Altos, California, magnesium plant exceeded production of any previous month by 75 per cent. Actual tonnage was withheld, however, although it was said that the production represented in substantial proportion the plant's originally scheduled capacity. This report is one of the first statements that has been issued by Permanente. It is understood that plans are being formulated to materially increase the company's production at this plant in the near future. Henry J. Kaiser, Latham Square Building, Oakland, California, heads the Permanente Metals Corporation.



S. F. CAL. CHRONICLE  
CIR. DAILY 107,406, SUN. 196,194  
APRIL 9, 1942

## One Bottleneck in Vital Production 468

The request by Permanente that Government buy its magnesium at cost until cost of manufacture is cheapened calls attention to a sort of bottleneck that has delayed remedy for shortages of vital materials—copper, tin, reclamation, synthetic rubber and a whole host of items desperately needed.

Magnesium happens to be one item in which shortage was foreseen, or at least one in which prompt steps were taken by enterprise to meet the emergency. The Permanente plant was built under an RFC loan to provide the additional magnesium essential for the war production program. The magnesium produced, although for the Government's needs, is sold not to Government directly but to industry working on war contracts.

It costs Permanente 23 cents a pound to make the magnesium. The maximum price is 22 cents. In a peacetime free market, where supply and demand sets the price, enterprise stays out until cost is down or price is up to an economic level. In war the Government's first necessity is production, not economics. This, however, does not relieve the enterpriser of economic necessity.

Government has a second objective in its war policy which is to hold down prices to an arbitrary level, usually an average or high of pre-war economy. This can stop a hoarder or prevent profiteering by a manufacturer whose process or resources make cheaper operation. It does not enable anyone indefinitely to produce below cost, no matter what the material necessity may be.

The 12-cent copper ceiling shut down all the mines that could not operate at that level until a subsidy deal permitted them to open and avert a desperate shortage. The same applies to innumerable production and reclamation projects. If it costs 40 cents a pound to make synthetic rubber and the ceiling is 20 cents—these are not offered as precise figures but as example—it is obvious that enterprise jumping into production, as Permanente did in magnesium, would face an economic problem that only Government could solve. A runaway, free price market might reach dizzy levels that would cause much public discontent. An arbitrary price in many cases forbids enterprise to go into production. The problem is to find a fair level or a method of adjusting the economic necessity of an enterprise to the needs of the Government, needs in which economics are at best secondary to war needs.

SAN JOSE, CAL. MERCURY HERALD  
CIR. 39,516  
MAY 9, 1942

## How Our Post-War Magnesium Will Add To Our Farm Profit.

We can rest assured that Permanente is no emergency industry. The huge magnesium plant in our western hills is not going to fade away after the war. It is not going to throw thousands out of work or disarrange this valley's post-war industrial economy when we start making other things than bombers again.

In fact its going to revitalize many other industries of importance to this valley when we return to the ways of peace.

We can take that assurance from the talk by Fred Lohse, Permanente's chief chemical engineer, before the San Jose chamber of commerce luncheon yesterday. In describing the post-war role of magnesium in the field of transportation alone, he opened amazing vistas of more profitable shipping and marketing methods for California's fresh fruit and vegetable crops—to mention just one industry to be benefited in this diverse state.

California will be brought closer to her competitive eastern markets by lighter trains, built largely of the strong, featherweight metal. These will be able to run in longer sections, on faster schedules, and at reduced haulage costs. Similar economies will benefit the trucking industry, not to mention private auto travel.

But it is from air transport that the greatest benefits appear certain to come. Planes already in war use can carry a carload of freight, and larger ones are even now being designed.

Now you might think the cost of hauling vegetables and fresh fruit by air would be prohibitive. But Lohse points out that at present the chief cost by rail is refrigeration. That cost and weight will be eliminated in air transport, since stratoliners will fly east at a height that will provide natural refrigeration.

In the speed of transport our present marketing methods for fresh fruit and vegetables will become obsolete. The shipper will no longer have to guess at what the weather will be in the midwest a week or more in advance. He'll be able to spot his shipments of lettuce, strawberries, lemons and other fresh fruits and vegetables on the basis of weather certainties of the next 24 hours.

Note how this single certainty will benefit consumer, grower and shipper alike. Lemons and lettuce and other fresh produce will no longer need to soar in price overnight in midwestern markets because of unexpected demand when a heat wave strikes that was not anticipated when California shipments were made up a week or more before. Spoilage would be cut to a minimum, and not alone because of faster transport. There would be fewer cases of oversupply in any market because shippers couldn't anticipate that the weather would bring on a competing crop faster from another production area. More fresh California fruit and vegetables would be eaten because they would be on hand at reasonable prices when wanted.

This is not a dream of a post-war utopia. It would have been a reality this very year had there been no war. United Airlines had been planning such a service for the lemon growers of southern California this year, because lemon growers hated to dump much of their crop into the sea because it was not on hand for unexpected hot weather in midwest markets. The development is a certainty as soon as we can turn our bombers into the air freighters. And in that development which will aid the fruit and vegetable industry of this valley, we'll also be producing a lot of the magnesium in this valley, to make it possible.

SAN FRANCISCO, CAL. NEWS  
CIR. 89,230  
APRIL 29, 1942

## Knudsen Ends S. F. Inspection

His inspection tour of Bay Area war production plants ended, Lieut. Gen. William S. Knudsen, the Army's top production expert, was on his way to the Pacific Northwest today to complete his nationwide trip.

General Knudsen finished his San Francisco stay yesterday with a conference with Lieut. Gen. De Witt. He also met Henry J. Kaiser, one of the nation's top shipbuilders, and visited the Permanente magnesium plant near Los Altos and war plants on both sides of the Bay.

SAN MATEO, CAL. TIMES & LEADER  
CIR. 3,598  
APRIL 3, 1942

SAN FRANCISCO, April 3.—(LP)—Over 500 Japanese have registered for evacuation from certain sections of the city by next Tuesday. They represent more than half the estimated 1000 affected.

Dr. Fritz Hansgig, Australian born chemist who invented a process for extracting magnesium, was removed from the Santa Clara county jail to an enemy alien reception center at Sharp's Park.

Dr. Hansgig was technical adviser for the huge Permanente Magnesium company. He was taken into custody at the outbreak of the war and, although a civilian enemy alien board has recommended his release on parole, no final ruling has come from the attorney general's office.

SAN JOSE, CAL. NEWS  
CIR. 39,516  
APRIL 2, 1942

## MAGNESIUM OUTPUT 468 SHOWS GAIN

The volume of magnesium turned out at the Permanente Metals corporation plant continued at a record-breaking pace in March, showing an 11 percent gain over February, the company announced today.

A month ago Permanente made known that its February production had set an all-time high by increasing 75 percent over the best previous month. Wartime secrecy prevents announcement of actual production figures.

Boxcars, motor transport trucks and even beer and dairy trucks have been pressed into service to haul ingots from Permanente to the plants of incendiary bomb and airplane parts manufacturers.

S. F. CAL. WALL STREET JOURNAL  
CIR. 4,037  
APRIL 5, 1942

ters by 11.6% and 8.4%, respectively. Second and third quarters fell slightly behind—5.6% and 0.2%.

MAGNESIUM PROCESS as employed by Permanente Metals Corp. (it started with the Hansgig troubles and has been revised), has occasioned so much confusion the company has issued a booklet describing how it is achieving the ponderable output latterly reported.

Permanente now starts with Dolomite calcined to an oxide near Natividad, Calif., mixes the result with sea water at the new plant on Monterey Bay, gets through the process there, pure white powdered magnesium oxide.

That goes to the main Los Altos plant. The powder is mixed with petroleum carbon, pressed to pellets and reduced in a 4,000 degree Fahrenheit electric furnace, magnesium vapors being captured by shock chilling to 390 degrees as a fine powder highly explosive if in the presence of air. The powder is compressed to briquets in a protective gas atmosphere, fed to retorts where the gas is exhausted by heat and the metal distilled into crystals which can be removed as 100% pure magnesium and melted and cast into pig or alloyed.

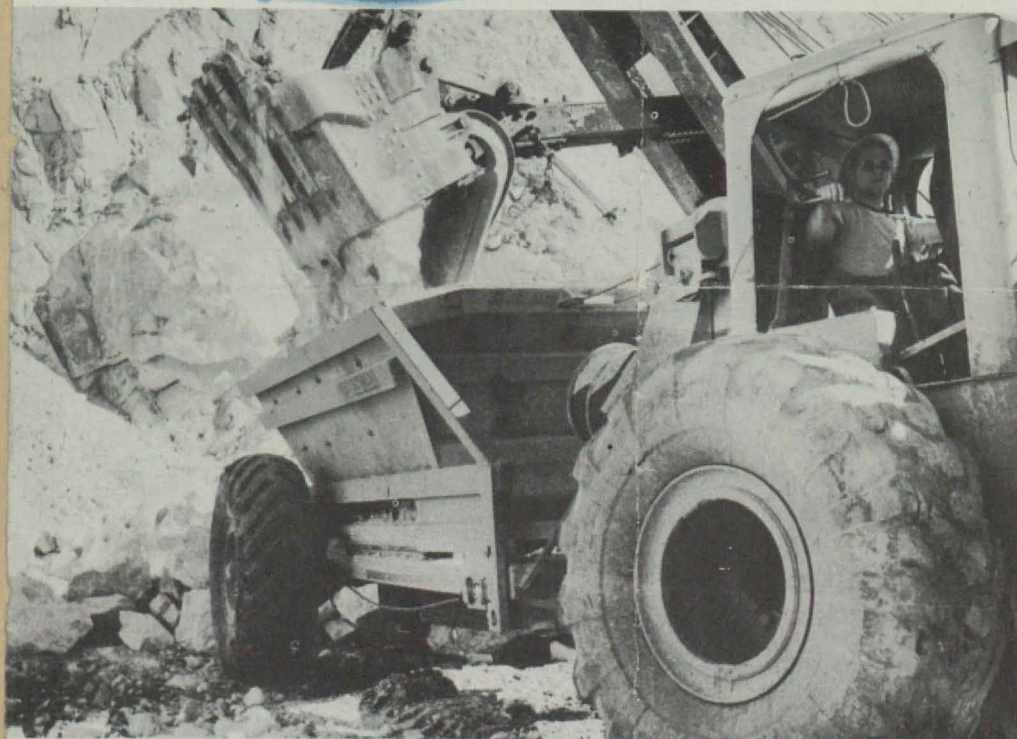
Sounds simple, but it is a delicate and touchy operation at its hot stages.

The company looks beyond war demands to the "light metal revolution" as its ultimate outlet.

This article was clipped from

CO-OPERATOR  
PEORIA ILL.  
5/43

## High Speed Tournapulls Aid Magnesium Production



Tournatrailer is loaded with dolomite rock by 3-yard electric shovel. Dolomite rock and sea water are the raw materials from which magnesium is obtained.

—Photo courtesy of Permanente News.

Near Monterey, California, two Super C Tournapulls and Tournatrailers, owned by the Natividad Permanente Development Co., are hauling dolomite rock, one of the richest sources of magnesium.

These 11-yard Tournatrailers are loaded by a 3-yard electric shovel and the dolomite rock is hauled to a primary crusher and dumped. The wide, open top of the Tournatrailers makes shovel loading easy and fast, while the fast hauling speed of the Tournapulls makes for high production. The sliding body, controlled by cable, assures complete, positive dumping.

### Haul Down 15% Grade

The Natividad Permanente Development Company will open a new quarry,

located on top of a mountain, from which they will remove over 13,000,000 cubic yards of dolomite granite rock and earth strippings. The Tournapulls will carry the dolomite down a 15% grade over a 2800-foot one-way haul and return empty up the 15% grade at this new quarry.

### Kaiser Project

The Natividad Permanente Development Company is owned and operated by the Henry J. Kaiser Co., of shipbuilding fame. In the days when R. G. LeTourneau was a dirtmoving contractor, he worked for Henry Kaiser handling the earthmoving on the Fillbrook Dam, near Chico, Calif., and the Southern Pacific Railroad Yards in Fresno, Calif.

Fresno, Cal., Bee  
CIR. 47,421  
APRIL 3, 1942

## Magnesium Inventor Sent To Alien Camp

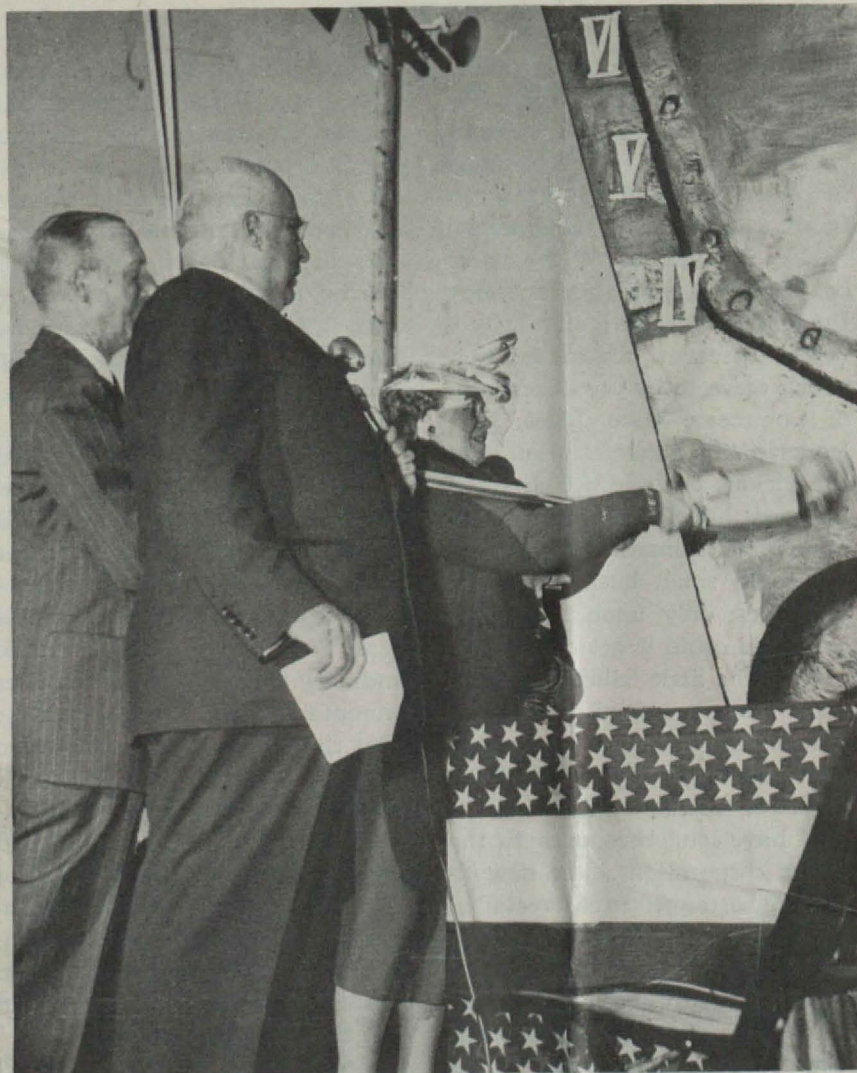
SAN FRANCISCO, April 3.—(P)—Dr. Fritz Hansgig, the Austrian born scientist whose technical skill is important to the Permanente Magnesium Plant, was held today at the Sharp Park (California) Enemy Alien Camp, there to remain until the justice department decides his future.

Dr. Hansgig has been detained since the outbreak of war, in the Santa Clara County Jail, so that he might make daily visits, under guard, to the nearby Permanente works and help direct the magnesium producing process he invented.

Army orders, however, have now closed the Permanente area to Dr. Hansgig, as to all enemy aliens. The civilian enemy alien board has recommended Dr. Hansgig's release on parole to the attorney general's office in Washington.



## ★ MEN & JOBS



HENRY J. KAISER, builder of West Coast war industries, stands in center as Mrs. Kaiser christens ship at California Todd yards, Richmond.

# Sand-and-Gravel Man

WHEN A BIG JOB has to be done in a hurry on the Pacific Coast — a dam or a bridge or a hundred ships — the name of Henry J. Kaiser always pops up as the answer. Acknowledged to be the top miracle worker of Western industry, the rotund, baldish Oakland sand-and-gravel man has repeatedly proved his knack for wrapping up huge projects in less time than experts figure possible.

Speaking of big things done in a big way brings up those five colossi of western construction — Boulder, Shasta, Bonneville, and Grand Coulee dams and the San Francisco bridge. Somewhere behind all these jobs was the driving energy of Henry Kaiser.

He has left an amazing list of herculean construction tasks in his wake, yet it is not as a construction genius that most people know him. The war has put reclamation projects pretty much in

the background and Builder Kaiser now has become Industrialist Kaiser — but still doing things in his sweeping way.

Apparently it took a war and this energetic sand-and-gravel man to shake the West out of its industrial lethargy. Swinging along with the New Deal, Kaiser and his associates found themselves eligible for big contracts and sizable loans. Expansion was natural for this combination of go-getters, especially when they ventured as independent operators into industrial fields whose established producers were being challenged as monopolies by the government.

Pacific Coast airplane manufacturers were the first to throw off the yoke of habit and do things on the grand scale. Henry Kaiser had nothing to do with that. But when these same manufacturers needed more magnesium, it was Kaiser who got the call. When

ships became the nation's number one bottleneck, it was Kaiser who started building them at Tacoma, Portland, Richmond, and Los Angeles — faster than ships had ever been built before. When marine engines threatened to bottleneck shipbuilding, it was Kaiser capital that helped finance their production. And now, because Shipbuilder Kaiser needs more steel plates, a great new steel empire — a Kaiser empire — is in the making.

If there is any secret in Kaiser's miracles it can be only his unbounded enthusiasm, a fine disregard for time-worn methods, and an uncanny ability to judge men. To him every job is a challenge. Tell him that a project is impossible and you have aroused his interest. Estimate that something can be done only within a stated time and his pencil will immediately start mapping out some short cut to production.

### Not Even Kaiser Knows

So rapid has been his rise that few can even picture the Kaiser corporate constellation. One associate, asked who could detail the ramifications of his interwoven connections, replied: "Probably no man living, including Henry Kaiser."

In the Kaiser empire there is no single parent company, but his own special bailiwick is the old sand-and-gravel concern, the Henry J. Kaiser Corp. Roughly, the Kaiser group comprises Kaiser in such variations as the Henry J. Kaiser Associates and the Kaiser Co., together with the members of the Six Companies, which built Boulder Dam; of the Columbia Construction Co., builders of Bonneville and Grand Coulee; and of Bridge Builders, Inc., which erected the piers for the San Francisco bridge. The names of these members — Utah Construction Co., MacDonald & Kahn Inc., Pacific Bridge Co., General Construction Co., Morrison-Knudsen Co., J. F. Shea Co., W. A. Bechtel & Co., and Bechtel, McCone & Parsons — are connected with Kaiser's in a multitude of enterprises.

Not only have most of the same contractors and financial interests stuck with Kaiser through the years, but many of his subordinates, as well — engineers, superintendents, foremen, timekeepers, and even laborers — have followed him from job to job. Contrary to general belief on the West Coast, he doesn't set himself up as the Big Boss. He respects a man's job and respects a subordinate who

does that job well. That, rather than mere personal attachment, is what attracts to Kaiser capable co-workers from top to bottom. And, of course, anyone who works for him stands a pretty good chance of getting ahead.

One of his weaknesses is an over-sensitiveness to publicity. Few people in the public eye have ever remained as indistinct in image as Henry Kaiser. So rigorously has he avoided the press that until recent months many Westerners had never seen a picture of him. Guarded from reporters by a staff that doesn't talk, he has become the nemesis of interviewers. As one intimate explained, it is probably Kaiser's intense dislike for people who seek the limelight of publicity that is responsible for his tight-lipped attitude.

To his enemies — and he has many — Kaiser's desire for power seems insatiable. Those who know him better insist that the love of neither power nor money is behind his tireless activity; it's merely love of accomplishment.

Seen in that light, his expansion seems a series of logical steps from one activity to another. As a young sand-and-gravel man strong in organizing and personal selling ability, he soon found himself in the road construction business, which culminated in a \$25-million contract for Cuban paving and bridges.

It was on the Cuban job that Kaiser really learned to do things in a big way, and such Kaiser innovations as Diesel engines in tractors and mass use of huge materials-handling machinery soon began to attract attention. No less startling were the gigantic conveyor systems and mammoth cranes used to handle aggregate at Shasta, Bonneville, and Grand Coulee dams.

### One Leads to Another

From the Cuban job it was a step, though a big one, to the construction of dams and the San Francisco bridge piers. His venture into cement was just another logical move for a sand-and-gravel man who wanted to complete the concrete aggregate. Ship-owning was a matter of controlling carriers to transport cement to his own construction projects in Hawaii and elsewhere. To a builder, ship construction was just another sensible progression, and the production of ship engines is easy to understand.

In the growth of this vast industrial empire, what is probably Kaiser's widest deviation from logical progression has so far been the



## Magnesium, Lightest and Most Elusive of Metals, Being Produced 99.99% Pure by Permanente in a "World of the Future" Plant



MAGNESIUM is one of the world's commonest minerals—and one of the hardest to get. The entire U. S. supply has been coming from a salt water process. But now in San Francisco area a plant is in operation, successfully extracting magnesium from dolomite rock. This is the Permanente plant which is employing the Austrian Hansgirg process, an electric furnace technique also used by Germany and Japan for obtaining this war-vital metal. The accompanying pictures illustrate steps in the complicated process.

Above is shown the 99.99% pure crystal magnesium condensed in the top of what is essentially a huge "vacuum bottle."

At the right is a view of the room where the containers are heated and then moved by cranes to be cooled.

BY SYDNEY B. SELF

Henry J. Kaiser's new \$6 million Permanente magnesium metal plant, in the San Francisco area, is now producing crystalline metal, 99.99% pure.

The plant is famous because it is the first to use an entirely new process in this country to make this elusive and essential lightest of metals; because the Austrian inventor of the process, Fritz Hansgirg, was jailed shortly after Pearl Harbor, leaving the Kaiser engineers to work out the intricacies of the process; and because the plant itself looks like something out of the "world of the future."

Up to now all the magnesium used in the U. S. fighting airplanes has come from the brine wells and sea-water plants of Dow Chemical Co.

Henry Kaiser is the Pacific Coast whirlwind who had a big hand in building Boulder and Grande Coulee Dams, the largest cement plant in the world to supply the Shasta Dam, and the Richmond shipyards, now turning out pre-fabricated merchant ships. He is one of the most talked of men west of the Rockies because of the magnitude and multiplicity of his operations.

His latest venture is a new steel plant in California to supply his growing shipyards with steel.

Although outstanding as a speedy builder of huge engineering construction projects, his magnesium venture took him into the chemical business. Magnesium, like most modern metals, is chemical produced.

The Hansgirg process not only was untried in America, but it involves highly dangerous techniques. Processes of this sort normally would be tested in pilot plants before put to large scale use. In the Permanente plant a \$5 million commercial operation was, in effect, used as a pilot plant. There have been some accidents which, however, did not do irreparable damage. Now that plant is in operation, operating problems apparently have been solved.

From an engineering viewpoint it is one of the most interesting of recent jobs.

Magnesium, one-third lighter than aluminum, is needed in huge quantities for airplanes as well as for incendiary bombs. The fact that it can be used in bombs is the key to the difficulty of producing it.

Magnesium likes oxygen and in powdered form it burns violently. Its chief use until recently was in photographic flashlight powder. As a vapor it is explosive, so the ordinary techniques of metal refining cannot be used. Incidentally, like aluminum, it is one of the most plentiful of metals. It is found in many ores and in small proportions in sea water.

The Hansgirg process used by Kaiser's Permanente plant involves taking magnesium oxide, which can be obtained from ores (magnesium carbonate) or from salt water, and combining it with powdered carbon into pellets. These are fed into a huge electric furnace where the carbon grabs off the oxygen to form carbon monoxide gas and magnesium vapor. Cooled under ordinary conditions, the process would reverse itself, so to keep the magnesium separate, the furnace output is chilled with a stream of cold natural gas.

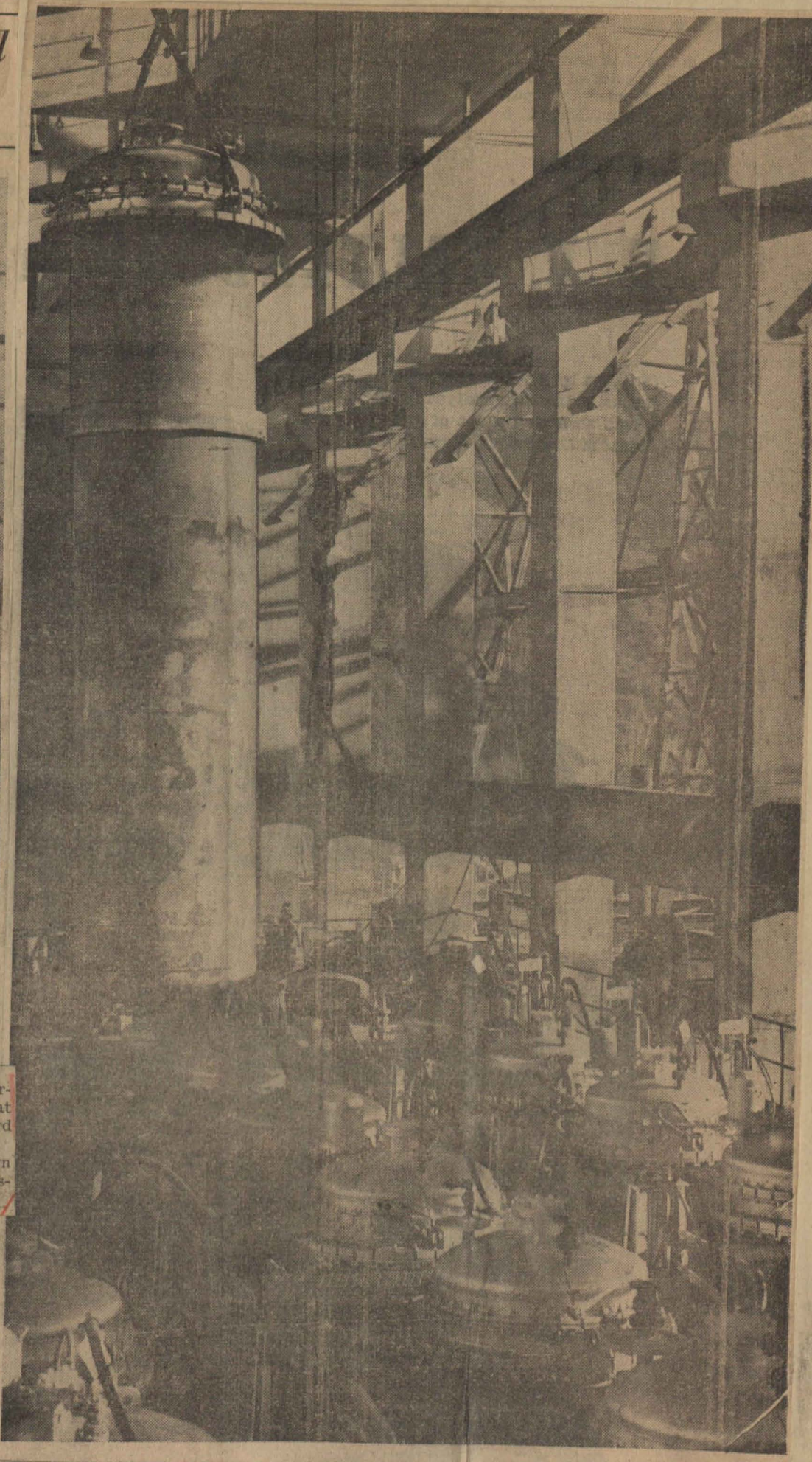
In addition, a stream of hydrogen gas is injected to keep the electrodes clean. In the uses of these gases lies the explosive danger. However, many modern chemical processes, also operated under enormous heats and pressures with attendant dangers, are kept under control only by technical skill and strong materials.

From the furnace the magnesium is collected as dust. It contains impurities, so it is again mixed with a light oil and is passed into a 30-foot iron retort, that looks like a great vacuum bottle, where it is heated and cooled. The magnesium then collects as crystals of practically pure metal.

In addition to the Hansgirg process in use in

the new plant, an experimental plant is in operation using another process similar to that which will be used by Union Carbide and Ford Motor Co. to produce magnesium.

Permanente Corp. now is building its own ferro-silicon plant to supply one of the necessary materials for this process.





This article was clipped from  
MINING JOURNAL  
PHOENIX ARIZ.  
7/15/42

The Charles Seeley chrome mining claims in the Tassajara district of the Santa Lucia Mountains near Camp San Luis Obispo, California, have been acquired under lease by H. R. Palmer and associates. Work is to begin immediately on construction of a 70-ton mill and concentrating plant for recovery of chrome, and active mining operations will get under way in August. It is understood that government funds for establishment of a large magnesium recovery plant will be sought if the original plant proves satisfactory. The Palmer interests have a mill at Las Vegas, Nevada, now idle, which will be moved to the Seeley property if government funds can be secured. Ore samples from the Seeley claims, tested by H. R. Brandenburg, Concord, California, chemist and metallurgist, are reported to show a recovery of 300 pounds of metallic magnesium per ton.

SALT LAKE CITY, UTAH, TRIBUNE  
Cir. 58,522; Sunday 94,635.  
MAY 31, 1942

## Coast Plant Turns Out Light Metal

SAN FRANCISCO — Henry J. Kaiser's new \$6,000,000 Permanente magnesium metal plant, in the San Francisco area, is now producing crystalline metals, 99.99 per cent pure, according to the Wall Street Journal, Pacific coast edition.

The plant is famous because it is the first to use an entirely new process in this country to make this elusive and essential lightest of metals; because the Austrian inventor of the process, Fritz Hansgig, was jailed shortly after Pearl Harbor, leaving the Kaiser engineers to work out the intricacies of the process; and because the plant itself looks like something out of the "world of the future," the newspaper reports.

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### Kept Under Control

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Permanente corporation now is building its own ferro-silicon plant to supply one of the necessary materials for this process.

DAYTON, OHIO, NEWS  
APR 28 1942

## Metal Making Firm Run By Interred Man

SAN FRANCISCO, April 28.—A few miles from here a mountain literally has been transformed into a factory of titans.

Far away in an internment camp an Austrian engineer stays close by a telephone in case an emergency arises in the operations of the great war industry which is his brain child.

The plant is that of the Permanente Metals Corp., which is extracting the magic, silvery metal magnesium from ocean and mountain. Perhaps no other industrial

operation in America is invested with such a supernatural atmosphere as this made-over mountain, on whose slopes deer still run wild. It promises to increase manifold the country's supply of one of the most essential ingredients of war.

From the first the Permanente plant has been a place of mystery from which have come many fantastic rumors. It is engaged in the so-called Hansgig process of magnesium extraction which involves a chilling of a supposedly explosive mixture of magnesium, oxygen and carbon from 2000 to 200 degrees

centigrade in less than a thousandth of a second. The plant is equipped to produce about 24,000 tons a year by this method.

In the Hansgig process magnesium oxide is mixed with carbon and the mixture ground to an extremely fine powder. At extreme temperatures carbon has a strong affinity for oxygen. The powder, made up in the form of tiny pellets, is dropped into an electric furnace, where, at about 2000 degrees, everything is changed into gas.

"Chilling" is the essential element in the Hansgig process. The

Austrian engineer invented a cone-shaped nozzle provided with 36,000 tiny holes through which cold natural gas is forced at high velocity. This gas mixes instantaneously with the furnace vapors and reduces their temperature to 200 degrees centigrade. Thus the magnesium vapor is condensed to form solid particles of magnesium dust before there has been an opportunity for the reaction to proceed to an appreciable extent. From this dust is obtained the solid metal.

By this process, engineers say, they are producing magnesium for a little over 22 cents a pound—the

cheapest at which it can be produced except as a by-product to the extraction of something else, like chlorine, from sea water.

The whole process is extremely spectacular and, unless it is carefully controlled, likely to be very dangerous. The first plant set up by the inventor in Austria exploded with considerable loss of life. He superintended the erection of plant in China and Korea before coming to the United States last year. Because of the danger, there was considerable reluctance to put the process in operation here—although Dr. Hansgig himself was confident that he had overcome the difficulties.

SAN FRANCISCO, CAL. NEWS  
CIR. 99,230  
JUNE 12, 1942

## Behind the News

I got started on this subject by going down to Permanente the other day to learn the truth about our most spectacular magnesium plant. The subject, if you haven't already heard, is the thumping war job being turned in by that collective group of Henry Kaisers—the Six Cos. alumni, who learned at Boulder Dam that it's possible to accomplish anything.

Nobody has made a bigger contribution to the war effort, and nobody realizes how much of this effort they've made right here in the Bay Area. Permanente is only the biggest cement plant in the world. Some day it may also be the biggest magnesium plant, although, right now, Hitler can match it several times over.

The cement plant, however, illustrates how these fellows do things. It's a new concept. It's the nearest thing in the world to perpetual motion. An endless belt carries limestone from a hilltop quarry to a mill below, meanwhile generating power by gravity to run both the mill and the quarry-shovel. On the way it sorts the rock—just to keep active.

The plant was built to furnish cement for Shasta Dam—and a very lucky thing it was, too. Midway and Hawaii and certain other places wouldn't be so well fortified today if Permanente hadn't been able to roll out sometimes 25,000 barrels a day—and any type of cement you want, Uncle Sam.

But right now, I know, everybody is much more interested in the magnesium plant. You hear rumors that it's a failure, that it has shut down, that the stuff it turns out costs so much a pound that even senators are yelling "Ouch." So here goes for the eyewitness stuff.

Incidentally, none of this comes under the head of a military secret, since Dr. Fritz J. Hansgig, Austrian inventor of the process, now in a detention camp, was using the German diplomatic pouch for European correspondence before he was picked up by the FBI.

No explanation for his arrest was given the Permanente lads, who thought they wanted him back to help get the "bugs" out of their operation. They put on all the pressure they knew how, until Jesse Jones, secretary of commerce, asked what they wanted with a fellow who probably was keeping in touch with Hitler. They dropped Hansgig cold, the instant Jones told them about that diplomatic pouch business, and are now very glad they did so. What they hope for now is that senators and Washington experts will leave them

Procurement of an air field for Lawton will be determined by recommendation of the Corps of Engineers office at Denison, Texas. Too, it will depend on suitability of the site proposed by the city.

### Congressional Delegation Praised

The delegation praised the reception at the hands of Oklahoma's delegation in congress. Without their aid the mission would have been fruitless, Mayor Glenn said.

Senators Elmer Thomas and Josh Lee and U. S. Rep. Jed Johnson aided in providing appointments, and in numerous cases accompanied them.

Although the proposed Magnesium plant was far from a reality, local leaders considered the fact that rich deposits are to be found in the Wichitas as a substantial footing upon which to work.

### Firms Will Be Advised

Mr. Kennedy said the Lawton site would in the future be listed when plant sites are referred to large firms engaged in manufacture that requires the use of magnesium.

If the firm should see the need of additional magnesium, which was considered probably under the present emergency, it might recommend that a federal grant be made for construction of the plant, Mr. Kennedy explained.

In his report to the government he pointed out that deposits in the Wichitas mountains are equally great as those found in Ohio where four or five similar plants are now located.

He explained further that Lawton with a population of 36,000 persons is situated near the deposits so that sufficient labor would be available for operation of the plant.

Every one of the essential ma-

## With Arthur Caylor

alone until they get the place de-bugged. The fact is that ordinarily Permanente wouldn't have started producing magnesium until this coming July. Instead of opening under the main tent, a pilot plant would have been operated for a year. Actually, the main plant has had to serve as pilot plant, too. They've had to keep it under 40 for the first 500 miles (to use a familiar simile). But that period is about over. Production promises to double next month and redouble every month thereafter for some time to come.

So far quality of the product has been high, but every time a production problem had to be worked out it meant shutting down the whole works. This is because only one unit has been in operation. A unit consists of an electric furnace—the next hottest thing is the sun—a condenser and a "bagging" mechanism.

Soon three units will be working. But they will be interconnected, so that if a furnace kicks up, for instance, the adjoining furnace will take over its assignment and feed magnesium into its "bagging" device. In fact, parts of all three units can be under repair, but the magnesium will keep rolling along. This is very important, when it takes one of those furnaces so long to cool off.

It's a good deal as if you were gathering carbon monoxide manufactured by an automobile engine. You get the finished article at the exhaust. If each cylinder has an independent exhaust, there's no way to get carbon monoxide from that cylinder when you have to shut down to change the spark plug. But when all cylinders feed into a common exhaust pipe, something keeps coming out.

Permanente's magnesium plant, expected to cost around 19 million dollars, has been a 19-million-dollar headache. That's enough to buy a lot of aspirin. But all the magnesium it has turned out in its experimental period is so much velvet for the war effort. And the plant is just now starting to roll.

The point to remember is that these guys with the old school tie of Boulder Dam, graduate division of the University of Hard Knocks—and that, Sir, includes the youngsters they've tossed in and told to swim Boulder Dam fashion—didn't know a thing about making magnesium. They knew very little about shipbuilding, either. Or engine-building. Or cement-making.

Nevertheless, the Bay District now has the biggest of all cement plants, some of the nation's "E"-for-excellence shipyards, and the biggest plant there is for production of engines to put in the ships. Since you probably know as much about ships' engines as I know about lion-taming, we might give that a look-see tomorrow.

This article was clipped from  
CHICAGO JOURNAL OF COMMERCE  
Chicago, Ill.  
JUL 17 1942

## Aircraft Parts Plant Is Shut Down by Strike

BUFFALO, N. Y., July 16.—(UP)—Complete shutdown of the American Magnesium Corporation, manufacturers of aircraft parts, took place late today as a second shift of workers failed to report for work in a walkout of members of the United Mine Workers of America (U.M.W.). John L. Lewis' union. Harry J. Deutsch, plant manager, said that 1,300 employees were affected by the shutdown, which started this morning when 600 day-shift workers failed to report. Mr. Deutsch charged the U.M.W. with violating its agreement with the War Labor Board to continue work until a decision is handed down by the board.

SAN FRANCISCO, CAL. NEWS  
CIR. 99,230  
JUNE 2, 1942

In the past few days, my operatives have talked with a half-dozen San Franciscans who are just back from the East where they actually had a chance to see what goes on. The impressive thing is not so much what any one individual has to say, but the fact that they are all highly encouraged. Their dope adds up to this: The reason we're commencing to feel shortages is that we're producing so much.

The most stirring report of all is that Washington is beginning to click. Government-by-committee is out the window. It's the hunch of John V. Lewis, for instance, that President Roosevelt has passed the word that Donald Nelson, Leon Henderson, and certain other individuals will give the orders—and that's that. I put the finger on Lewis because he's a former Federal official who can still put his feet on the right Washington desks.

J. F. Sullivan Jr. is another sound head whose reactions seem particularly important, not only because he had an "in" to such places as Henry Ford's Willow Run, but because he covered ground he had visited exactly one year ago and had a yardstick to measure progress. He was prepared for what he saw—but still amazed.

Another impression I get from all these reports is that Washington's eye is finally on the Pacific Coast. The bigshots are figuring that somehow it must be possible to get the kind of production in the shipyards that the airplane plants are showing and waterfront shippers are managing. Don't be surprised if Washington does things more drastic than freeing shipyard labor.

This may be as good a point as any to step up and sooth a production rumor of the "fifth column" type. The rumor has it that the Permanente magnesium plant has gone broke and is no longer turning out the stuff. The fact is that Permanente is all Government money and couldn't go broke with the personal assistance of Charles Ponzl, Otto Krueger, and that unsurpassed expert on making money disappear, Dr. Caylor, himself.

The real inside is that within the past 60 days Permanente has started to live up to expectations so that the management can boast not only of quantity but of the highest quality product turned out anywhere so far.

Lawton Okla News Rev  
7-2-42

## Wichitas Might Be Location For Magnesium Plant

### Delegation Acquires Priority Ratings On City Water Program

The Wichita Mountains may be the site of a \$3,000,000 magnesium defense plant, some say, a delegation to Washington, D. C., reported Saturday upon their return from a successful quest for badly needed priority ratings for Lawton's water expansion program.

### Kennedy Presented Proposal

The possibility of magnesium production, used as an alloy with aluminum for construction of airplanes, was presented to the national planning and resources board by J. C. Kennedy, representative of the Lawton Chamber of Commerce.

He accompanied Mayor Everett

Glenn, city engineer, to Washington in quest of the priority ratings.

Mayor Glenn reported that priority ratings of A-1-C and A-1-E had been obtained from the priority board after the local representatives outlined the vital importance of the projects to the welfare of Fort Sill.

### One Fire Truck Approved

But Lawton's fire department will have to get along with only one new truck. That will be a 500-gallon pumper.

Two 750-gallon pumpers will have to await a later date when materials are more plentiful, Mayor Glenn said.

That means that the 500-gallon truck will be assigned to one of the new sub-fire stations and the old Stutz repaired and assigned to the other, the mayor said.

The Medicine Creek bridge will have to continue construction, but without steel. Timbers will be substituted, the board told the delegates.

### Hospital Plans Continue

However, officials were jubilant over the report that government officials have continued with plans to approve the construction here of a county owned hospital. It was believed plans for its construction would be launched within the next two weeks.

The possibility of designating Cameron college as a training base for machinist mates for the U. S. Navy depends on the recommendation of the New Orleans office, which now has the request under study.



## MAGNESIUM PROCESS SAID TO BE FAILURE

Reports that have circulated for some time on the west coast have indicated the almost complete failure of Henry J. Kaiser's Permanente corporation to produce metallic magnesium by the process introduced and supposed to have been perfected by Dr. Fritz Hansgirg, Austrian metallurgist and chemist, who remains in protective custody of the FBI.

According to a staff writer of the Engineering & Mining Journal, production of magnesium at the plant near Los Altos, California, for which the Defense Plant corporation is said to have advanced around \$13,000,000, has proceeded on a small scale and in an experimental way only.

It was stated that one unit of a projected three-unit plant was built, but construction of the other two has been called off. The supply of magnesite, from which the plant was designed to produce magnesium metal, has been shipped chiefly from deposits in the Mammoth district, northwestern Nye county, near those of the Basic Magnesium, Inc.

Trouble from explosions has been experienced from the beginning, and weaknesses in the process must be corrected before a satisfactory yield of magnesium can be obtained.

Experimentation will be continued and new sources of magnesium are being developed, but the prospect of success seems remote so far as immediate production on a commercial scale is concerned.

## Permanente Plans To Use Second Magnesium Process

According to Wall Street Journal reports, Permanente magnesium plant is expanding to produce magnesium by a second process, the Pidgeon ferrosilicon method, at an undisclosed site in inland Northern California, where a branch of the plant has been erected.

Difficulties which attended earlier operation of the Hansgirg process apparently have been smoothed out and it will continue to be used.

The Journal comments: "The Kaiser interests, controlling Permanente, are among the most intent on the 'magnesium revolution' in metallurgy and not only will aid in pioneering two methods, but steadily are working on the basic materials problem."

"The long distance view of all western interests working on the coast is that they are engaged in a vital undertaking which, while it has for its immediate purpose the supplying of war materials, will be of vast importance in the post-war period."

## Magnesium plant for L. A. discussed

Plans for several new war plants, including a magnesium plant near Los Angeles, were discussed at the meeting of the Mining Association of the Southwest today.

Definite arrangements have not yet been made. Sam Koupel, secretary of the Arizona branch of the association, was the principal speaker.

## Permanente Big Magnesium Plant Starts Operation

Tuesday marked the opening of the big magnesium plant of the Permanente Metals Corporation on Louise avenue near Lathrop. The first fragments of magnesium rolled from the production line on that day and the plant is expected to be in full operation with between 150 and 200 employees in 60 days. The initial output was produced from manganese ore mined in the foothills near Tracy.

Construction work on the four factory and administrative buildings at the site is entering its final stage under the direction of B. E. Toney, general superintendent. Joseph Piche is superintendent of equipment and excavation and Alfred Hansen, who has been acting as his assistant, will remain at the plant in charge of the yard and equipment.

Said to be one-third lighter and one-third stronger than aluminum, magnesium from the plant will go into the manufacture of airplane metals and incendiary bombs.

## Permanente worker suffocates in pipe

The body of Daniel Lyle (Red) Chambers, 34, long-time employee of Henry J. Kaiser, was found this morning in a large 48-inch pipe line at the Permanente magnesium plant southwest of Los Altos. Death apparently was caused by suffocation, according to an announcement by the management.

Chambers, construction pipe-fitter foreman, was on an inspection tour of a portion of the new construction at the plant when the accident which caused his death occurred, the management reported.

The deceased had been employed at Permanente since December, 1941. Prior to that he was with the Richmond Shipbuilding Corporation. He also worked on the Boulder Dam and Grand Coulee construction jobs. Paying tribute to Chambers, the management described him as a "top notch construction man."

## 20-30 club members hear about magnesium

Fred Lohse, process engineer of the Permanente Metals Corporation, spoke Wednesday at a joint meeting of the Palo Alto and San Jose 20-30 clubs. His subject was "Magnesium, Past, Present and Future."

Mr. Lohse said the world is entering an age of light metals, and that many of the war-time discoveries will be put to everyday use after the war is over. Plants now being expanded so rapidly will have a manufacturing capacity thought of usually in terms of the far future. He said that magnesium will play a large part in the future development of America.

When Kaiser started out to build ships, he had never seen a launching. Today he is turning out Liberty ships in 46 days and says he will get it down to 29 days.

When he started out to make cement, they said, "Only God and a few manufacturers can make cement." Yet he built the world's largest cement plant, making cement so cheaply that it can com-

## Permanente acquires 450 acres near plant

Documents filed in San Jose yesterday indicated that the Permanente corporation has acquired 450 acres in the hills west of its large cement and magnesium plants near Los Altos. Archbishop John J. Mitty of San Francisco transferred the holding for a price reported to be approximately \$12,000.

## Marine Engine Plant Receives 'M' Flag

SUNNYVALE, Calif., July 24.—The Joshua Hendy Iron Works, one of the nation's largest suppliers of marine engines for cargo vessels, was awarded the "M" flag of the United States Maritime Commission here yesterday by Adm. H. L. Vickery, vice chairman of the commission.

It was the third flag award in two days by Admiral Vickery to Northern California plants for meritorious war production. "M" flags were given Wednesday to near-by Permanente Magnesium plant and the Richmond Shipyard No. 1.

## Big, Bald Bespectacled Breaker of Bottlenecks, That's Henry J. Kaiser

Half of America Now Doing What It Never Did Before,  
He Says, So Building Cargo Planes Is Cinch

BY PETER EDSON

Big, bald, bespectacled, bottleneck-breaking Henry J. Kaiser, who builds things people say can't be built, breezed into Washington like the western tornado he is, wearing smiles and a double-breasted blue suit, radiating so much confidence he didn't even bother to take off his vest tho the temperature and the humidity were terrible. On his first day he appeared before two senate investigating committees, made a speech at a luncheon, held a press conference for gal reporters, and tho he didn't make one specific statement as to how he was going to build 5000 cargo planes, after five minutes with every group he had everyone convinced he could build a ladder to the moon. To sultry, befuddled politico and bureaucrat-ridden Washington, he brought a fresh breath of assurance America could win this war.

What is the secret of Pop Kaiser's success? He denies he is a genius. He disclaims being a miracle man. He isn't much to look at. He says he can't make a speech. Yet he has more personality than a movie star and he could probably talk a lightning rod salesman into buying snake oil. He has even talked the boilermakers into believing it will be all right if he builds planes, tho that means the boilermakers lose their jobs. He is enthusiasm personified. He says constantly, "I am thrilled!" He is terrific.

Build cargo planes? "There's nothing to that!" he says easily, and somehow you believe him.

MAKING MIRACLES  
"Half of America," he says "is doing things it never did before, and the other half is waiting to be told to do things it never did before." That thrills him.

When Kaiser started out to build ships, he had never seen a launching. Today he is turning out Liberty ships in 46 days and says he will get it down to 29 days.

When he started out to make cement, they said, "Only God and a few manufacturers can make cement." Yet he built the world's largest cement plant, making cement so cheaply that it can com-

pete with Japanese cement in Hawaii.

He is building a steel plant. He started April 1 and will be making pig iron in December.

He is making magnesium at the Permanente plant in California, 99.99 per cent pure, he says, tho the plant has been reported a failure. That thrills him.

He has been awarded a Navy E for making torpedo tubes.

In another month he will be building steam turbines.

He is building reduction gears. He got the gear cutters from England.

Thirty days ago the steel industry told him there was a shortage of chrome. He has brought to Washington a plan for its production. "It's just an excavation job."

Henry J. Kaiser hadn't seen the 70-ton Martin Mars bomber until he stopped off in Baltimore the day before he came to Washington. But he says he can build the first one in 10 months. Or, he'll build a 200-tonner in 14 months.

"I have chief engineer whom I love," says Kaiser, "because he's always telling me I can't do things. He keeps my feet on the ground."

This article was clipped from  
**DAILY METAL TRADE**  
"The Newspaper of the Metal Industries"  
Penton Bldg., 1213 W. 3rd St.  
Cleveland, Ohio

JUL 23 1942

Quality Castings Expands  
ORRVILLE, O., July 22.—Quality Castings Co. is building an addition to its foundry for increasing output of magnesium castings. New equipment to be installed includes furnaces, oil treatment devices and blast equipment.

## Permanente In New Expansion

### Magnesium Production By 2nd Process Seen

The great Permanente magnesium plant above Los Altos is expanding to produce magnesium by a second process, although troubles which attended earlier operation of the Hansgirg process apparently have been smoothed out, the Wall Street Journal reports.

A building at an undisclosed site in inland northern California is a branch of the Permanente plant to produce magnesium by the Pidgeon ferrosilicon method.

Comments the Journal: "The Kaiser interests, controlling Permanente, are among the most intent on the 'magnesium revolution' in metallurgy and not only will aid in pioneering two methods, but steadily are working on the basic materials problem."

First material to go to the Permanente plant was supplied by Westvaco Chlorine Products company from sea water operations near San Francisco productive of magnesia. But Permanente has magnesite deposits in California, access to large dolomite deposits in Nevada and is working on a sea water plant in California. Details of all these matters have been withheld.

"The long distance view of all western interests working on the coast is that they are engaged in a vital undertaking which, while it has for its immediate purpose the supplying of war materials, will be of vast importance in the post-war period."

## Permanente develops magnesium process

A second process for producing magnesium is being developed with the expansion of the Permanente plant southwest of Los Altos, although difficulties encountered with operation of the Hansgirg process have been all but eliminated, according to the Wall Street Journal.

Magnesium will be produced by the Pidgeon ferrosilicon method at a plant built at an undisclosed site in Northern California.

The Wall Street Journal remarks:

**Magnesium revolution**  
"The Kaiser interests, controlling Permanente, are among the most intent on the 'magnesium revolution' in metallurgy and not only will aid in pioneering two methods, but steadily are working on the basic materials problem."

"First material to go to the Permanente plant was supplied by Westvaco Chlorine Products Company from sea water operations near San Francisco productive of magnesia. But Permanente has magnesite deposits in California, access to large dolomite deposits in Nevada and is working on a sea water plant in California. Details of all these matters have been withheld."

"The long distance view of all western interests working on the coast is that they are engaged in a vital undertaking which, while it has for its immediate purpose the supplying of war materials, will be of vast importance in the post-war period."

## MANGAN TO HEAD MAGNESIUM PLANT

New Project Manager Laurer  
Replaces Atkin For the  
Contractor's Firm.

William W. Laurer is the new project manager for the H. K. Ferguson Co., who are general contractors on the \$20,000,000 magnesium plant now under construction north of Francis Ave. Charles G. Atkin, a vice-president of the H. K. Ferguson Co., who was in charge of the construction work, has resigned to become vice-president of S. Gordon Turnbull, Cleveland, general contractors.

The Atkin family, who have been living at Hayden lake, left Friday for Canada.

E. H. Mangan of Glen Ferris, West Virginia, who has been named general superintendent of the magnesium reduction plant, arrived in Spokane recently. He will maintain an office in the Western Union building with the H. K. Ferguson Co. until the office building on the site is completed, which will probably be late in August.

Mr. Mangan was construction superintendent of the Glen Ferris ferrolloys plant. He was assistant superintendent of the Glen Ferris plant the past twelve years. Permanent members of his office staff will not be assembled until fall.

### PURCHASING

"Since 1915, the National Magazine for Purchasing Agents."

New York City

JUL 1942

Dillard Marshall has been appointed Purchasing Agent for the H. K. Ferguson Co., with temporary offices in Spokane, in connection with the construction of a twenty million dollar magnesium plant in eastern Washington.



From  
WALL ST. JOURNAL  
New York, N. Y.

## Magnesium

Pacific Coast States,  
With Ores and Power,  
Seek Post-War Industry

Leaders See Key Role for the  
West in the "Revolution"  
Light Metals Will Bring  
Problems Yet To Be Solved

SAN FRANCISCO—Magnesium is a magic word on the Pacific Coast today—a word that conjures up visions of a new period of leadership in the Far West, after the war, in the production of metals for industry.

They take the "magnesium revolution" seriously out here. In the rush of plans and processes to turn out this once-rare light metal for strictly military purposes, far-sighted men in the Pacific Coast area are looking beyond the trials and stress of war times to the day when swift recent advances in metallurgy can be turned to peace-time account.

California has magnesite deposits; Nevada has large known supplies of dolomite; other far western states have brucite and other minerals which yield magnesium. Test wells drilled in Utah under Bureau of Mines supervision produce brine with a content of 15% or more of magnesium chloride. The whole Pacific ocean is available for sea-water processing, already proved practical by Dow Chemical in Texas.

Extracting the metal, magnesium, from the minerals which is found in combination with other elements, is a process that requires large quantities of power. Here, too, the Far West points to resources both developed and undeveloped. And whatever may be the economic questions involved in turning potential water-power into actual kilowatt hours of energy, there is no question regarding the fact that from an engineering standpoint the power is there.

The February report by a Federal inter-departmental board covering the Pacific Northwest set forth a power development program that could increase the power capacity of that area 5,000,000 kilowatts.

Pullman (Wn) Herald  
July 17, 1942

## COLLEGE WILL SEEK MAGNESIUM SECRETS

Washington State College is launching a \$40,000 experiment to develop a technique of casting and fabricating magnesium, the "wonder metal" which weighs less than aluminum and is in growing demand for airplane parts.

A fund of \$10,000 has been recommended by the State Planning Council to help in this new work. Friends of the College will contribute an estimated \$18,000 in payroll and facilities and an additional \$13,000 is to be borrowed for purchase of new equipment.

The new research into methods of fabricating magnesium will supplement the studies which have been carried on at the college for the past five years in methods of recovering this metal from Stevens County magnesite ores.

Plans for the work grew from studies by H. H. Langdon, head of the department of mechanical engineering, who found that Northwest industrial users of the metal were forced to have it fabricated in the East. Magnesium has certain properties of quick cooling and shrinkage which require different handling than other metals. At present there is not a single magnesium foundry in operation in the Northwest.

Decision to go ahead with the magnesium project was reached while Prof. Langdon was in Washington, D. C. Mayor E. B. Parker, who is associate professor of mechanical engineering, undertook to persuade the State Planning Council to back the work. He made a rush trip to Seattle last weekend, stopping enroute at Spokane to obtain indorsement of the East Side Advisory committee.

"The Advisory Committee in Spokane did a fine job of analyzing the proposition and looking for 'bugs' in it," said the mayor. "Apparently they were convinced because they endorsed it, which then gave us a stronger case for the State Board. I met with the Board in Seattle Saturday. They asked very pointed questions and I gave them very frank answers. They are a shrewd group of men and their decision to ask the Governor to grant \$10,000 toward the project speaks well for the soundness of the plan."

It is proposed to obtain supplies of magnesium alloy from the East, since it is doubtful if the pilot plant at the College can turn out the 25,000 pounds which will be needed for the first year's operations.

When methods of casting and working the metal have been developed, the finished product is to be sold for commercial use in the Northwest during the experimental period. The College will invite all manufacturers in the Northwest to send men here for instruction in handling the metal. A technical expert will be sent East to study present methods of magnesium fabrication as used in the Ford plant and elsewhere and the College will work from that point toward solving the problem of handling this metal, whose commercial and war uses are growing in scope.

"The whole operation is leading up to the development in the Northwest of a light metals industry which will help first in winning the war and later keep the plants busy in commercial channels," said Mr. Parker.

Use of Power in Magnesium Production

It is estimated that power use in the various magnesium production processes will range from around 20,000 kilowatt hours to more than 30,000 for each ton of metal produced. So on an average, production of a million tons of magnesium annually would require as much electric energy as is now being used annually for all purposes in the states of California, Oregon, Washington, Arizona, Nevada, Utah and Idaho, combined—about 25 billion kilowatt hours.

Such figures as these are somewhat sobering to the more enthusiastic believers in the "magnesium revolution" yet they do not suggest that given time, diligence and ingenuity this so-called revolution could not be brought about. More important at the moment is regarded the matter of rendering efficient the new processes themselves. The dream of the engineers is a semi-continuous or continuous direct production of magnesium from ores.

So far, Dow Chemical with its original electrolytic process using seawater and brines as raw materials has made practically all the magnesium produced in the United States.

Hitherto unused except in a pilot plant at Pullman, Wash., it is now not unlikely that the Doerner process of magnesium production developed through joint efforts of the Bureau of Mines and scientists of Washington State College is to have its commercial test and contribute to the drive for magnesium.

### New Government Installation

Although there has been no announcement, indications have been that the Government will make an installation along with or in place of the ferro-silicon process setup at the new plant near Spokane. That is called the Pidgeon process, pioneered in Canada.

The Doerner method is the only one of the more recently evolved processes which has not yet been applied in the plants building or established in the country.

It has some parallel with the Hansgirg process which is in operation near San Francisco by the Permanente Metals Corp. in that it is electro-thermal with shock cooling of magnesium vapor. But whereas the Hansgirg set-up is a batch method employing retorts, the Washington State objective carried out successfully, it is claimed, in the pilot operations, is a continuous process. The shock cooling is done by oil spray.

While Permanente Metals is continuing steady operation of its Hansgirg units and seemingly has passed the stage of troubles which attended earlier operations, it also is expanding to employ the Pidgeon ferro-silicon method. A new inland plant is being built in northern California.

The Henry J. Kaiser interests, controlling Permanente, are among those intent on the "magnesium revolution" in metallurgy. They

Continued from First Page

not only will aid in pioneering new methods, but steadily are working on the basic materials problem. First material to go to the Permanente plant was supplied by Westvaco Chlorine Products Co., from seawater operations near San Francisco productive of magnesite. But Permanente has magnesite deposits access to dolomite and is working on a seawater plant in California. Details of all these matters have been withheld.

Austin Tex Statesman  
8-4-42 468

## Pumps For Magnesium Line Arrive

The magnesium plant and the nearby water district will begin getting city water by Thursday, City Water Supt. Albert Dais said Tuesday.

The long-awaited pumps for the pipeline to the plant have arrived and are being installed, and the line should be in operation by late Wednesday or early Thursday, he said. The five-mile line was completed two months ago but has not been operation because the pumps were delayed.

The line will furnish water to the standpipe at the magnesium plant, and will also supply the Travis County Water Control and Improvement District No. 2. The water district tried to drill its own wells, but the water was not satisfactory and the district made a contract with the city.

Dais also said that the new pipeline going to the Del Valle air base, about the same length as the one to the magnesium plant, is in the process of crossing the river north of Montopolis bridge, and this phase should be completed in a few days. Special flexible pipe is being used over the stream. The line has already been finished from the river to the base, and raw river water is being pumped out for construction purposes.

This article was clipped from

CANADA'S FOUNDRY JOURNAL  
TORONTO, CAN.

7/42

July, 1942

CANADA'S FOU

## Magnesium Plant is Planned

Canadian Company Proposes to Operate Here  
Under Blackwell-Turner Process

A new plant for the production of magnesium, to be constructed in Ontario is planned by International Industrial Research Corporation of Freeman, Ontario.

The company has been granted exclusive Canadian and United States rights by the Lancashire Metal Subliming Corporation Ltd. of Liverpool, one of the largest British magnesium metal producers, for the Blackwell-Turner High Frequency Induction Process for the production of magnesium, aluminum and other like metals.

This process is described in "Chemical and Mining Engineering" as being simple and free from most of the difficulties attaching to other methods such as violent explosive reactions, gas leakage and loss, and contamination of vapor and sublimate. Power consumption is remarkably low, it is claimed.

The Lancashire company produces magnesium from imported magnesite, there being no domestic sources of this mineral. The Canadian corporation, it is stated, has discovered that olivine or serpentine rock, of which there is an inexhaustible supply in Canada and which contains a very high percentage of magnesium oxide, can be successfully and efficiently treated.

Using a new process, the magnesium oxide is first separated from the silica, iron is then added to the latter to produce ferrosilicon which in turn is used in the Blackwell-Turner process for the reduction of the magnesium oxide to magnesium metal. In addition, a very high ferrosilicon is produced as a by-product.

Duplication of the St. Helens, Lancashire, magnesium plant which has been in operation in England for several years, is to be proceeded with in Canada at a point adjacent to ore deposits and power, with production expected this fall, company officials announce. Negotiations are also under way for a possible United States plant. Facilities are planned for the production of castings, extruded sections and forging, as well as sheet rolling.

COMMERCIAL FERTILIZER  
ATLANTA, GA. NEW YORK CITY  
8/42

## Margeson and Farley Named International Vice Presidents

J. P. Margeson, Jr., and Franklin Farley were elected vice presidents of International Minerals & Chemical Corporation according to an announcement by Louis Ware, president, after a regular meeting of the Board of Directors in New York.

Mr. Margeson has been with International for about two and one-half years. He has been successively assistant to the president and general manager of the corporation's Magnesium Division which is developing a metallic magnesium project with plants in New Mexico and Texas. As of July 1 Mr. Margeson has been also appointed general manager of International's Potash Division with mining operations in Carlsbad, New Mexico, and sales offices in the principal cities of the country.

Mr. Farley has been general manager of the Phosphate Division of International since early in 1941. For eighteen years previously, he had been treasurer of the Phosphate Mining Company in New York, in charge of general administrative and sales activities.

John T. Burrows has resigned as vice president of International Minerals & Chemical Corporation and will devote his entire time to the executive direction of the Phosphate Recovery Corporation, a subsidiary owned jointly by International Minerals & Chemical Corporation and Minerals Separation North American Corporation.

SAN FRANCISCO, CAL. CALL.  
BULLETIN—CIR. 110,410  
AUGUST 12, 1942

New Magnesium Plant  
NEW YORK, Aug. 12 (AP).—Magnesium Reduction Company, a newly formed subsidiary of National Lead Company, has been commissioned by the Defense Plant Corporation to supervise the construction and equipment of a new plant at Luckey, O., for the production of magnesium and its alloys for the government.

This article was clipped from

OIL, PAINT & DRUG REPORTER

"The market authority since 1871—Chemicals, Dyestuffs, Drugs, Paints, Oils, Fertilizers."

New York City

JUL 20 1942

## Pac. Northwest Minerals Study Planned by U.S.

OPD Washington Bureau

A \$500,000 electrodevelopment laboratory, where Bureau of Mines metallurgists plan to study the recovery and processing of minerals from the Pacific Northwest with electrical energy from Bonneville and Grand Coulee dams, will be established in that region within the near future, it has been announced by Dr. R. R. Sayers, director of the bureau.

Improved methods of recovering magnesium and aluminum from the plentiful natural resources of that area, together with research in the processing of tungsten, chromium, manganese, vanadium and other strategic and critical minerals, are to be the chief objectives. Upon completion, the new station will be known as the Northwest Electro-Development Laboratory, and will be staffed by some 40 or 50 metallurgists and assistants. It will be equipped with electric furnaces and electrolytic cells of various types, ore-crushing and concentrating machinery, chemical laboratory and machine shop equipment and other miscellaneous installations needed in experimental and development work.

This article was clipped from

SOUTHWEST MAGAZINE OF TEXAS  
FORT WORTH, TEX.  
8/42

## TEXAS' MAGNESIUM OUTPUT

Thirty-five per cent of the nation's supply of magnesium will be produced in Texas, according to Dr. W. A. Cunningham, University of Texas chemical engineering. Dr. Cunningham said that the Freeport plant could produce 70,000,000 pounds a year and that the Austin plant, soon to be put into operation, could produce 25,000,000 pounds a year.

PHILADELPHIA, PA. INQ  
AUG 6 1942

would allow it, to file a new plan of reorganization for the railroad.

## Warner to Build Magnesium Plant

Security holders of Warner Co. of Philadelphia were notified yesterday by Charles Warner, president, that the company has entered into a lease-purchase contract to construct and operate a new plant for the production of magnesite, essential to the war effort, utilizing a recently developed Warner process. The plant will be constructed by United Engineers & Constructors, and owned by Defense Plant Corp.

Warner also stated that over 800 bondholders had deposited approximately \$2,000,000 par value of bonds, equivalent to more than 61% of the bonds necessary to make effective the proposed plan of extension, whereby the maturity date of the first mortgage bonds will be extended from April 1, 1944, to April 1, 1951. He urged the bondholders who had not yet deposited their bonds to do so.

NEW YORK, N. Y., SUN  
CIR. 312,112  
AUGUST 12, 1942

## National Lead Forms Magnesium Company

Announcement has been made by National Lead Company that it has recently organized a new subsidiary under the name Magnesium Reduction Company, an Ohio Corporation, to carry out the company's recent undertaking to produce magnesium and magnesium alloys for Government requirements.

In succession to the parent company Magnesium Reduction Company will henceforth, as agent for Defense Plant Corporation, supervise the construction and equipment of a plant for that purpose at Luckey, near Toledo, and upon its completion will operate such plant for account of Defense Plant Corporation. The directors and officers of the new company are all officers or employees of the parent company, its president being Fletcher W. Rockwell, president of National Lead Company. Its headquarters will be at the general office of National Lead Company in New York.

## METALS AND ALLOYS

New York City

AUG 1942

Magnesium Alloys. American Magnesium Corp. (2-57)  
Magnesium Alloys. Dow Chemical Co. (2-104)

naces and electrolytic cells of various types, ore-crushing and concentrating machinery, chemical laboratory and machine shop equipment and other miscellaneous installations needed in experimental and development work.

Join the American Red Cross

PITTSBURGH, PA. PRESS  
CIR. 223,081, Sun. 349,267  
AUGUST 12, 1942

## New Subsidiary Formed By National Lead Co.

By The United Press  
NEW YORK, Aug. 12—The National Lead Co. announced the formation of a new subsidiary, Magnesium Reduction Co., to handle the production of magnesium and magnesium alloys for Government requirements.

The new company, an Ohio corporation, will supervise as agent for the Defense Plant Corp. the construction and equipment of a plant at Luckey, near Toledo, O., which it will operate for account of the Government, the announcement said.

PHILADELPHIA, PA. INQUIRER  
CIR. 415,630, Sun. 1,035,116  
AUGUST 12, 1942

## National Lead 468 To Make Magnesium

NEW YORK, Aug. 11 (U. P.).—National Lead Co. today announced formation of a new subsidiary, Magnesium Reduction Co., to handle the production of magnesium and magnesium alloys for Government requirements.

The new company, an Ohio corporation, will supervise as agent for Defense Plant Corp. the construction and equipment of a plant at Luckey, near Toledo, O., which it will operate for account of the Government, the announcement said.

All officers and directors of the subsidiary hold executive positions in the parent organization. Fletcher W. Rockwell, president of National Lead, holds a similar post in the new firm.

CHICAGO, ILL., NEWS  
CIR. 14,204  
AUGUST 12, 1942

## Nat'l Lead Unit to Build Magnesium Plant for U. S.

New York, Aug. 12. — (P) — The Magnesium Reduction Company, a newly formed subsidiary of the National Lead Company, has been commissioned by the Defense Plant Corporation to supervise the construction and equipment of a new plant at Luckey, Ohio, for the production of magnesium and its alloys for the government.

BLADE  
Toledo, Ohio

AUG 12 1942

## WILL SUPERVISE MAGNESIUM PLANT

The huge magnesium plant being built near Luckey, O., by the Defense Plants Corp. will be supervised by the Magnesium Reduction Co., a newly formed subsidiary of the National Lead Co., it was announced in New York today.

The plant will extract magnesium from dolomite, a limestone rock rich in the metal in the area between here and Luckey. Full details of the plant were published by The Blade several weeks ago.



# MAGNESIUM TEST SUCCESS

Pullman (Wn) Herald  
August 7, 1942

LOS ANGELES, CALIF.  
TIMES, Cir. 819,581, Sun. Cir. 407,674  
August 13, 1942

## NEW DOERNER PROCESS USED FOR FIRST TIME

Test Plant Turns Out 100 Lbs.  
A Day; May Change  
Industry

Magnesium history was made this week at the U. S. Bureau of Mines experiment station at Washington State College. Six years of research and experiment was climaxed by a test run of the rebuilt Doerner process which for the first time produces finished magnesium from raw ore by a continuous process.

Congratulatory telegrams were sent to the Bureau of Mines in Washington by President E. O. Holland, who praised the work of Henry Doerner, engineer in charge, and his staff of nine assistants. Mr. Doerner himself is in Washington this week.

Basis of the new process, which has been in successful operation since July 29, is a continuous distilling operation made possible by completely new equipment designed by Mr. Doerner and his associates. Formerly magnesium was produced by the "batch" method. A new nine-foot electric furnace of special design has helped simplify the process.

Advantages of the new system are that it has few moving parts to cause trouble and a high degree of uniformity in product is obtained. The test plant is now producing about 100 pounds per day. The metal is about one-fourth the weight of iron and is in increasing demand for war and industrial uses.

Successful perfection of the process is expected to have profound effect on the whole light metals industry in the Northwest. Partial failure of the huge Permanente magnesium plant in California has produced the erroneous impression that the process is not practical. It is expected that government plans for production of magnesium in the Spokane area may be revised in light of the new process.

Three men who have been associated with Mr. Doerner in the past six years of work are especially pleased by the results. They are Dwight Harris, of the college staff; Don Dilling, Bureau of Mines, and Dean A. E. Drucker of the College School of Mines. Dean Drucker is enthusiastic about the new process and gives fullest credit to Mr. Doerner for working it out.

Here is a brief sketch of the way magnesium metal is made. First the raw magnesite ore, obtained in Stevens county, is put through a process of dead burning which reduces it to a white powdery magnesite. It is then mixed with about one-fifth its weight in pulverized coke and put in an electric arc furnace at a temperature around 4,000 degrees Fahrenheit, which changes the metal to a vapor that passes into a tower drum. There it meets an atomized spray of fuel oil and is condensed into a black magnesium mud which is safe to handle without explosion.

This "mud" then passes into an oil furnace retort at a lower temperature and the oil is evaporated off and used again. The resulting product from this process is a brown, cake-like substance which passes on to another electric drying furnace where the rest of the oil is extracted. The material then goes into a pellet machine which forms it into big pills which are then fed into the top of the nine-foot electric furnace. Traveling down through this furnace the pellets are subjected to 2,000 degrees of heat which transforms the magnesite into metal vapor which is then condensed into metal ingots—the magnesium metal.

NEW YORK, N. Y., TIMES  
Cir. 474,271  
AUGUST 13, 1942

Sets Up Magnesium Company  
The National Lead Company has formed the Magnesium Reduction Company, Inc., in Ohio, to produce magnesium and magnesium alloys for the government.

## Senators Study Lone Pine Magnesium Plant

### Plan Under Investigation

Committee Asks Data  
on Proposed Production  
of Vital War Material

Efforts, futile so far, of a Los Angeles group to get Federal permission for the building at Lone Pine of a huge plant to produce magnesium, a much-needed war material, have become the subject of inquiry by the United States Senate's "special committee investigating the national defense program."

Hugh A. Fulton, chief counsel for the inquiry body, generally known as the Truman committee, has called for data about the undertaking which proposed to establish a \$16,000,000 mill employing 8000 men and turning out 25,000,000 pounds annually of the basic metal so much in demand, particularly by Pacific Coast airplane manufacturers.

BEGAN IN 1940

As early as 1940, Atty. Leo V. Youngworth, who once was Los Angeles County surveyor and deputy engineer for Los Angeles city, had formed a group for the purpose of producing magnesium in view of what they believed would be an unprecedented demand for that metal if the United States were to enter the war.

They began presenting their case, backed by engineering data concerning natural resources available in California and Nevada near Lone Pine, to the Department of the Interior in 1941. In time, the matter came under jurisdiction of the War Production Board, particularly its aluminum and magnesium section headed by Arthur H. Bunker, and the Youngworth group became Nevada Magnesium, Inc.

FACED WITH HURDLE

But the group, Youngworth said, seemed never able to get through some unidentified hurdle in Washington and finally the situation was laid before the Truman committee, which has called for the data.

With Youngworth are Earl B. Gilmore, president of Gilmore Oil Co.; County Supervisor Chairman Roger Jessup; Pasadena's Mayor A. I. Stewart; J. Hartley Taylor, head of the milling corporation bearing his name; Walter E. Smith, president of Keystone Tool & Supply Co.; Dr. John F. B. Carruthers, once chaplain of morale for the United States Navy; Will H. Wade, head of two Chicago financing and sales organizations bearing his name, and E. A. Burrows, New York and Washington consulting engineer.

Youngworth said that if the company could get past Bunker it could have a magnesium plant in production at Lone Pine in six months.

Ft Worth Tex Morn Star  
8-13-42

### Magnesium Plant Planned

NEW YORK, Aug. 12 (AP).—Magnesium Reduction Company, a newly formed subsidiary of National Lead Company, has been commissioned by the Defense Plant Corporation to supervise the construction and equipment of a new plant at Luckey, Ohio, for the production of magnesium and its alloys for the Government.

### Magnesium Reduction To Build Plant in Ohio

New York, Aug. 12 (AP).—Magnesium Reduction Co., a newly formed subsidiary of National Lead Co., has been commissioned by the Defense Plant Corp. to supervise the construction and equipment of a new plant at Luckey, Ohio, for the production of magnesium and its alloys for the Government.

MOAB, UTAH, TIMES-INDEPENDENT  
Cir. 1,137  
AUGUST 13, 1942

### Crescent Drilling Operation Awaits Washington Orders

Magnesium Test, Bottomed  
at 4200 Feet, Undoubtedly  
Will be Deepened.

Operations have been halted during the past week on the Crescent magnesium test well, pending receipt of new orders from Washington, D. C. The well has reached the original contract depth of 4200 feet, and cored salt beds containing exceptionally high values of magnesium and potassium.

Drilling of the well was financed by the Defense Plant Corporation and operations were carried on by the Bureau of Mines and U. S. Geological Survey of the Department of the Interior. When the depth of 4200 feet was reached, the Mack Drilling company, contractors on the test, stopped operations to await further orders from the government. The company has shipped in a new rotary rig of the latest type for use in further drilling operations. The new equipment is capable of drilling to extreme depth.

The well was bottomed in the salt horizon when drilling halted and there is no evidence to indicate that the formation has been penetrated. The salt was encountered at 2091 feet and about 1200 feet was cored for analyses by the government agencies and by the Utah Magnesium Corporation owners of the property being tested.

Strata of carnallite and sylvite of high value were cut in the salt beds, it is learned from unofficial sources. No formal statement has been issued by the federal agency concerned or by the Utah Magnesium Corporation as to the mineral content of the salt.

Buffalo N. Y. Evening News  
Saturday, August 15, 1942

### WLB DENIES RAISES FOR 1000 WORKERS AT BUFFALO PLANT

WASHINGTON, Aug. 15 (U.P.).—The War Labor Board today denied pay increases to 32,000 employees in ten plants of the Aluminum Company of America and 90 workers in the Buffalo, N. Y., plant of the American Magnesium Company.

About 1000 workers of the American Magnesium Company, 1880 Elmwood ave., went on strike for higher wages July 16 but returned to work three days later on decision of Local 12258, District 50, United Mine Workers of America, to place the case before the NLRB.

### Moab Magnesium Test Well Spudded

Drill Points Toward Salt  
Horizon to Determine  
Mineral Content.

Operations were started the last of the week on a test well on the Dr. I. W. Allen farm one mile southwest of the Moab business district, the objective of which is the salt beds expected to be encountered at a depth of around 1000 feet.

A determination of the magnesium, potassium and other mineral content of the salt horizon is the purpose of the test. The salt beds when encountered will be cored for analysis. If magnesium in substantial quantities is indicated, a larger drilling outfit will be brought to Moab for a complete check of all the salt formations.

A Forth Worth drill machine is being used on the test, and yesterday a depth of about 60 feet had been reached. An 8 1/2-inch hole is being drilled.

J. L. Dougan of Salt Lake City and A. P. Voorhies of Rangely, Colo., are financing the well. They hold leases on a very substantial tract of Moab valley lands and are losing no time in getting an exploration program under way.

In a well drilled some 20 years ago on the Maxwell farm, a short distance from the new test, salt beds were encountered above 1000 feet, and showed magnesium values, it is understood.

SATURDAY AUG. 15, 1942

Lone Pine, Cal., Progress-Citizen  
Cir. 898  
AUGUST 14, 1942

## Senate Committee Investigates L. P. Magnesium Plant Proposal

Lone Pine's proposed magnesium plant, announced in this paper several months ago, has become the subject of inquiry by the United States Senate's "special committee investigating the national defense program," it was announced in Sunday's Los Angeles Times.

Efforts of a Los Angeles group, known as Nevada Magnesium Inc. to get federal permission to build the huge plant at Lone Pine have been futile so far.

Hugh A. Fulton, chief counsel for the inquiry body, generally known as the Truman committee, has called for data about the undertaking which proposed to establish a \$16,000,000 mill employing 8,000 men and turning out 25,000,000 pounds annually of the basic metal so much in demand, particularly by Pacific Coast airplane manufacturers.

As early as 1940, Atty. Leo V. Youngworth, who once was Los Angeles County surveyor and deputy engineer for Los Angeles city, had formed a group for the purpose of producing magnesium in view of what they believed would be an unprecedented demand for that metal if the United States were to enter the war.

They began presenting their

SALT LAKE CITY, UTAH  
WESTERN MINERAL SURVEY  
AUGUST 14, 1942

## Utah Magnesium Test Well Reaches Objective Depth Of 4200 Feet Encountered; Cores Analyzed

MOAB, Utah—The magnesium test well at Crescent Junction, being drilled by federal agencies under a contract with the Utah Magnesium Corporation, has reached the contract depth of 4200 feet, and operations have been suspended pending a determination as to whether it shall be carried deeper to penetrate the massive salt beds which have been encountered.

The Mack Drilling company, contractors on the drilling program, this week moved in from Texas extensive equipment to augment the modern rotary drill outfit which has been used in coring the first well to a depth of 4200 feet. This new equipment will be used in deepening the present well and in drilling additional wells, provided the Defense Plant Corporation and Bureau of Mines decide to continue exploration work.

Salt Beds Cut

The salt beds were encountered at a depth of 2091 feet in the government test well, and from that depth to 4200 feet the formation has been cored. Analyses of the strata penetrated are being made by the Bureau of Mines, U. S. Geological Survey, Defense Plant company, as well as the Utah Magnesium corporation, owner of the property being tested. No information has been given out by any of the interested agencies as to the content of magnesium or other mineral salts.

That salt beds containing magnesium chloride and potash of a value far exceeding anything that has yet been encountered in the United States, have been penetrated, has been common gossip by the grapevine route during the past week. Whether such rumors are based on information, or whether they are the natural result of wishful thinking, remains to be seen.

The fact remains, however, that much additional drilling equipment has been brought into the field, and the obvious conclusion is that the findings to date have been encouraging.

Moab Operations

A magnesium test well will get underway in Moab Valley Friday, when a well will be spudded in on the Dr. I. W. Allen farm about one-half mile southwest of the business district. This test well will be put down to the salt beds by J. L. Dougan and A. P. Voorhies of the Equity Oil company, who control a large acreage of patented land on the Moab anticline. A drilling machine is being used on this test, with the intention of coring the upper strata of the salt formation, which should be encountered at about 1000 feet.

Three oil exploration wells drilled in Moab Valley a number of years ago encountered salt at about 1000 feet. Whether or not these salt beds contain magnesium chloride and other minerals now in demand, remains to be seen. It is the intention of Mr. Dougan and Mr. Voorhies to have a "look", and if the results of the pilot well are satisfactory, additional wells undoubtedly will be drilled with rotary rigs, which will permit coring of the formation to determine definitely the extent and value of the mineral bearing salts, if they exist.

TIMES  
Toledo, Ohio  
AUG 13 1942

### Magnesium Firm Given Luckey Job

Magnesium Reduction Co., a newly formed subsidiary of National Lead Co., has been commissioned by the Defense Plant Corp. to supervise construction and equipment of a new plant at Luckey, O., for the production of magnesium and its alloys for the government, the Associated Press reported yesterday.

BOSTON NEWS BUREAU  
"The only daily financial newspaper published  
in New England."  
Boston, Mass.

AUG 12 1942

### NATIONAL LEAD FORMS NEW SUBSIDIARY

New York—National Lead Co. has organized a new subsidiary under the name Magnesium Reduction Co., an Ohio corporation, to carry out the company's undertaking to produce magnesium and magnesium alloys for government requirements. Magnesium Reduction Co., as agent for the Defense Plant Corp., will supervise construction and equipment of a plant for that purpose and upon completion will operate such plant for account of the DPC.

Directors and officers of the new company are all officers and employees of the National Lead Co.

## COMPANY PLANS NEW REFINERY AT GREENRIVER

Tests Show Thompson  
Area Is Rich in  
Magnesium

SALT LAKE CITY, Aug. 14 (AP). The Utah Magnesium company has purchased land in Greenriver, Utah, for erection of a plant to refine the magnesium chloride and potash deposits at Thompson, Utah, John Sandberg, president, reports.

Sandberg, in Salt Lake City with a group of Detroit engineers who witnessed completion of extensive tests of the Thompson properties, told newsmen that tests completed by the bureau of mines with a \$150,000 test fund from the defense plant corporation, showed that:

The brine deposit at Thompson, 3319 feet underground, contains a 24-foot seam and a five-foot seam of sylvite, a salt rich in potash; that the deposit contains a 51-foot seam of carnallite, showing as high as 80 1/2 per cent of magnesium chloride.

Sandberg said "the core taken out and analyzed by the government is the largest carnallite deposit we know of anywhere in the United States and probably in the world."

"The potash salt is the largest and richest found anywhere in the United States," he added.

He reported the corporation has bought a 123-acre site for a refinery at Greenriver in addition to 3,500 acres under its control at Thompson.

C. K. Avery of Detroit, representing two Detroit engineering firms surveying the area for estimates as to cost and size of a magnesium refinery, said the minimum plant "we are interested in" would have a capacity of 1,000 tons a day.

ENR METAL & MINERAL MARKETS  
8/20/42

New York City

### Magnesium Reduction Co.

The Magnesium Reduction Co. has been organized by the National Lead Co. to produce magnesium and magnesium alloys for the Government. The subsidiary is to erect a plant near Toledo, Ohio, as agent for the Defense Plant Corp. Fletcher W. Rockwell, president of National Lead Co., heads the new company.



AUG 29 1942

August 29, 1942

Michigan Manufacturer and Financial Record

29

# Giffels & Vallet Design War Plants

The firm of Giffels and Vallet was originally started as a partnership in 1925. It was reorganized in 1927 as a corporation with V. E. Vallet as president, R. F. Giffels as secretary-treasurer and L. F. Beal as vice-president. In 1933 they formed an association with Mr. L. Rossetti an architect with European and American education and experience.

Previous to the depression this firm grew rapidly and in 1929 and 1930 averaged over two hundred employees on their staff.

They were able to hold their department heads and key men together during the depression and in 1934 started to expand again. During the past two years they have had a personnel of approximately eleven hundred people in their main and branch offices, either on direct Army and Navy work or on design of plants for corporations engaged in producing defense materials.

The total volume of defense construction

work for which they prepared plans and specifications is in the neighborhood of one-half billion dollars.

Their defense work includes numerous steel, aluminum and magnesium foundries, machine shops, aircraft motor plants, aircraft parts plants, test cells for aircraft and tank motors and also for superchargers, two magnesium smelter plants, one shell loading plant, one bomb loading plant and one small arms ammunition plant, a number of bases and facilities for the Navy, etc.

MINING JR.  
PHOENIX ARIZ.  
8/30/42

Favorable progress is reported from core drilling operations at the Utah Magnesium Corporation's property near Thompsons, Utah, which are being conducted by the U. S. Bureau of Mines under a DPC allocation of funds. Highest values in magnesium chloride are expected to be found at about 3,300 feet, although drilling will be continued to 4,500 feet. Fay L. Wright, Thompsons, is in charge for the company and John Sandburg, Box 812, Sacramento, California, is president.

MINING JR.  
PHOENIX ARIZ.  
8/30/42

E. H. Mangan has been appointed general superintendent of the magnesium reduction plant which the Electro Metallurgical Company is building for the Defense Plant Corporation near Spokane, Washington. The company is a unit of the Union Carbide and Carbon Corporation and has contracted to operate the plant for the DPC.

CLEVELAND, O. PLAIN-DEALER  
Aug. 21, 1942

## ALCOA PAY RULING DEFENDED BY WLB

Post-1941 Rise Is 15.8 Per Cent., Board Says

The War Labor Board announced in Washington yesterday that it had denied a general wage increase in the Aluminum Co. of America dispute because employees' straight-time hourly earnings, on a company-wide basis, had increased an average of 15.8 per cent. between January, 1941, and May, 1942, while cost of living increased 15 per cent. in that period, according to an Associated Press dispatch.

The majority and concurring opinions pointed out, however, that the way had been left open for the three C. I. O. unions affected to rectify any possible inequalities or sub-standard rates by collective bargaining.

Committeemen of the C. I. O. Aluminum Workers of America, meeting in Pittsburgh, formally rejected the WLB decision and voted to ask their local unions to authorize Nick A. Zonarach, president of the union, to call a strike "if he believes it necessary." Representatives of the army air forces and the United States Department of Labor were working strenuously to avert a strike vote by the union members.

### Vote Against Strike Here

Rudy Charny, financial secretary of Local 755, C. I. O. Mine, Mill and Smelter Workers, which holds a contract with Alcoa in its Newburg Heights plants, said the men in the local plants had no connection with the strike vote. He pointed out that at a meeting Sunday, by unanimous vote, a policy against strikes was declared.

In addition to the Alcoa case, WLB announced that it had denied a general increase to 1,137 employees of the American Magnesium Co.'s Buffalo plant because their wages had risen 14.9 per cent. in the period from January, 1941, to May, 1942.

The four labor members of the board dissented from both wage decisions. Two of them—Thomas Kennedy and Emil Rieve—wrote a dissenting opinion saying the board

Seattle (Wn) Journal of Com.  
September 5, 1942

### Contractor Moves

SPOKANE.—Offices of the H. K. Ferguson Co., general construction contractors; the Electrometallurgical Co., plant operators, and Roy Holman, resident engineer for the Defense Plant Corp., now are located at the administration building on site of the \$20,000,000 magnesium reduction plant now being built north of the city. The offices have been located on the second floor of the Western Union building since construction on the big plant was initiated some months ago.

Painesville, O. Telegraph

AUG 28 1942

## Applications At Magnesium Plant Open To Women

The new Diamond Magnesium company's employment office is now receiving applications from skilled and experienced women stenographers and typists.

Frank J. Blazina, who made the announcement, said that no jobs in their field are open at present, but he expects a few vacancies to arise from time to time.

The office is open from 8:30 a. m. to 5 p. m., Monday through Saturday, excepting Wednesday, when it closes at 7:30 p. m.

8/16/42 This article was clipped from  
MINING & CONTRACTING REVIEW  
SALT LAKE CITY UTAH

Fire, originating in magnesium powder, damaged the Aberdeen magnesium powder plant of the Pacific Coast Chemical and Process Company on August sixteenth.

MICHIGAN MANUFACTURER & FINANCIAL RECORD  
Detroit, Mich.

SEP 5 1942

Bus service between Port Huron and Marysville, to accommodate workers at the Chrysler Corporation's parts plant and the Dow Magnesium plant in the latter community, has been started by the Great Lakes Greyhound Lines.

AMERICAN METAL MARKET  
Leading Iron, Steel and Metal Newspaper—Recognized price and market authority  
New York City

SEP 12 1942

## Magnesium To Be Produced In Hungary

LONDON, Aug. 30.—The Hungarian State Iron Steel and Engineering Works has obtained a licence from I.G. Farbenindustrie A.G., the German chemical trust, for the production of magnesium metal by the process of the German company. Production will be in the hands of a new company, which will be called Hungarian Magnesium and Elektron Company.

JOURNAL OF COMMERCE  
"America's Leading Business Newspaper."

New York City

AUG 24 1942

(Spec. to Journal of Commerce)  
LUCKEY, Ohio, Aug. 23.—The huge magnesium plant being built near Luckey, Ohio, by the Defense Plant Corp. will be supervised by the Magnesium Reduction Co., a newly formed subsidiary of the National Lead Co. The plant will extract magnesium from dolomite, a limestone rock rich in the metal in the northwestern Ohio area.

Seattle (Wn) Journal of Com.  
September 2, 1942

## MAGNESIUM PLANT SITE CONDEMNED

Formal condemnation of the site of Spokane's \$20,000,000 magnesium reduction plant, north of the city, has been effected in federal district court at Spokane. The court ordered formal possession be given next Saturday.

The Defense Plant Corp., the condemning agency, has been in actual possession of the site for months, and work is well along on construction of the plant. More than 75 per cent of the land involved is county-owned, and the United States' suit was filed against Spokane county.

Presentation of the DPC was prepared by Hart Snyder, special attorney for the department of justice, and the order was issued by Judge Lewis Schwollenbach.

FINANCIAL POST  
Toronto, Canada

SEP 5 1942

Dominion Magnesium Co. is now working on a 24-hour-a-day production basis although full capacity has not been reached. It is now thought that capacity of the plant, located at Haley's Station near Renfrew, Ont., may turn out to be somewhat greater than previously estimated.

Dominion Magnesium Co. is being operated for the government on a "no-profit basis" but can become a profit-making organization when conditions return to more nearly normal after the war.

Research work by Dr. Lloyd Pidgeon for Dominion Magnesium was financed by a number of Canadian mining companies—Moneta Porcupine, God's Lake, Ventures, Sudbury Basin and Bobjo Mines.

Seattle (Wn) Journal of Com.  
September 14, 1942

An automotive company, taking on a contract for aircraft engines, early set out to overcome the shortage of magnesium. Setting up a complete foundry, this company is not only filling its own needs but is the principal supplier of magnesium to an aircraft firm.

## Five Plants Opened; Building Sets Record

WASHINGTON—Five important magnesium plants have entered production in recent weeks, after completion in record time.

Included is the Basic Magnesium, Inc., plant at Las Vegas, Nev., announced recently, which is the world's largest, with a rated capacity approximately 3½ times total United States output in 1941, according to A. H. Bunker, chief of the War Production Board's aluminum and magnesium branch.

The others are the new Dow Chemical Co. plant in Texas, the Ford Motor Co. plant in Michigan, the New England Lime Co.'s Connecticut plant and the Permanente Metals Corp. plant near Manteca, Calif.

All five plants were financed and are owned by the Federal Government. The total cost approximates \$175 million. The Basic and Dow plants use standard electrolytic processes, while the other three use the new ferro-silicon process developed within the past year.

It took ten months for construction of the Basic Magnesium plant and four months for the ferro-silicon plants. Three more ferro-silicon plants are nearing completion and will commence operations later this year, while an additional four electrolytic plants are under construction.

Completion of the program, according to WPB, will place the United States far in the lead of all other countries as a magnesium producer. Before the war, Germany was the world's leader and only small quantities were produced in this country.

MICHIGAN MANUFACTURER & FINANCIAL RECORD  
Detroit, Mich.

SEP 5 1942

P. J. Hoffmaster, state conservation director, has announced that he will recommend approval of the Dow Chemical Company's petition for permission to construct a 14-inch pipeline to lead brine wastes from its proposed magnesium plant at Ludington to Lake Michigan. The line must cross land owned by the State Conservation Commission.

### POWER

"Identified for more than 40 years with every phase of progress in the generation and transmission of power in all industries."

McGraw-Hill, 330 W. 42nd St., New York City

## American Welding Society to Meet October 12-15

The 1942 annual meeting of the American Welding Society will be held in Cleveland, Ohio, Oct. 12-15. Papers of interest to power men, include:

Effect of Cooling Rate on the Properties of Arc Welded Joints, by W F Hess, Rensselaer Polytechnic Institute; Fatigue Strength of Metal Subjected to Combined Stresses, by L H Donnell, Illinois Institute of Technology; Some Special Applications of Flame Hardening, by Stephen Smith, Air Reduction Sales Co; High Quality Welding—Vertical and Overhead Positions with Alternating Current, by H O Westendarp, General Electric Co; Conservation and Effective Use of Equipment and Supplies for Welding and Cutting, by H Ullmer, the Linde Air Products Co; Arc Welding of Magnesium Alloys, by W S Loose and A R Orban of the Dow Chemical Co.

### POWER

"Identified for more than 40 years with every phase of progress in the generation and transmission of power in all industries."

McGraw-Hill, 330 W. 42nd St., New York City

## Three New Aluminum Plants Now Producing

Three new Government-owned aluminum plants had started operations by May 30, a fourth began production according to schedule, early in June, and the entire first expansion program of seven plants will be in production by August 1, A H Bunker, chief, aluminum and magnesium branch, announced.

All seven plants will be completed ahead of schedule, he said. The first two were finished in 6 months, as compared to a normal building time of 11 months. The plants will get into full production from 60 to 120 days after completion, depending upon size.

Seattle (Wn) Post-Intelligencer  
September 10, 1942

# RESEARCH HELPS STATE'S METALS

Washington has an excellent opportunity to put its light metals industries on a permanent basis as a result of research work at the electro-metallurgical laboratories in Pullman, of which he is director, A. E. Drucker, dean of the school of mines at Washington State College, reported yesterday when he arrived in Seattle on a brief vacation trip.

He said highly satisfactory progress is being made in four different projects which the State Planning Council is financing. He added that the work of these projects is closely allied with that of the United States Bureau of Mines, which has been developing the production of magnesium from magnesite ore for the last five and a half years with the cooperation of the college.

### PILOT PLANT BUILT

Dean Drucker said that in the first of the Planning Council projects, a small pilot plant is now nearing completion for the production of electrolytic manganese from Olympic Peninsula ores after several years of research. A staff of three full-time research men is employed in this, he said.

"We have developed and simplified our process considerably for these special ores," said Dean Drucker. "We are convinced now that electrolytic manganese can be produced from these ores at a reasonable cost."

"This practically pure, grayish, brittle metal is used for superior aluminum and magnesium alloys for airplane construction and other transportation equipment." In the past, he explained, the United States depended on South Russia and India for most of its manganese, and both of the sources have been blocked by the war.

### TO SUPPLY PLANTS

The next project, he said, is the production of alumina from Washington clays, by a sulphuric acid leaching process, to supply the Lower Columbia River and Spokane plants with ore for the production of aluminum pig metal. There are three full-time research men on this project, too.

"Research on this important problem has been in progress for three or four years now," he said. "We have succeeded very largely in the production of high purity alumina practically free from iron and other impurities."

"At present we are erecting a small laboratory pilot plant for the treatment of both West Side and East Side high alumina clays. Considerable success has been attained and we now believe after many trials that this problem can be solved in the near future for the economic production of this ore."

"We will have an advantage in using certain Washington clays for this purpose because we will obtain high-grade silica sand, white muscovite mica and aluminum sulphate as valuable by-products to help pay for the process in competition with the usual bauxite ores now shipped in from Dutch Guinea and Arkansas. The silica sand is used for hollow building insulation blocks, the white mica for insulation and fillers, and the aluminum sulphate in our paper mills, as well as for a source of alumina."

SEP 2, 1942  
EL PASO, TEX. TIMES

## Magnesium Plant In N. M. In Production

Las Vegas, Nev., Sept. 1 (AP).—The Government's giant magnesium plant is in production.

The \$100,000,000 plant, producing materials for America's war effort, went into operation yesterday.

The first unit in Cell House No. 1 began pouring molten magnesium chloride into an unannounced number of electrolysis cells for "cooking." Later, ladlers started skimming molten magnesium metal from the cells and the first metal was placed in molds.

Cells placed in operation yesterday will continue from now on as the process is a perpetual one and cannot be halted. The plant is expected to be at capacity production within 30 days.

The entire output goes to the War Department, and will be used for the manufacture of incendiary bombs, tracer bullets, shells, flares and aircraft.

### REAL HOPE HERE

"Here lies our real hope for the utilization of clays which occur in large reserves at Castle Rock in Southwestern Washington and east of Spokane at Freeman, Mica and Clayton."

The third project, Dean Drucker said, involves the production of new magnesium alloys for the surface cladding of magnesium alloy sheet metals and corrosion prevention.

"We have put in a year and a half of research on this," he said. "We have a \$10,000 spectrographic laboratory and a \$4,000 X-ray laboratory for the study of alloys by three full-time research men."

"We have large deposits of magnesite and dolomite ores in the northern counties—Stevens County has the largest magnesite deposits in the whole country."

"Important people from the Eastern iron mines and steel industry are deeply interested in this process."

Dean Drucker said two full-time research men are employed on the fourth project, the smelting of clays for alumina ore, instead of the sulphuric acid leaching process.

### FEATHERWEIGHT INGOTS

"Norway and Sweden have used the smelting process successfully," he said, "and their literature is being studied."

"In recent months," he said, "featherweight magnesium ingots have been produced in the pilot plant which is designed to put out 100 pounds in twenty-four hours. H. A. Doerner, the engineer in charge, has eight chemists and metallurgists working under him."

"This means a great deal to the war effort," he said, "and it also promises to help us retain the industry after the war."

"I don't want any more war babies. Let's produce metals and win the war—but, at the same time, we should try to avoid industrial skeletons in the postwar period."

Grand Jet Colo Sent  
9-642

## Chemical Plant For Magnesium In Utah Seen

Moab, Utah, Sept. 5.—Formulating of plans for the construction of a chemical plant at Crescent Junction and a program for further development of the rich magnesium deposits disclosed in the government test well recently drilled at that point, is under consideration at Washington, D. C.

John Sandburg, president, and Louis D. Carlson, secretary, of the Utah Magnesium corporation which controls the Crescent properties, left Wednesday for Denver, where they caught a plane for Washington. They are meeting with officials of the war production board regarding plans for future operations. That a large chemical plant will be erected to extract the magnesium chloride from the rich brines encountered in the well, is regarded as certain.

### FINANCIAL TIMES

Canada's Leading Newspaper for Investors  
651 Craig St., West, Montreal, Can.

SEP 4 1942

## Production Started By Dominion Magnesium Co.

Renfrew, Ont.—Dominion Magnesium Company has initial production of magnesium underway, on a small scale as yet. The plant is located at Haley's Station. Furnaces are being heated up in rotation, until the project output of 20 tons, or possibly 30 tons.

Although the original expenses is carried by the Federal Government, the company's own interest is substantial.

Four mining companies bore the cost of original development and patenting the process which is held. Moneta Porcupine, God's Lake, Bobjo Mines and Ventures, Limited, all would see to be in very good position to accomplish domestic program on the magnesium beds when the war ends.



SEP 18 1942  
**MAGNESIUM PLANT  
NEW IN OPERATION****Big Government Project At  
Renfrew Finished and Can-  
ada Now Producing Metal**

Ottawa—Announcement has been made from the Department of Munitions and Supply that the new government-owned plant of Dominion Magnesium Co. near Renfrew, Ont., a \$5,000,000 project, now is in operation and that Canadian-made magnesium is available for the first time.

The metal, in heavy demand for making aluminum alloys used in aircraft construction, formerly came entirely from the United States.

The announcement regarding start of production at Renfrew followed a visit to the plant by Munitions Minister Howe, Metals Controller G. C. Bateman and C. A. Banks, Canadian representative of the Munitions Department in England.

Canada's entry into the field of magnesium production is based on discovery of a new extraction method applied to dolomite deposits at Haley's Corner near Renfrew.

The problem of supply became acute with increased wartime demand for aluminum alloys and with heavier needs for magnesium in the manufacture of flares, shell fittings, night bombs and pyrotechnics. In collaboration with the Metals Controller, the National Research Council at Ottawa tackled the problem of devising a new production method and research workers in Canada and the United States succeeded in developing a thermal process for extracting metallic magnesium from dolomite.

The discovery gave potential value to the large deposit of dolomite in the Renfrew area.

Wartime Metals Corporation, a Crown company was formed to supervise production and Dominion Magnesium Company was incorporated as a private concern to build and operate a government-owned plant without fee or profit. The entire production is earmarked for war uses and will be stepped up as new units are completed.

S. F. CAL. CHRONICLE  
Cir.—Daily 119,155; Sunday 210,261  
SEPTEMBER 27, 1942

**Magnesium Plant**

PAINESVILLE, Ohio, Sept. 26 (AP)—Officials of the Diamond Magnesium Company announced today their \$16,000,000 plant here has started production.

TIMES  
New York

SEP 15 1942

**Canada Producing Magnesium**

OTTAWA, Sept. 14 (Canadian Press)—The Munitions and Supply Department disclosed today that the new government-owned plant of the Dominion Magnesium Company near Renfrew, Ont., a \$5,000,000 project, was in operation and "Canadian-made magnesium is available for the first time." The metal, in heavy demand for making aluminum alloys used in aircraft production, formerly came entirely from the United States.

**Canada Producing Magnesium**

OTTAWA, Sept. 14 (Canadian Press)—The Munitions and Supply Department disclosed today that the new government-owned plant of the Dominion Magnesium Company near Renfrew, Ont., a \$5,000,000 project, was in operation and "Canadian-made magnesium is available for the first time." The metal, in heavy demand for making aluminum alloys used in aircraft production, formerly came entirely from the United States.

MERCED, CAL., SUN-STAR  
Cir.—5,025  
SEPTEMBER 23, 1942

**MINING WHITE ROCK**

Fifteen workmen were engaged last week in the erection of a crushing plant and other necessary housing facilities for the immediate operation of the white rock silica project on the Jim Helm property in the White Rock district. The property has been taken over by the Permanente people, a Kaiser organization for development of magnesium. The Mariposa Gazette declares that the silica from this deposit is 99.7 per cent pure. It is used extensively in the new process of manufacturing the important magnesium which is to figure prominently in the present war and will be used extensively after the war for many purposes—making building materials, furniture, ships and airplanes.

The plan of the Permanente people is to move several thousand tons of the silica to the Permanente plant near San Jose and the new plant near Manteca, before the rains make hauling conditions difficult.

The Gazette says the rumor is afloat that the state highway department may improve and oil the road from White Rock to Le Grand if the Government considers the silica a deposit of strategic mineral.

It was rumored about Merced early this week that the power company had been approached to estimate costs of installing a plant at Le Grand for the handling of the silica. It appears certain that both Mariposa and Merced counties are to benefit by the development of the silica deposit there in the lower foothills which has for so many years seemed merely a mammoth white rock visible from the plains for many miles away.

**RAD'S  
RAMBLINGS**

KORANNE OHIO JOUR  
SEP 15 1942

**PLAN TO REBUILD****Sandusky Storage House  
Leveled by Fire**

SANDUSKY, O.—The Aluminum and Magnesium Inc., today planned to rebuild at once the storage house which was leveled by fire last night when spontaneous combustion started a fire in barrels of scrap metal.

Ten workmen escaped from the plant before an explosion rocked the building and flames spread thru it quickly.

One fireman, Howard Marshall, 38, and three volunteers were injured by falling debris and were burned slightly. None was injured seriously.

SAN FRANCISCO, CAL. CALI.  
BULLETIN—Cir. 110,445  
SEPTEMBER 26, 1942

**New Magnesium Plant**  
PAINESVILLE, Ohio, Sept. 26 (AP)—Officials of the Diamond Magnesium Company announced today their \$16,000,000 plant here has started production.

CIO NEWS  
WISCONSIN EDITION  
WASH D.C.  
9 14/42

**More Magnesium**

Washington, Sept. 12—The world's largest magnesium plant, with a capacity estimated at 3½ times total U. S. output in 1941, has started production, the Aluminum and Magnesium Branch, WPB, announced here this week.

SACRAMENTO, CAL. UNION  
Survey Cir. 26,532  
SEPTEMBER 27, 1942

**Silica Is Shipped  
From Famed Rock**

MERCED—Silica from the white rocks of the James Helm ranch near LeGrande has been shipped to the Permanente magnesium plants at San Jose and Manteca. The rock tests 99.7 per cent pure silica and will be used in the process of producing magnesium.

The historic white pile of rock is said to be the most extensive outcrop of high-grade silica in the world.

**CHEMISTS' UNION  
NLRB Hearing for  
Permanente Metals**

IN SPITE of every attempt on the part of Henry J. Kaiser and his representatives to deny them the right of selecting a collective bargaining agent of their own choosing, practically all of the scientific workers at the Permanente Metals Corporation have joined the CIO International Federation of Architects, Engineers, Chemists and Technicians and will press for recognition at a National Labor Relations Board hearing in San Francisco this week, it was announced by Marcel Scherer, International vice president of the union.

During the past few months, while these chemists, analysts, spectroscopists, radiographers and other laboratory personnel were endeavoring to get their union recognized by the company, they were subjected to displays of favoritism, intimidation and coercion by the Kaiser organization.

In order to avoid further delay and to bolster the lowered morale which resulted in the laboratories

of this vital war plant, the FAECT appealed to Donald Nelson in part as follows:

"The anti-labor machinations of the Kaiser organization have denied these scientists the essential right of forming a union of their own choosing in accordance with the stated policy of the United States. Permanente management has used every weapon at its disposal to frustrate the organization, even to call in the AFL in an attempt to sign up these scientific workers in the company's personnel offices. The men have rejected all of these intimidating tactics with dignity and firmness and have defeated every attempt by the company to dissolve their union. This alone is tribute to the steadfastness of purpose that governs these scientific workers.

"... We appeal to you to intervene in our behalf so that we may devote all of our efforts to smash the magnesium production records and thus contribute to the destruction of the Axis."

Thomas F. Burns, Labor Production Division of the War Production Board, Washington, replied to the effect that the WPB had made a complete check with the NLRB and had been informed that the hearing would definitely be held in a few days.

The union will be represented at the hearing by an employee committee and Bertram Edises of the law firm of Gladstein, Grossman, Margolis and Sawyer.

**Extensive Operations Are  
Now Under Way  
For Silica Production**

Fifteen workmen are engaged in the erection of a crushing plant and other necessary housing facilities for the operation immediately of the white rock silica project on the Jim Helm property in the White Rock district. This property has recently been taken over by the Permanente people, a Kaiser organization for the production of magnesium.

The silica from this deposit which is 99.7 per cent pure is used extensively in the new process of manufacturing the important magnesium which is to play an important part in the present war and which will be used extensively after the war for thousands of purposes including the manufacture of building materials, furniture, ships and airplanes.

The plan of the Permanente people is to move several thousand tons of the silica to the Permanente plant near San Jose and the new plant near Manteca as soon as possible, before the rains make hauling conditions difficult.

It is reported that the state highway department may improve and oil the road from White Rock to Le Grand if the government considers the silica a deposit of strategic mineral. The federal government has full authority to allocate the spending of funds for road improvement under the present war-time emergency.

MARIPOSA, CAL. GAZETTE  
Cir. 1,252  
SEPTEMBER 17, 1942

**PETROLEUM ENGINEER**

"The Engineering Magazine of the Oil & Gas Industry."  
Dallas, Texas

SEP 1942

GERALD I. McBRIDE, formerly division production engineer for The Texas Company at Shreveport, Louisiana, is with the Permanente Metals Company, where he has been for about two years, as head of the piping department for the building of the magnesium plants at Permanente and Manteca, a sea water magnesia plant at Moss Landing (on the Pacific), quarry and calcining plant at Natividad, and a ferro-silicon plant at Permanente. He makes his home at Los Altos, California.

**IT CAN BE DONE**

The Life Story of Henry J. Kaiser

(Fifth of Six Articles)

By THOMAS L. STOKES

Rocky Mountain News Washington Bureau

WASHINGTON, Aug. 31.—When Henry J. Kaiser gets an idea, he won't let it alone, it won't let him alone. And he won't let anybody alone who has anything to do with it.

He eats with it. He sleeps with it. And, like the late Thomas A. Edison, the Pacific Coast builder doesn't require much sleep to replenish the abounding energy which courses through him.

It is so with his newest idea for a vast fleet of cargo-carrying planes to get around the submarine menace. Once he got that idea, and proved to himself that air freighters could be built in existing shipyards, he began to worry everybody who could help him.

**A Long Conference**

There is, for instance, Vance Breese, the famous test pilot. For several hours Mr. Kaiser talked the scheme with this long-time friend and adviser. Mr. Breese thought they were through, and went down to Los Angeles to see his family and look into his own business.

At 6 o'clock that night Mr. Kaiser turned up at the Breese home. He wanted to talk some more, and did—until 1 a. m. Mr. Breese was waked up at 4 o'clock by someone whistling outside his window. It was Mr. Kaiser.

Between that time and 8 o'clock, when the two had to leave for an appointment, Mr. Kaiser was constantly on the telephone to Washington, talking to Donald Nelson, General Arnold, and other top officials.

It's an old story now how Henry Kaiser electrified the country with his proposal, how he came to Washington, first to get a cordial reception, later to be eased off with an innocuous letter.

**A New Story**

It's an old story, too, how he has been given the run-around before in Washington and how he always comes back and keeps hammering away. But there's a new story about his recent brush with high officials here which reveals another facet of his personality, which shows how he can speak out against official disbelief and cynicism.

Lt. Gen. Brehon B. Somervell, chief of the army's Services of Supply, perhaps has not forgotten the occasion, nor have other top officials who were present at a luncheon at the Army and Navy Club—Lt. Gen. Henry H. Arnold, chief of the Army Air Forces; Lt. Gen. Leslie J. McNair, chief of the Army Ground Forces; Ferdinand Eberstadt, chairman of the Army and Navy Munitions Board, and others.

They were discussing Mr. Kaiser's cargo-plane proposal. All sorts of objections were being raised, particularly as to shortage of materials. During the discussion, Mr. Kaiser told how he had built a plant to make magnesium, how it was already producing, and mentioned that Henry Ford still did not have his magnesium production under way.

**A Fight Starts**

"That makes you better than Henry Ford," interjected General Somervell.

"That's plain sarcasm," Mr. Kaiser shot back. "I don't think that is worthy of a man in your high position."

Then, according to reports, the two barked back and forth at each other with some display of heat, until General Arnold intervened to restore good humor.

After the luncheon was over, Mr. Kaiser grabbed General Somervell about the waist in a bear-hug and good-naturedly lifted him off the floor, shaking him in his big arms.

"I like a tough fight—and you are going to get one," he told the General, with a smile.

**Four Hours of Sleep**

The youngsters who work for Henry Kaiser have a hard time keeping up with him. Four hours' sleep usually is enough. He may pick up the phone at any hour of the night with a sudden idea—and if it is a big one, he gets a poop-up

with his lieutenants here, there and everywhere, for a conference.

Like big men who do big things, he has a formula which is simple—in the telling.

"A big job is nothing but material flow," he said.

If you start here and let the materials flow, you can do it.

"There are two things in this business—material flow and human relations."

**Strong Union Man**

Human relations includes labor. Henry Kaiser was once a strong anti-union man—in his early days. He is now a strong union man. All of his plants, all of his jobs, are completely unionized. He has contracts which call for no strikes, no lockouts, and arbitration of grievances. He has had only negligible labor troubles.

High praise for the Kaiser labor policy came from John P. Frey, head of the AFL Metal Trades Department.

As he explains it, Mr. Kaiser first saw the advantage of unions when he participated in the Boulder Dam contract. In looking about for labor for such a mammoth job he discovered, Mr. Frey said, the unions could handle this problem for him, could gather together sufficient skilled labor for his needs, and at the same time take responsibility to see that he had the trained labor required for every sort of job. So Mr. Kaiser signed up with the unions and has been a strong union man ever since.

He also has a philosophy that industry must assume responsibility in an emergency such as the present; that it should come to Washington with plans for what can be done, instead of asking Washington what can be done.

**Pioneer Spirit**

"The pioneers didn't ask Washington how they could clear the wilderness and build new homes," he says. "They did it. They didn't get an engineer's report from Washington when they crossed the Sierras."

A sort of pioneer spirit, a spirit of dare-and-do, runs through all the multitude of companies in which Henry J. Kaiser is the dominant influence.

It is an organization of young men. They all work hard and they are quite accustomed to a call to perform miracles. They are paid moderate salaries, but there there is a bonus system. When the melon is sliced after a profitable job the pieces are distributed through the organization down to gang foremen.



## Magnesium output at Permanente shows increase

Permanent Metals Corporation is producing "a lot" of magnesium at the big plant in the Los Altos foothills, Dr. F. Donald Fowler, research director, told the San Jose Kiwanis Club yesterday, but he declined to say whether peak production has been reached.

Magnesium output in the United States increased from 560,000 pounds in 1930 to an estimated 200,000,000 pounds this year and 675,000,000 pounds next year, it was pointed out. The 1943 estimate is six times in excess of Germany's production.

The price of magnesium dropped from \$3.50 a pound in 1915 to the current 20 cents a pound.

Magnesium is one-third lighter than aluminum and a fifth the weight of steel.

**Work on strength problem**  
Dr. Fowler said that investigators are devoting much attention to the problem of giving magnesium the strength of steel.

In his opinion, the West Coast is better adapted to large scale production of magnesium than is any other part of the country because of the proximity of raw materials, power and shipping facilities.

Permanente is now using the ferro-silicon process of producing magnesium, said the speaker. This requires only eight hours for converting the raw materials into cast pigs. The plant is also equipped for using other processes.

OAKLAND, CALIF., POST-ENQUIRER  
Cir. 48,217  
MARCH 4, 1943

## War Plant Hits Peak Production

Production at the Permanente magnesium plant near Los Altos, a Henry J. Kaiser operation, reached the highest point in February of any month since the plant started operations in August, 1941.

So reported officials of the company today in a formal statement of Permanente magnesium operations.

Because of wartime restrictions, tonnage figures are not available, but plant officials said the February output exceeded by 75 per cent any previous single month's production.

Furthermore, they stated, the February output represented a substantial proportion of the plant's original capacity and exceeded the company forecast of February production made some time ago.

The statement praised the loyalty of employees and added:

"Everybody in the plant is enthused because we are now entering into large scale production."

The Permanente magnesium plant supplies most of the magnesium used in west coast aircraft plants, also a great quantity of magnesium for incendiary bombs, flares and tracer bullets, officials stated.

ONTARIO, CALIF. REPORT  
Cir. 4,312  
MARCH 5, 1943

to Chief E. H. Gordon.

## Kaiser Magnesium Plant Output Gains

SAN FRANCISCO (AP)—Production of magnesium at the Kaiser permanente plant near Los Altos reached a new peak in February, plant officials reported today.

Output of magnesium was 75 per cent over the best previous month, and represented a substantial proportion of the plant's original planned capacity, they said.

EVENING NEWS  
Buffalo, N. Y.

NOV 21 1942

## Magnesium Plant's Builder Now in Internment Camp

Special to the Buffalo Evening News and North American Newspaper Alliance.

SAN FRANCISCO, Nov. 21. — A few miles from here a mountain literally has been transformed into a factory of Titans. Far away in an internment camp, an Austrian engineer, stays close by a telephone in case an emergency arises in the operations of the great war industry which is his brain child.

The plant is that of the Permanente Metals Corporation, which is extracting the magic, silvery magnesium from ocean and mountain.

From the first, the Permanente plant has been a place of mystery from which have come many fantastic rumors. It is engaged in the so-called Hansgig process of magnesium extraction, which involves a chilling of a supposedly explosive mixture of magnesium, oxygen and carbon from 2000 to 200 degrees centigrade in less than 1-1000th of a second. The plant is equipped to produce about 24,000 tons a year by this method.

The starting point of the process is magnesium hydroxide, essentially the same thing as milk of magnesia,

which is obtained from sea water—perhaps the richest of all sources of magnesium—and from a lime-stone-like rock, dolomite, of which there are extensive deposits in both California and Nevada.

### Oxygen Driven Out

These are processed to form magnesium, or a combination of magnesium and oxygen, and shipped as raw materials to this plant at Permanente. The big job is to get out the oxygen and thus produce approximately 99 per cent pure magnesium—a metal about one-fifth the weight of steel, volume for volume, and, in certain alloys, just as strong as the finest steel.

In the Hansgig process the magnesium oxide is mixed with carbon and the mixture ground to an extremely fine powder. At extreme temperatures carbon has a strong affinity for oxygen. The powder, made up in the form of tiny pellets, is dropped into an electric furnace where, at about 2000 degrees, everything is changed into gas.

The carbon in this gas unites with the oxygen to form the deadly carbon monoxide of automobile

exhausts and the pure magnesium is set free in the form of a vapor. But the gas will go back to its original form again almost instantaneously when the temperature goes down unless the two separated ingredients can be "frozen" faster than the normal chemical reaction can take place.

This "chilling" is the essential element in the Hansgig process. The Austrian engineer invented a cone-shaped nozzle provided with 36,000 tiny holes through which cold natural gas is forced at high velocity. This gas mixes instantaneously with the furnace vapors and reduces their temperature to 200 degrees centigrade. Thus the magnesium vapor is condensed to form solid particles of magnesium dust before there has been an opportunity for the reaction to proceed to an appreciable extent. From this dust is obtained the solid metal.

### Cost Is 22 Cents a Pound

By this process, engineers of the Permanente Metals Corporation say, they are producing magnesium for a little over 22 cents a pound—the cheapest at which it can be produced except as a by-product to the extraction of something else, like chlorine, from sea water.

The whole process is extremely spectacular and, unless it is carefully controlled, likely to be very dangerous. The first plant set up by the inventor in Austria exploded with considerable loss of life. He superintended the erection of plants in South Wales, Japan and Korea before coming to the United States last year. Because of the danger, there was considerable reluctance to put the process in operation here—although Dr. Hansgig himself was confident that he had overcome the difficulties.

The plant was set up at Permanente by the Kaiser Corporation, which also operates the Todd-California and several other shipbuilding plants.

Up to the outbreak of the war Dr. Hansgig himself acted as consultant on the ground in the construction of the plant and the installation of the machinery. With the outbreak of the war, being a German citizen, he was placed in an internment camp. He recognized, his former associates say, the inevitability of this action and bore no ill will. He holds himself ready to give all aid possible.

He said that the "poor production record" was discovered in results of surveys of war production plants, made by the council during the past few weeks.

LOS ANGELES, CALIF.,  
THE POLYGRAPHIST  
MARCH 31, 1943

## Leonard R. Flicker Sends Magnesium

A perfect example of magnesium crystals, which are to be used as exhibit by Dr. Harry Gilbert, head of the professional careers department, were sent last Friday as a gift to the science classes from Leonard R. Flicker W26, safety engineer at the Permanente Metals Corporation.

This company is one of the main factors in the success of Henry J. Kaiser's shipbuilding program. It is the only operating plant in the country producing magnesium in crystal form.

Mr. Flicker is one of the contributing editors of The Permanente News, a magazine published monthly for all employees of that company. They recently set a record when they produced their five millionth barrel of cement in the defense program.

## Kaiser Plant Said To Be Huge Flop

The Congress of Industrial Organizations charged today that Henry J. Kaiser's \$25,000,000 Permanente magnesium plant at Los Altos is a "spectacular flop" and demanded a federal investigation.

At the same time, the Permanente Metals Corporation announced that negotiations with the Federation of Architects, Engineers, Chemists and Technicians (C.I.O.) had been suspended and that the questions of wages and conditions at issue would be placed before the War Labor Board.

The CIO said it had furnished Donald M. Nelson, chairman of the War Production Board, and other federal officials with "documented" support of its charges.

MINING JR'L  
PHOENIX ARIZ.  
1/30/43

Fritz J. Hansgig recently assumed his new duties as a chemistry professor at a college at Black Mountain, North Carolina. He is well known for his development of the Hansgig process for the recovery of magnesium, which is being used by the Permanente Metals Corporation, San Jose, California. Hansgig had been taken into federal custody about a year ago but was released recently.

SAN FRANCISCO, CAL. CALL.  
BULLETIN—CIR. 110,440  
FEBRUARY 19, 1943

## KAISER METALS PLANT 'FLOP,' CIO SAYS

### Federal Investigation Of Permanente Demanded

Charging Henry J. Kaiser's \$25,000,000 Permanente magnesium plant at Los Altos was a "spectacular flop," the California C. I. O. Council today demanded a federal investigation of the plant's operation.

The C. I. O. said the plant was producing only 8 per cent of planned capacity and the "cost of the metal produced is five times as much as originally estimated and almost four times that of Kaiser's largest competitor."

**CHARGE REBUFF**  
Staff chemists at the plant suggested inexpensive means for salvaging almost all of a 25 per cent loss of magnesium in the foundry, the C. I. O. said, but were "rebuffed sharply."

"At the same time, the Kaiser firm refuses to replace equipment which bottlenecks production because it represents 'too large an investment,'" the C. I. O. charged.

In a statement which followed the union accusations, the Kaiser company did not discuss the charges, but pointed to a labor dispute between the Permanente Corporation and the Federation of Architects, Engineers, Chemists and Technicians (C. I. O.).

### FIRM'S STATEMENT

The statement said: "The Federation of Architects, Engineers, Chemists and Technicians (C. I. O.) was recently certified as the bargaining agency for approximately 50 laboratory workers at Permanente, where some 2,500 persons are employed.

"The company has been negotiating with the federation concerning wages and working conditions for their group. The company has been unable to satisfy this union's demands and negotiations are now suspended. It appears the issues will have to be decided by the War Labor Board."

### SPECIFIC CHARGES

The charges and demands for an investigation contained in a "specific documented statement by the chemists" have been forwarded to Donald Nelson, War Production Board chairman; Lieutenant General Brehon Somervell, chief of the Army's service of supply; Wendel Lund, WPB labor production division director; Harry Fair, WPB regional director, and Louis Fowls, associate regional labor representative of the WPB.

According to the C. I. O. indictment of the Kaiser company, men in charge of Permanente "seem deficient in the type of training and experience which would qualify them to operate such technical production."

It added that the big plant, now a year and a half old, is producing "about ten tons of magnesium a day—about 8 per cent of the original estimate."

CHICO, CALIF., RECORD  
Cir. 4632  
FEBRUARY 19, 1943

## Kaiser Magnesium Plant Said Failure

SAN FRANCISCO, Feb. 18.—(UP)—The Congress of Industrial Organization tonight charged that the \$25,000,000 Henry J. Kaiser Permanente Magnesium Plant at Los Altos, Cal., is a "spectacular flop," and called for a federal investigation of the plant as the company broke off wage and working conditions and negotiations with a CIO union at the plant.

The California CIO council charged that output of the magnesium plant, which produces magnesium for airplane production, is only eight per cent of planned capacity; cost of metal produced is five times as much as originally estimated almost four times the cost of Kaiser's largest competitor.

### BUSINESS WEEK

"Gives the busy executive all important and significant business news in one publication . . . quickly . . . accurately . . . tersely."

McGraw-Hill, 330 W. 42nd St., New York City

FEB 27 1943

### Row in Permanente

Whether Henry J. Kaiser's Permanente magnesium plant near San Francisco is producing reasonably up to schedule has been a subject of controversy for several months. Kaiser has admitted delays but has explained they are because his engineers not only are perfecting the Hansgig process (BW-Apr. 25'42,p67), but also are devising improvements in other conventional processes which, when completed, will pay off in greatly increased production.

Magnesium is being produced reportedly at about 25% of capacity. The exact status of output may be revealed as a result of charges filed last week with WPB by the California C.I.O. Council, which maintains that the plant is "a \$25,000,000 flop," that production is only 8% of planned capacity. The C.I.O group claims its charges are documented with affidavits from plant chemists who are members of the C.I.O.

• **Headed for NWLB**—While the charges undoubtedly grew out of failure of the union and Kaiser to agree on terms of a labor contract which has been under negotiation for several weeks, their seriousness may prod WPB into the investigation demanded by the union. The labor dispute almost certainly will be thrown into the lap of the National War Labor Board.

SAN FRANCISCO, CAL. CALL.  
BULLETIN—CIR. 110,440  
MARCH 4, 1943

## Permanente Magnesium Output in Feb. Sets Record

Production of magnesium at the Permanente Metals Corporation plant near Los Altos reached an all-time high in February, bettering by 75 per cent the best month since the plant opened in 1941, company officials announced today.

Actual production figures could not be released because of wartime restrictions, the officials explained, but February's production exceeded by a good margin the forecast for that month made several months ago.



## Among the WEST COAST Foundries

BY A. H. ALLEN  
Detroit Editor,  
The Foundry

**S**EQUESTERED up in the Santa Cruz mountains back of San Jose, Calif., is Henry J. Kaiser's Permanente Metals Corp. Originally intended for a cement plant to supply material for the Shasta dam, now under construction in central California, the site now has been extended to include a ferrosilicon production plant and a magnesium reduction plant, as well as a small magnesium foundry.

Permanente has been the subject of more grousing and speculation among outsiders than any of the other Kaiser enterprises, and there are a dozen or more of them. The magnesium reduction plant, based on the much-argued Hansgirg process, has been shuffled around considerably since it first began to take shape, but it is now operating at about 75 per cent of capacity. The plant takes calcined dolomite, mixes it with carbon, reduces it to magnesium metal vapor in huge electric arc sealed retorts, cools the product in natural gas, condenses the vapor in gas fired retorts, then melts down the crystallized metal from the retorts in standard pots such as are used in most magnesium foundries, and casts the metal into either pigs or ingots.

### Installed New System

There have been difficulties in getting the process perfected. Large agglomerators formerly used to collect the magnesium vapors emerging from the reduction units, for example, have now been thrown out and a new system installed. The melting department where magnesium collected from the sealed retorts is melted and cast for subsequent use, when visited by this writer, was a fog of sulphur dioxide. But this is simply a matter of getting the ventilating system into shape to remove these fumes which result from the sulphur thrown on the surface of molten metal to prevent its burning up.

Permanente officials—and most of them are young fellows still in their twenties or thirties with lots of zip and drive—say the operation is not working perfectly as yet, but they run over with confidence and say without batting an eye that they are going to "show up" the Dow Chemical Co. and its magnesium brine extraction process on costs.

Maybe so, but it is this observer's opinion that the long experience which Dow engineers have had in working out an economical magnesium reduction process, during which time they fooled around with nearly every known method in the books, will be a pretty hard thing to lick.

Already it appears that the ferrosilicon process or thermal reduction method for preparation of magnesium is moving ahead faster than the Hansgirg process at Permanente. In fact, Permanente itself is operating a ferrosilicon reduction process at Manteca, Calif., near the sea. Electro Metallurgical Co. has now started a large ferrosilicon reduction plant for magnesium at Spokane, and of course Ford in Detroit has been working with the method for some time. It is admittedly uneconomical at present when compared with the brine extraction process, but time may change this, although the Kaiser people themselves do not expect this eventuality.

### Engineers Have Troubles

Another magnesium reduction process, electrolytic in character, is being operated at Las Vegas, Nev., where Basic Magnesium Inc. has set up a large plant. But this plant, too, has had its wavy hours. The process has been shifted around appreciably and the original management tossed out and Anaconda Copper Co. engineers brought in to operate the equipment under a Defense Plant Corp. contract.

Indicative of some of the troubles which Kaiser's energetic engineers have had in getting Permanente into successful operation is the appellation given to one roadway extending between two groups of plant buildings. It is called, simply, "Aspirin Boulevard."

One of the newest operations at Permanente is the ferrosilicon plant, where a mixture of steel turnings, coke and quartz rock is charged in small electric arc furnaces and transformed into ferrosilicon, required in the "silicothermic" magnesium reduction process.

Stuck back into one corner at Permanente in a small out-of-the-way structure is a little magnesium jobbing foundry where experiments are under way in casting a number of different parts from magnesium produced in the adjacent reduction plant. A single melting pot,

some wood flasks, patterns and a pile of sand were about all the facilities on hand when we visited the foundry, but it is admittedly experimental and not a production shop; engineers having more fun than anything else in seeing what they can do with the metal in turning out useful pieces of equipment of small size.

What will happen to all the West Coast magnesium facilities after the war is a debatable question. Obviously they can supply far more metal than anybody can see any useful purpose for now since a large share of magnesium currently goes into incendiary bombs. As a construction metal, magnesium has not gone very far. A few engine parts here and there of the nonstressed type, a few experiments like those Northrup is carrying out in building up an airplane fuselage of magnesium sheet are in developing improved welding methods for magnesium—that about sums it up.

But it is reported that Kaiser has plans in the works for a 175,000-pound car plane built almost entirely of magnesium. And beyond that he is now talking about converting some of his shops into railroad shops after the war where he will build freight and passenger cars of the light metals. This course is just dreaming at the moment and while it may prove perfectly logical it is difficult to see any bright future the years just ahead for magnesium in any great quantity.

### Future Looks Bright

Over the long pull, the future for light metals up and down the 1500 miles of the West Coast looks exceptionally bright. Ample supply of cheap electric power is the key to the Pacific West's stake in the light metals while in southern California, the dominant position occupied by the airplane industry is a favorable factor. True, the airplane industry will not be able to maintain its present pace after the war, but already the principal companies there are searching out markets for consumer goods to find out what they can produce besides airplanes to keep their plants running and their personnel employed. Since their present cost is 85 per cent with the light

(Concluded on page 1)



# Permanent Metals Corp.

SAN FRANCISCO—In one of their first statements on production, officials of Permanent Metals Corp. said that February output of the Los Altos magnesium plant which first began operations in August of 1941, had exceeded any previous month by 75%.

## PERMANENTE PRODUCTION UP

WPB Group Files  
Report With Nelson

The News Washington Bureau

WASHINGTON, March 18. — Arthur H. Bunker, head of the aluminum and magnesium division of the War Production Board, has reported to Donald M. Nelson on CIO charges that the Permanent magnesium plant is inefficient and excessively costly.

However, the report will not be made public, and there is no present indication further action will be taken in the matter.

In general, the report said that while production had never lived up to Henry J. Kaiser's first expectations, WLB had felt these were high. The plant has produced 3,500,000 pounds of magnesium metal at a time when it was urgently needed, the report said, and production is increasing.

L.V.R.J. 2/19/43

## Kaiser Magnesium Plant Said To Be Spectacular Flop

SAN FRANCISCO, Feb. 19 (UP)—The Congress of Industrial Organizations charged today that Henry J. Kaiser's \$25,000,000 Permanent magnesium plant is a "spectacular flop" and demanded a federal investigation.

At the same time, the Permanent Metals corporation announced that negotiations with the federation of architects, engineers, chemists and technicians (CIO) had been suspended and that the questions of wages and conditions would be placed before the war labor board.

The CIO said it had furnished Donald M. Nelson, chairman of the war production board, and other federal officials with "documented" support of its charges.

The union asserted that the new Kaiser plant, situated at Los Altos, California, was producing only eight per cent of its anticipated capacity. Cost of magnesium produced is five times the original estimate and four times that of Kaiser's largest competitor, the CIO claimed.

Magnesium losses "run as high as 25 per cent of total production," the union charged.

"Yet inexpensive suggestions by staff chemists for salvaging almost all of this metal have been rebuffed sharply," the CIO said. "At the same time the Kaiser firm refuses to replace equipment which bottlenecks production because it represents 'too large an investment.'"

"American taxpayers have paid through the nose for all of this bungling, carried on under a cost-plus, guaranteed profit contract."

## Western Metals MARKETS and TRENDS

By DON PARTRIDGE

Editor

Western Metals

|                | Open Hearth<br>Ingots<br>Net Tons | Electric Steel<br>Ingots<br>Net Tons |
|----------------|-----------------------------------|--------------------------------------|
| April 1943     | 6,509,812                         | 382,532                              |
| April 1942     | 6,345,133                         | 321,324                              |
|                | 164,679 Plus                      | 61,208 Plus                          |
| 1st Third 1943 | 25,905,370                        | 1,477,678                            |
| 1st Third 1942 | 25,026,196                        | 1,219,399                            |
|                | 879,174 Plus                      | 258,279 Plus                         |

ACTIVITY in all markets, with the exception of reinforcing steel bars, continues strong and during the coming months further increases are expected. The national steel ingot production figure holds unchanged at approximately 100%, though in certain districts the rate exceeds by several points the average, while in other areas less than 100% is being turned out.

Figures released by the American Iron and Steel Institute, New York, for the month of April show healthy increases in the production of electric steel furnace and open hearth steel ingots over the tonnages reported for April, 1942. The increase for open hearth ingots totals 164,679 tons, while that for electric furnace ingots aggregates 61,208 tons. During the first four months of this year 879,174 tons more of the open hearth steel was produced than for the first four months of last year. In the case of electric steel furnace ingots 258,279 tons more are listed than for the same period in 1942. The following figures show the net tons of these two types of ingots produced in April of this year and last year, and the aggregate for each classification recorded for the first third of the last two years:

|                | Open Hearth<br>Ingots<br>Net Tons | Electric Steel<br>Ingots<br>Net Tons |
|----------------|-----------------------------------|--------------------------------------|
| April 1943     | 6,509,812                         | 382,532                              |
| April 1942     | 6,345,133                         | 321,324                              |
|                | 164,679 Plus                      | 61,208 Plus                          |
| 1st Third 1943 | 25,905,370                        | 1,477,678                            |
| 1st Third 1942 | 25,026,196                        | 1,219,399                            |
|                | 879,174 Plus                      | 258,279 Plus                         |

As usual, the shipbuilding industry continues to receive the heaviest tonnages of practically every form of steel products used in the construction of vessels. This industry includes not only the actual yards but the many hundreds of individual plants engaged in the production of sub-assemblies.

The War Production Board is now definitely approving CMP allotment numbers and many interests find that orders for material have been approved for a number of weeks in advance. It is noted that sub-contractors are now in a better position as regards obtaining needed steel products, due to the fact that prime contractors and Washington are now acting faster than in the past.

The plate and structural shape markets were again the most active ones during May, and some heavy tonnages were placed. The designs of the new Victory type ship for the U. S. Mari-

time Commission, the first orders for which were awarded in April, are larger and faster than the Liberty type ship, and call for 220 tons more of plates and 132 tons more of shapes. These additional tonnages were placed during the past month.

The Permanent Metals Corp., Yard No. 2, Richmond, Calif., needs 46,500 tons more of plates and 9900 tons of shapes for 75 Victory ships. The same company, Yard No. 1, requires 7700 tons of plates and 4620 tons of shapes for 35 Victory boats. The Oregon Shipbuilding Corp., Portland, Ore., has ordered 23,100 tons more of plates and 13,860 tons more of shapes for 105 Victory vessels. The California Shipbuilding Corp., Wilmington, Calif., placed 13,480 tons more of plates and 11,038 tons more of shapes for 84 Victory type ships. Recently, Columbia Steel Co. booked 1000 tons of intake gates, penstocks, etc., for the Nisqually project, Tacoma, Wash.

It is reported that some heavy tonnage of plates for the manufacture of shells for the army and the navy will be placed shortly. Awards during May aggregated 96,790 tons and brought the total so far this year to 2,040,831 tons, as compared with 1,316,210 tons for the corresponding

June 1943

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S.F. CAL. WALL STREET JOURNAL  
Cir. 107,082  
JUNE 1, 1943

**ITEMS IN PASSING**—Last week in Peninsula papers south of San Francisco a garage owner offered \$52 a week for a car washer on a 40-hour week basis with time and half for overtime. Alongside the advertisement a war plant contractor offered 92½ cents an hour on a 40-hour basis with time and half beyond that. A little pencil work will show that on a 48-hour week basis the garage offered \$67.60 a week for the car washer, the war plant \$48.10. Possibly some of the big suburban cars will be washed after all. . . . First quarter comment by Standard Oil Co. of California's president last week was an innovation. Standard's interim reports in the past have been confined to a condensed quarterly income statement. . . . Process refinements in new war plants go on all along the line—aircraft, shipbuilding, chemicals. Permanent Metals Corp. plans "pneumatic conveyors" for magnesium dust to replace intricate screw conveyors. Natural gas will be the carrying medium for the explosive dust from bins to loading stations. Three-inch pipe and 10-pound pressure will do the work. Screw conveyors not only offer hazards but require 12-inch piping which, with facility expansion, threatened to be much too intricate. Plant people call the new system the "bazooka."

LOS ANGELES, CALIF.  
HERALD & EXPRRESS, Cir. 249,924  
JUNE 2, 1943

## Shipyards Greatest Steel Users

By Associated Press

SAN FRANCISCO, June 3.—Biggest orders for steel ever placed with mills from Pacific Coast operators for one month came from shipyards in April.

Awards by the Maritime Commission of 299 Victory ships, 68 Liberty ships and 181 tankers brought out orders for 1,645,420 tons of plates and 298,489 tons of structural shapes.

Tonnages were compiled by Don Partridge, associate editor of Western Metals magazine from orders of Oregon Shipbuilding Corp. of Portland, California Shipbuilding Corp. of Wilmington, Permanent Metals Corp. of Richmond, the Kaiser Co., Inc., Vancouver, Wash., and Swan Island, Ore., and the Marinship Corp. of Sausalito. Partridge said the plate orders ran about 15 times those of April last year.

Plate tonnage ordered on this coast since the start of the year to the end of April totaled 1,944,041 tons, compared with 1,441,110 tons booked in the first four months of 1942.

S.F. CAL. PACIFIC BUILDER  
Cir. 9,500  
JUNE 15, 1943

## Ship Workers Win Production Awards For Suggestions Speeding Shipbuilding

Fifteen shipyard workers in been awarded special honors in recognition of their suggestions in wartime, it was announced recently.

All production suggestions directed toward increasing industrial efficiency, conservation of manpower and materials and the reduction of safety hazards, as submitted by active Labor-Management Committees in the more than 2,000 U. S. war plants participating in this program.

Three winners of the War Production Drive's Certificate of Production Merit in Bay Area shipyards included:

John Wilson, welder leaderman at Marinship who designed a jig for welding gun mounts which reduces construction time from one day to one hour.

H. B. Budack, maintenance electrician, Richmond Yard No. 1, who suggested improvements for the Union Melt Machine which saves 15 manhours of field work and 35 manhours of shopwork.

Mike Umbraco, riveter foreman in Richmond Yard No. 1, who developed a special buck-up tool for shell rivets, which saves the 200

Walter L. Morrison, Bethlehem Steel's shipbuilding division, who designed a corner guard for metal plating which safeguards workers against serious injuries.

Bert A. Underwood, pipe foreman at Marinship, who designed a test plug for sanitary drains aboard ships, which saves 50 man-hours per hull.

James L. Fields, assistant superintendent of Marinship's pipe shop, who built a heating coil bender which forms coil in a few minutes and saves purchases of this unit in outside markets.

Albert J. Hammond, shipfitter leaderman at Marinship, devised a yoder support to release the crane's hold on certain metal pieces. The job time is cut two-thirds by this method.

C. P. Hamilton, supervisor of welding at Marinship, designed a pipe burning lathe that enables two or more burners to work on several cuts at a time on the revolving pipe, a time-saving and production speed-up idea.

Roy Sheldrick, engineer at Marinship, rigged up a pipe-burning machine which makes a continuous cut on any size pipe, doubling the hand-rate of production on this job.

Edw. Railsbach, electrical foreman at Marinship, designed a jig for drilling all sizes of ship light fixtures, thereby saving 130 man-hours per vessel.

Louis Olsen, at Moore Dry Dock Company, designed a drill holder for use on engine lathes, which saves up to 10 minutes on thousands of items.

William A. McAuley, at Moore Dry Dock, devised a method of insuring an adequate stock of chuck keys and chucks for portable electric drills, utilizing scrap material.

Edward Ludlow, at Moore Dry Dock, outlined a method for salvaging shanks from broken drills and reamers and using these for tap sockets. This makes the remodeled shanks available as socket wrenches for hand or machine tools.

G. S. Williams, flanger, and S. L. Daniels, shipfitter quartermaster, at Richmond Shipyard No. 1, share honors in the designing of a bulwark jug which saves about 60 hours of erection time on each hull.

Edward Nylund, former shipfitter now in the Army, and A. M. Cook, flanger, at Richmond Yard No. 1, together designed three jigs used to construct the circular gun fences on cargo ships, cutting the time from 15 to six hours, and reducing the physical task to a point where women can handle the job.

## CIVIL ENGINEERS TO MEET TODAY

The San Francisco Section of the American Society of Civil Engineers will hold their regular bi-monthly meeting today at the Engineers' Club at which a 45-minute motion picture will be shown depicting "Permanent Magnesium Plant."

The motion picture will show the manufacture of magnesium from the quarrying of dolomite at Natividad to the final product at the Permanent Magnesium Plant, and will be presented by Peter C. Allen of the Public Relations Department of the Permanent Metals Corp., and R. H. Davies, Superintendent of the Ferro Silica plant, and an outstanding authority on the production of magnesium in the United States. Mr. Davies is also Superintendent of the Foundry for the Permanent Metals Corporation.

There will be an opportunity for members to ask questions after the picture is shown.

rejects per hull which hampered production.

Twelve shipyard workers in Bay Area were awarded Letters of Honorable Mention for their production suggestions. They are:

S.F. CALIF. ENTERPRISE  
Cir. 2899  
JULY 13, 1943

## Seven Chicans Work In Permanente Plant

Chico is represented by seven able bodied persons working in the Permanent Metals Corporation, Manteca magnesium plant, and its director of industrial relations, Zack B. Rogers, former Chicano, has written a letter of commendation to E. T. Williamson, secretary manager of the Chico Chamber of Commerce.

MANTECA, CAL., BULLETIN  
Cir. 1,029  
AUGUST 5, 1943

## New Appointments at Manteca Permanente Plant Announced

Two new appointments at Manteca's Permanent Magnesium Plant were announced yesterday by the management.

Allen R. Reed, 210 Sycamore Avenue, Manteca, has been made Industrial Relations Manager and Harry G. Carmichael, 401 Veatch Street, Manteca, is newspaper Editor and Public Relations Man.

Born in Manteca, Reed has spent most of his life in this region. He went to school in Stockton and later was employed as distributor for this area by the Union Oil Company. Up to the time that business took him to Oakland, he was an active member of the Manteca Chamber of Commerce.

Carmichael also went to school in Stockton and later became a resident of Berkeley. Before accepting his new position, he was on the editorial staff of the San Francisco Chronicle.

The first issue of Permanent's "New Metal News" is scheduled to be released on September 1, 1943.

MANTECA, CAL., BULLETIN  
Cir. 1,029  
AUGUST 12, 1943

## MANTECA MAGNESIUM PLANT

In speaking about the permanency of the Manteca Magnesium Plant, we don't know just what bearing the attitude of local people toward this big concern will have on the owners when it comes time for them to decide whether it is to be kept in operation. But we do know that we should lend them every co-operation, regardless of any future decision.

Local people, of course, are more than pleased to have this big employer of labor located near here. It means a great deal to the business life of the community. It is too bad we have been unable to provide the employees with the homes they need. A great many of them, we imagine, would prefer to live in Manteca, and the only reason more of them still reside elsewhere is through no choice of their own.

We must, of course, understand that the Permanent Plant is, like every employer under these war-time conditions, in need of more workers and it goes out into the market for that help in competition with others. That is nothing more than a simple business proposition. Some of us have lost help in that way, but that was to be expected. These things will all adjust themselves in due course of time.

In the mean time Manteca should make it a point to let the Permanent people know that we are glad to have them here.







## Magnesium Pellets

Permanent Metals Corporation today announced that its engineers have made an important improvement in the magnesium metal production process at its Los Altos plant. The step has to do with production of dry pellets as charging stock for bottle retorts. Wet process heretofore used had been the method adopted after earlier pelleting failures.

SAN FRANCISCO, CAL. NEWS  
CH. 107-82  
AUGUST 27, 1943

## 'Pellets' Speed Up Magnesium Plant

Development of a process for making dry pellets which make for faster handling of magnesium as it is changed from impure dust to almost chemically pure crystals, was revealed today by the Permanente Metals Corp.

Heretofore, the big plant near Los Altos used a sausage-like mixture of dust and oil to feed into 20 foot high steel distilling bottles, and the bottles were difficult to clean.

The new system, developed principally by Walter Adams, chemist formerly associated with the Homestake Mining in North Dakota, has been made possible by producing dry pellets to stock the big retorts.

S.F. CAL. WALL STREET JOURNAL  
AUGUST 27, 1943

Continued on Third Page, Column 3

## Improved Magnesium Process Developed by Permanente

SAN FRANCISCO—Permanente Metals Corp. has made known what its engineers regard as an important improvement in the magnesium metal production process used at its original Los Altos plant.

The step has to do with production of dry pellets as charging stock for bottle retorts. Basic work is attributed to Walter Adams, former chemist with Homestake Mining Co., and with Permanente since November, 1941, although others have helped.

Wet process charging, heretofore used, had been the method adopted after earlier pelleting failures. Slurry and "dough mixing" slowed the process, necessitated draining of melted solvent from retort bottoms.

Adams attacked the problem of dry pellet production with hand tools, proved their possibility and usefulness in pilot apparatus. Larger equipment was sought for a full scale test. A press used in squeezing walnut shells into fuel briquets was imported from a San Jose walnut operation and became known as the "dog biscuit maker" but proved disappointing. The technicians turned to adaptation of a pilot press used to make feed for reduction furnaces, and obtained the results wanted.

The system is now in one full scale operation, will probably be applied to the whole plant. It is claimed that bottle retorts can be loaded faster, that "pagodas" will not stick in dry pellet charged bottles because small pellets retain their shape throughout the cooking process as magnesium is drawn from them, that dry pellet crystals produced have shown a distinct tendency to be exceptionally thick and solid without flingery crystals characteristic of the wet process, and that loose residue from the cooking is easier to remove from the bottles.

MINING RECORD  
DENVER COLO.  
9/2/43

## Improvement is made in Treatment of Magnesium

San Francisco, Cal. — Permanente Metals Corp. has made known what its engineers regard as an important improvement in the magnesium metal production process at its Los Altos plant. The step has to do with production of dry pellets as charging stock for bottle retorts. The basic work is attributed to Walter Adams, former chemist with Homestake Mining Co., with Permanente since November 1941.

## PERMANENTE TO RECEIVE COVETED GUIDON AWARD

PERMANENTE, Oct. 10.—The pageantry of a military ceremony will unfold at Permanente next Tuesday noon when Army officers, men, equipment and a 67-piece military band visit the defense plant to confer the Guidon Award on the Permanente guard force. The public is invited to attend.

The Guidon flag—displaying a crossed pistols and the company name in green on a yellow field—will be presented by Colonel Harrie S. Mueller, commanding officer of the Central Security District of the Ninth Service Command. Chief Guard Magnus Bendixsen will accept the flag.

In a citation accompanying the Guidon, Major-General Kenyon A. Joyce, commanding general, Ninth Service Command, commends the Permanente guards "for outstanding efficiency, appearance and training." The guards are charged with protecting Permanente's magnesium, cement and ferroalloy plants in the foothills near Los Altos.

The Fifty-third Infantry Band of 57 men, one of the most famous military bands on the Pacific Coast, will present a special concert before the presentation is made and armored, mobile equipment of the Army will (Continued on Page 8, Col. 2)

## Metal Plant Improved

LOS ALTOS—An important improvement in the magnesium metal production process has been made by Permanente Metals Corporation at its plant here. Walter Adams, company chemist, is credited with the improvement which has to do with dry pellet production as charging stock for bottle retorts.

SAN FRANCISCO, CAL. TIMES  
NOVEMBER 11, 1941

Permanente's Pete Allen, who has been handling the news from the big cement and magnesium plant above Los Altos, has turned his job over to Stub Stollery, former Mercury Herald sports writer, in preparation for a more active role in the war.

Allen is a Stanford graduate

with the 1936 class. He and his wife plan to move Monday to their ranch near Merced, where Mrs. Allen will carry on after her husband gets into uniform.

SANITAS, CALIF. CALIFORNIAN  
DECEMBER 11, 1941

## One Year Without Lost-time Accident—Moss Landing Seawater Plant Sets New Record

Moss Landing seawater plant of the Permanente Metals Corporation yesterday achieved a goal believed to be a new high for the entire industry by completing one year of operation without a lost-time accident.

When the swing shift finished at midnight, workers had rolled up 240,000 man hours in 365 days of continuous operations without a mishap. The record was made during a capacity production period of unusually heavy construction.

The Moss Landing plant,

## PERMANENTE PLANT AT MOSS LANDING IN NEW NON-ACCIDENT RECORD

The Moss Landing sea water plant of Permanente Metals Corp. Saturday had achieved a goal believed to be a new high for the entire industry by completing one year without a lost-time accident.

When the swing shift finished at midnight Friday, workers had rolled up 240,000 man-hours in 365 days of continuous operations without mishap.

The record was made during a capacity production period involving heavy construction.

The Moss Landing plant, which processes sea water for use in the making of magnesium, estab-

S.F. CAL. PACIFIC FACTORY  
DECEMBER 1941

## New Magnesium Pelleter Developed

Permanente Metals Corporation of California has developed a machine which compresses dry magnesium dust in small pellets and loads them into the retort, giving production of more perfect magnesium crystals, unusually thick and solid without the flingery crystals of the wet process heretofore used.

Prior to this new development dust had to be mixed with some wet binder and made into a dust and solvent slurry prior to introduction to the retort.

The big advantage of the dry process is its simplicity. It has eliminated such things as "dough mixing" and the draining of melted solvent from the retort bottles. Bottles are now loaded faster and cooking time is reduced.

Pagoda does not appear to stick in dry pellet bottles because the small

pellets retain their shape as the magnesium is "cooked" out of them. A loose residue is left which is easier to remove from the bottles.

OIL PAINT & DRUG REPORTER  
"The market authority since 1871 — Chemicals, Dyestuffs, Drugs, Paints, Oils, Fertilizers."  
New York City

DEC 13 1943

Permanente Corporation, Sacramento, Calif., has purchased a dolomite ore body, source of magnesium in the Hollister, Calif., region from Howard Harris at a price reported to be \$25,000.

SAN JOSE CAL. NEWS  
JANUARY 11, 1944

## Production Record At Permanente

New production peaks reached by Permanente magnesium and cement plants during 1943 were revealed today in an announcement by Henry J. Kaiser, president of the Permanente corporation.

An increased magnesium production of several hundred percent over the 1942 output was reported for Permanente Metals corporation.

Production at Hendy Iron Works increased 42 per cent in the last six months of 1943.

Read the story of this great war plant's outstanding record for the past year on page 3 today. It spikes rumors of layoffs with a declaration by company officials that hiring at the plant is still going on. See page 2.

while approximately 5,000,000 barrels of cement were "poured out" of Permanente Cement company's giant kilns, Kaiser's statement (Continued on Page 2, Column 1) at bulletins, the report.

"The cement company, which is proud of its record of never having missed a convoy, not only fulfilled the large requirements of Shasta dam but also furnished a major share of bulk cement ordered by the armed forces for Pacific fortifications," the report continued.

"Only last month the Permanente Cement company broke its own world record for a single day's operation by producing 81,312 sacks of cement in 24 hours."

MINING JR'L  
PHOENIX ARIZ.  
10/15/43

Coffeyville, Kansas, the pre-war outlet for Arizona oxidized zinc ores, has hiked the specifications from 20 to 35 per cent for combined zinc and lead content and now will not accept ores with more than a trace of copper or more than 5 per cent lime. This effectively shuts off Arizona ores according to the report.

The report states that Arizona is definitely out as to increased zinc production unless some facilities are provided for marketing the ore and that such markets as may be provided must be in the form of custom milling plants strategically located so that, with relatively short trucking hauls, they can serve several mines. The immediate opportunities are shown by the report to be for plants in Mohave County and Gila County.

## MEXICAN MINES SEEK RELIEF FROM SHORTAGE OF TIMBER

MEXICAN mines in the State of Hidalgo are reported to be facing a shortage of timber, with the situation in the Pachuca mining zone being the most acute. Some of the Hidalgo mine operators are said to have appealed to the federal government for help in overcoming the shortage. Some have attributed the condition to the enforcement of the recent presidential decree demanding that all lumber mills in Mexico furnish the railroads with 50 per cent of their wood to provide sleepers. The decree held that the action had been necessary due to a shortage of railroad ties.

## PRODUCTION OF VANADIUM IN COLORADO PUBLICATION

THE Colorado School of Mines in its Quarterly, Volume 38, Number 4, has published an article entitled "The Occurrence and Production of Vanadium" by George O. Argall, Jr. The history of vanadium, its distribution, mining, milling, marketing, and uses is treated in a clear and concise manner and the beneficiation of and recovery from various vanadium-bearing ores are discussed. An enclosed map shows the occurrences on the Colorado Plateau in Colorado, Utah, and Arizona. Tables showing costs, flow sheets of several of the larger plants, and suggested flow sheets are a valuable part of the publication.

Argall, a graduate mining engineer of the Colorado School of Mines with the class of 1935, has worked for some of the largest vanadium companies in the country and is familiar with the many mine and mill plants which he discusses. The publication may be obtained from the school of mines at Golden, Colorado, for the price of \$1 postpaid.

## MAGNESIUM PRODUCTION IMPROVEMENT REPORTED

PERMANENTE METALS CORPORATION has made known what its engineers regard as an important improvement in the magnesium metal production process used at its original Los Altos, California, plant.

The step has to do with production of dry pellets as charging stock for bottle retorts. Basic work is attributed to Walter Adams, former chemist with Homestake

Page 18

Mining Company and with Permanente since November 1941, although others have helped.

Wet process charging, heretofore used, had been the method adopted after earlier pelleting failures. Slurry and "dough mixing" slowed the process, necessitated draining of melted solvent from retort bottoms.

Adams attacked the problem of dry pellet production with hand tools, proved their possibility and usefulness in pilot apparatus. Larger equipment was sought for a full scale test. A press used in squeezing walnut shells into fuel briquets was imported from a San Jose walnut operation and became known as the "dog biscuit maker" but proved disappointing.

The technicians turned to adaptation of a pilot press used to make feed for reduction furnaces, and obtained the results wanted.

The system is now in one full-scale operation, will probably be applied to the whole plant. It is claimed that bottle retorts can be loaded faster, that "pagodas" will not stick in dry-pellet charged bottles because small pellets retain their shape throughout the cooking process as magnesium is drawn from them, that dry-pellet crystals produced have shown a distinct tendency to be exceptionally thick and solid without flingery crystals characteristic of the wet process, and that loose residue from the cooking is easier to remove from the bottles.—Wall Street Journal.

Mebbe CARD CARS get top honors in the mines because we dig to the bottom of each miner's problems—then design cars to meet 'em.

**C.S. Card Iron Works Co.**  
Denver, Colorado

THE MINING JOURNAL for OCTOBER 15, 1943



SAN JOSE, CAL., MERCURY HERALD  
CIR. 26,552  
FEBRUARY 13, 1944

## Permanente Places New Furnace In Operation To Insure Output

In a move to utilize every second in the fight against the axis, the Permanente Metals corporation announced yesterday the completion of a new reduction furnace to help maintain the magnesium plant's increased production pace.

The new unit, the announcement said, was constructed in the record breaking time of 57 days, and will be used as a spare furnace to reduce normal shutdown time required for inspection and repairs of regular units.

Normal shutdown operations for safety inspections and repairs, it was explained, take several days for cooling and reheating the

furnaces. Now, as each furnace is inspected, its production can be maintained by the supplementary furnace. The huge electric furnaces, an official of the company explained, are fed pellets made of magnesium oxide and carbon, which release the magnesium in vapor form under heat of 4000 degrees Fahrenheit.

Permanente recently announced its production for 1943 showed an increase of "several hundred percent" over 1942. The new furnace addition, it was pointed out, indicates that the plant plans to maintain its present output.

This new furnace, it was said, marks the completion of the construction program in the plant for the present, so that hereafter it will be in full production. As construction has come progressively nearer completion, construction crews, a spokesman for the company explained, have been laid-off gradually, leaving finally the permanent maintenance crew. Full production up to the planned plant capacity is now possible.

SAN JOSE, CAL., NEWS  
CIR. 17,757  
FEBRUARY 19, 1944

## PERMANENTE IN SECRET PRODUCTION

Dispelling rumors of impending layoffs at Permanente, production of a highly secretive war nature at the Black Mountain plant was disclosed today by company officials.

"Production of a secret war nature has converted the magnesium plant of Permanente Metals corporation into one of the nation's most vital industries," an official announcement said.

The announcement was a "startling answer to layoff rumors circulated in San Jose, which were traced to termination of construction workers and a shifting of personnel to meet the new demands on the local plant.

A major share of the magnesium plant's present production is being devoted to a special secret product developed by its research department during the past 18 months, a company spokesman pointed out.

Last month the magnesium output at Permanente was the greatest since the metals operation began in 1941.

Recent layoffs at Permanente were explained as due to the completion of construction work and a shifting of personnel resulting from the new secret war production. Officials pointed out that operations at the plant are necessarily on a 24-hour, three-shift schedule in order to keep the furnaces operating.

The addition of a new reduction furnace, to be used as a spare furnace to reduce shutdown periods required for inspection and repair of regular units, was announced by the company this week.

"In completing its construction program, Permanente climaxed a colorful building era involving thousands of men and millions of dollars," today's announcement stated. "It is now operating at full capacity as a deadly weapon against the tottering axis nations."

SAN JOSE, CAL., MERCURY HERALD  
CIR. 26,552  
FEBRUARY 20, 1944

## Permanente Using Most Of Plant For 'Secret' Product

Permanente Metals corporation is devoting a major share of production in its magnesium plant to a secret war product developed by its own research department during the last 18 months, a company official revealed yesterday.

The product is definitely past the experimental stage and has been in war use, the official said. Now that plant construction has been completed to the fully planned capacity, however, this secret production has been increased.

Recent rumors of layoffs, it was explained, do not apply to the production departments, because the plant is running full capacity as planned on a 24-hour basis. The layoffs have been in the construction crews which had been working on uncompleted units of the plant. As those have been completed, the crews have been reduced to the number necessary for permanent maintenance work.

SAN JOSE, CAL., CHRONICLE  
CIR. 113,165; Sunday 210,264  
FEBRUARY 20, 1944

## War Secret Produced at Permanente

PERMANENTE, Feb. 19 (UP)—Development and production of a new, secret war product at Permanente Metals Corporation has converted the magnesium plant into one of the Nation's most vital industries, company officials disclosed today.

The plant is now operating at full capacity on a 24-hour-a-day basis, officials said. At the same time they denied rumors that personnel was being laid off. Exact nature of the product the plant is making was not divulged.

## Permanente's Big Magnesium Plant Now Completed

Officials of Permanente Metals corporation yesterday announced completion of the west's largest privately owned magnesium plant atop Black Mountain. The plant, where both cement and magnesium will be produced, cost approximately \$9,250,000 and was a three-year construction job.

With termination of the construction project an unspecified number of workers were laid off. Company officials indicated they were "less than 300." Other construction workers were absorbed in construction and maintenance departments.

"The multi-million dollar construction cycle, which started in February, 1941, involved employment of thousands of men," said a statement from company officials.

"Since August, 1941, when the first magnesium was produced, construction crews decreased as operational crews increased. Yesterday's construction termination involved a comparatively small number of plant workers. The majority of the remaining construction employees were transferred to other departments.

"As announced previously by Permanente officials, the magnesium plant is now engaged in war work of a highly secret nature."

SAN JOSE, CAL., MERCURY HERALD  
CIR. 26,552  
MARCH 10, 1944

## Magnesium Output Cut At Permanente Manteca Plant

Magnesium production at the Permanente Metals corporation's Manteca division was ordered cut 50 percent by the war production board in Washington.

The division was one of five plants located in various parts of the country whose production the WPB slashed from 35 to 100 percent.

The agency halted production entirely at the Dearborn, Mich., plant of the Ford Motor company, and at the Mathieson Alkali Works, Lake Charles, La.

A 50 percent cut was also ordered for the Electro Metallurgical company, Spokane, Wash., and a 35 percent reduction goes into effect at the Amco Magnesium corporation, Wingdale, N. Y.

Since only one plant had been operating at full capacity, the WPB said the cut was not as drastic as it appeared.

Magnesium production currently is running between 8,000,000 and 10,000,000 pounds a month in excess of requirements, the WPB said.

SAN FRANCISCO, CAL., NEWS  
CIR. 107,012  
MARCH 17, 1944

## Kaiser Magnesium Plant Cuts Down

WASHINGTON, March 17.—The War Production Board today ordered a reduction of slightly less than 6 per cent in the current total output of American magnesium plants because production is running eight million to 10 million pounds a year ahead of requirements.

The Permanente Metals Corp., Manteca, Cal., was ordered to cut its rated capacity production in half.

SALINAS, CALIF., CALIFORNIAN  
MARCH 17, 1944

# Salinas Loading Station Is Key to Varied Operations of Permanente

Tex Robinson has been on the job at Permanente's Salinas loading station long enough to remember the days when the trucks from Natividad used to dump dolomite by the railroad tracks. He still carries the callouses on his hands from the wheelbarrowing it required to fill a car. That was a five-hour job for four men. Now Tex can load a boxcar in 20 minutes, and singlehanded.

The Salinas operation is a substantial chunk of the Permanente Metals corporation's widespread operation. During recent shipments, it has loaded an average of 12 cars daily. The plant, under supervision of John Garoutte, is fed by trucks from both Natividad and Moss Landing. Its facilities include storage tanks for calcined dolomite and magnesium oxide, and a gondola loading ramp for dolomite rock. Loading equipment includes two sacking machines and a bulk conveyor. The big boxcars and gondolas are moved round with a cat head or small winch.

When you stop to consider the amount of usable material that is mined out of the Natividad quarry, approximately 1,200 tons daily, and the sea-water that is processed by Moss Landing, 9,000,000 gallons daily, the rapidly rising stockpiles of dolomite and MGO require constant attention. Natividad channels about 60 per cent of its material through the Salinas loading station for shipment. The balance is trucked to Moss Landing. Moss Landing likewise uses Salinas as an outlet, sending 30 to 40 per cent of its material here for disposal.

Despite the great use of MGO in the metals making operation at Permanente, the parent plant still uses only about half of the combined Natividad-Moss Landing production. The rest of the material is shipped east, exported or used by other industries.

SAN JOSE, CAL., NEWS  
CIR. 17,757  
MARCH 10, 1944

## PERMANENTE PLANS CLASS IN FIRST AID

Launching of a new first aid program at Permanente to include the entire magnesium plant was announced today by company officials.

Plans calls for each employee in the magnesium division to take the standard month-long Bureau of Mines first aid course on company time at company expense, the announcement said. Classes will be rotated in groups of 50 students and will be taught by Dave Bowers, Ralph Miller and Ed Hanna.

Completion of the course will entitle each graduate to the standard Red Cross first aid certificate. Pointing to an enviable safety record which has seen several departments in the cement plant operating more than three years without a lost-time accident, the company management said that the new program would not only serve as a precautionary measure but would give each employee a personal knowledge of first aid.

The Moss Landing plant recently announced a 14-month record of no lost-time accidents and the ferrosilicon plant at Permanente is now in its 10th month without a lost-time accident.

From  
JOURNAL OF COMMERCE  
New York, N. Y.

MAR 15 1944

## Truman on Magnesium

# Utah Deposits Seen Similar To Rich Supplies in Germany

The Truman Committee report on magnesium, made public early this week, discloses that the raw materials which gave Germany leadership in the production of magnesium, are available to American producers in deposits in Utah and should one day be "a valuable source of feed supply" for the manufacture of the light metal.

One of the advantages, in addition to cartel operations of I. G. Farben, that enabled Germany to lead in magnesium production, according to the Truman Committee report, was its unlimited supply of carnallite, which exists in a deposit at Stassfurt, Germany, and hitherto believed to be the only workable deposit in the world.

"The carnallite," according to the Truman report, "is a double chloride salt containing potassium chloride and magnesium chloride; the magnesium chloride is produced as an adjunct to producing potash, and a large part of the total world production of magnesium metal has been obtained from the carnallite deposit in Germany. Carnallite has been discovered in Utah, and may have a significant effect on magnesium production in this country."

In this connection, the Truman Committee reports that arrangements have been made to utilize the formerly wasted products from the manufacture of potash, recovered from brines at Carlsbad, New Mexico, by the Union Potash Co., a subsidiary of International Minerals & Chemicals Corporation. This raw materials source is supplemented by the direct treatment of dolomite. The International Minerals & Chemicals Corporation, with funds supplied by DPC, has established facilities at Austin, Tex., to produce 24,000,000 pounds of magnesium. By agreement with Dow Chemical Co., the Dow cell is used for the electrolysis of the magnesium chloride. The Dow "know how" was used also in the establishment of the facilities for the Diamond Magnesium Co. at Painesville, Ohio, and the International Minerals & Chemical Corporation at Austin, Tex.

The Truman Committee report indicates that the Mathieson Alkali

trial giants on the Pacific coast. Some of it, for instance, has gone to Fontana steel mill and to Manteca.

Natividad, if its resources were converted to it, could become the Far West's largest lime producer. The dolomite,

as it is mined now, runs about 60 per cent lime to 40 per cent magnesia. Lime output could easily run 400 tons daily, which is four times the capacity of the largest lime company on the coast at the present time.

There is also a big market for

the MGO produced at Moss Landing. Some of it is used in periclase for fire brick. It has also gone into the manufacture of rayon and compounding of rubber. The Salinas loading station is Permanente's springboard into this vast field.

## Honors for Chemist



GLEN DAVID BAGLEY

Leader of experimental engineering group, Union Carbide & Carbon Research Division, who is being awarded the Schoellkopf Medal this year by the Western New York Section of the American Chemical Society. He is credited with overcoming wartime bottlenecks in metallic magnesium and calcium.

Permanente Metals Corporation project at Permanente, Calif., gets a special bow from the Truman Committee. The report states that the Permanente production of 19,000,000 pounds (up to February 1, 1944) has been of great value to the program because it was "obtained when the scarcity was great. Future production will be very valuable, because in this particular type of process the magnesium is first produced in powder form and can be used directly in incendiary bombs and pyrotechnics. The magnesium produced by others requires further processing before it can be used for these purposes."

PALO ALTO, CAL., TIMES  
CIR. 4,972  
MARCH 15, 1944

## Permanente employees to take first aid training

A safety program in which every Permanente magnesium plant employee will be trained in first aid on company time has been introduced at the plant in an effort to maintain its high safety record.

The month-long course is the one sponsored by the Bureau of Mines. Instructors will be Dave Bowers, first aid man; Ralph Miller, sandcasting molder; and Edward Hanna, draftsman.

Metal workers will be assigned to the classes by their foremen until the entire plant is covered.

PALO ALTO, CAL., TIMES  
CIR. 4,972  
MARCH 17, 1944

## Magnesium output cut 50 per cent at Manteca plant

A 50 per cent magnesium production at the Manteca plant of the Permanente Metals Corporation has been ordered by the War Production Board in Washington, it became known today. The division was one of five plants in the United States whose output was slashed from 35 to 100 per cent.

The agency said, however, that as only one of the plants had been operating at full capacity the action was not as drastic as it appeared.



# Permanente Magnesium Castings Help Set Plane Record

**Flying Fortress Pilots  
 Steer With Wheels  
 Made In S. C. County**

The boys in Permanente's new sandcasting foundry beamed when the government announced this month that U. S. aircraft production had reached a new high of 350 planes a day during February. They beamed because during the month previous Permanente Metals corporation had molded 18,673 magnesium castings for use in hundreds of those planes.

Evidence of Permanente castings is found in the very hands of P-38 and Flying Fortress pilots, who clutch magnesium steering wheels as they fly over enemy objectives. From prop to tail, other magnesium parts add strength and lightness to speed the ships to victory. Even the blimps that rise from nearby Moffett field carry Permanente castings as they soar on patrol over coastal waters.

## New Development

While Permanente has been producing magnesium in the form of ingots since August, 1941, its entry into the sandcasting field is only a recent development. The output of 18,673 castings in January signaled the new foundry's start on a full production basis, company officials announced.

The physical properties of Permanente magnesium in castings consistently exceed competitive products and government standards. One sample bar containing ASTM No. 4 alloy, which is the most commonly used, recently showed a yield strength of 20,500 pounds per square inch, ultimate tensile strength of 47,500, and elongation of 11 percent. Typical yield is 19,000, ultimate tensile 42,500, and elongation 7½ percent.

## Used In Many Parts

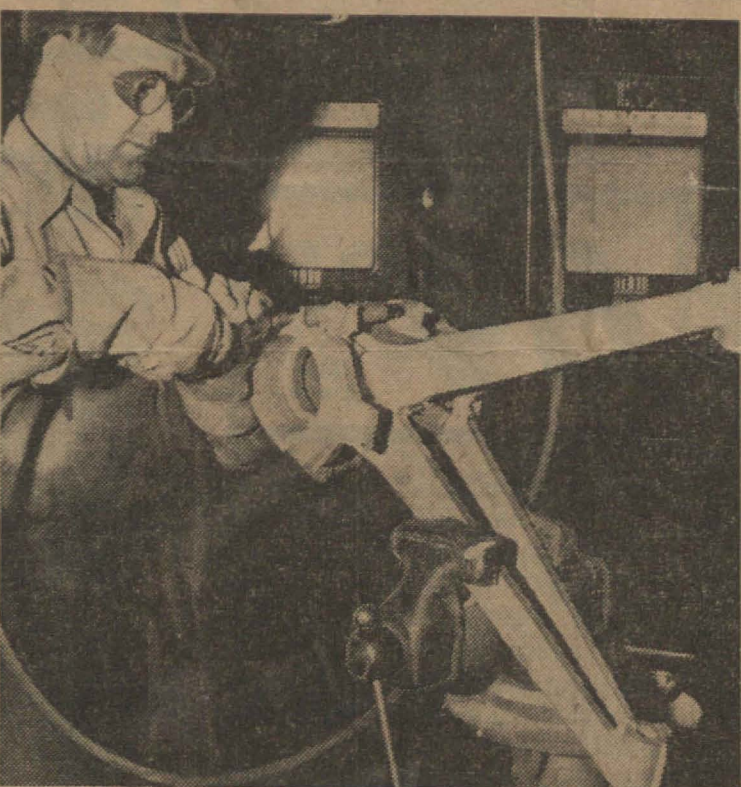
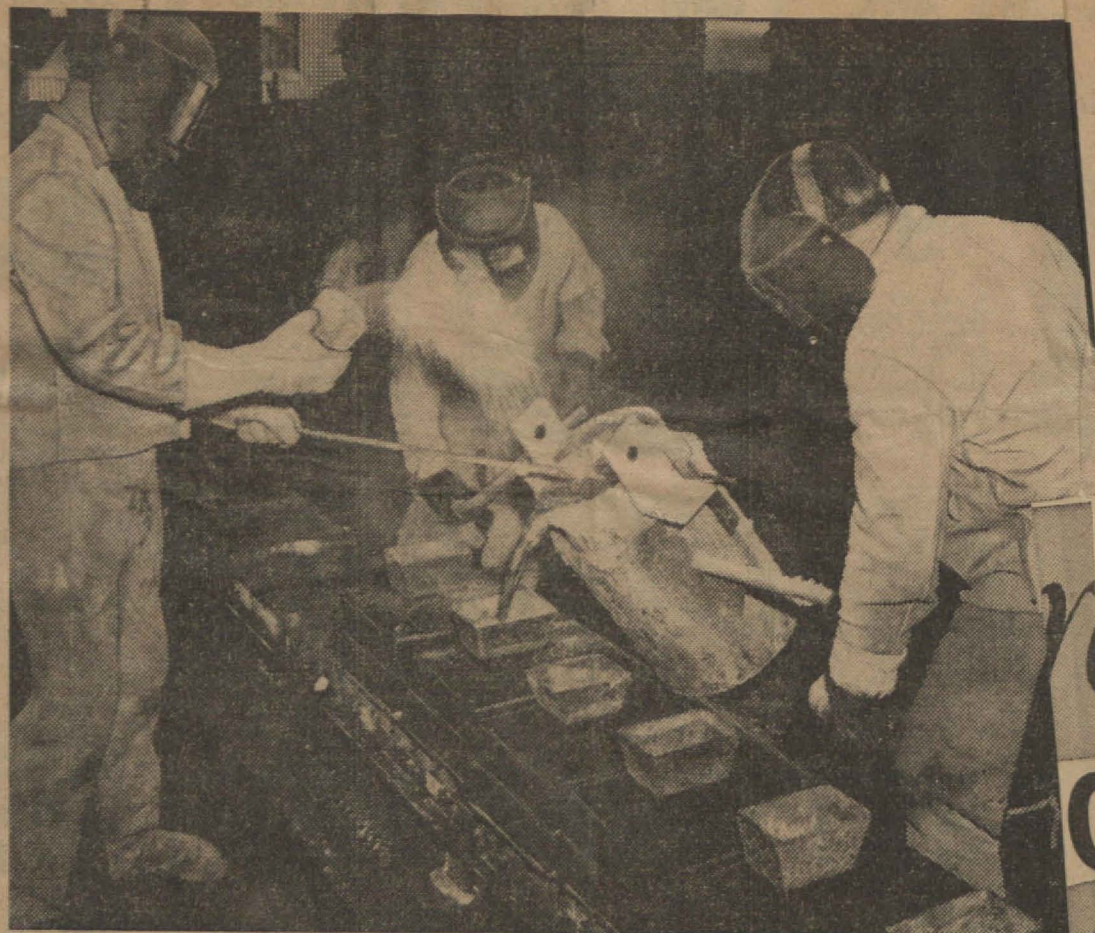
The aircraft industry has adapted magnesium's great resistance to shock to many vital plane parts. Landing gear assemblies and wheels are good examples. Major share of Permanente's present sandcasting production is devoted to parts for medium bombers and pursuit craft. Leaders in the aircraft field count on Permanente castings to "keep 'em flying." These include Lockheed, Northrup, Douglas, Brewster, North American, Fleetwings, Boeing, North American, and Consolidated Vultee.

From the standpoint of weight saving alone, magnesium castings have contributed immeasurably to the allied cause. According to war production officials, America's air transport operations in 1943 were four or five times as much as that of all the world put together before the war.

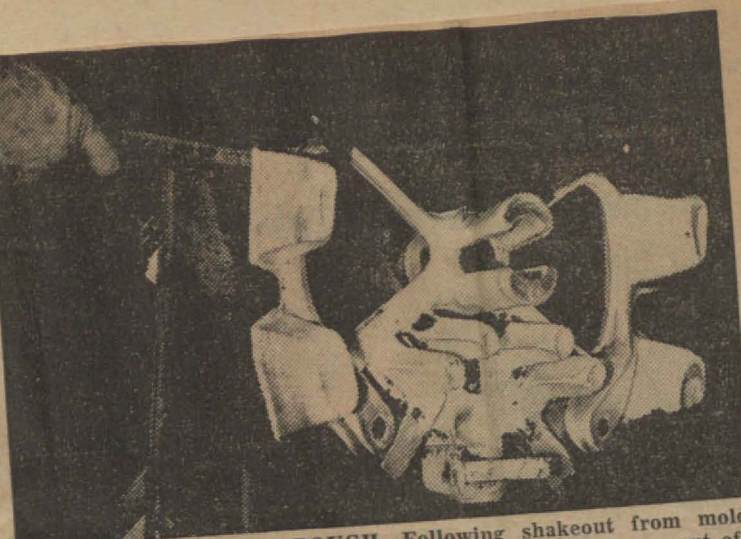
## Rolled Into One

Donald M. Nelson, WPB chairman, rolled all the figures on air movements into one sentence when he revealed that during 1943 a unit of air cargo was 1381 times smaller, 81 times as valuable, about 20 times as safe, and moved more than six times as fast as cargo on ocean vessels. Every pound of dead weight saved means one more pound of bombs, medical supplies, gasoline or other critical materials.

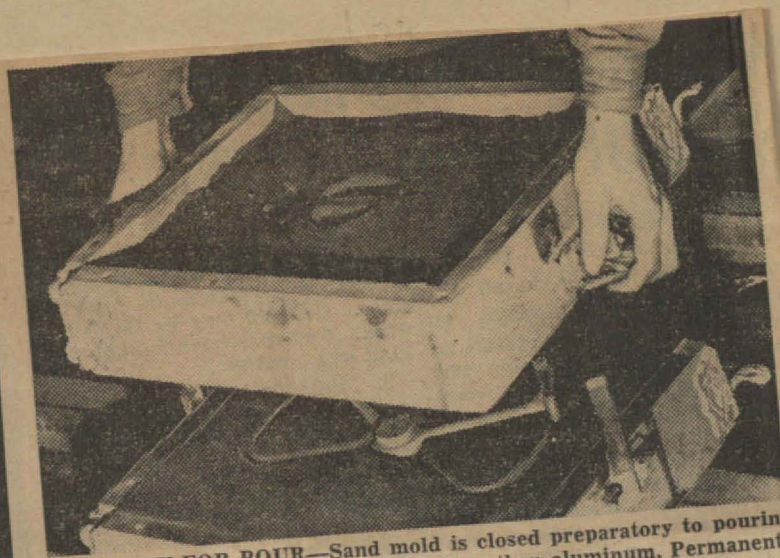
Permanente makes magnesium castings of all shapes and sizes, ranging from the small control pulleys used by the blimps to the 440-pound outer glands for its own reduction furnaces. In the post-war era, the sand molds that are now shaping implements of death will be shaping the new world in the form of appliances, tools, automobiles and other useful products.



**PERMANENTE MAGNESIUM**—It has great shock resisting qualities. Landing gear parts, like this fork for tail assembly, save precious weight in planes, thus increasing gasoline or bomb load.



**DIAMOND IN THE ROUGH**—Following shakeout from mold, casting must go to cleaning room where gates and risers are cut off. Permanente magnesium machines rapidly, can be welded.



**READY FOR POUR**—Sand mold is closed preparatory to pouring of molten magnesium. One-third lighter than aluminum, Permanente magnesium plays a vital role in the aircraft industry.

## BIRTH OF MAG CASTING

It takes place with pouring of molten metal into mold. Man at fluxing metal to prevent oxidation. Permanente magnesium 99.99 percent pure, and alloyed to give it greater strength.



FROM  
(Florida Clipping Service, Tampa)  
**Lakeland Ledger**  
FROM  
DATE **MAR 24 1944**

## A New Era, Magnesium Aim

BY PETER EDSON  
Ledger Washington Correspondent

First full report to the American people on the production of the new, war-born magnesium industry is contained in a special report of the senate Truman committee investigating national defense production, which has just been released.

In 1939 only 3,350 tons of magnesium were manufactured in the United States, 2,100 tons of which were sold to Germany and Japan. In 1943 U. S. production was 195,000 tons and for 1944, estimated at 265,500 tons. This tremendous increase is one of the production miracles of the war, but it also points towards the possible uses for all this production after the war, in what has frequently been hailed as the coming "light metals revolution."

Some 46,000 tons of this year's production of magnesium are being set aside for a war department experimentation program to find new uses for the metal, especially in aircraft.

Development of magnesium production in the U. S. has been involved by 10 years of legal battling, on which the Truman committee now throws some new light and makes some new conclusions tending to absolve the two principal pre-war American producers, Dow Chemical, American Magnesium, and Magnesium Development corporation—the last two being Aluminum Company of America subsidiaries—of much of the abuse that has been heaped upon them, saying that without their effort, the U. S. might have had no magnesium industry at all.

### I. G. FARBEN IN THE PICTURE

American Magnesium had stopped production in 1927 after Alcoa had lost \$1,000,000. Dow Chemical had also lost money, but it had pioneered a new low-cost process, and American Magnesium could buy from Dow cheaper than it could produce itself. But in 1931, the Aluminum company (Alcoa) made an agreement with the principal German producer, I. G. Farben, forming a new jointly owned Magnesium Development corporation to control Farben patents and processes in the U. S. There followed an infringement suit against Dow, which was withdrawn in 1934 when Alcoa and Dow agreed to cross license patents.

In 1941 the department of justice obtained an anti-trust indictment against this combination. The American companies paid fines of \$140,000, canceled cross licensing, agreed to royalty-free use.

Today, the U. S. government has invested approximately \$515,000,000 in magnesium production and fabricating. Production has been increased 80 times, the cost brought down to 20½ cents a pound (aluminum costs 14). Every pound of magnesium replacing aluminum in plane construction permits that plane to carry another half-pound of fuel or cargo.

### PLANTS SCATTERED EVERYWHERE

Today there are two private and 13 government plants, only six of which are now producing at capacity.

Dow Chemical produces magnesium by electrolysis of sea water or brine from wells at Midland, Marysville and Ludington, Mich., Freeport and Velasco, Tex. Dow "know-how" is used by Diamond Magnesium at Painesville, O., in recovery from the waste liquors of lime production; and by International Minerals and Chemical at Austin, Tex., from the end liquors of potash produced from brine.

Henry J. Kaiser's Permanente, Calif., plant, using magnesia obtained from brine or magnesite ore, mixes it with coke in an electric arc furnace to produce magnesium vapor which is then condensed and distilled into pure magnesium.

Original costs of this metal were over a dollar a pound, but this has been reduced to 35 cents per pound or cost of production, whichever is less.

A costly ferro-silicon process, mixing this ore with magnesium-bearing dolomite ore and heating in a retort under vacuum produces magnesium vapor which is distilled. Half a dozen companies use it.

A German process adapted by the British Magnesium Elektron, Ltd., interests is used by Basic Magnesium, Inc., now taken over and operated by Anaconda Copper company, at Las Vegas, Nev.

It is on this basis that America's magnesium industry of the future is to be built.

This article was clipped from  
**JOURNAL OF COMMERCE**  
"America's Leading Business Newspaper"  
New York City

JUN 6 1944

## Kaiser Magnesium Plant Will Close

STOCKTON, Calif., June 5 (AP).—Officials of the Permanente magnesium plant at Lathrop said today 150 of its 400 employees were laid off Saturday, and that the plant will close down in about ten days when the raw stock on hand has been melted and refined.

Operated by Permanente Metals Corporation, a Henry J. Kaiser subsidiary, the plant will be turned back to the Defense Plant Corporation on July 1.

The announcement said the shutdown was ordered by the Office of Defense Plant Corporations in Washington.

The plant, costing several million dollars, started operation in June, 1942, and was a pioneer producer of magnesium under the silico-thermic process.

Hanford, Cal. Journal  
Cir. 1,633  
JUNE 5, 1944

### LATHROP PLANT TO HALT

Stockton, Cal., June 5—(UP)—The Defense Plant Corporation at Washington has ordered officials of the Permanente Magnesium Plant at Lathrop, Cal., one of the Henry J. Kaiser interests, to cease operations because the magnesium stockpile now is sufficient to meet Allied needs, it was announced today.

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MERCED, CAL. SUN-STAR  
Cir. 9025  
JUNE 5, 1944

## Permanente Magnesium Ceases Operations

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Fresno, Cal. Bee  
Cir.—Daily 48,513; Sunday 48,746  
APRIL 26, 1944

## White Rock Again Ships Magnesium Ore

LE GRAND (Merced Co.), April 26.—Trucks again are hauling ore from White Rock, near the James Helm ranch in Mariposa County. The Permanente Metal Corporation is in charge. The material is taken to Athlone for shipment. The ore contains magnesium, vital war material.

SAN JOSE, CAL. MERCURY HERALD  
Cir. 19,616  
JUNE 5, 1944

## Permanente Plant Shuts Down Three Furnace Units

Two of three ferro-silicon furnaces at the Permanente Metals corporation Monte Vista plant were closed down yesterday, but company officials said the action was a temporary one incidental to the expected shutdown of the government-owned Manteca magnesium unit.

### Temporary Order

General Manager D. A. Rhoades said the furnace would remain suspended only until new markets are found to compensate for the Manteca consumption of dolomite and ferro-silicon from the Monte Vista plant.

He also pointed out that the Manteca curtailment would not affect magnesium operations at Permanente, and that the temporary reduction in ferro-silicon personnel would be absorbed by a manpower shortage in the magnesium plant. Some of the Manteca personnel has been transferred to Permanente, he said.

### Government Order

Although government-owned, the Manteca magnesium plant is operated by Permanente. The corporation was recently notified that the government planned to curtail Manteca operations as soon as "practically possible."

LOS ANGELES, CALIF. TIMES, CH  
250,000, Sun. Cir. 350,000  
JUNE 6, 1944

## Kaiser Magnesium Plant to Close

STOCKTON, June 5. (AP)—Officials of the Permanente magnesium plant at Lathrop today said 150 of its 400 employees were laid off Saturday, and that the plant will close down in about 10 days when the raw stock on hand has been melted and refined.

Operated by Permanente Metals Corp., a Henry J. Kaiser subsidiary, the plant will be turned back to the Defense Plant Corporation on July 1. The announcement said the shutdown was ordered by the Office of Defense Plant Corporations in Washington.

The plant, costing several million dollars, started operation in June, 1942, and was a pioneer producer of magnesium under the silico-thermic process.

SUNNYVALE, CAL. STANDARD  
Cir. 938  
JULY 28, 1944

## MAGNESIUM USED IN B-29 FROM PERMANENTE

Magnesium produced at Permanente was used in the B-29 to make it lighter, larger and thus capable of greater loads and range. A letter, sent to Permanente by Boeing Airplane company—builders of the Super-Forts—read in part:

"When the electrifying news was broadcast that Boeing B-29 Super-Fortresses had bombed Japan, all of us felt that we had a part in the raid. You and the men and women of your company were in it, too, for the splendid help and cooperation you have offered has played an important part, and we sincerely appreciate what you have done."

"We're mighty proud of our new product and we want you to be, too. After all, you are helping us build it."

STAR  
Washington, D. C.

AUG 18 1944

1943 period.  
Permanente Metals Corp., controlled by the Kaiser interests, will launch a magnesium research program September 1.

NEW YORK, N. Y., SUN  
AUGUST 18, 1944

and put into custody.

### Kaiser Studies Magnesium

San Jose, Cal., Aug. 18 (A. P.).—Henry J. Kaiser's Permanente Metals Corp. has announced that effective September 1 an intensive program of research will be launched at its magnesium plant near here toward development of lightweight truck bodies, automobile parts, home appliances and other revolutionary peacetime products.

L. V. TRIBUNE  
2-8-45

## Convert Output Of Magnesium At Permanente

LOS GATOS, Calif., Feb. 7. —(AP)—The Permanente Metals Corp. announced today that at the request of the war department, production at its huge magnesium plant near here has been converted to supply the government with "a special product" of a secret nature.

Permanente completed its last government contract in September for the chemical warfare service, and had since directed its magnesium production to ingot output for both war and commercial use.

L. V. TRIBUNE  
8-18-44

## Kaiser Announces Magnesium Trials For Auto Bodies

SAN JOSE, Calif., Aug. 17.—(AP)—Henry J. Kaiser's Permanente Metals Corp. announced today that effective Sept. 1 an intensive program of research will be launched at its magnesium plant near here toward development of lightweight truck bodies, automobile parts, home appliances and "other revolutionary peacetime products."

The plant will complete a contract for a special product for chemical warfare service by the end of August, the company said in announcing its conversion to full time magnesium metal production.

Permanente, one of two privately owned magnesium plants in the nation, is prepared to make "a strong bid" for the country's post-war magnesium business, a statement said.

STOCKTON, CAL. RECORD  
Cir. 27,734  
MARCH 17, 1944

## MAGNESIUM CO. OUTPUT CUT

200 of 500 Workers to Be Laid Off

Two hundred of the more than 500 employees of the Manteca Permanente magnesium plant at Lathrop were ordered assigned to other essential jobs by the War Manpower Commission yesterday following an order for a cut of 50 per cent in the output of the plant.

The factory, which has been producing the vital wartime product since June, 1942, was one of five magnesium plants located in various parts of the country to be ordered by the WPB to curtail production from 35 to 100 per cent. Plants ordered closed entirely were the Dearborn (Mich.) plant of the Ford Motor Co. and the Mathieson Alkali Works at Lake Charles, La.

The federal agency reported that current production of magnesium is running between 8,000,000 and 10,000,000 pounds a month in excess of requirements. It said the rated capacity of all magnesium plants in the country is 586,000,000 pounds a year. It added that the curtailments will amount to about 34,000,000 pounds annually, or less than 6 per cent of the country's capacity.

No statement was forthcoming either from Washington or from the Lathrop plant as to what other jobs the 200 made jobless are to be assigned.

SAN JOSE, CAL. MERCURY HERALD  
Cir. 19,532  
MARCH 19, 1944

## Permanente Cited For Metal Output

For the first time, Permanente Metals Corporation announced yesterday that its magnesium plant near Los Altos has contributed 19,000,000 pounds of the light metal to the war effort and now is increasing its production role through the manufacture of vital parts for the aircraft industry.

(Another Permanente story is on page eight.)

Permanente, which also is engaged in production of a secret war material, received a pat on the back by the senate Truman committee following its recent investigation of the magnesium industry. The committee reported that Permanente's output of 19,000,000 pounds was accomplished during a period when there was a critical shortage of the metal.

In its probe to find out what will happen to the magnesium industry in the post-war era, the committee also reported that Permanente has "future possibilities."

While the government announced this week that production in five magnesium plants throughout the country had been curtailed, Permanente has not been affected and is operating at full capacity.

Permanente produced its first magnesium crystals or dust August 24, 1941. The metal weighs only one-fourth as much as steel.

MANTECA, CAL. BULLETIN  
Cir. 1,029  
MARCH 21, 1944

## Magnesium Plant Cuts Production by 50 Per Cent

Effective March 15, about 200 of the more than 500 employees of the Manteca Permanente Magnesium Plant were ordered assigned to other essential jobs by the War Manpower Commission. This followed an order to cut production of the local plant 50 per cent.

The factory, which has been producing the vital wartime product since June, 1942, was one of five magnesium plants located in various parts of the country to be ordered by the WPB to curtail production from 35 to 100 per cent. Plants ordered closed entirely were the Dearborn (Mich.) plant of the Ford Motor Co. and the Mathieson Alkali Works at Lake Charles, La.

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AUGUST 18, 1944

# Permanente Magnesium Market Opens

## War Contracts End; Researchers Turn To Civilian Plans

The Permanente Metals corporation will launch an intensive program of research September 1 at its magnesium plant for development of lightweight truck bodies, automobile parts, home appliances and other revolutionary peacetime products, it was announced yesterday.

### Contract End Opens Way

Paving the way for reconversion of plant facilities to the manufacture of magnesium metal will be completion by the end of August of a contract for a special product for the chemical warfare service, it was said.

Permanente, a Henry J. Kaiser organization and one of only two privately owned magnesium plants in the entire United States, revealed that the company is prepared to make a strong bid for the nation's post-war magnesium business. Sales and research departments, officials said, have in recent months developed new markets and uses for the "magic metal."

### Increased Efficiency

The company said that utilization of plant and process improvements developed since last November, when Permanente started chemical warfare service production, will result in increased plant efficiency and make possible a decrease in personnel.

Approximately 100 employees will be effected when the changeover takes place September 1, but the company said some of the workers would be transferred to the adjacent Permanente Cement company plant, or to other Kaiser organizations.



